

Genie
"the magic kniffer"

MODEL
CH-1800
INSTRUCTION BOOK

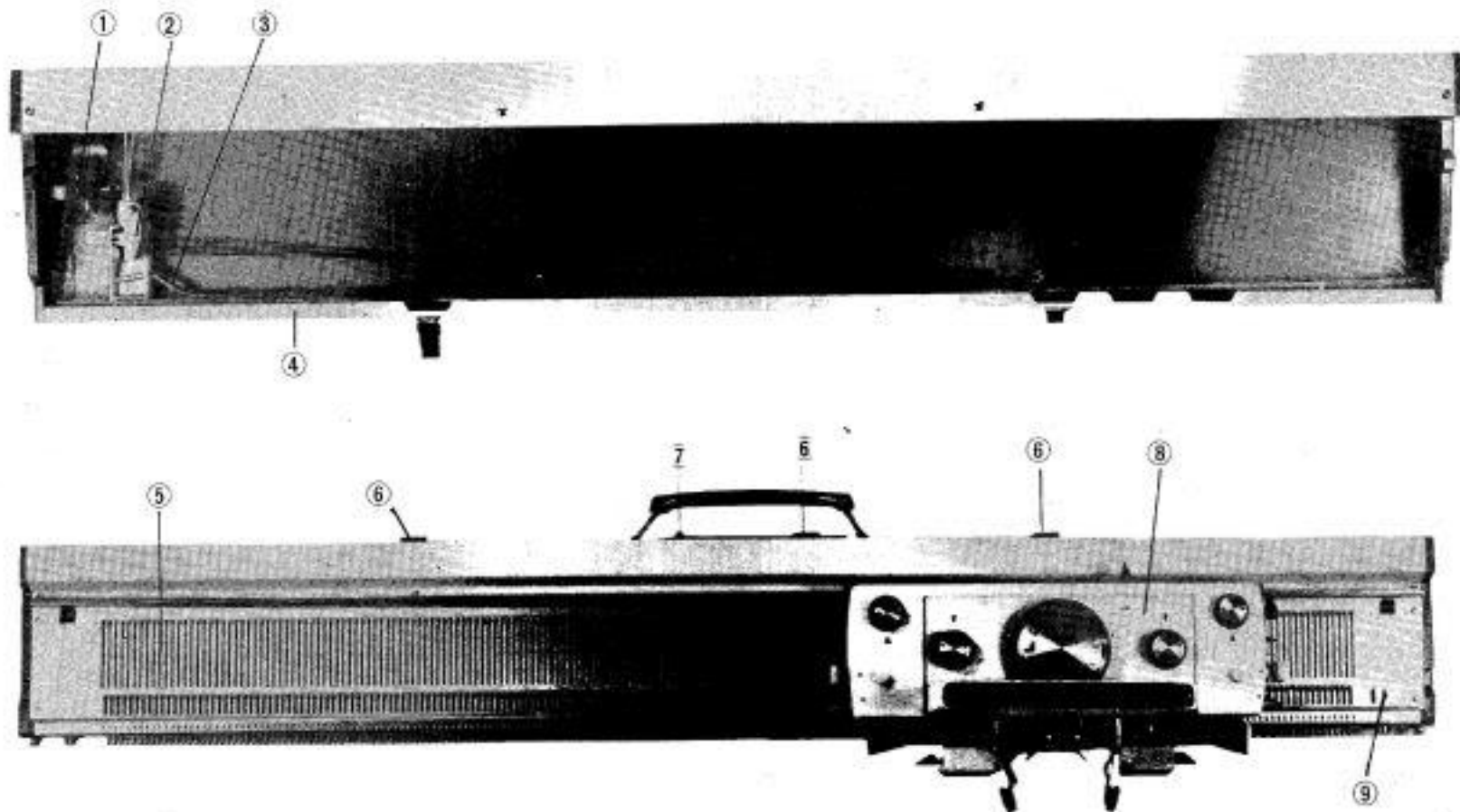
CONTENTS

	Page
SECTION I	1
Illustration— THE MACHINE	2
* TOP VIEW OF CARRIAGE	3
" UNDERVIEW OF CARRIAGE	3
" STANDARD ACCESSORIES	4
HOW TO ASSEMBLE THE MACHINE	5
HOW TO CAST-ON AND KNIT	8
1. Thread the Wool as follows	8
2. After threading the wool through the carriage feeder, cast-on as follows	10
Automatic Method-1	10
Automatic Method-2	11
Manual Method	12
Casting-on — Using The Divider Thread	12
TO FORM A RIBBED WELT	13
HOW TO USE THE LATCH NEEDLE TOOL FOR RIBBING	13
TO FORM A HEM	14
TO FORM A HEM WITH PICOT EDGE	14
MOCK RIB WELT — 2×1	14
HOW TO USE THE TRANSFER TOOLS	14
INCREASING STITCHES	15
DECREASING STITCHES	16
PART KNITTING	17
'V' Neck	17
Square Neck	17
Turning Sock Heels or Making a Pouch	17
TO TRANSFER THE WORK ONTO A KNITTING NEEDLE OR STITCH HOLDER	18
TO TRANSFER WORK FROM A KNITTING NEEDLE OR STITCH HOLDER ONTO THE MACHINE	18
HOW TO PICK UP A DROPPED STITCH	18
BUTTONHOLES	19
TO PULL BACK A ROW OF KNITTING	20
HOW TO CHECK THE TENSION OF THE FABRIC	21
LACE PATTERN	21
CABLE PATTERN	21
TURNING	22
HOW TO REPLACE A FAULTY NEEDLE	23
SECTION II How to Use The Pattern Master	24
1. Assembling The Pattern Master	25
2. Pattern Master — Symbols and Abbreviations	25
3. How to Read and Operate the Pattern Master	28
4. Special Instructions	31
SECTION III Helpful Information about the Machine and Instructions for Advanced Pattern Knitting	34
EXPLANATION OF NEEDLE AND SINKER ACTION	35
NEEDLE POSITIONS	35

	Page
THE AUTOMATIC ROW COUNTER.....	36
THE CARRIAGE	36
1. Tension Control Dial	37
2. Pattern Control Knobs	37
3. Needle Selection Control Knobs	39
How to vary the selection of needles	39
Tables of needle combinations	39
How to read the Tables	40
The needle selection guide strips	40
Table 1	41
Table 2	41
Table 3	41
Table 4	42
Table 5	42
Table 6	42
Table 7	43
Table 8	44
Table 9	46
4. Return Cam Levers	49
5. Shifting Cam Lever	49
6. Twin Main Feeders	50
7. Central Yarn Feeder Setting Nuts	50
8. Subsidiary Yarn Feeders	51
9. Needle Forwarding Levers	51
10. Weaving Feeders.....	52
HELPFUL HINTS FOR SUCCESSFUL KNITTING	52
1. Stitch must be under the sinker hooks	52
2. End needle does not knit	53
3. Moving the carriage across needles without affecting the knitting	53
4. Carriage jamming during knitting	54
ADVANCED PATTERN KNITTING	55
Colour Pattern Work — Manual Method	55
Tucking Pattern Work — Manual Method.....	56
Tucking Pattern — Automatic Method	57
Colour Pattern — Automatic Method	60
Fancy Lace Pattern — Automatic Method	61
Fancy Ribbing Stitches	62
Weave Effect Knitting	63
Reversible Colour Knitting	65
Free-Style Colour Pattern	66
Mock Lace Pattern(Lacy See-through Look Pattern).....	68
Fancy Patterns using Vertical Pattern Knitter.....	69
1. Vertical pattern	69
2. Carpet effect knitting	70
3. Bead knitting.....	71

SECTION I

THE MACHINE



2

1. Detachable Central Feeder.

2. Overhead Feeder Unit.

3. Overhead Feeder Rod.

4. Needle Selection Guide Strips.

5. Needle Bed

6. Sockets for Pattern Master/Book Holder
Row Counter.

7. Overhead Feeder Rod Socket.

8. Carriage.

9. Carriage Locking Plate Hole.

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TOP VIEW OF CARRIAGE

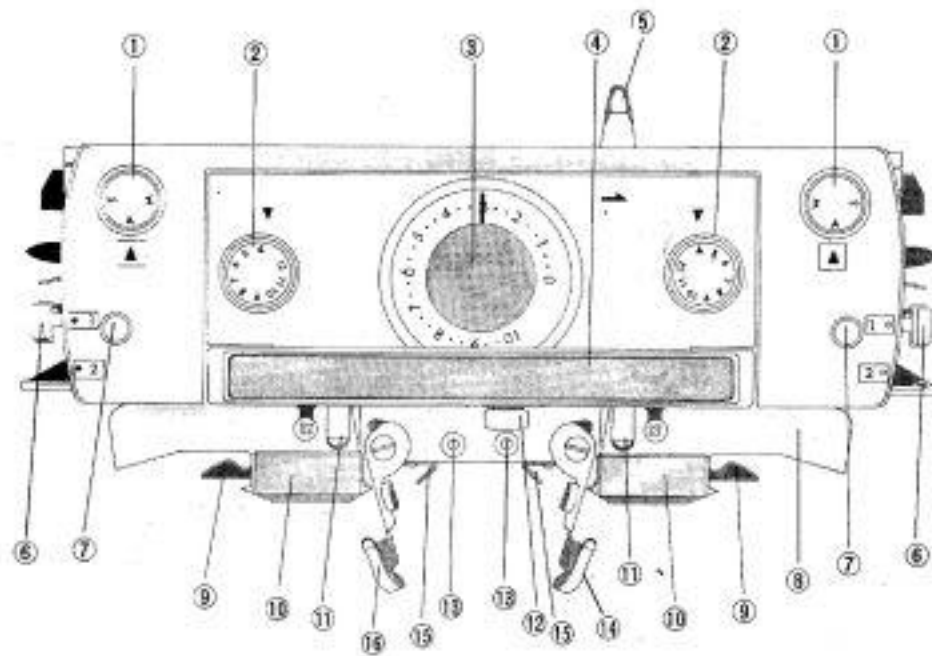


Fig. 2

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|---|-------------------------------------|
| 1. Pattern Control Knobs (MAS Knobs). | 9. Weaving Feeders. |
| 2. Needle Selection Control Knobs. | 10. Latch Brushes. |
| 3. Tension Dial. | 11. Needle Forwarding Levers. |
| 4. Operating Handle. | 12. Shifting Cam Lever (T-C Lever). |
| 5. Row Counter Trip Lever. | 13. Central Feeder Setting nuts. |
| 6. Return Cam Levers. | 14. Yarn Feeder R/H. |
| 7. Carriage Cover Securing Plastic Screw. | 15. Sub Yarn Feeders. |
| 8. Yarn Feeder Arm. | 16. Yarn Feeder L/H. |

UNDERVIEW OF CARRIAGE

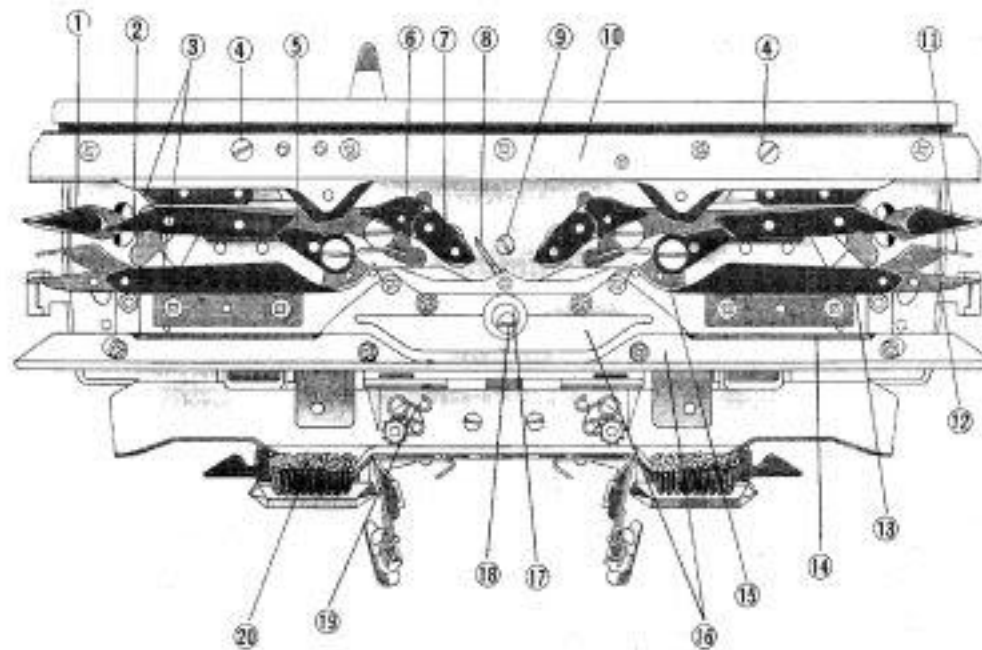


Fig. 3

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|-----------------------------------|--|
| 1. Needle Guide Cam. | 11. Needle Guide Plate. |
| 2. Needle Selecting Cam. | 12. Return Cam. |
| 3. Needle Selection Slide Cam. | 13. Side First Cam. |
| 4. Carriage Cover Setting Screws. | 14. Sinker Rod Limit Plate. |
| 5. Scooping Cam. | 15. Needle Forwarding Plate. |
| 6. Shifting Cam. | 16. Nylon Sinker Rod Cam. |
| 7. Main Cam. | 17. Main Cam Adjusting Eccentric Disc. |
| 8. Second Cam. | 18. Eccentric Disc Securing Screw. |
| 9. Tension Dial Securing Screw. | 19. Yarn Feeder Spring. |
| 10. Carriage Rear Runner. | 20. Latch Brush. |

STANDARD ACCESSORIES

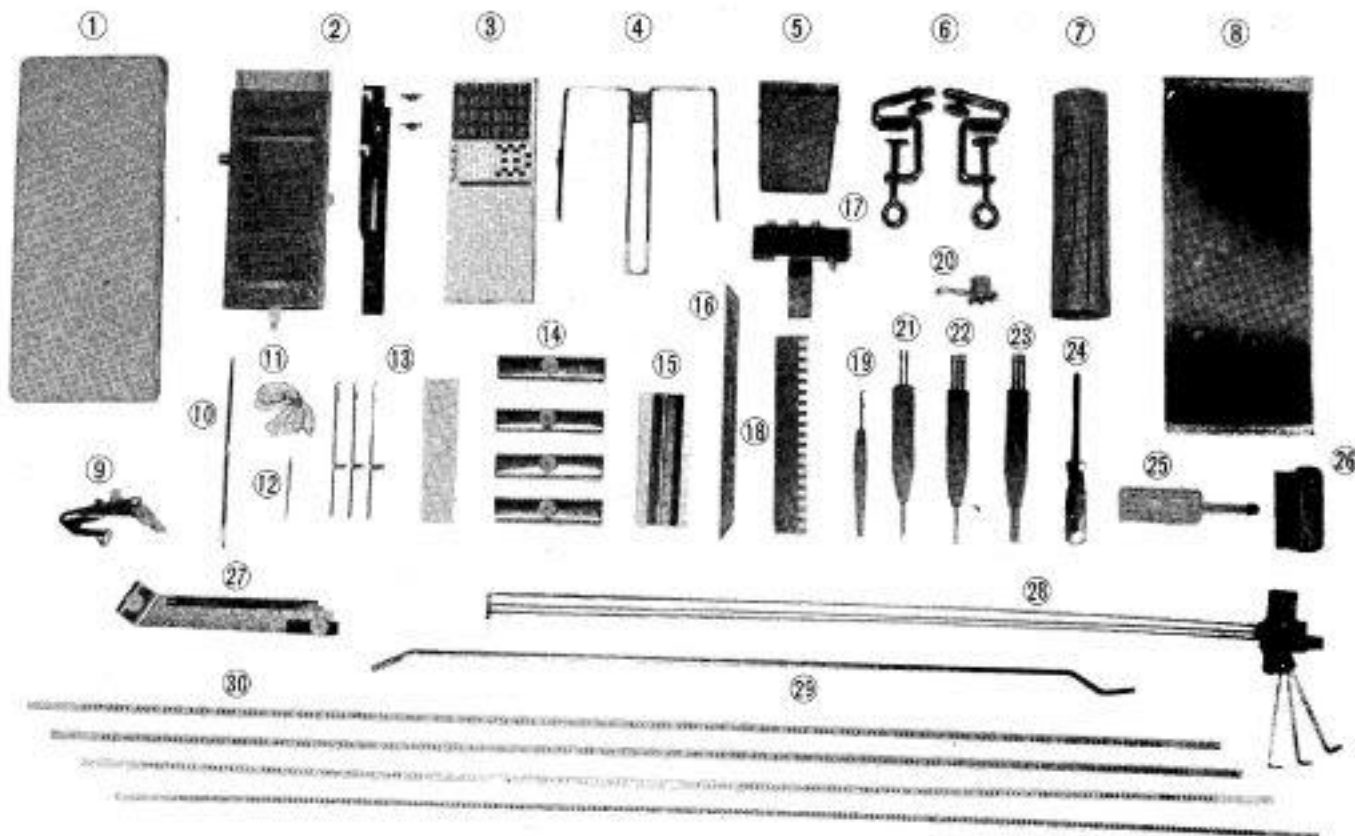


Fig. 4

- | | |
|-------------------------------------|------------------------------------|
| 1. Plastic Accessory Box. | 16. Sinker Stopper. |
| 2. Pattern Master & Support Rod. | 17. Row Counter. |
| 3. Pattern Cards. | 18. Selector Plate (1-1). |
| 4. Wire Leaflet Holder. | 19. Latch Needle Tool. |
| 5. Plastic Hand Tool Holder. | 20. Carriage Locking Plate. |
| 6. Clamps. | 21. Transfer Tool (2-1). |
| 7. Soft Plastic Holder Bag. | 22. Transfer Tool (3-1). |
| 8. Dust Cover. | 23. Transfer Tool (3-2). |
| 9. Central Yarn Feeder. | 24. Screw Driver. |
| 10. Crochet Needle. | 25. Rust-proof Lubricant. |
| 11. Divider Thread. | 26. Cleaning Brush. |
| 12. Seaming Needle. | 27. Yarn Guide Arm. |
| 13. Spare Latch Needles with Pouch. | 28. Overhead Feeder Unit. |
| 14. Vertical Pattern Knitters. | 29. Overhead Feeder Rod. |
| 15. Bead Comb. | 30. Needle Selection Guide Strips. |

HOW TO ASSEMBLE THE MACHINE

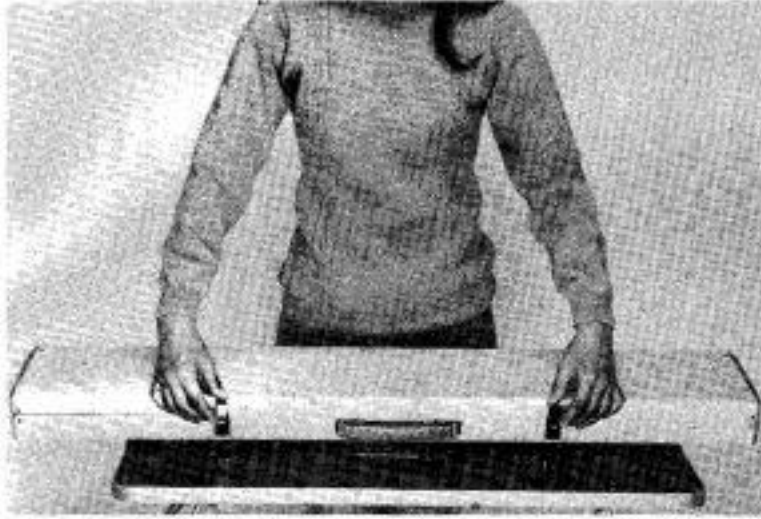


Fig. 5

1. Place the machine on a firm table with the name plate uppermost and the carrying handle to the back, and unfasten both clasps. (Fig. 5)

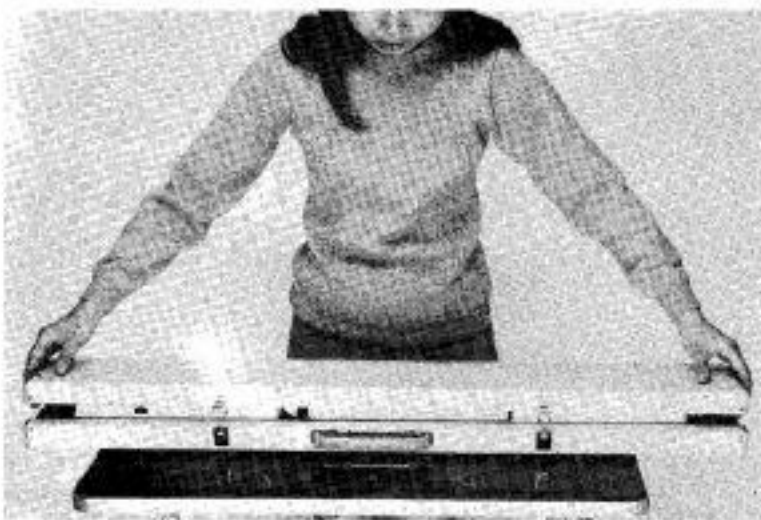


Fig. 6

2. Remove Cover lift and pull forward. (Fig. 6)

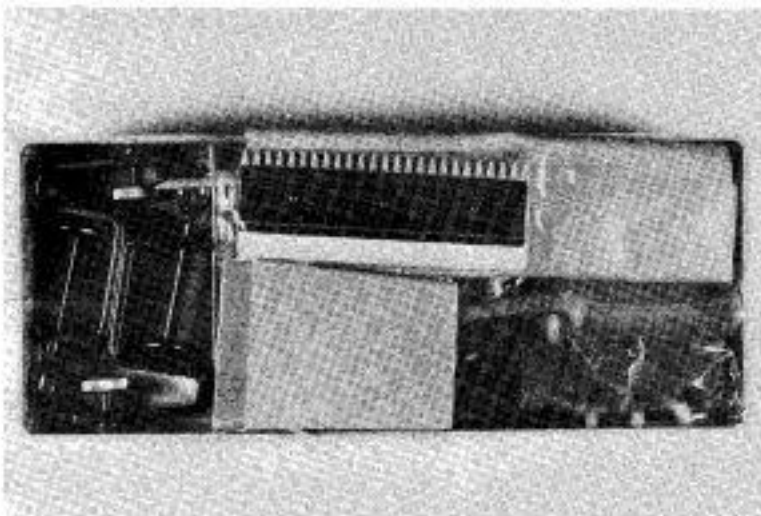


Fig. 7

3. Take out the Accessory Box. (Fig. 7)

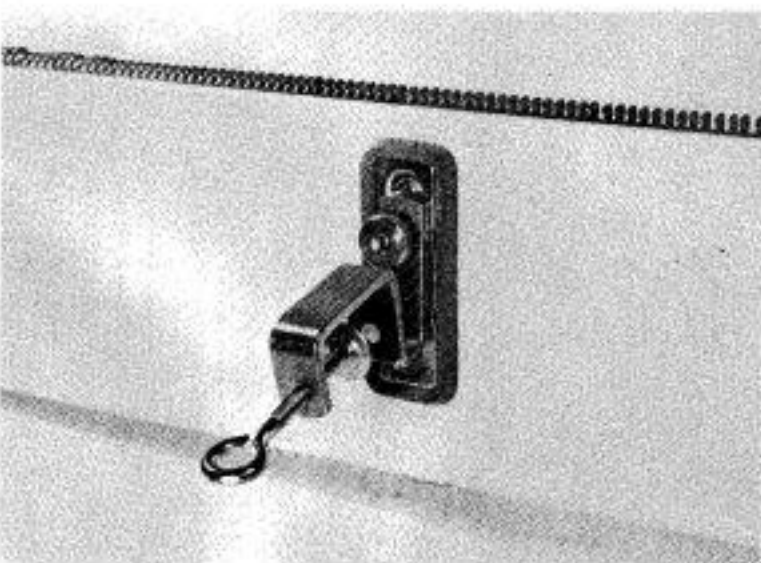


Fig. 8

4. Fit clamps into the sockets at base of the machine. (Fig. 8)

— See Note below.

Note: It is not necessary to use the clamps for normal work as the rubber grips will hold the machine firmly.

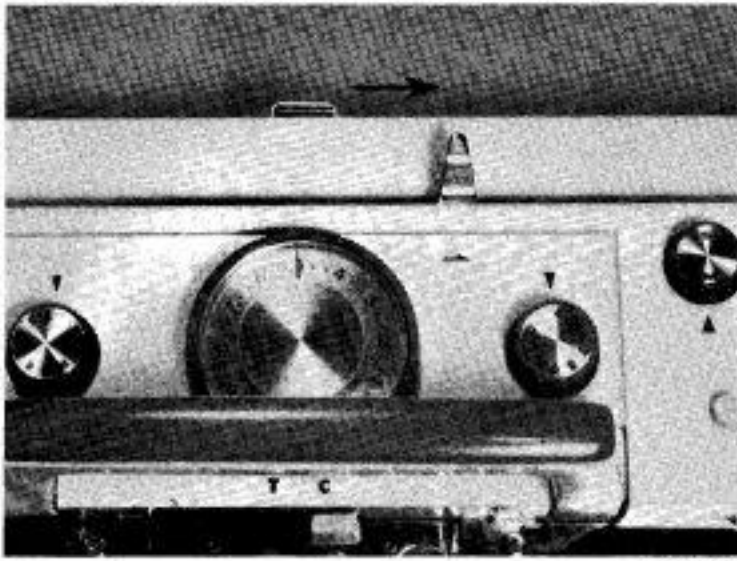


Fig. 13

Note: To bring Row Counter into operation, just tap the Row Counter Trip Arm with your finger in direction shown by the arrow on the carriage cover— see Fig. 13.

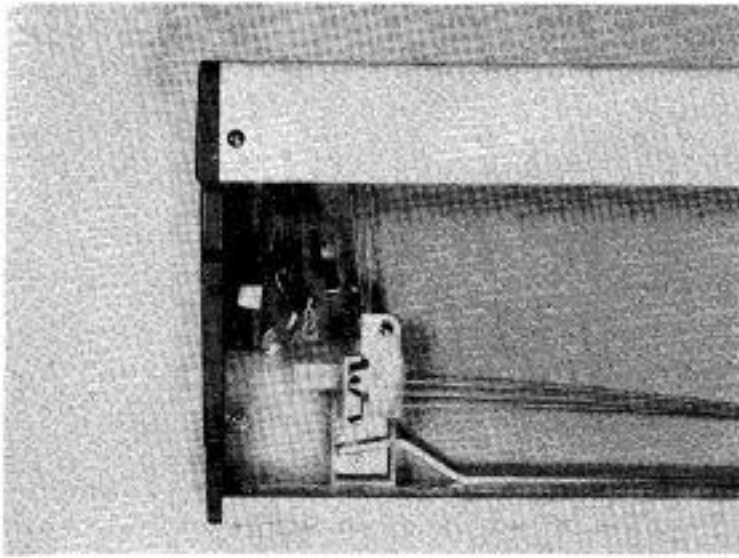


Fig. 14

9. Take out the Overhead Feeder Unit and Rod from inside of the case lid. (Fig. 14)

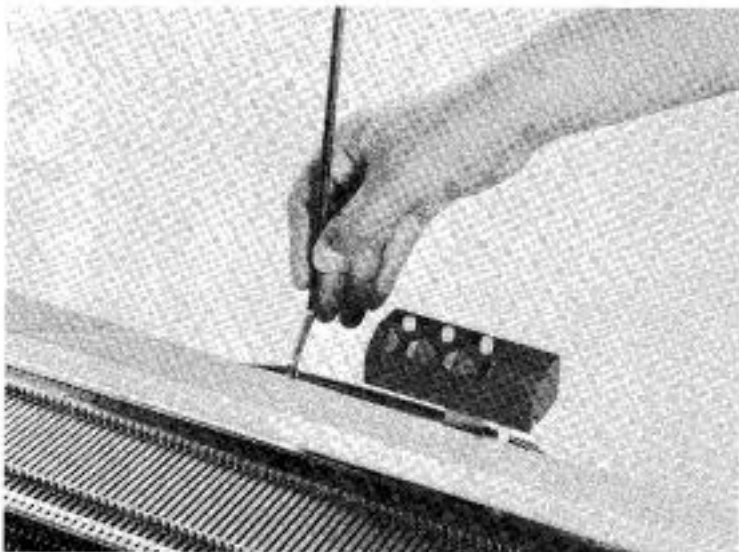


Fig. 15

10. Into the small Socket under the Carrying Handle at the back of the Machine, insert the square end of the Rod in such way that the Rod leans backwards and the flat end is at the top. (Fig. 15)

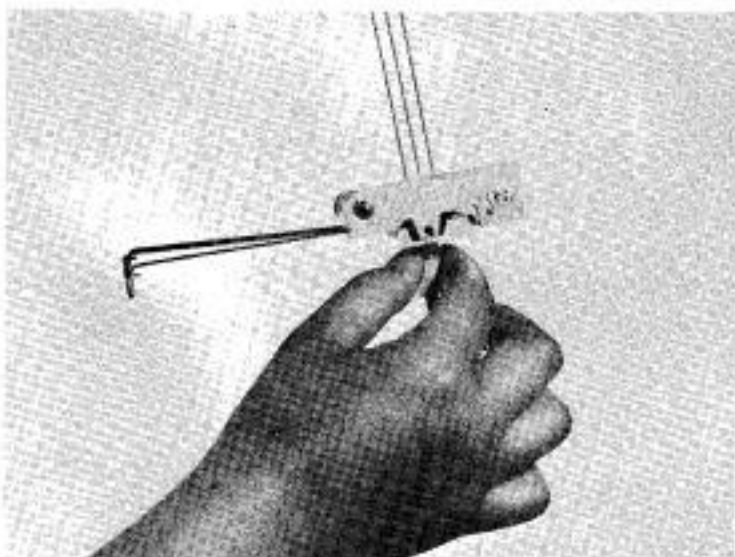


Fig. 16

11. Fit Overhead Feeder Unit to the top of the rod. (Fig. 16)

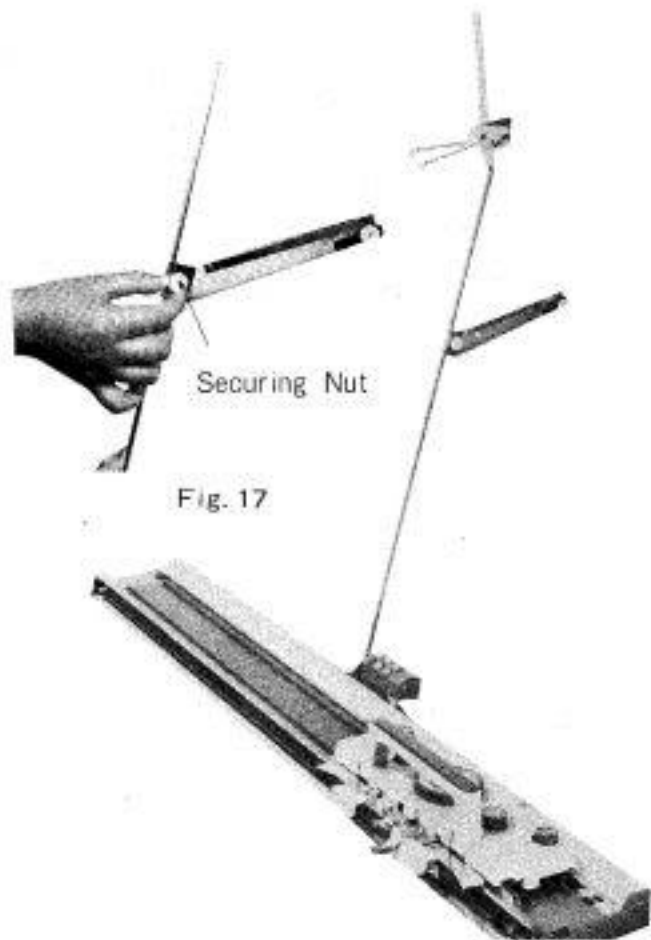


Fig. 17

Fig. 18

12. Release Securing Nut on Yarn Guide Arm and clamp Arm to rod approximately 8" from top of rod. (Figs. 17 and 18)

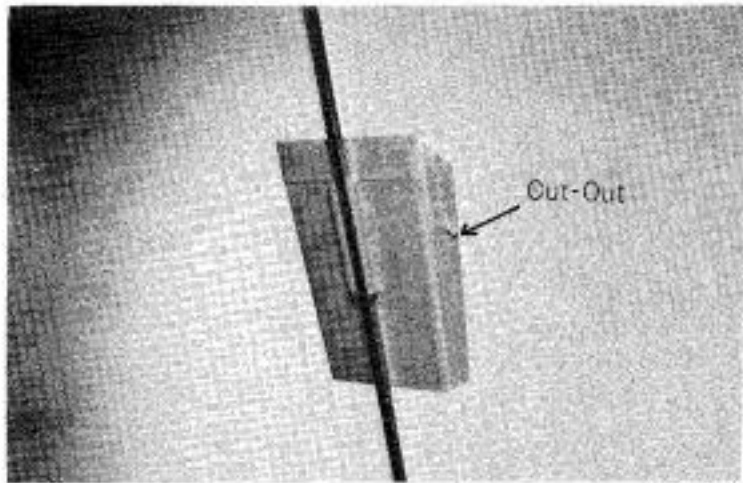


Fig. 19

13. Clip Plastic Hand Tool Holder to the rod at a convenient height. (Fig. 19)

Note: The cut-out, to be found on both sides of the Hand Tool Holder (see Fig. 19) may be used for temporarily holding any loose end of wool not at present in the feeder.

HOW TO CAST-ON AND KNIT

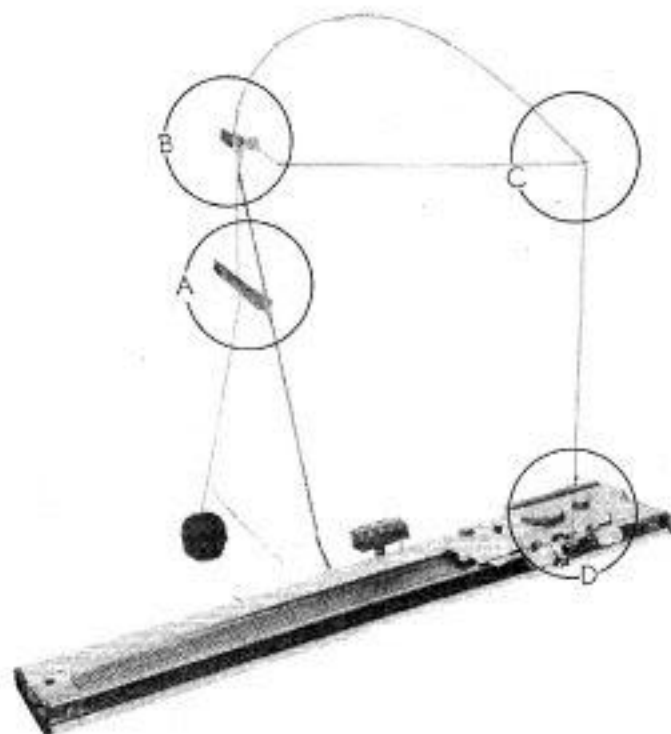


Fig. 20

Now that you have prepared the machine for knitting you are ready to thread up the machine and knit your first sampler. Use a good quality 3-ply wool, preferably wound on to a cone. When drawn from a cone the wool comes away freely, resulting in an even textured fabric.

1. Thread the Wool as follows:

- a) Through one of the eyelets of the Yarn Guide Arm. (Fig. 20-A & Fig. 21)

Note: First pull forward the top lid of the Yarn Guide Arm so that it will be brought upward to receive the wool at one of the six cut-outs located along the Arm — see Fig. 21.

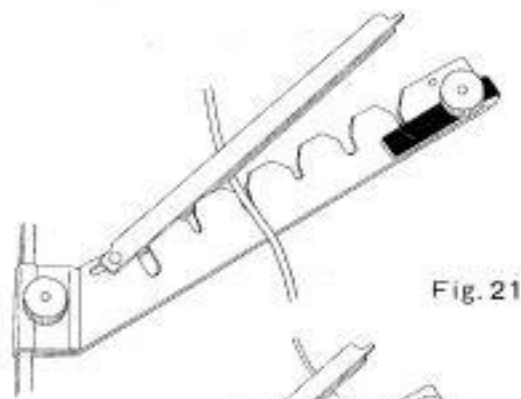


Fig. 21

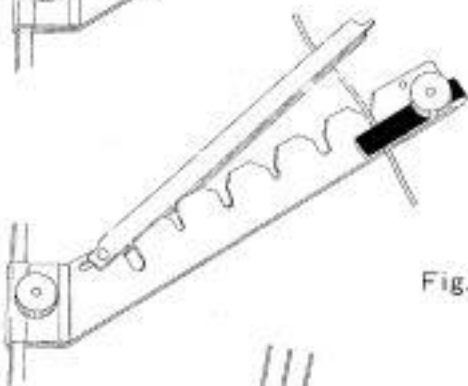


Fig. 22

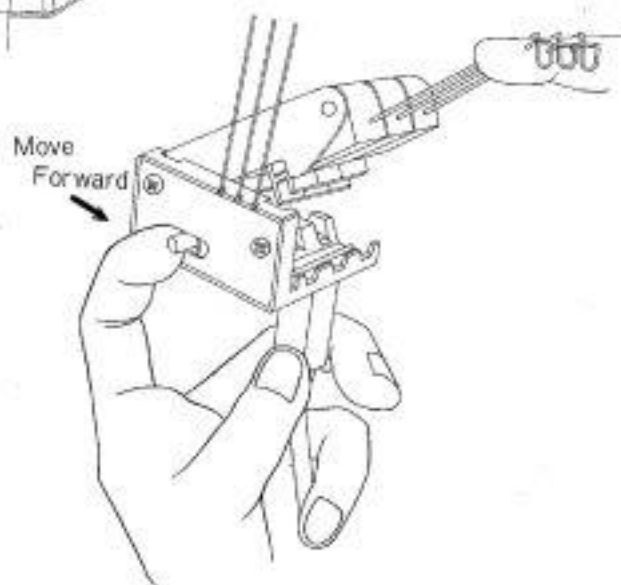


Fig. 23

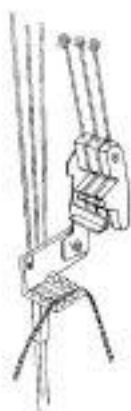


Fig. 24



Fig. 25

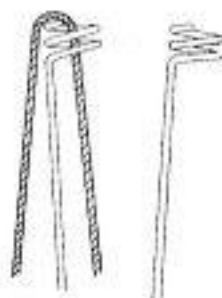


Fig. 26

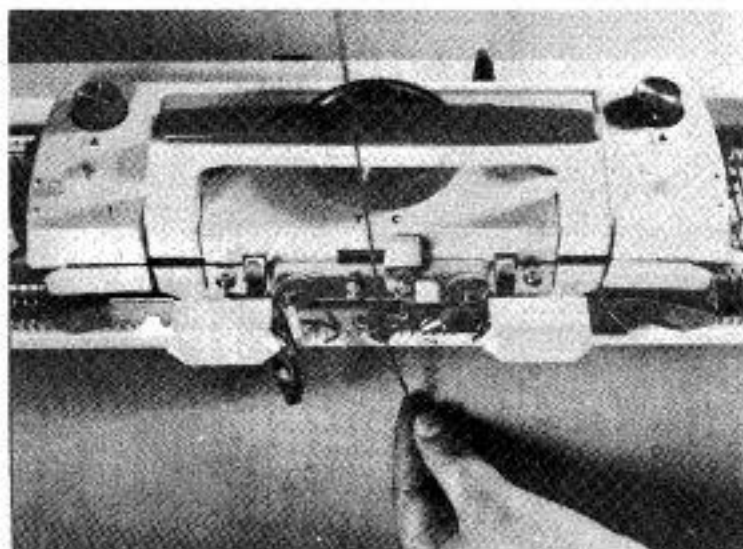


Fig. 27

After placing the wool in a cut-out, replace the lid and move backwards to lock in position. When using a thick wool, thread it through the biggest eyelet, found nearest to the Rod. When using very thin thread like transparent nylon yarn etc., it should be threaded through the small eyelet farthest from the Rod applying a little friction by the spring plate as shown in Fig. 22. To apply more tension to a thin yarn, turn the adjusting nut clockwise.

b) Up through Yarn Trap Unit (Fig. 20-B)

Note: Move forward the small button visible through a slot located in the metal plate of the unit, and at the same time lift upwards the Yarn Trap Unit, as shown in Fig. 23. Then, place the yarn into the base of the unit — see Fig. 24. Drop the Yarn Trap back in position and thread the wool through one of the front eyelets. (Fig. 25)

c) Through the pigtail at the end of the long wire take-up arm (Fig. 20-C & Fig. 26)

d) Down to the carriage feeder.

(Fig. 20-D & (Fig. 27)

The function of the Overhead Feeder is to guide the wool from ball or cone to the carriage feeder by means of the yarn trap unit (B) and the long wire take-up arms as shown in Fig. 20-C.

Unless the arm is pulled downwards at least as far as shown in the illustration there will be insufficient upward movement of the wire arm for it to take up the length of wool between the end needle and the carriage feeder when the direction of the carriage movement is reversed.

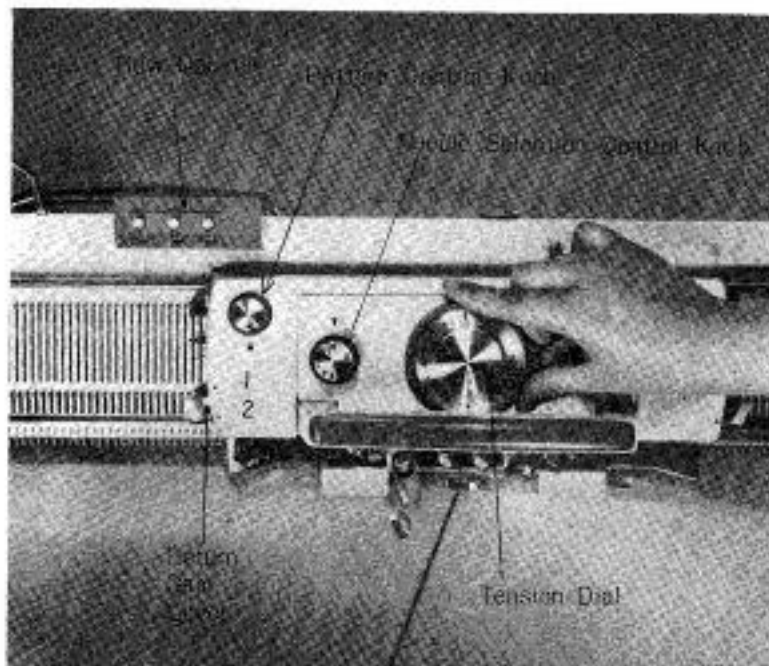


Fig. 28

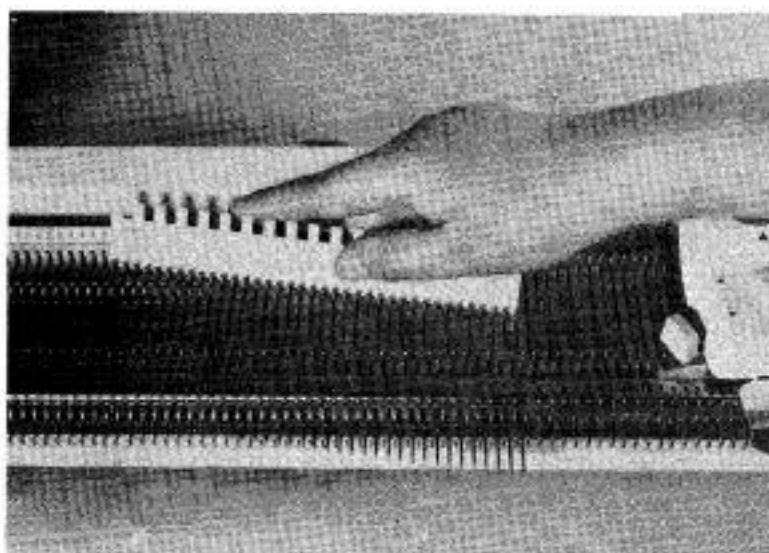


Fig. 29

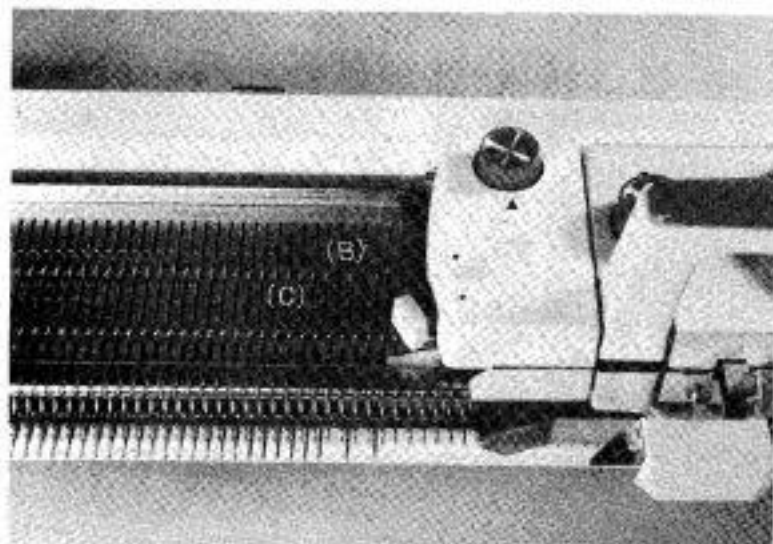


Fig. 30

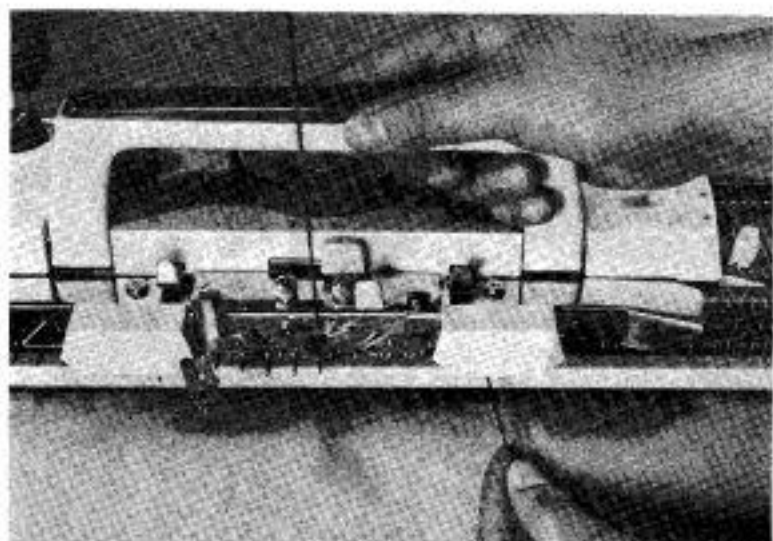


Fig. 31

2. After threading the wool through the carriage feeder, cast-on as follows:

Automatic Method-1

With the carriage on right,

- a) Set Tension Dial to No.1 or 2 (Fig.28)
- b) Set Shifting Cam Lever in Position "C".
- c) Move both Return Cam Levers to Position "2" i.e. Forward Position. (Fig. 28)
- d) Depress and turn Needle Selection Control Knobs to No. 4 opposite pointer. (Fig. 28)
- e) Turn Pattern Control Knobs to 'A' opposite pointer. (Fig. 28)
- f) Turn Row Counter to zero. (see Fig. 28)

g) Bring forward, using the straight edge of the Needle Selector Plate (see item 18 Fig. 4) the number of needles required as shown in Fig. 29— say 40 needles, aligning them in working position (C) as shown in Fig. 30.

h) Push back into Position (B) the second and fourth needles from the right. (Fig. 30)

i) Holding the loose end of the wool directly below the carriage feeder, move the carriage slowly from the right to the left across the working needles. (Fig. 31)

Note: It will be seen that only every alternate needle picks up the wool when the carriage is moved from right to left.

(Fig. 32)

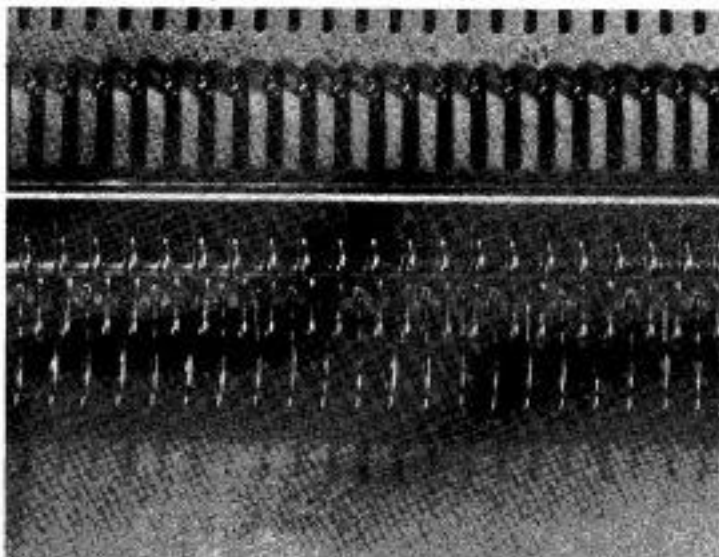


Fig. 32

- j) Keeping hold of the loose end of wool, move the carriage slowly back to the right and all needles will engage the wool.
- k) With the carriage on the right push out the Row Counter Trip Arm (Fig. 13) and turn the Tension Dial to No. 4 or 5. (Fig. 28)
- l) Turn both Pattern Control Knobs to 'M'. (Fig. 28)
- m) Continue to hold the loose end of wool for the next two rows. (Fig. 31)
Move the carriage backwards and forwards across the working needles.

Note: For the first 10 or 15 rows you should watch the knitting, which may tend to curl under the Sinkers. Uncurl the knitting and check that the end stitches do not "double up" during the first few rows of knitting. If you find two loops on the end needle, knit these through manually before knitting the next row.

Automatic Method-2

With the carriage on right,

- a) Set Tension Dial to No. 4 or 5. (Fig. 28)
- b) Set Shifting Cam Lever in Position "C".
- c) Move both Return Cam Levers to Position "2". (Fig. 28)
- d) Depress and turn Needle Selection Control Knobs to No. 4 opposite pointer. (Fig. 28)
- e) Turn Pattern Control Knobs to "A" opposite pointer. (Fig. 28)
- f) Turn Row Counter to zero.
- g) Bring forward, using the straight edge of the Needle Selector Plate number of needles required as shown in Fig. 29—say 40 needles, aligning them in Working Position (C) as shown in Fig. 30.
- h) Push back into Position (B) the second and fourth needles from the right. (Fig. 30)
- i) Holding the loose end of the wool directly below the carriage feeder, move the carriage slowly from the right to left across the working needles. (Fig. 31)

Note: It will be seen that every alternate needle has picked up the wool.

(Fig. 32)

- j) Push out the Row Counter Trip Arm.
- k) Keeping hold of the loose end of wool, move the carriage slowly back to the right and all needles will engage the wool.
- l) Turn both Pattern Control Knobs to "M".
- m) Pull the loose end of wool gently along the sinkers towards the right until the wool is that as shown in Fig. 33

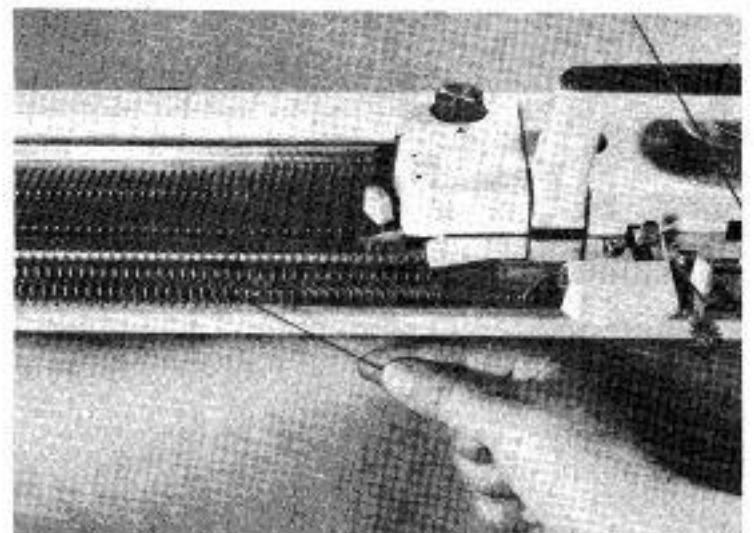


Fig. 33

- n) Move the carriage backwards and forwards across the working needles.

This method will obtain tighter and neat edge than that by "Automatic Method - 1".

Manual Method

With the carriage on right.

- a) Set Tension Dial to No. 5.
- b) Move Shifting Cam Lever into Position "C".
- c) Move both Return Cam Levers to Position "2". (Fig. 28)
- d) Turn Needle Selection Control Knobs to No. 4 opposite pointer. (Fig. 28)
- e) Turn Pattern Control Knobs to "M" opposite pointer. (Fig. 28)
- f) Turn Row Counter to zero.
- g) Push out the Row Counter Trip Arm.
- h) Bring forward, using the straight edge of the Needle Selector Plate—the number of needles required (see Fig. 34) — say 40 — into Holding Position (E). (Fig. 35)

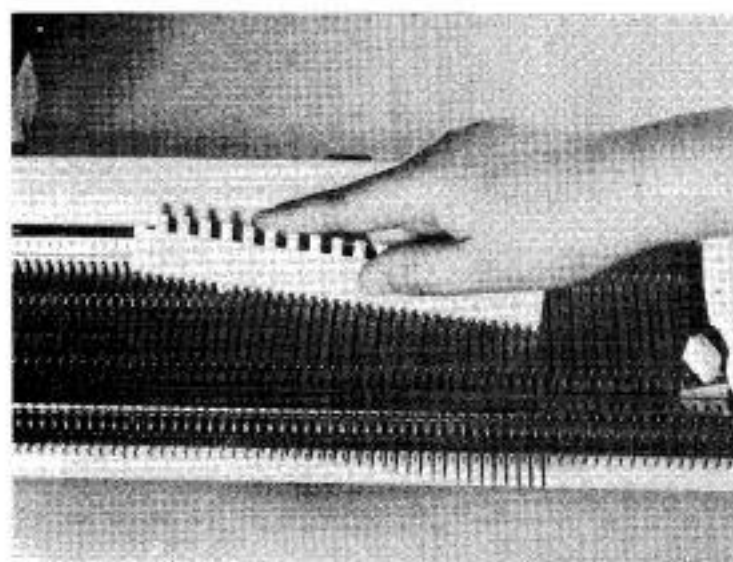


Fig. 34

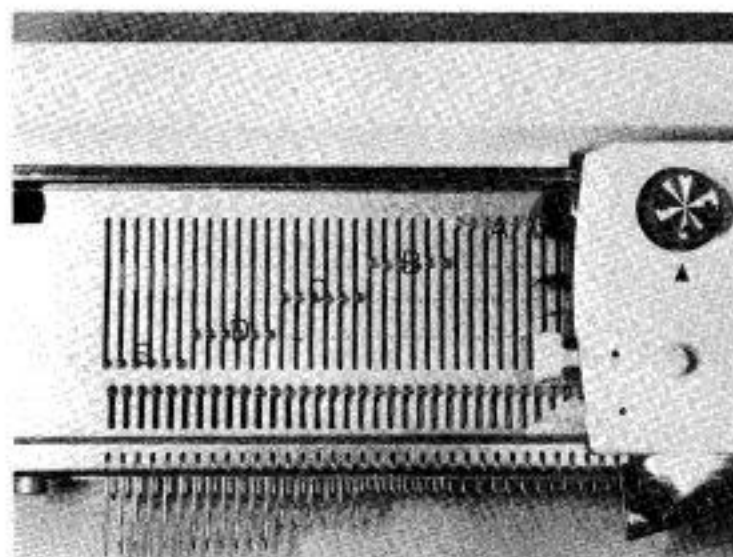


Fig. 35



Fig. 36

- i) Form a loop in the end of the wool and hang it on to the extreme end needle on the left (Fig. 36) in Position (E).
- j) Wind the wool in an anti-clockwise direction once around the stem of the second needle from the left and continue to wind the wool around the needles in this manner until there is a loop on every working needle. (Fig. 36)
- k) Pull back to the ball the strand of wool so that it is taut between the end needle on the right and the Yarn Trap Unit.
- l) Push back along the stems of the needles all the cast-on loops so that every loop is behind the tip on the needle latch when fully open. (The latch is open when lying along the stem of the needle—is closed when resting on the needle hook).
- m) Move the carriage slowly across the working needles to the left. Ensure that the wool remains taut until engaged by the first needle on the right.
- n) Continue to move the carriage backwards and forwards across the working needles — see "NOTE" below.

Note: The direction of the carriage movement should be reversed after it has passed the last working needle—at a point when the Return Cam Lever is opposite the end needle. If the carriage is taken too far past the end needle the wool will go slack before it is picked up by this needle when the carriage movement is reversed. This will cause (a) a loop at the edge or (b) a dropped stitch or stitches.

Casting-on—Using The Divider Thread

This method will enable you to pick up the stitches more easily when knitting a ribbed welt. (see Figs. 37 & 38)



Fig. 37

- a) With old wool of contrasting colour cast-on the required number of stitches by either of the preceding methods and knit 8 or more rows.
- b) With the carriage on the left—break the wool and remove it from the feeder.
- c) Re-thread feeder with the Divider Thread.
- d) Feeding the thread into the feeder with the left hand, knit 1 row.
- e) Remove thread from feeder and re-thread feeder with the new wool.
- f) With the thread forming loops around the needles cast-on again with the new wool.
- g) After completing the piece of knitting pull out the thread — this will separate the first piece of knitting from the main piece, leaving a neat cast-on edge.

TO FORM A RIBBED WELT

Cast-on as described under the heading "Casting-on—Using The Divider Thread" and knit until you have a piece of Stocking Stitch the length required for the welt.

Now proceed as follows:

- a) Place the Sinker Stopper in position between the sinker butts and the front rail. (Fig. 37)
- b) Drop the stitch, where the rib is required, from the needle hook, by moving the needle forward with the hand until the loop passes behind the latch, then move the needle back so that the stitch passes over the closed hook. Run this stitch down until it is within 2 or 3 rows of the Divider Thread.
- c) Insert the Latch Needle Tool into the loop immediately above the Divider Thread.
- d) Drop the stitch down into the hook of the Latch Needle Tool.
- e) Holding the fabric firmly in the left hand—knit up the stitch with the Latch Needle Tool and place it back on the empty needle (Fig. 37) see also Fig. 38. Repeat for each Rib. Remove Sinker Stopper before Knitting.

Note: A very elastic rib welt can be obtained by ribbing the stitch from every third needle.

HOW TO USE THE LATCH NEEDLE TOOL FOR RIBBING

1. Insert the open hook into the loop and push the needle forward under the strand above the loop until the loop is behind the latch. (Fig. 38-1)
2. Pull the needle back so that the loop closes the latch over the strand caught in the needle hook. (Fig. 38-2)
3. Continue to pull the needle back until the strand is drawn through the loop. (Fig. 38-3 & 4)
4. Repeat until the last strand has been picked up. (Fig. 38-5)
5. Hook the final loop back on the empty needle. (Fig. 38-6)

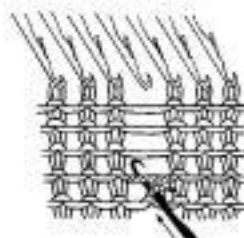


Fig. 38-1

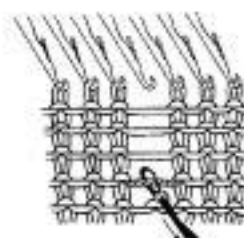


Fig. 38-2

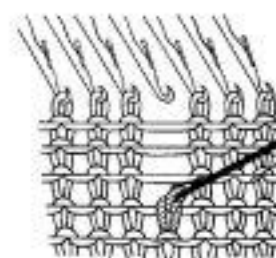


Fig. 38-4

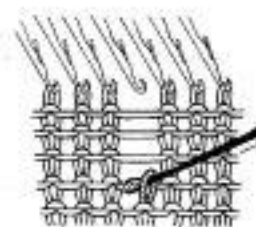


Fig. 38-3

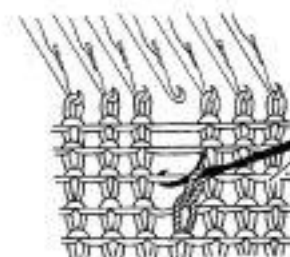


Fig. 38-5

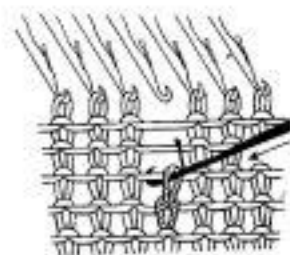


Fig. 38-6

TO FORM A HEM

- a) Cast-on the number of stitches required.
- b) Knit until the piece is twice as long as the depth of the hem.
- c) Place the Sinker Stopper between the sinker rod butts and the front rail. (Fig. 37)
- d) Turn the knitting up towards you and, with the Crochet Needle, hook the loops of the cast-on edge onto the needles.
- e) With all loops hooked on to the needles bring the needles forward into the Holding Position (E).
- f) Remove the Sinker Stopper.
- g) Push the loops back along the needle stems until they are behind the open latches.
- h) With the Return Cam Levers forward (in position "2") move the carriage slowly across the needles to knit the first row.

This completes the Hem.

TO FORM A HEM WITH PICOT EDGE

Cast-on and proceed until half the number of rows (say 15) required for the hem have been knitted, now transfer the stitch from the 2nd needle onto the 3rd needle, the stitch from the 4th needle onto the 5th needle and so on to the end of the row.

There must be a stitch on each end needle.

Leave the alternate empty needles in the Working Position and continue to knit the same number of rows (a further 15).

Now complete the hem as described under the heading "TO FORM A HEM".

MOCK RIB WELT—2×1

- (a) Bring forward into Holding Position (E) the number of needles required for the Stocking Stitch portion of the garment.
- (b) Push back into the Rest Position (A) every 3rd needle leaving 2 needles in Position (E) at each end.
- (c) Using the Manual Method-2. Cast-on over the groups of two needles in Position (E).
- (d) Turn the Tension Dial to one or two settings **tighter** than the tension to be used for the stocking stitch portion of the garment.

Now proceed as from (b) under the heading "To Form a Hem". At (d) bring forward every empty 3rd needle and when hooking the cast-on loops onto the needles pick up the third strand below the cast-on edge which joins the pairs of 'knit' stitches.

Bring this strand forward and up and place it into the hook of the empty needle. When all the loops and strands have been hooked onto their respective needles turn the Tension Dial back to the setting for the stocking stitch portion of the garment and continue as for Hem.

HOW TO USE THE TRANSFER TOOLS

- a) Place the eye of the Transfer Tool into the open needle hook. (Fig. 39-1)
- b) Draw the needle towards you with the Tool until the stitch passes behind the latch. (Fig. 39-2)
- c) Push the needle back until the stitch slips onto the Transfer Tool. (Fig. 39-3)
- d) Lift the 'eye' of the Transfer Tool out of the needle hook and place it into the hook of the next needle. (Fig. 39-4)
- e) By tilting the handle of the Tool upwards slide the stitch off the Transfer Tool into the hook of the needle. (Fig. 39-5)

Note: Make sure that the work is under the sinker hooks before moving the carriage.

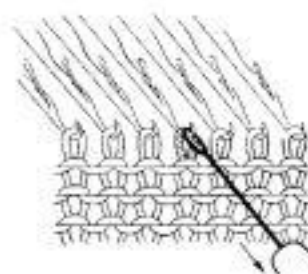


Fig. 39-1

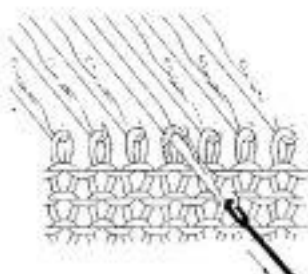


Fig. 39-2

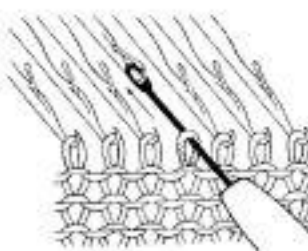


Fig. 39-3

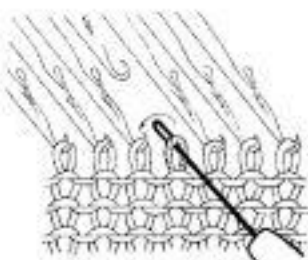


Fig. 39-4

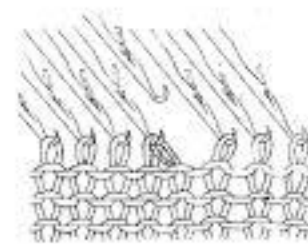


Fig. 39-5

INCREASING STITCHES

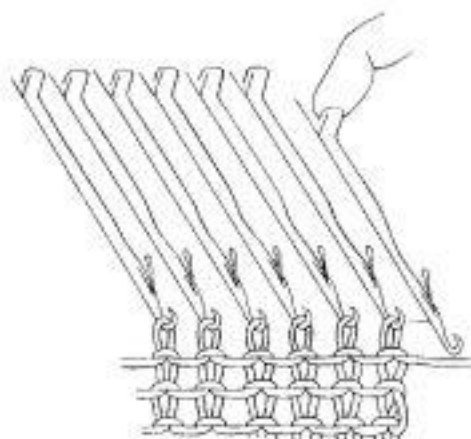


Fig. 40

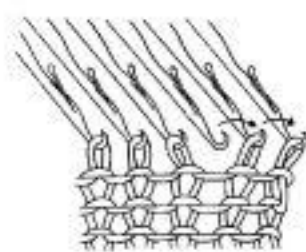


Fig. 41-1

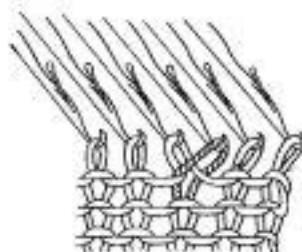


Fig. 41-2

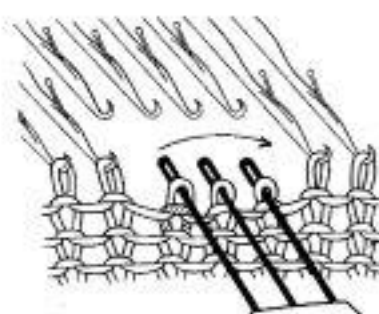


Fig. 42-1

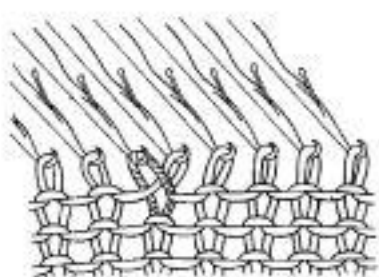


Fig. 42-2



Fig. 43

To Increase One Stitch At Edge

1. Plain Increasing

This can only be done at the start of row.

To do this pull forward into working position the next empty needle at the end nearest the carriage, and knit. (Fig. 40)

2. Fashioned Increasing

This can be done at either or both ends simultaneously.

- Bring the next empty needle into the working position. (Fig. 40)
- Using the double eye Transfer Tool transfer the first two stitches so that the first stitch is on the empty needle and the second stitch is on the adjacent needle, (Fig. 41-1) leaving the third needle empty.
- With the single eye Transfer Tool, pick up a loop from the next stitch one row below and place it in the empty third needle hook. (Fig. 41-2)

To Increase One Stitch In The Middle Of A Row

- Bring into working position the next empty needle at the nearest end. (Fig. 40)
- Using the treble point Transfer Tool, move the first three stitches outwards so that the first stitch is on the empty needle.
- Continue moving the stitches outwards until you have an empty needle at the point where you wish to increase. (Fig. 42-1)
- Pick up a loop from below the previous stitch and hang it on this empty needle. (Fig. 42-2)

To Increase More Than One Stitch At The Same Time

- At the same end as the carriage, bring forward into the Holding Position the number of empty needles over which you wish to increase.
- Wrap the yarn from the feeder around the stem of each of these needles as shown in Fig. 43, making sure that all the loops are behind the open latches.
- Ensure that the Return Cam Levers are in Position '2'.
- Move carriage slowly across the machine and the increased stitches will have been formed on these needles.

DECREASING STITCHES

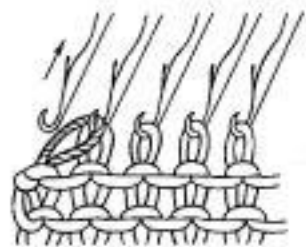


Fig. 44

Plain Decreasing

This can be done at either or both ends simultaneously.

- (a) With the single eye Transfer Tool transfer the stitch from the end needle onto the second needle. (Fig. 44)
- (b) Push the empty needle back into the rest position.

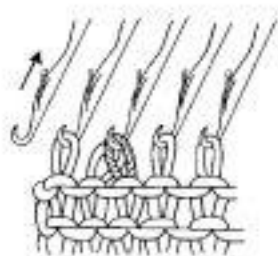


Fig. 45

Fashioned Decreasing

- (a) Using the double eye Transfer Tool transfer the first and second stitches onto the second and third needles. (Fig. 45)
- (b) Return empty end needle to rest position.

To Decrease One Stitch In The Middle Of The Work

- (a) Using the single eye Transfer Tool transfer the stitch from the needle where you wish to decrease onto the next needle towards the centre. (Fig. 46-1)
- (b) Using the treble eye Transfer Tool, move all the stitches over until the end needle is empty. (Fig. 46-2)
- (c) Return the empty end needle to the rest position.

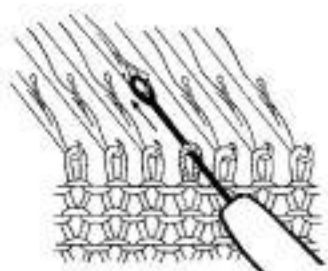


Fig. 46-1

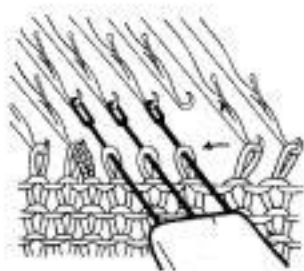


Fig. 46-2

To Decrease More Than One Stitch At The Same Time—Casting Off

This can only be done at the same end as the carriage.

- (a) Using the single eye Transfer Tool—transfer the stitch from the second needle onto the first needle. (Fig. 47-1)
- (b) Push the first needle forward until the two stitches on it are behind the latch and place the yarn from the feeder into its hook. (Fig. 47-2)
- (c) Push the needle back until the two stitches pass over the closed hook and form a single stitch. (Fig. 47-3)
- (d) Transfer this single stitch onto the empty second needle. (Fig. 47-4)
- (e) Repeat until the desired number of stitches have been decreased
- (f) Push empty needles back into rest position.

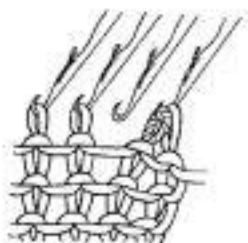


Fig. 47-1



Fig. 47-2



Fig. 47-3

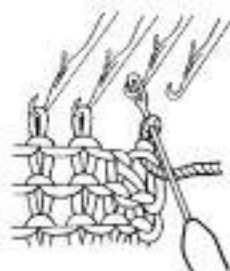


Fig. 47-4

Note: When decreasing more than one stitch the sinkers should be locked with the Sinker Stopper.

PART KNITTING

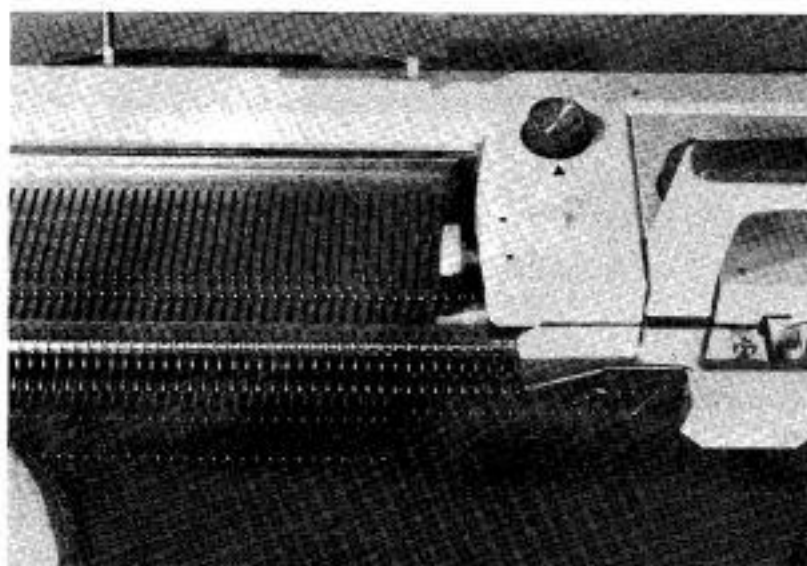


Fig. 48

Using Holding Position as shown in Figs. 48 & 49. SETTINGS: Pattern Control Knobs at 'M'—Return Cam Levers Position "1"—Shifting Cam Lever "C".

'V' Neck

First locking the sinkers with the Sinker Stopper, draw out into the holding position all the needles from the centre to the end opposite the Carriage. Now remove Sinker Stopper and knit on the remaining needles, decreasing at the centre edge as desired. After completing this half of the 'V' neck, re-thread the feeder and with the Return Cams bring the needles from the holding position back into the working position and repeat the shaping done on the first half.

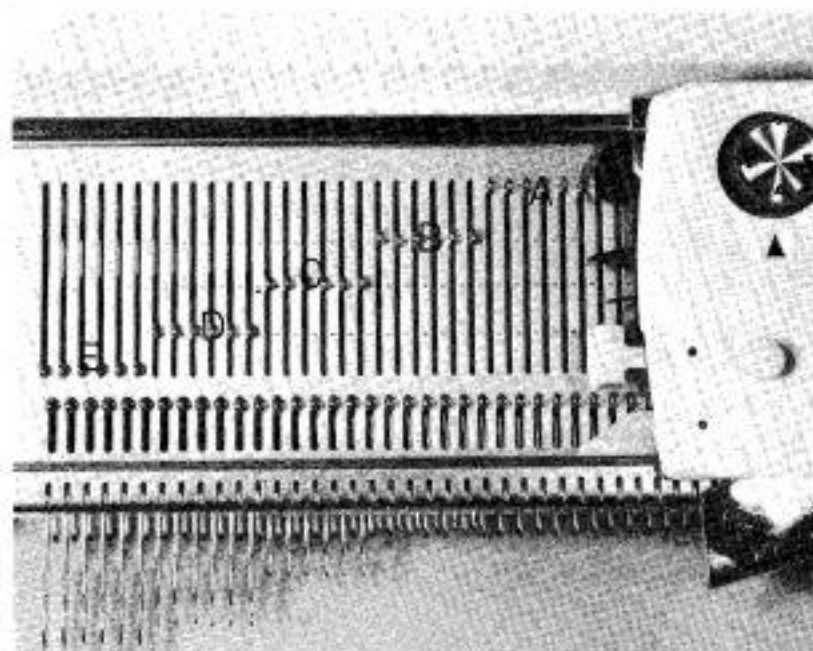


Fig. 49

- (A) Rest Position
- (B) Automatic Selection Position
- (C) Working Position
- (D) Return Position
- (E) Holding Position

Square Neck

Bring into the holding position, at the end opposite the carriage, the number of needles required for the shoulder and knit one row. Now cast off using the yarn from the feeder the number of stitches required for the neck opening, and return the empty needles to the rest position. Knit on those needles remaining in the working position until this side of the neck opening has been completed. Now return the needles from the holding position, knit the other half of the neck opening.

Turning Sock Heels Or Making A Pouch

Bring the end needle nearest the carriage forward into the holding position. Knit this row and repeat at the opposite end. Continue to bring the end needles into the holding position one at a time and at the same end as the carriage, every row until you have the required number of needles in the holding position. Now, with the first finger, push into the working position—Position (C)—the end needle in the "Holding Position" i. e. that needle nearest the working needles and the carriage. Knit this row. Repeat at the opposite end and continue to return a needle from the holding position at the same end as the carriage every row until all the needles are back in the working position. The above operation may, if required, be done at one edge only in which case the needles are brought into the holding position and returned every 2nd row, i. e. when the carriage is at that end. (See also under heading "TURNING")

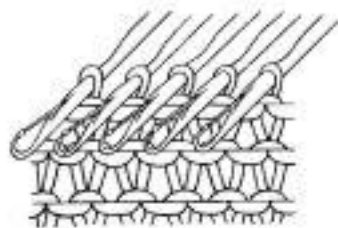


Fig. 50-1

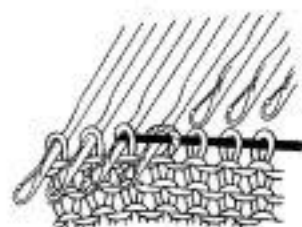


Fig. 50-2

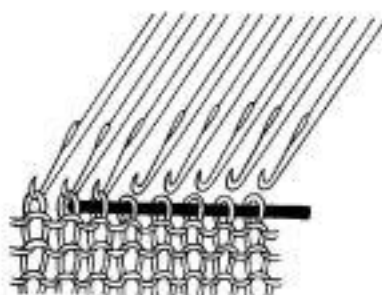


Fig. 51

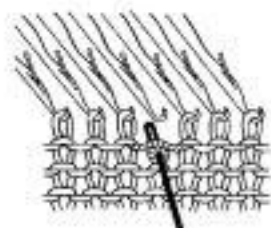


Fig. 52-1

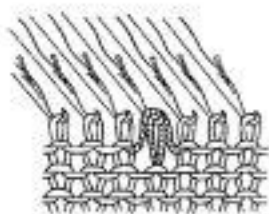


Fig. 52-2

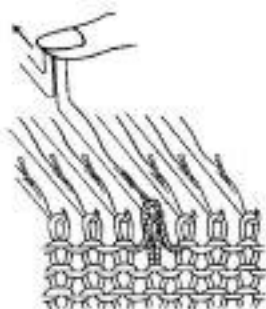


Fig. 52-4

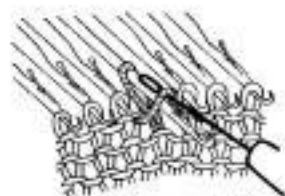


Fig. 52-3

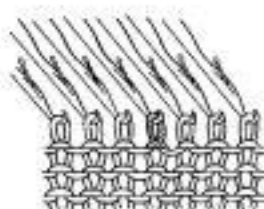


Fig. 52-5

TO TRANSFER THE WORK ONTO A KNITTING NEEDLE OR STITCH HOLDER

Hold the fabric firmly with one hand and bring forward the needles from which you wish to transfer the stitches until the loops are behind the latches. Then push the needles back until the loops just close the latches. (Fig. 50-1)

Insert the Knitting Needle or Stitch Holder into the first stitch, from the back. (Fig. 50-2)

With the first finger push the needle back until the stitch drops onto the Knitting Needle.

Repeat until all the stitches have been transferred to the Knitting Needle or Stitch Holder.

TO TRANSFER WORK FROM A KNITTING NEEDLE OR STITCH HOLDER ONTO THE MACHINE

Draw out, into the holding position, the required number of needles and open the latches. Beginning at the left transfer the stitches from the Knitting Needle onto the Machine Needles. (Fig. 51)

When all the stitches are on the machine push them back along the needle stems until all the loops are behind the open latches.

Thread up the machine and using the Return Cams bring all the needles into the working position.

HOW TO PICK UP A DROPPED STITCH

If the stitch has only dropped one row, proceed as follows:—

1. Put the single eye Transfer Tool through the loop of the dropped stitch. (Fig. 52-1)
2. Pick up the stitch together with the loose strand of yarn and place them in the needle hook. (Fig. 52-2)
3. Holding up the loose strand of yarn with the tool push the needle forward until the loop passes behind the latch and leave the loose strand in the hook. (Fig. 52-3)
4. Push the needle back until the loop passes over the closed latch as shown in Fig. 52-4, and reforms the stitch. (Fig. 52-5)

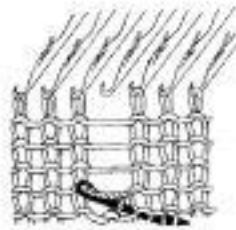


Fig. 53-1

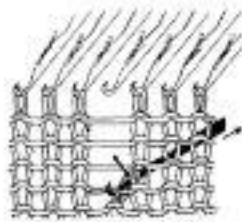


Fig. 53-2

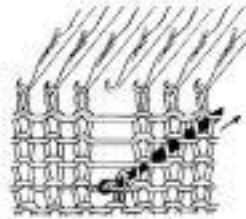


Fig. 53-3



Fig. 53-4

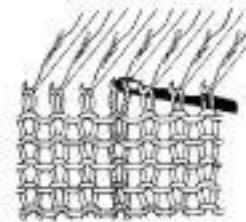


Fig. 53-5

If the stitch has dropped more than one row, the following procedure should be used:

1. Insert the hook of the Latch Needle Tool into the loop of the dropped stitch from the back of the work. Push the tool towards you so that the hook passes under the strand of yarn and the loop passes behind the latch. (Fig. 53-1)
2. Pull the tool back so that the latch closes over the strand of yarn in the hook. (Fig. 53-2 & 3)
3. Continue pulling the tool back until the strand has been pulled through the loop forming a new loop. (Fig. 53-4)
4. Repeat with the next strand and continue to repeat until the last strand has been re-knitted. Now hang the loop on the empty needle. (Fig. 53-5)

Note: When picking up a dropped stitch in this manner the sinkers should be locked with the sinker stopper.

BUTTONHOLES

1. Vertical Buttonhole

With Return Cam Levers BACK (Position "1"):

- (a) Bring forward into Position (E) (Holding Position) all needles at the opposite end to the carriage and up to the point where the buttonhole is required.
- (b) Knit an odd number of rows over the needles remaining in Position (C) to the required length of the buttonhole, finishing with the carriage at the opposite end to the needles in Position (C).
- (c) Break the wool and pull the loose end from under the sinkers of the needles in Position (E).
- (d) Bring forward into Position (E) all the needles from Position (C) and push back into Position (D) all the needles that were formerly in Position (E).
- (e) Re-thread the carriage feeder and knit the same number of rows as for the first half of the buttonhole. The carriage should then be at the opposite end to the Position (E).
- (f) Break the wool and pull the loose end from under the sinkers of the needles in Position (E).

(g) Re-thread the feeder and bring forward the Return Cam Levers.

(h) Continue to knit.

Note: To finish off the buttonhole, knot together the two loose ends of wool and bind the edges of the buttonhole.

2. Small Buttonholes

Transfer the stitch from the needle where the buttonhole is required onto the next needle and leave the empty needle in Position (C). This type of buttonhole is only suitable for small buttons.

3. Horizontal Buttonholes

Return Cam Levers FORWARD (Position "2")

(a) Bring forward into Position (E) the number of needles for the width of buttonhole required.

(b) Place a strand of contrasting colour wool into the hooks of these needles.

(c) Pull the needles back by hand until this strand has been knitted in.

(d) Now bring them forward into Position (E).

(e) Continue to knit.

Note: When the garment is complete pull out the strand of contrast colour wool. Using the seaming needle and matching wool pick up the loops and finish off by buttonholing around the edges.

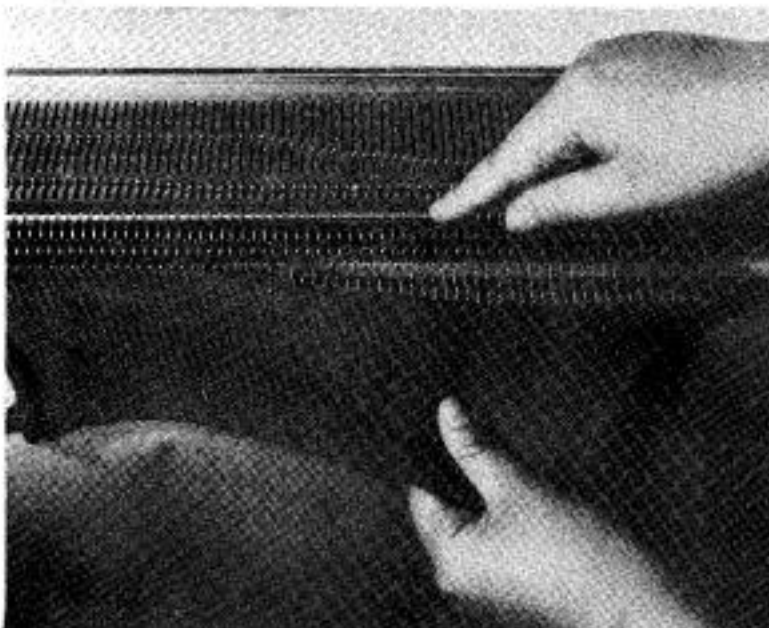


Fig. 54

TO PULL BACK A ROW OF KNITTING

1. Hold the fabric down gently with one hand.
2. With the other hand pull the yarn lightly until the fabric comes out from under the sinker and the yarn forms a straight line in the needle hooks.
3. Continue to pull the yarn gently in an upward direction and it will lift out of the needle hooks leaving the stitches of the previous row in the hooks. (Fig. 54)
4. Before proceeding to knit bring ALL needles into the Holding Position. BE SURE ALL LOOPS ARE BEHIND OPEN LATCHES—and knit first row slowly—with Return Cam Levers in Position "2".

Note: When pulling back on the machine all the stitches must be in the needle hooks.

HOW TO CHECK THE TENSION OF THE FABRIC

Before commencing to knit a garment it is advisable to knit a sample swatch with the yarn you are going to use. To do this, you should cast on about 40 stitches and knit about 40 rows at the tension you wish to use for the garment.

After completing the 40 rows break the wool and strip the piece off the machine.

Allow this piece to stand for a while to enable it to relax and then measure the width of the piece and divide this measurement into 40. Repeat with the length.

Example: Number of stitches 40.

Number of rows 40.

Width 5 inches. 40 stitches divided by 5 equals 8.

Length 4 inches. 40 rows divided by 4 equals 10.

Therefore, your tension is 8 stitches and 10 rows to 1 inch.

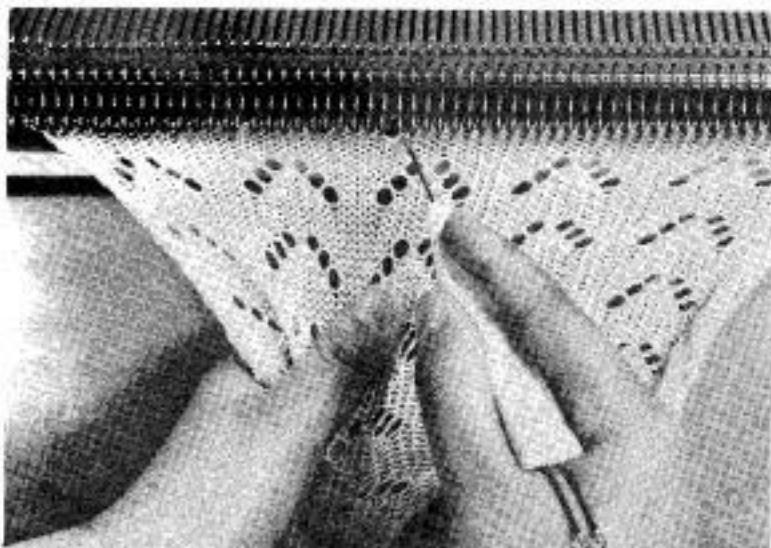


Fig. 55

LACE PATTERN

Where a hole is required, transfer a stitch on to the next needle and leave the empty needle in the working position.

Knit two or more rows as required for the pattern. (Fig. 55)

Note: While transferring the stitch the sinkers should be locked with the Sinker Stopper.

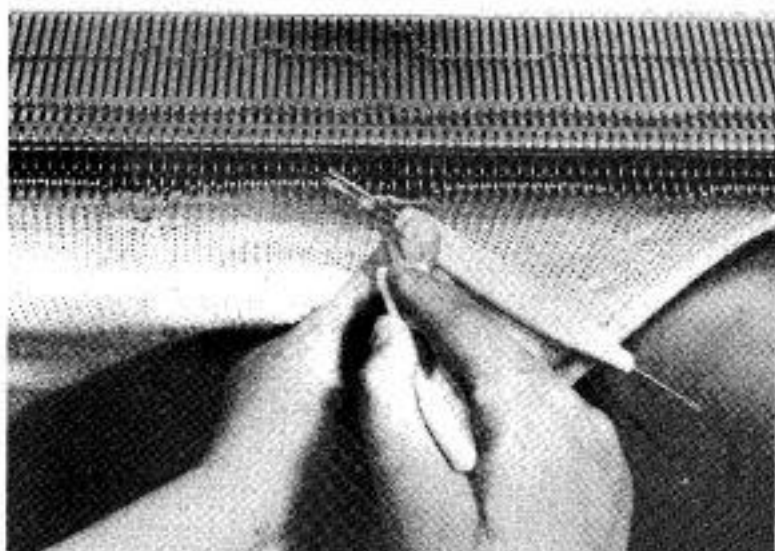


Fig. 56

CABLE PATTERN

Using the two twin eye Transfer Tools, proceed as follows:

1. Take the stitches from three needles onto one of the tools.
2. Take the next two stitches onto the second tool.
3. Place the stitches from the first tool onto the second two empty needles.
4. Place the two stitches from the second tool onto the first two empty needles. These two sets of two stitches will now be crossed over each other. (Fig. 56)
5. Pull all four needles into the holding position.
6. Using the return cam bring these four needles back into working position and continue to knit the number of rows required between each twist of the cable, then repeat the above.

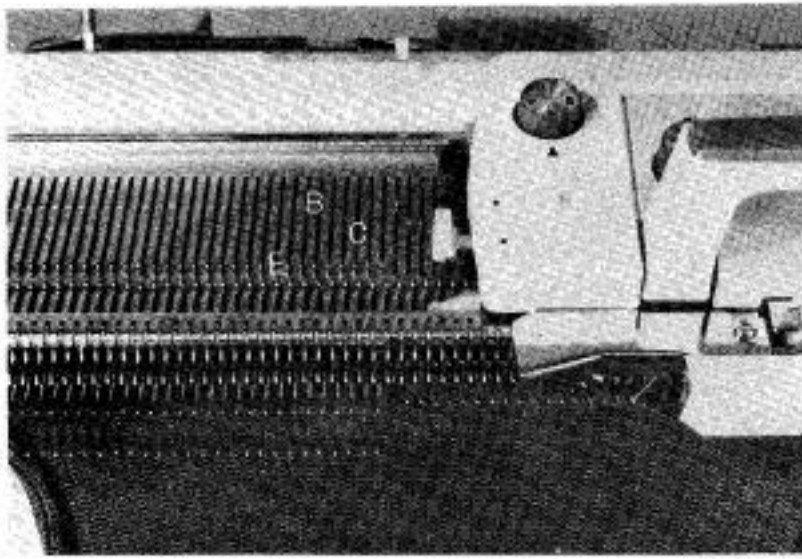


Fig. 57

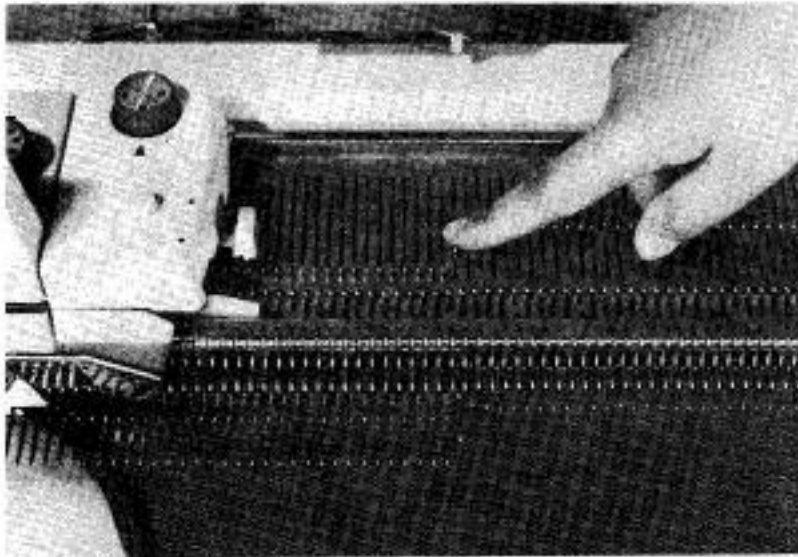


Fig. 58



Fig. 59-1



Fig. 59-2



Fig. 59-3

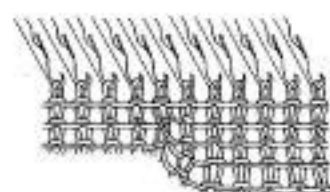


Fig. 59-4

TURNING (changing the direction of the knitting)

There are two methods for turning courses (rows) of the knitting.

Method 1

- (a) Turn the Pattern Control Knobs to 'A'. Move the Shifting Cam Lever to "C" and push back both Return Cam Levers in Position "1".
- (b) At the opposite end to the Carriage bring forward into the Holding Position (E) the required number of needles except the last inside needle which should be pushed back into Position (B) (Fig. 57). Knit 1 row and bring this last working needle—nearest the needles in the Holding Position (E)—forward to Position (E) (Holding Position) (Fig. 58).
Knit 1 row.
- (c) * Push the inside end needle, of those in Working Position (C), back to Position (B) (Fig. 57). Knit 1 row. Now bring this end needle forward to Position (E) (Fig. 58). Knit 1 row.*
- (d) Repeat from * to * until you have completed the turning (Fig. 59-1-4). Bring the Return Cam Levers into Position "2" and continue to knit.

Method 2

- (a) Turn the Pattern Control knobs to "A". Move the Shifting Cam Lever to "C" and push back both Return Cam Levers.
- (b) At the opposite end to the carriage bring forward from Working Position (C) into Holding Position (E) the required number of needles (Fig. 57). Knit 1 row.
- (c) * Bring forward from Position (C) into Position (E) the inside end needle (Fig. 58) — knit 1 row. Push back into Position (D) the required number of needles (2 or more) at the inside end of the needles in Position (E) — knit 1 row*
- (d) Repeat from * to * until turning has been completed and continue to knit over all needles.

HOW TO REPLACE A FAULTY NEEDLE

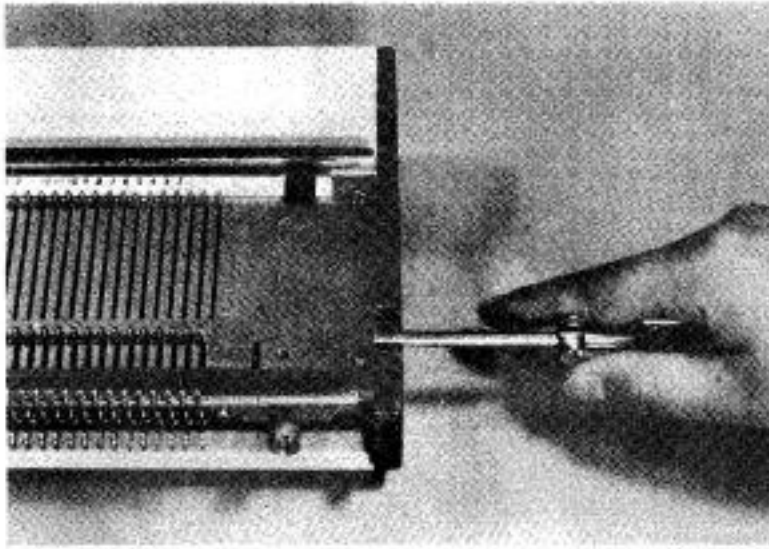


Fig. 60

The needles are retained in position by a metal rod extending the full length of the machine. The ends of the rod are visible through holes in the needle bed end plates. (Fig. 60)

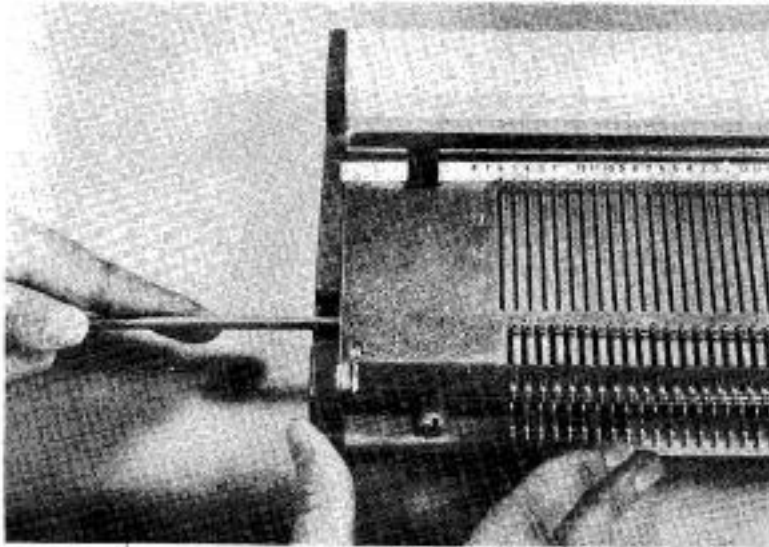


Fig. 61

At the end nearest to the needle to be changed, push in the rod with the blade of the Screwdriver until an inch or so of the rod appears through the hole at the opposite end of the machine.

(Fig. 61)

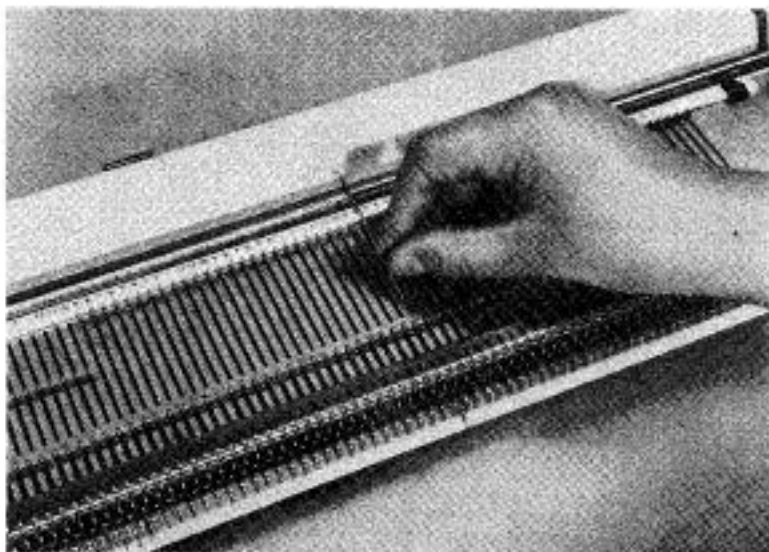


Fig. 62

Pull on the rod until the other end of it is clear of the needle to be changed. It is never necessary to withdraw the rod completely.

Bring the butt of the needle forward and raise the back of the needle stem up through the needle groove.

Slide the needle back over the back runner rail. Replace the needle by reversing the process.

(Fig. 62)

Push the metal rod back into its original position.

SECTION II

How to Use The Pattern Master

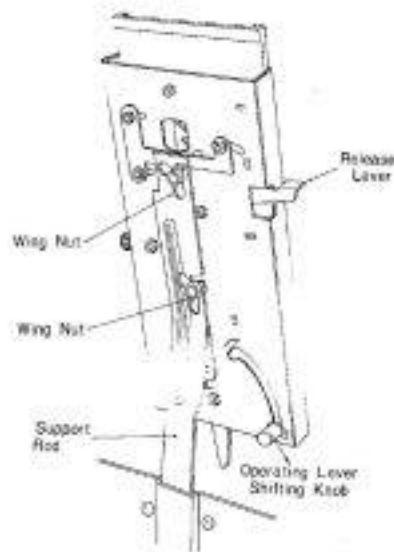


Fig. 63

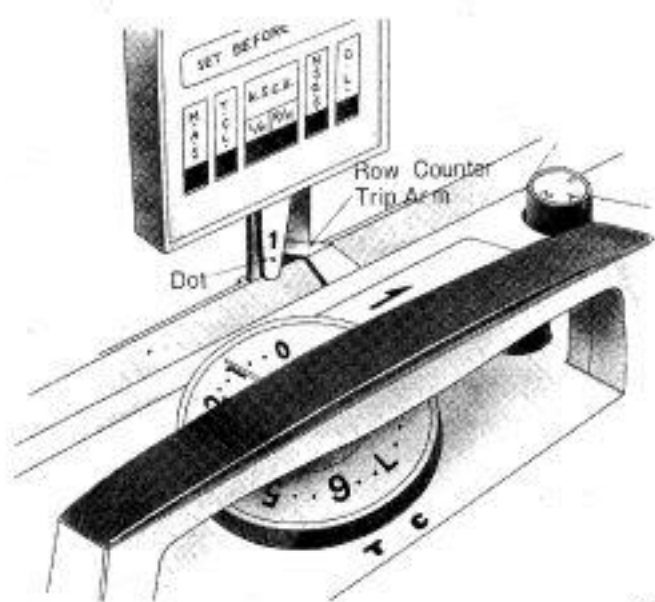


Fig. 64

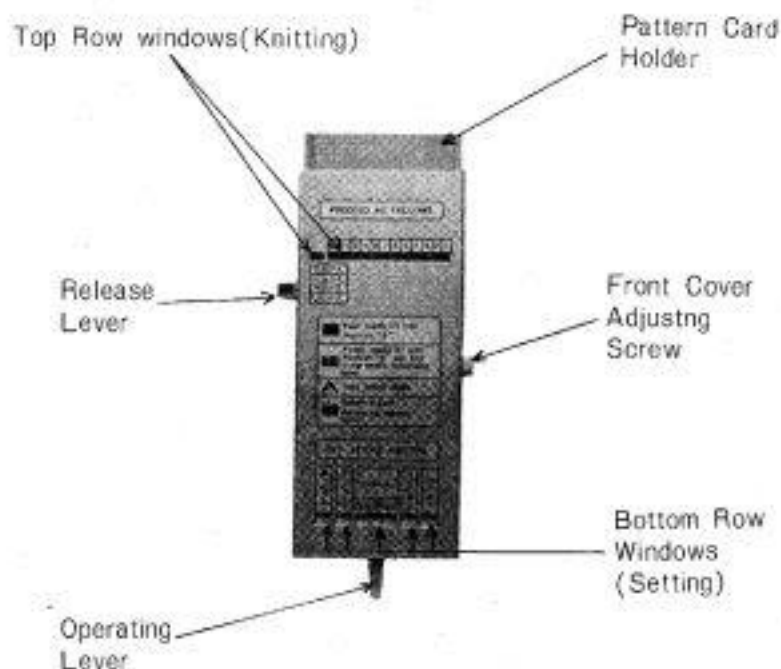


Fig. 65

1. Assembling The Pattern Master

Attach the support rod to the back of the Pattern Master and tighten both wing-nuts. (Fig. 63)

Insert the support rod firmly into any one of the three sockets on the machine, and push out the Row Counter Trip Arm of the carriage as shown in Fig. 64.

Note: Just move the carriage gently back and forth, and check if the Trip Arm moves on the same level as a dot marked on the operating lever of the Pattern Master — see Fig. 64.

If the Arm passes lower or higher level than the position of a dot, loosen two wing nuts at the back of the Pattern Master and adjust the height of the Pattern Master, then tighten again the wing nuts.

2. Pattern Master—Symbols and Abbreviations: Fig. 65

12 11 10 9 8 7 6 5 4 3 2 1

..... Needle numbers corresponding with numbers on the Needle-Selection-Guide-Strips (N.S.G.S.).

■ Where this symbol appears at the numbered window—Push back into position (B) and at the Carriage end of the Working Needles only, those Needles opposite the corresponding numbers on the N.S.G.S. The rest of the working Needles will then be selected AUTOMATICALLY by the Carriage during the knitting of the row.

||||| Push back into Position (B) corresponding Working Needles as described above BUT when moving the Carriage to knit the row the leading Needle-Forwarding-Lever MUST be kept DEPRESSED throughout the knitting of the row.

^ With a single eye Transfer Tool pick up a Slipped Stitch (a longer strand than adjacent strands) from a previous row either directly below or from one or both sides below (in latter case usually shown thus: →^←) and Tuck (i.e. place the strand into the hook of the Needle) onto the needle where the symbol appears and before selecting needles as indicated on the same line on the Pattern Card.

- Red**When a row of red block symbols appears in the numbered window of the Pattern Master this denotes the end of the Pattern. To repeat the Pattern return the card to the starting point by depressing the Release Lever. (Fig. 65)
- M.A.S.****Pattern Control Knobs (MAS Knobs)**
Turn both Pattern Control Knobs to the position indicated in this window. It will be one of the letters, 'M', 'A' or 'S', when the Pattern Card is inserted but, when automatic pattern knitting using the Pattern Master, always set the Knobs to 'A'.
- T.C.L.****Shifting Cam Lever (T-C Lever)**
Set the Shifting Cam Lever of the carriage at either 'T' or 'C' as indicated in the window.
- N.S.C.K.****Needle Selection Control Knobs**
Numbers appearing in this window denote the settings of both the Needle Selection Control Knobs, each of them is numbered from 4 to 12. The number on the left side of the window denotes the setting of the left hand Knob, and the other number on the right side is for the right hand Knob. Set the knobs to correspond with the numbers appearing in this window.
Note: Except in very rare cases when intricate pattern making, both N.S.C.K.s will be set to the same number.
- N.S.G.S.****Needle Selection Guide Strip**
The number that will appear at this window denotes a series of numbering on the Needle Selection Guide Strip and is always same number as that appearing in the window for N.S.C.K.
There are 4 Needle Selection Guide Strips in all, supplied with each machine, and they are found clipped inside the case lid.
Three of the strips are flat and one is triangular. It is seen that each face of the strips is numbered to correspond with the number seen in this window and also to correspond with the numbering on the Needle Selection Control Knobs.
Each Strip may be placed in position on the Needle Bed and is held by spring clips to be found at each end in front of the rear track of the needle bed.
Each Strip can be easily replaced or turned as shown in Fig. 66, so

that the required face is visible to the operator.

At the centre of each Strip is a small red dot and it is advisable when placing the strip in position, to set the red dot opposite No. 0 to be found in the centre of the needle bed behind a butt of the sinker rod. Use the corresponding Strip according to the number appearing at the window as follows: -

When the window indicates No. 4, place in position the Strip so that the face visible is '4 3 2 1 4 3 2 1'.

When the window indicates No. 5, place in position the Strip so that the face visible is '5 4 3 2 1 5 4 3 2 1'.

When the window indicates No. 6, place in position the Strip so that the face visible is '6 5 4 3 2 1 6 5 4 3 2 1'.

When the window indicates No. 7, place in position the Strip so that the face visible is '7 6 5 4 3 2 1 7 6 5 4 3 2 1'.

When the window indicates No. 8, place in position the Strip so that the face visible is '8 7 6 5 4 3 2 1 8 7 6 5 4 3 2 1'.

When the window indicates No. 9, place in position the Strip so that the face visible is '9 8 7 6 5 4 3 2 1 9 8 7 6 5 4 3 2 1'.

When the window indicates No. 10, place in position the Strip so that the face visible is '10 9 8 7 6 5 4 3 2 1 10 9 8 7 6 5 4 3 2 1'.

When the window indicates No. 11, place in position the Strip so that the face visible is '11 10 9 8 7 6 5 4 3 2 1 11 10 9 8 7 6 5 4 3 2 1'.

When the window indicates No. 12, place in position the Strip so that the face visible is '12 11 10 9 8 7 6 5 4 3 2 1 12 11 10 9 8 7 6 5 4 3 2 1'.

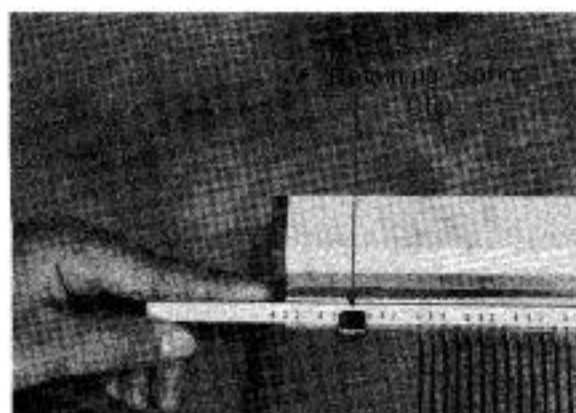


Fig. 66

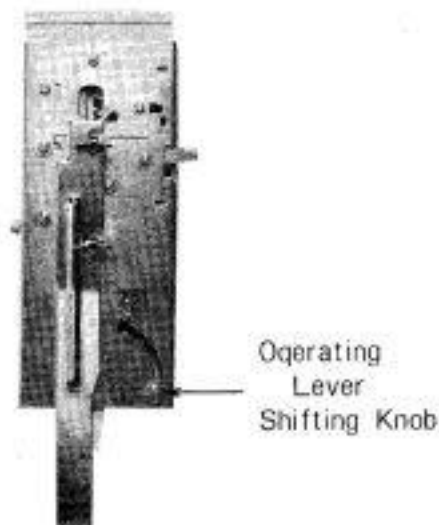


Fig. 67

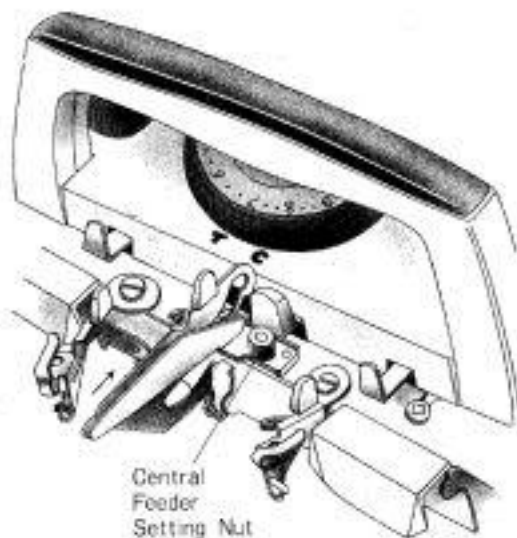


Fig. 68

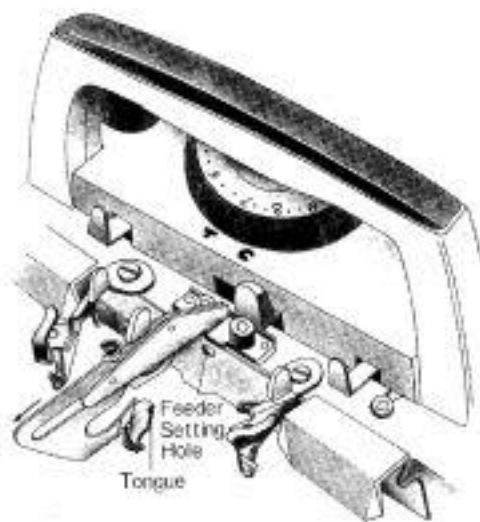


Fig. 69

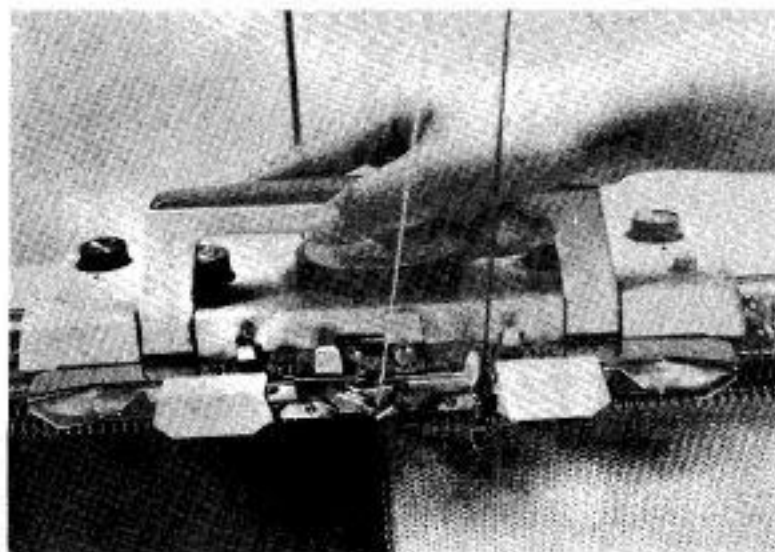


Fig. 70

O.L. Pattern Master Operating Lever

There are two Operating Levers, and they are actuated by the Row Counter Trip Arm at the back of the carriage.

To bring No.1 Lever into operation move the Shifting Knob to the bottom of the slot, and to the top of the slot for Lever No.2. (Fig.67) If figure '1' appears at this window, bring No.1 Lever into operation, and the Pattern Card in this setting is raised one line with each row of knitting.

If figure '2' appears in this window bring No.2 Lever into operation. This will raise the Pattern Card one line with every second row of knitting.

↑ C.Y.F. ... Central Yarn Feeder

When the symbol '↑' appears at the window, use the Detachable Central Feeder. (Fig.68)

The Central Feeder should be secured firmly in position in front of the carriage by two setting nuts as shown in Fig. 68, and is useful when knitting three colour patterns in conjunction with the use of three yarn take-up wires of the Overhead Feeder Unit.

To bring the Feeder into operation move backwards the feeder until the tongue on the lower section engages in the feeder setting hole as shown in Figs. 68 and 69.

To bring the Feeder out of action, simply pull forward - see Fig.69.

← L.Y.F. ... Left-hand Yarn Feeder

When the symbol '←' appears at the window, flick into action the Left-hand Main Feeder. (Fig. 70)

→ R.Y.F. ... Right-hand Yarn Feeder

When the symbol '→' appears at the window, flick into action the Right-hand Main Feeder.

Note: When knitting three colour pattern, three strands of different colour wool may be threaded through three eyelets provided to the three yarn take-up wires of the Overhead Feeder Unit, and then to three Carriage Feeders—two Main Carriage Feeders for 1st and 2nd colour and Central Feeder for 3rd colour.

When knitting two colour pattern, use two Main Carriage Feeders.

For one colour pattern, the wool should be threaded through either of the two Main Feeders.

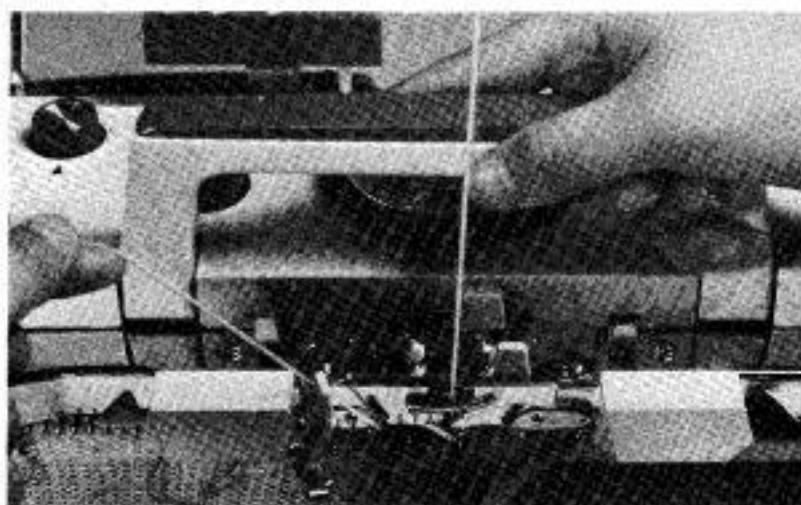


Fig. 71

U S.Y.F. ... Subsidiary Yarn Feeders

When the symbol 'U' appears at the window, use the Sub-Yarn Feeder as shown in Fig. 71.

These Feeders are used when producing complicated colour knitting to prevent the yarns becoming entangled, and therefore the yarn must not be threaded into the Overhead Feeder Unit, but guided with your left hand. Use always leading Sub-Feeder, e.g. when moving the carriage from right to left use left hand Sub-Feeder.

(Fig. 71)

3. How to Read and Operate the Pattern Master.

- a) Select the pattern you want to use, and slide the card into the card holder of the Pattern Master as shown in Fig. 72-a. If the card is slightly out of position, loosen the Front Cover Adjusting Screw - see Fig. 65 - and move the cover slightly up or down to bring the symbols on the card in line with the windows in the Cover.

It is advisable to use the small clip supplied with each Pattern Master to hold the card firmly in position in the card holder. (Fig. 72-a)

Note(1):

To extract the Card Holder from the Pattern Master unit, depress and hold down, the Release Lever. To re-insert the Card Holder it is also necessary to depress the Release Lever.

NOTE (2) : Automatic Pattern Card Repeat

On the reverse side of the Pattern Card Holder will be seen a small metal slide with a Prong which engages in a series of slots. (See Fig. 72-b) This metal slide can be adjusted by pushing the Prong towards the centre so that it disengages with the slots.

The purpose of this metal slide is to return the Pattern Card automatically to the beginning after completing one pattern. The end of the pattern is indicated by a red line and the Prong of the metal slide should be set in slot exactly behind the red line.

After setting this slide, insert Pattern Card Holder into Pattern Master unit and before commencing to knit, check that Pattern Card returns to zero on reaching the red line, by moving the operating lever by hand.

The Pattern Card should return to zero immediately the red line appears in the window.

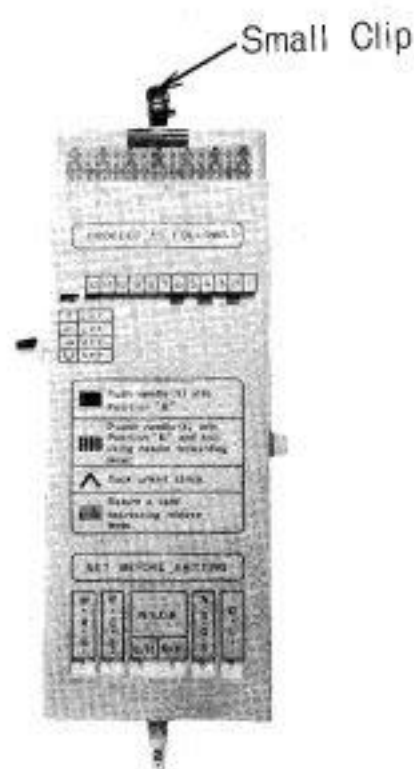


Fig. 72-a

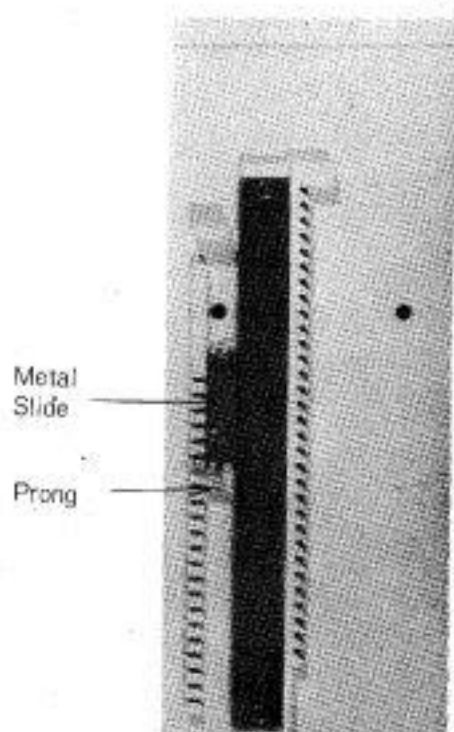


Fig. 72-b

b) **EXAMPLE—PATTERN CARD No.1**
(Fig.72-a)

You will read that:

- M.A.S. indicates 'A' Pattern Control Knobs at 'A'
- T.C.L. indicates 'C' Shifting Cam Lever (T-C Lever) at 'C'
- N.S.C.K.
L/H. indicates '6' > ... Both Left and Right hand Needle Selection Control Knobs at '6'.
R/H. indicates '6' > ...
- N.S.G.S. indicates '6' Insert Needle Selection Guide Strip numbered 6 5 4 3 2 1 reading from left to right.
- O.L. indicates '2' Bring into action the No.2 Operating Lever. (Fig. 67)

This completes the settings to be made before commencing to knit Pattern No.1. Now proceed as follows working to the symbols appearing in the top row of windows.

- 1st row** Carriage on right. According to the symbols in the top row windows of the Pattern Master, just below the words 'PROCEED AS FOLLOWS', thread the first colour yarn through the right hand main feeder (R.Y.F.) at the carriage end. Push back into Position (B) three needles opposite figures 2, 4 and 6 on the N.S.G.S. Move the carriage from right to left, to knit the row.
- 2nd row** Carriage on left. You will see that the position of the card has not changed. Therefore, on the left end near the carriage, push back into Position (B) three needles opposite figures 6, 4 and 2. Move the Carriage from left to right to knit the row.
- 3rd row** Carriage on right. You will find that the card has moved up one line and a different set of symbols appears in the top row windows. Change to the left hand yarn (L.Y.F.) threaded with the 2nd colour, and push back into Position (B) two needles opposite figures 3 and 5 on the N.S.G.S. Knit one row.
- 4th row** Carriage on left. Push back into Position (B) two needles opposite figures 5 and 4 and knit this row.

- 5th row** Carriage on right. Change to 1st colour. Push back into Position (B) one needle opposite figure 1 on the N.S.G.S. and knit this row.
- 6th row** Carriage on left. Push back into Position (B) one needle near the carriage opposite figure 1 on the N.S.G.S. and knit this row.
- 7th row** Carriage on right. Change to 2nd colour. Push back into Position (B) two needles opposite figures 3 and 5 and knit this row.
- 8th row** Carriage on left. Push back into Position (B) two needles opposite figures 5 and 3 and knit this row.
- 9th row** Carriage on right. Change to 1st colour. Push back into Position (B) one needle near the carriage opposite figure 1 on the N.S.G.S. and knit this row.
- 10th row** Carriage on left. Push back into Position (B) one needle near the carriage opposite figure 1 on the N.S.G.S. and knit this row.
- 11th row** Carriage on right. Change to 2nd colour. Push back into Position (B) two needles opposite figures 3 and 5 and knit this row.
- 12th row** Carriage on left. Push back into Position (B) two needles opposite figures 5 and 3 and knit this row.
- 13th row** Carriage on right. Change to 1st colour. Push back into Position (B) three needles opposite figures 2, 4 and 6 on the N.S.G.S. and knit this row.
- 14th row** Carriage on left. Push back into Position (B) three needles opposite figures 6, 4 and 2 and knit this row.
- 15th row** Carriage on right. Change to 2nd colour. Now you will find that no symbols appear in the numbered window, therefore, simply move the carriage from right to left, without selecting any needles, to knit this row.
- 16th row** Move carriage from left to right, to knit this row with the 2nd colour but again without selecting needles.

After knitting the 16th row the Carriage will be on the right and you will see the Pattern Card has moved up to show a series of Red Blocks in the numbered window. This means that you have completed the Pattern. To repeat the pattern depress the Release Lever and the Card will return to the starting point.

c) **Example—Pattern Card No.11**

You will read that:

M.A.S. indicates 'A' Both Pattern Control knobs at 'A'.

T.C.L. indicates 'C' Shifting Cam Lever at 'C'.

N.S.C.K.

L/H. indicates '9' }
R/H. indicates '9' } Both left and right hand Needle Selection Control Knobs at '9'.

N.S.G.S. indicates '9' Insert the Needle Selection Guide Strip numbered 1 to 9 repeating.

O.L. indicates '1' Bring into action the No.1 Operating Lever.(Fig.65)

1st row Carriage on right. Push back into Position (B) three needles near the carriage opposite figures 1, 3 and 6 on the N.S.G.S. Pull out of action both the empty main feeders.

Insert the first colour yarn into the leading Subsidiary Feeder (left hand subsidiary feeder) — see Item 15, Fig.2. Guiding the yarn with your left hand move the carriage across the needles from right to left to knit this row. It is not advisable to use the overhead yarn feeder unit when knitting with the Subsidiary Yarn Feeders.

2nd row Carriage on left. Remove the first colour yarn from the left hand Subsidiary Feeder, and insert the second colour yarn into the right hand Subsidiary Feeder, and guide the yarn with your left hand. Move the carriage from left to right to knit this row.

3rd row Carriage on right. Change to second colour yarn in the leading Subsidiary Yarn Feeder (left hand) and knit this row.

4th row Carriage on left. According to the symbols on the Pattern Master, you should tuck all the slipped stitches, produced in the first row, into the hooks of those needles indicated by the Tuck Symbols on the Card, using the single eye Transfer Tool. To do this, it is first advisable to bring the fabric forward carefully pulling it downward and forward with your left hand, so that all the needle butts will be between Position (C) and (D). Ensure that all stitches are in the needle hooks with latches open. Now, according to the symbols on the Pattern Card, pick up the slip stitches produced in the 1st row and place them

into the hooks of all the needles opposite Nos. 1, 3 and 4 on the N.S.G.S., as shown in Fig. 73, using the single eye Transfer Tool. After you have completed picking up these stitches, pull the leading (right hand) Return Cam Lever forward into Position 2, and, according to the pattern card, without feeding in any wool, simply move the carriage from left to right.

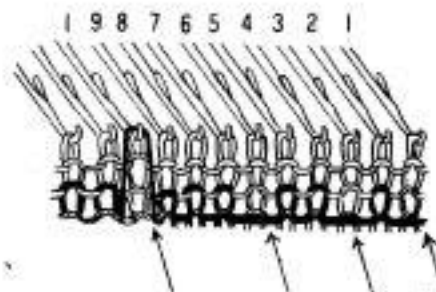


Fig. 73

This movement of the Carriage will align all the working needles in Position (C) and bring the fabric firmly under the sinkers.

5th row Carriage on right. Now, you will see that both first and second colour yarns are at opposite ends, and so, the carriage has to be moved to the left end without affecting the knitting on the needles.

There are two methods of moving the carriage across working needles without affecting the knitting, (1) by first turning the leading Pattern Control Knob to 'S', or (2) by lifting the Carriage slightly at the front as shown in Figs. 74 and 75. But in either case, it should be remembered to push in the Row Counter Trip Arm so that it will not operate the Pattern Master or Row Counter. With the Carriage on the left push back into Position (B) three needles opposite figures 7, 4 and 2 on the N.S.G.S. Insert the first colour yarn into the leading Subsidiary Feeder and, guiding the yarn with your left hand, knit this row by moving the carriage from left to right.

6th row With Carriage on right, change to the 2nd colour, but you will find that this is at the opposite end, therefore, in the same manner as already described, move the carriage to that end without affecting the knitting.

With the carriage now on the left, insert the 2nd colour yarn into the leading Subsidiary Feeder and knit this row by moving the carriage from

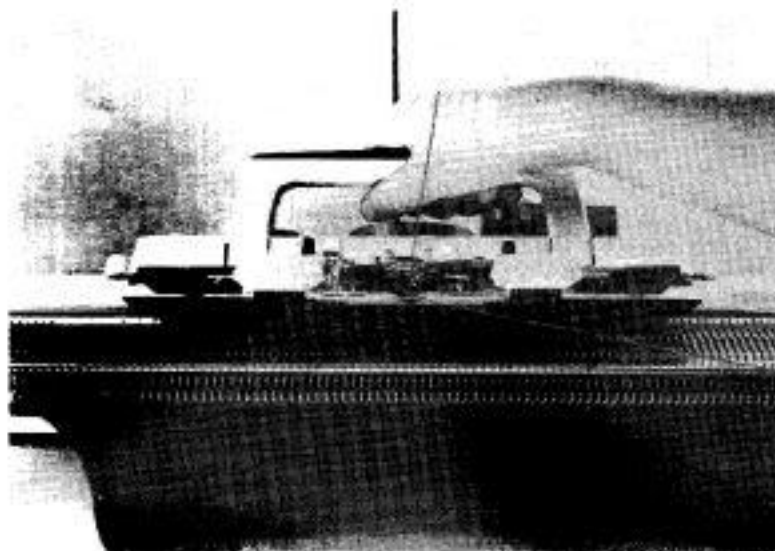


Fig. 74

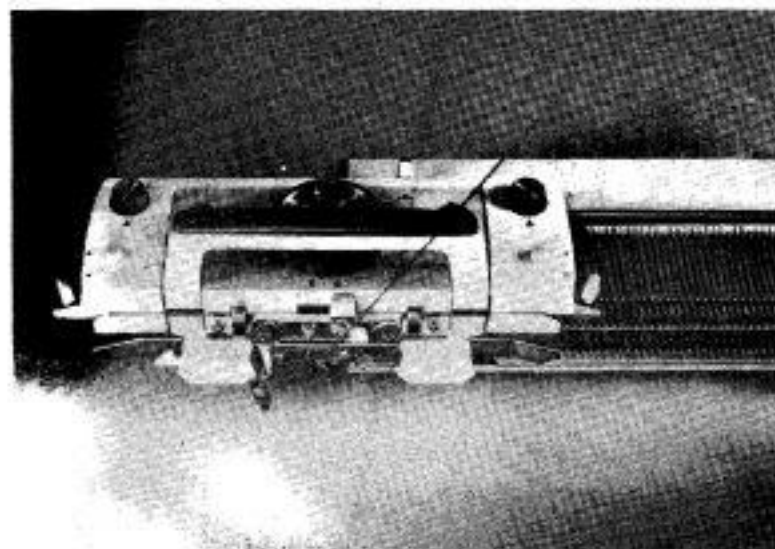


Fig. 75

7th row With Carriage on right. Transfer the second colour yarn from the right to the left hand Subsidiary Feeder and knit this row.

8th row With Carriage on left. Pick up all the slipped stitches in the same manner as described for the 4th row, but tuck onto all needles opposite 2, 4 & 7 on the N.S.G.S. Now, move the Carriage, without yarn, from left to right, to return needles into Position (C) and the fabric under the sinkers. Carriage on right, as a row of Red Blocks appears at the numbered window, depress the Release Lever to drop the Card back to the starting point for a repeat of the pattern.

4. Special Instructions

You will find special instructions on some Pattern Cards, and these are:

a) MOVING NEEDLE SELECTION GUIDE STRIP SOME PITCHES AFTER COMPLETING ONE PATTERN (Card No. 31)

For instance, Card No. 31:

After knitting 18 rows, there appear the usual Red Blocks denoting that the Card be returned to the starting point, but at the same time you will see the special instruction 'Set N.S.G.S. so that it can be moved yet remain in clips - *5 pitches to Right for 1st. Repeat. 5 pitches to Left for 2nd. Repeat * and so on from * to *'.

Therefore, according to this special instruction, simply move the Needle Selection Guide Strip first to the right 5 pitches, so that a needle opposite figure 1 on the N.S.G.S. in the previous row is now opposite figure 5, and at the next repeat of the pattern move the N.S.G.S. back to its original position. Alternate in this way at each repeat of the pattern.

b) CHANGING THE POSITION OF RETURN CAM LEVER (Card Nos. 20, 69, 83, 95, 99; 111 & 112)

You will find the Special Instructions on these Cards - 'Set the Leading Return Cam Lever as indicated before knitting the row' - This means that you have to move the Return Cam Lever to position 1 or 2 in a course of knitting as indicated on the card.

Example - Card No. 99:

Settings before starting to knit:

M.A.S. indicates 'A' ... Pattern Control Knobs at 'A'

T.C.L. indicates 'C' ... Shifting Cam Lever at 'C'

N.S.C.K.

L/H indicates '9' ... Insert the Needle Selection Guide Strip numbered 1 to 9 repeating.
R/H indicates '9'

O.L. indicates '1' ... Bring into action the No. 1 Operating Lever.

1st row Carriage on right. Above the figure 10 on the Pattern Master is a figure 2 on the Card which means the leading Return Cam Lever (left hand) must be in Position 2 (Forward Position) and according to the symbols on the card push back into Position (B) 8 needles opposite figures 2, 3, 4, 5, 6, 7, 8, and 9, leaving only one needle

opposite No. 1 in Position (C).
Without threading yarn into any of yarn feeders, move the carriage from right to left pushing in the leading Needle Forwarding Lever all the way.

2nd row Carriage on left. You will see that every 9th needle opposite figure 1 is now in Position (E) leaving the other needles in Position (C), and you will also note that the yarn is at the opposite end (right hand).

Therefore, you have to start the 2nd row from right hand end again.

Return the carriage by lifting up the front edge slightly, and when moving it back to the right clear of the needles, take care that the Row Counter Trip Arm does not register the Row Counter or the Pattern Master. According to the instructions on the Pattern Card, thread up the right hand Main Feeder and flick it into action. Push back into Position (B) 2 needles opposite Nos. 7 and 8, and according to a special instruction **push back leading Return Cam Lever to No. 1.**

Knit this row by moving the carriage from right left.

3rd row Carriage on left. Also according to the special instruction, **push back the leading Return Cam Lever** (right hand) to No. 1.

Push back into Position (B) two needles opposite Nos. 7 and 6, and move the carriage from left to right.

4th row Carriage on right. According to the special instruction, leave the leading (left hand) Return Cam Lever in Position 1, push back into Position (B) two needles opposite Nos. 5 and 6. Knit this row.

5th row Carriage on left. Still leaving the leading (right hand) Return Cam Lever in Position 1, push back into Position (B) two needles opposite Nos. 5 and 4, and knit this row.

6th row Carriage on right. Set the leading (left hand) Return Cam Lever to No. 2. Push back into Position (B) two needles opposite Nos. 3 and 4, and knit this row.

After completing the 6th row, you will see that all needles are now in Position (C). Return the Card as indicated by the row of red blocks at the numbered window, and repeat the above procedure.

c) ARRANGING SOME NEEDLES IN REST POSITION (A) BEFORE KNITTING.
(Card Nos. 87, 88, 92, 100, 106, 108, 109, and 160)

On these 8 patterns, you will see Special Instructions to push back to Position (A) the needles indicated by the letter 'A' along the top line of the card. This means that the needles indicated should be manually pushed back into Position (A) after transferring the stitch to the next needle and before commencing to knit the pattern.

d) TUCKING TWO SLIP STITCHES TOGETHER.
(Card No. 75)

Example - Card No. 75

M.A.S. Pattern Control Knobs at 'A'

T.C.L. Shifting Cam Lever at 'C'

N.S.C.K.

L/H } Both Needle Selection Control
R/H } Knobs at '8'

N.S.G.S. Insert the Needle Selection Guide Strip numbered 1 to 8 repeating.

O.L. Bring into action the No. 1 Operating Lever.

1st row Carriage on right. Push back into Position (B) two needles opposite Nos. 4 and 8. Pull out of action the Main Feeders, and insert 2nd colour yarn into the leading Subsidiary Feeder (left hand). Move carriage from right to left. Guide this second colour with your hand.

2nd row As the 1st colour (main colour) is at the opposite end (the right hand end) lift the Carriage clear of the needles at the front and move it back to the right, taking care not to trip the Row Counter or Pattern Master while doing so. Thread the 1st colour into the right hand Main Feeder and flick this Feeder into action. Knit this row by moving the Carriage from right to left.

3rd row Carriage on left. Knit this row by moving the Carriage from left to right using the 1st colour.

4th row Carriage on right. Knit this row with 1st colour by moving the carriage from right to left.

- 5th row** Carriage on left. Place the Sinker Stopper between the sinker needle butts and front rail. With the single eye Transfer Tool pick up the slip stitch made in the first row with the 2nd colour — this will be found directly below needle 8 on the N.S.G.S. Tuck the stitch into the hook of the needle opposite 2 on the N.S.G.S. Similarly the slip stitch below needle 4 should be tucked into the same needle 2. Do this along the length of the row. Pull out of action the main feeder. Now push back into Position (B) two needles opposite 4 and 8 on the N.S.G.S. and with the 2nd colour in the leading Sub-Feeder knit this row by moving the Carriage from left to right.
- 6th row** Carriage on right. Change to 1st colour at the opposite end. Therefore first move the carriage to left hand end without affecting the needles. Knit this row by moving the carriage from left to right.
- 7th row** Carriage on right. Knit one row with 1st colour.
- 8th row** Carriage on left. Knit one row with main colour.
- 9th row** Carriage on right. Pick up slip stitches, made on 5th row with 2nd colour yarn, onto every needle opposite No. 6 in the same manner as described for the 5th row. Push back into Position (B) two needles opposite Nos. 4 and 8 and knit this row with 2nd colour yarn hooked in the leading Subsidiary Feeder.
- 10th row** Carriage on left. Move the carriage, without affecting the knitting, to the opposite end to thread the 1st colour yarn in the Main Feeder. Now with the carriage on right, knit one row with 1st colour yarn.
- 11th row** Carriage on left. Knit one row with 1st colour.
- 12th row** Carriage on right. Knit one row with 1st colour.
- 13th row** Carriage on left. Exactly the same procedure as for the 5th row.
- 14th row** Carriage on right. Move the carriage without affecting the needles to the left end. Replace with the 1st colour, and knit this row moving the carriage from left to right.
- 15th row** Carriage on right. Knit this row with 1st colour.
- 16th row** Carriage on left. Knit this row still with 1st colour.
- 17th row** Carriage on right. Repeat from 9th to 17th row, i. e. from * to * on Pattern Card.

SECTION III

Helpful Information about the Machine and
Instructions for Advanced Pattern Knitting

EXPLANATION OF NEEDLE AND SINKER ACTION

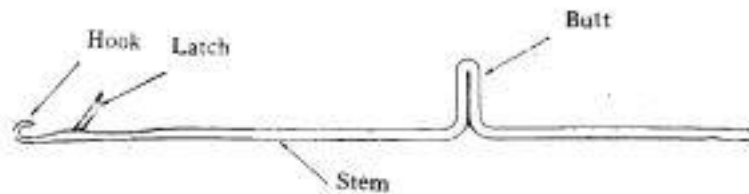


Fig. 76

The machine has 200 latch needles in the needle bed and each stitch is formed by the latch needles operating in conjunction with the movement of the carriage.

You will find an illustration of a latch needle and the names of its various parts, (Fig. 76) and also a description of how the stitches are formed by the latch needles and the special sinkers.

(Fig. 77)

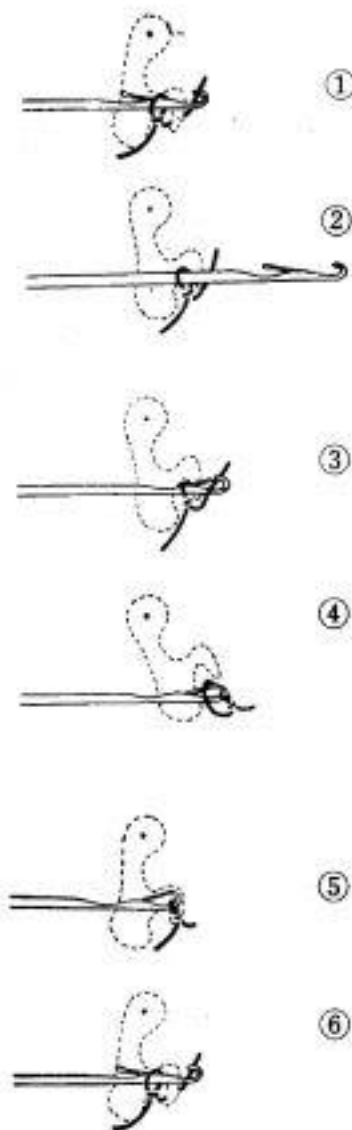


Fig. 77

1. A stitch is held on the open latch by the sinker. (Fig. 77-1)
2. The needle moves forward and the stitch passes behind the latch. (Fig. 77-2)
3. As the needle moves back, new wool is fed into the hook and the previous stitch closes the latch. (Fig. 77-3)
4. As the needle continues to move back, the sinker moves forward and the front of the sinker pushes the previous stitch over the closed latch to form a new stitch. (Fig. 77-4)
5. The sinker now moves back and the sinker hook engages with the strand of wool between the stitches. (Fig. 77-5)
6. The sinker continues to move back and downwards and at the same time the needle moves forward so that the new stitch opens the latch ready to commence forming yet another stitch. (Fig. 77-6)

NEEDLE POSITIONS

Note: Positions of the needles herein referred to are positions of the butts of the needles. (Fig. 78)

A) Rest Position (Non-working position)

Needles not in use. The needles when not in use should always be pushed back against the Needle Selection Guide Strip.

B) Automatic Selection Position

Needle or needles are pushed back to this position from Working Position (C) when selected for automatic pattern making.

C) Working Position

The required number of needles for knitting should be brought forward from position (A) into this position before commencing to knit.

D) Manual Return from Holding Position

Needles will knit when pushed back into this position from the Holding position (E).

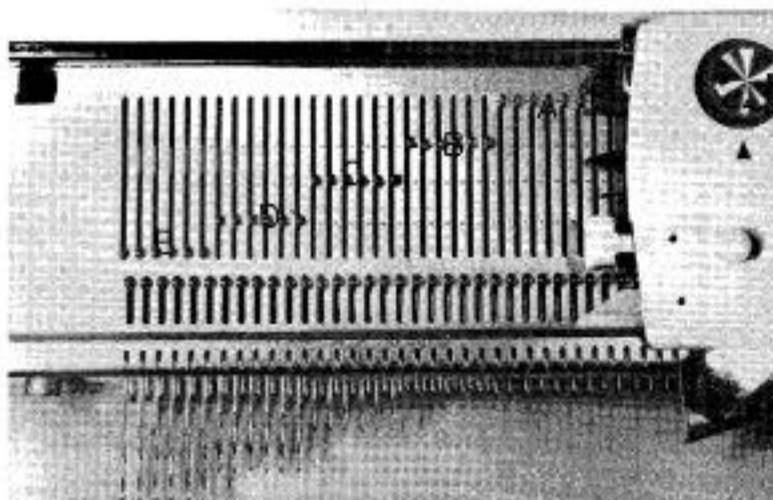


Fig. 78

E) Holding Position

Needles hold stitches but do not knit when in this position—used for manually operated Fair Isle, Tucking stitches, etc., also for 'V' neck opening, turnings, etc. The needles in the Position (C) are automatically forwarded into this Position (E) when moving the carriage and at the same time pushing in the leading Needle Forwarding Lever.

THE AUTOMATIC ROW COUNTER

1. The Row Counter automatically counts the rows as the carriage is moved from side to side with the Row Counter Trip Arm extended—just tap the Arm in direction shown by the arrow in Fig. 79.
2. The Row Counter registers single units on the right, tens in the centre and hundreds on the left. It counts automatically up to 999. (Fig. 80)
3. The numbers on the Row Counter may be adjusted or returned to zero by turning the adjusting screws on the top of the Counter. (Fig. 80)

To obtain numbers 000 on the Row Counter, turn the adjusting screw for the single units first so that it registers 0, then proceed for tens units by turning the screw anti-clockwise and hundreds units by turning clockwise in order—see Fig. 80.

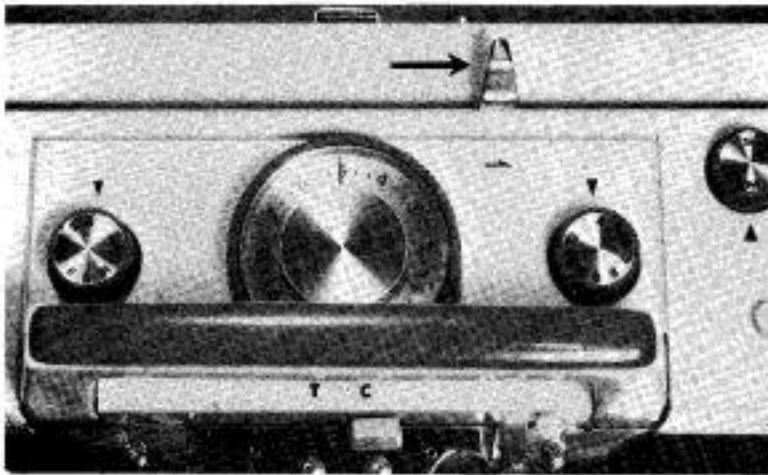


Fig. 79

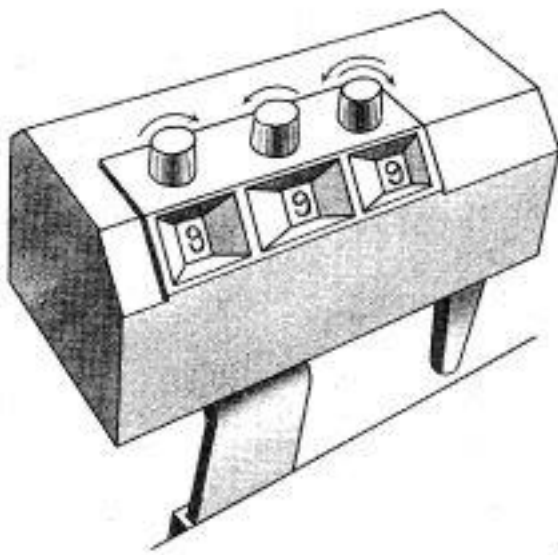


Fig. 80

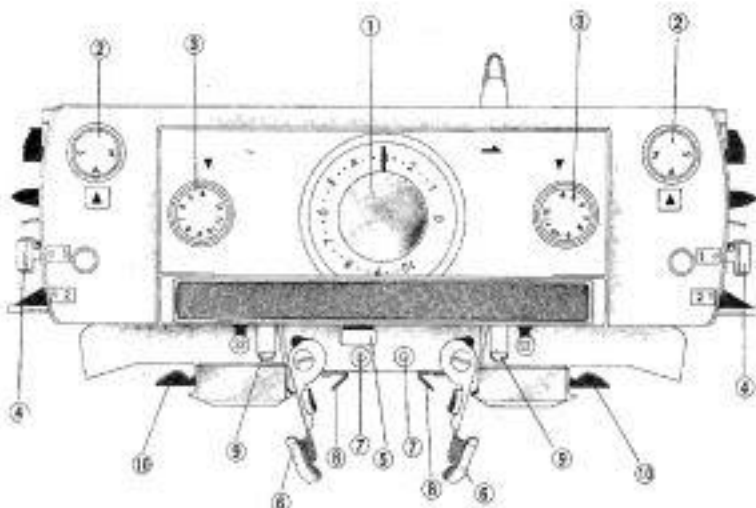


Fig. 81

THE CARRIAGE

1. Tension Control Dial.
2. Pattern Control Knobs (MAS Knobs).
3. Needle Selection Control Knobs.
4. Return Cam Levers.
5. Shifting Cam Lever (T-C Lever).
6. Main Yarn Feeders.
7. Central Yarn Feeder Setting Nuts.
8. Subsidiary Yarn Feeders.
9. Needle Forwarding Levers.
10. Weaving Feeders.

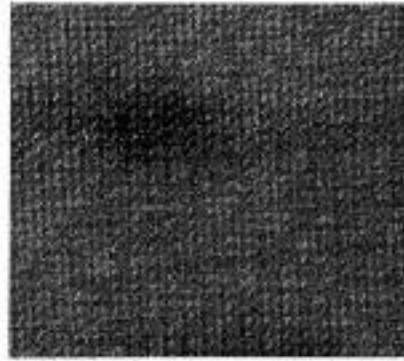
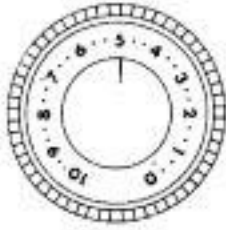
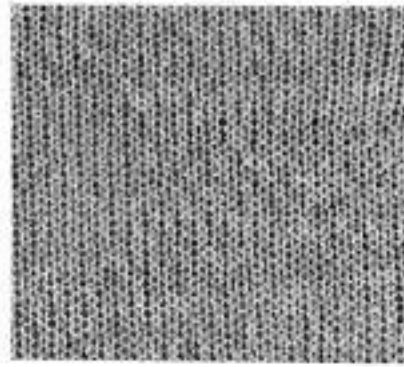
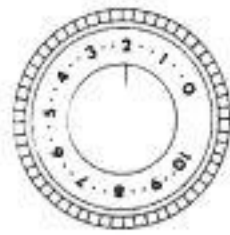


Fig. 82

1. Tension Control Dial —(Fig. 81-1)

This controls the size of the stitch: the higher numbers giving the looser tension. The following table and illustrations (Fig. 82.) give approximate settings for various thicknesses of yarn.

0 — 3	Very fine yarns.
3 — 6	Medium yarns.
6 — 9	Heavy yarns.
8 — 10	Very heavy yarns.

When knitting heavy yarns such as Double Knitting Wool use every alternate needle or, in the case of bulky or extra thick Double Knitting Wool, use every third needle, and cast-on by the Manual Method.



Fig. 83-A

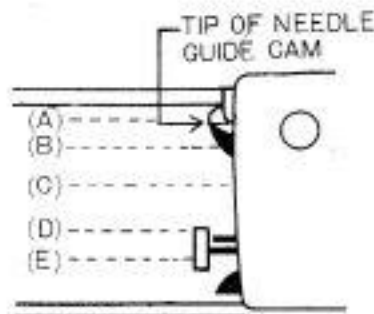


Fig. 83-B

2. Pattern Control Knobs (MAS Knobs) — (Fig. 81-2)

These Knobs control the Needle Guide Cam. **'M' opposite pointer:** -

With the knobs in this setting you will see the tip of the Needle Guide Cam protruding beyond the end of the carriage and pointing towards the needle in the Non-Working Position (A). (Fig. 83-A & 83-B)

This means that needles in any of the Positions (B), (C) or (D) — (see Fig. 78) — will knit, and further when setting the Return Cam Lever to No. 2, needles in Position (E) will also knit. (Fig. 83-B)

The Pattern Control Knobs should be at setting 'M' when knitting in plain stocking stitch.

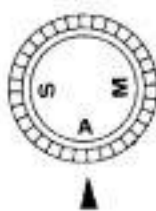


Fig. 84-A

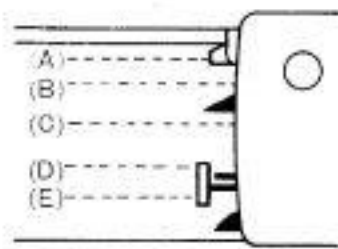


Fig. 84-B

'A' opposite pointer: -

If you turn knobs so that 'A' is now opposite the pointer (Fig. 84-A), you will notice that the tip of the Needle Guide Cam is extended at right angles to the carriage end and midway between Position (B) and (C) of the needles. (Fig. 84-B)

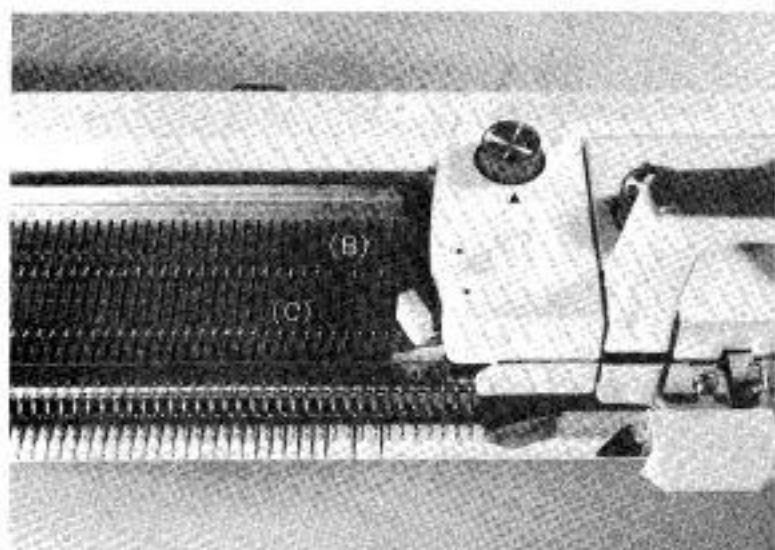


Fig. 85

The Pattern Control Knobs in this position are set for AUTOMATIC SELECTION of needles. In order to illustrate what the function of the Automatic Selector is —

- 1) Turn the Needle Selection Control Knobs so that 4 is opposite the pointer.
 - 2) Bring forward into Working Position (C) and in the centre of the machine some 40 needles.
 - 3) Ensure that all the needle butts are in a straight line and you will observe that when in The Working Position (C) the needle butts are forward of the tip of Needle Guide Cam.
 - 4) With the carriage on the right push back into Position (B) the 2nd and 4th needles on the right as shown in Fig. 85. You will see that the butts of the 2 needles in Position (B) are now behind the tip of the Needle Guide Cam.
 - 5) When the carriage is moved across the working needles you will note the following —
 - a) With the Shifting Cam Lever (T-C Lever) at 'C' half the needles, in alternate formation, will knit while the others will hold the stitches.
 - b) With the Shifting Cam Lever (T-C Lever) at 'T' half the needles, in alternate formation, will knit while the others will come forward and pick up a strand of wool but will not knit the previous stitch.
- The function of the needles under sub-para (b) is used for 'tucking' patterns.

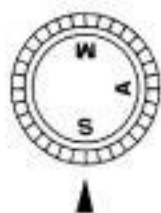


Fig. 86-A

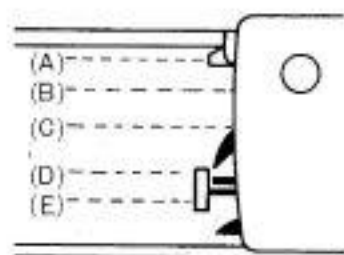


Fig. 86-B

'S' opposite pointer:-

Turn the knobs so that 'S' is opposite the pointer (Fig. 86-A), and you will notice that the tip of the Needle Guide Cam is now pointing towards the front of the machine and is forward of the needles in Working Position (C). (Fig. 86-B) Needles in Position (B) and (C) will therefore not knit when the carriage is moved across them with the Pattern Control Knobs in this position. The knobs should therefore only be at this setting 'S' when —

- a) you require to move the carriage from one end of the machine to the other and across working needles without affecting the knitting on the needles e. g. to introduce a different colour strand of wool at the opposite end.
- b) you wish to produce intricate multicoloured effects manually, knitting only on needles in the Holding Position (E).

3. Needle Selection Control Knobs (Fig. 81-3)

These Control Knobs are marked with figures 4, 5, 6, 7, 8, 9, 10, 11 & 12, and to turn, first depress the knob.

Selection of needles is made with the forefinger by pushing back the required number of needles from Working Position (C) into Position (B).

When using these knobs the Pattern Control Knobs (MAS Knobs) — (Fig. 81-2) must always be set at 'A'.

With the Needle Selection Control Knobs set at -

- No. 4. needles may be selected in combinations of 4, i. e. 1 and 3, 3 and 1, 2 and 2, 1 and 1.
- No. 5. needles may be selected in combinations of 5, i. e. 1 and 4, 4 and 1, 2 and 3, 3 and 2.
- No. 6. needles may be selected in combinations of 6, i. e. 1 and 1, 3 and 3, 2 and 4, 1 and 5, 2 and 2.
- No. 7. needles may be selected in combinations of 7, i. e. 1 and 6, 2 and 5, 3 and 4.
- No. 8. needles may be selected in combinations of 8, i. e. 1 and 1, 2 and 2, 2 and 6, 3 and 5, 4 and 4.
- No. 9. needles may be selected in combinations of 9, i. e. 1 and 8, 2 and 7, 3 and 6, 4 and 5, 3 and 3, etc.
- No. 10. needles may be selected in combinations of 10, i. e. 1 and 9, 2 and 8, 3 and 7, 4 and 6, 5 and 5, 1 and 1, 2 and 2, etc.
- No. 11. needles may be selected in combinations of 11, i. e. 1 and 10, 2 and 9, 3 and 8, 4 and 7, etc.
- No. 12. needles may be selected in combinations of 12, i. e. 1 and 11, 2 and 10, 3 and 9, 4 and 4, 3 and 3, etc.

* How To Vary the Selection Of Needles When Using The 9 Basic Combinations — 4, 5, 6, 7, 8, 9, 10, 11, and 12.

Draw forward from the Needle Rest Position (A) into the Working Position (C) 60 needles. Turn both Pattern Control Knobs to 'A'.

Next, push only the 1st needle back from the Working Position (C) into Position (B). The remaining needles in Working Position (C) will function as follows when the carriage is moved across them.

With Needle Selection Control Knobs at:	With Shifting Cam	Lever at:	Function of Needles:
No. 4	C	.....	Knit 3 Hold 1
No. 4	T	.....	Knit 3 Tuck 1
No. 5	C	.....	Knit 4 Hold 1
No. 5	T	.....	Knit 4 Tuck 1
No. 6	C	.....	Knit 5 Hold 1
No. 6	T	.....	Knit 5 Tuck 1
No. 7	C	.....	Knit 6 Hold 1
No. 7	T	.....	Knit 6 Tuck 1
No. 8	C	.....	Knit 7 Hold 1
No. 8	T	.....	Knit 7 Tuck 1
No. 9	C	.....	Knit 8 Hold 1
No. 9	T	.....	Knit 8 Tuck 1
No. 10	C	.....	Knit 9 Hold 1
No. 10	T	.....	Knit 9 Tuck 1
No. 11	C	.....	Knit 10 Hold 1
No. 11	T	.....	Knit 10 Tuck 1
No. 12	C	.....	Knit 11 Hold 1
No. 12	T	.....	Knit 11 Tuck 1

Each of these nine basic combinations can be varied according to the number of needles selected at the commencement of a row.

* Tables Of Needle Combinations (Automatic Needle Selection)

The following tables set out on pages 41, 42, 43, 44, 45, 46, 47 and 48 show you how to obtain a wide variety of needle formations automatically.

Table 1 Combinations obtainable when the Needle Selection Control Knobs are set at 4.

Table 2 Combinations obtainable when the Needle Selection Control Knobs are set at 5.

Table 3 Combinations obtainable when the Needle Selection Control Knobs are set at 6.

Table 4 Combinations obtainable when the Needle Selection Control Knobs are set at 7.

Table 5 Combinations obtainable when the Needle Selection Control Knobs are set at 8.

Table 6 Combinations obtainable when the Needle Selection Control Knobs are set at 9.

Table 7 Combinations obtainable when the Needle Selection Control Knobs are set at 10.

Table 8 Combinations obtainable when the Needle Selection Control Knobs are set at 11.

Table 9 Combinations obtainable when the Needle Selection Control Knobs are set at 12.

*** How To Read The Tables:**

The black dots represent needles and the vertical lines the needle grooves, each number on which corresponds with the numbering on the Needle Selection Guide Strip being used as indicated.

The black dots on the right represent the needles selected at the beginning of a row. The series of black dots on the left indicate the manner in which the needles will be automatically operated when the carriage is moved across the machine. The black dots above the horizontal line are needles in Position (B) and those below this line are in Working Position (C).

Note: When moving the carriage and at the same time the leading Needle Forwarding Lever, the black dots above the horizontal line will be the needles in Position (C) – Working Position, and those below this line will be in Position (E) at the completion of the row, e.g. in Table 1 on the right of the diagram one needle only, at the same end as the carriage, has been pushed back into Position (B) from the line of needles in Working Position (C). The diagram therefore only shows the one needle that has been pushed back into Position (B).

When the carriage is moved across the working needles, the automatic selector will operate them in the formation shown on the left of the diagram, namely 3 forward (to knit), 1 back (to tuck or hold), 3 forward, 1 back and so on to the end of the row.

In this same example the single needles above the line will -

- a) With the Shifting Cam Lever at 'C' hold the stitch, while the groups of 3 needles shown below the line will knit.
- b) With the Shifting Cam Lever at 'T' the single needles will not only hold the stitch of the previous row but will also come forward and pick up and hold a strand of the wool from the row being knitted by the groups of 3 needles shown below the line.

This same needle action takes place in all the combinations shown in the Tables.

Note: Tucking can only be done on **single needles** and **not on adjacent needles** simultaneously e.g. can be done in formations of 1x1 but not 2x2, etc.

*** The Needle Selection Guide Strips:**

Four plastic strips are supplied with the machine, and they are found clipped inside the case lid.

These strips serve as a guide when selecting needles for pattern making. It will be seen that each of two and/or three faces of the strips is numbered to correspond with the numbering on the Needle Selection Control Knobs.

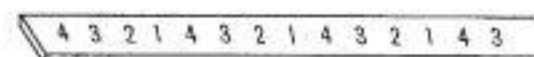
When working on the Needle Combinations from any of the Tables 1 to 9 the corresponding N.S.G.S. (Needle Selection Guide Strip) should first be placed in position on the Needle Bed so that the appropriately numbered face is visible to the operator.

There are 4 N.S.G.S. in all.

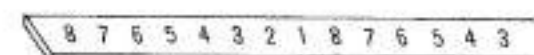
Three of the Strips are Flat and one is Triangular.

The faces of the Strips correspond with the Table of Needle Combinations as follows:

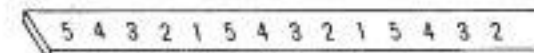
For TABLE 1. use: -



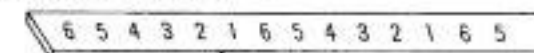
and for TABLE 5. use the reverse side of this strip which reads as follows: -



For TABLE 2. use: -

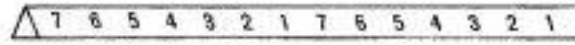


and for TABLE 3. use the reverse side of this strip which reads as follows: -



For TABLE 4, 6, & 7, use the Triangular shaped Strip with the faces visible as follows: -

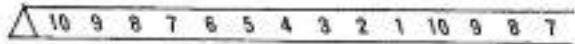
For TABLE 4.



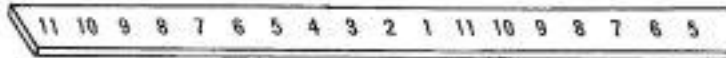
For TABLE 6.



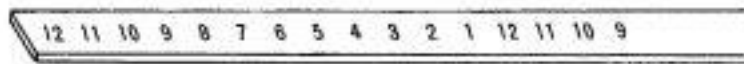
For TABLE 7.



For TABLE 8, use: -



and for TABLE 9, use the reverse side of this strip which reads as follows: -



These strips are held firmly by spring clips to be found at each end and in front of rear track of the needle bed, and each strip can be easily replaced or turned as shown in Fig. 87, so that the required face is visible.

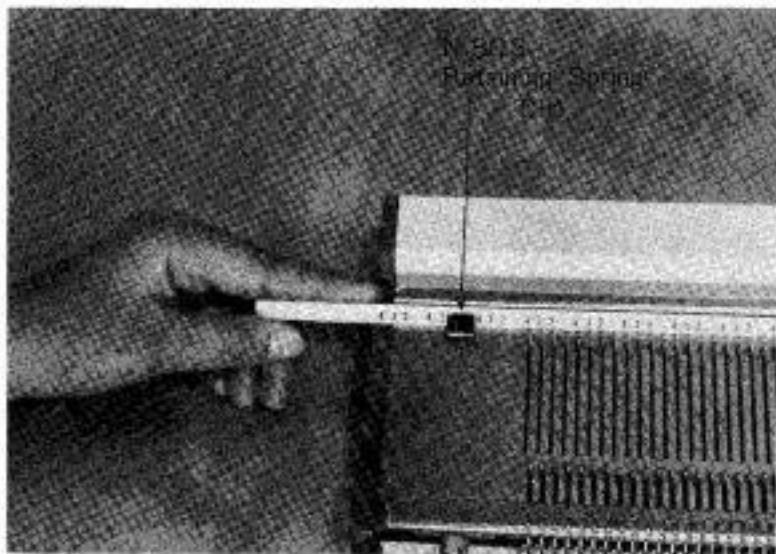


Fig. 87

Table 1

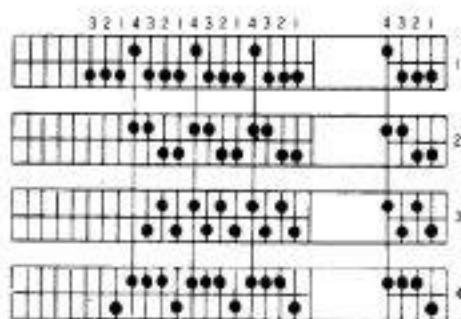


Table 2

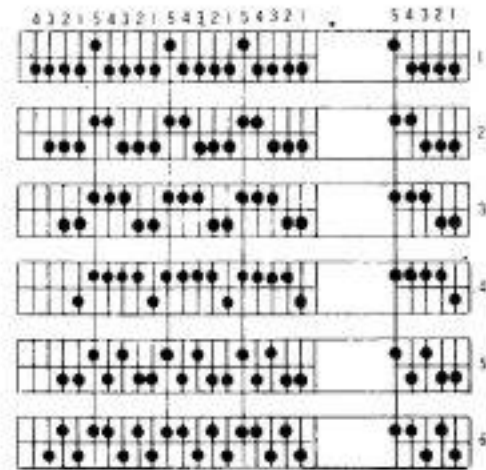


Table 3

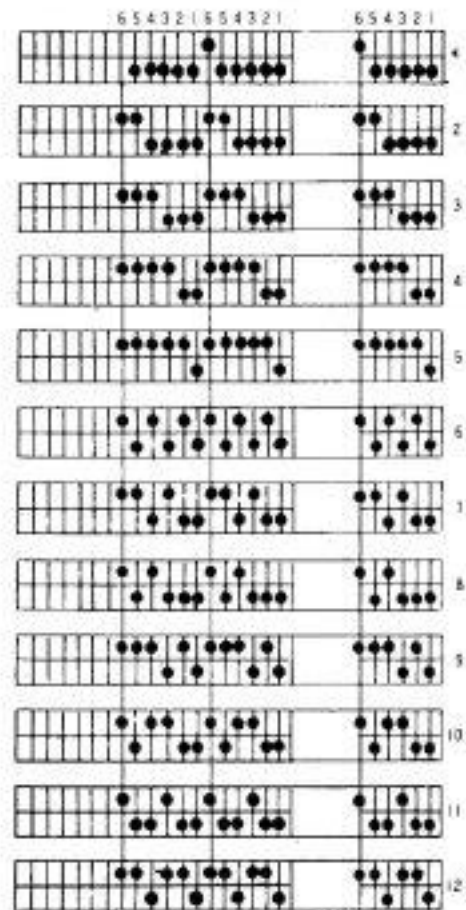


Table 4

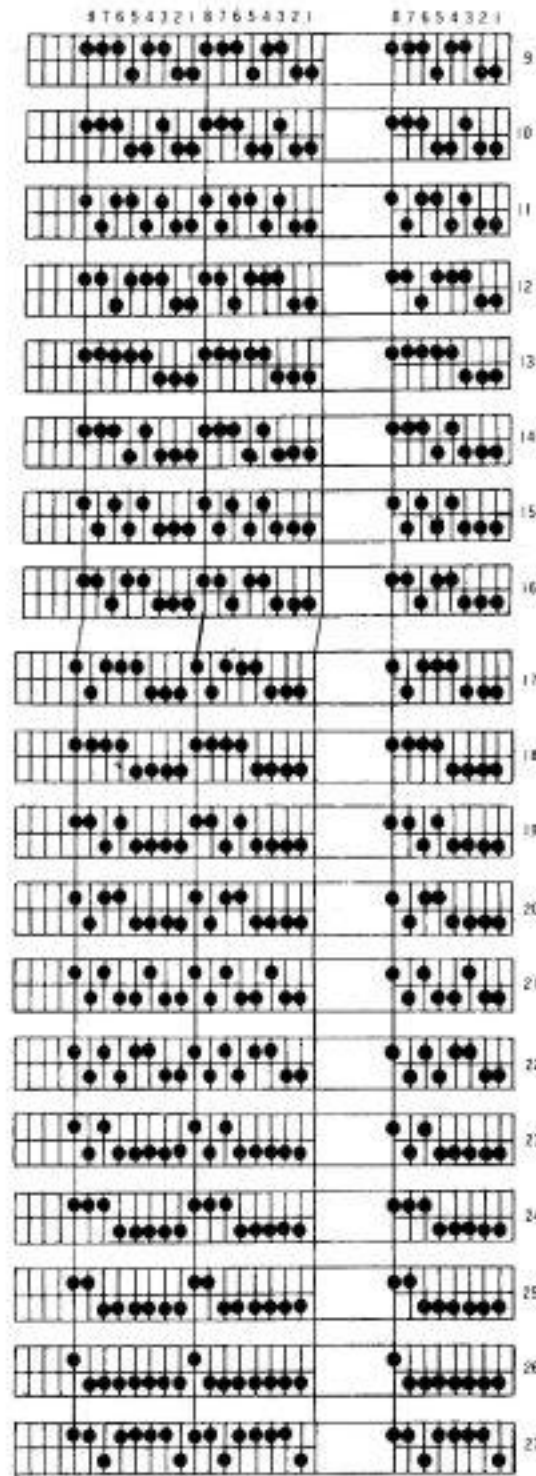
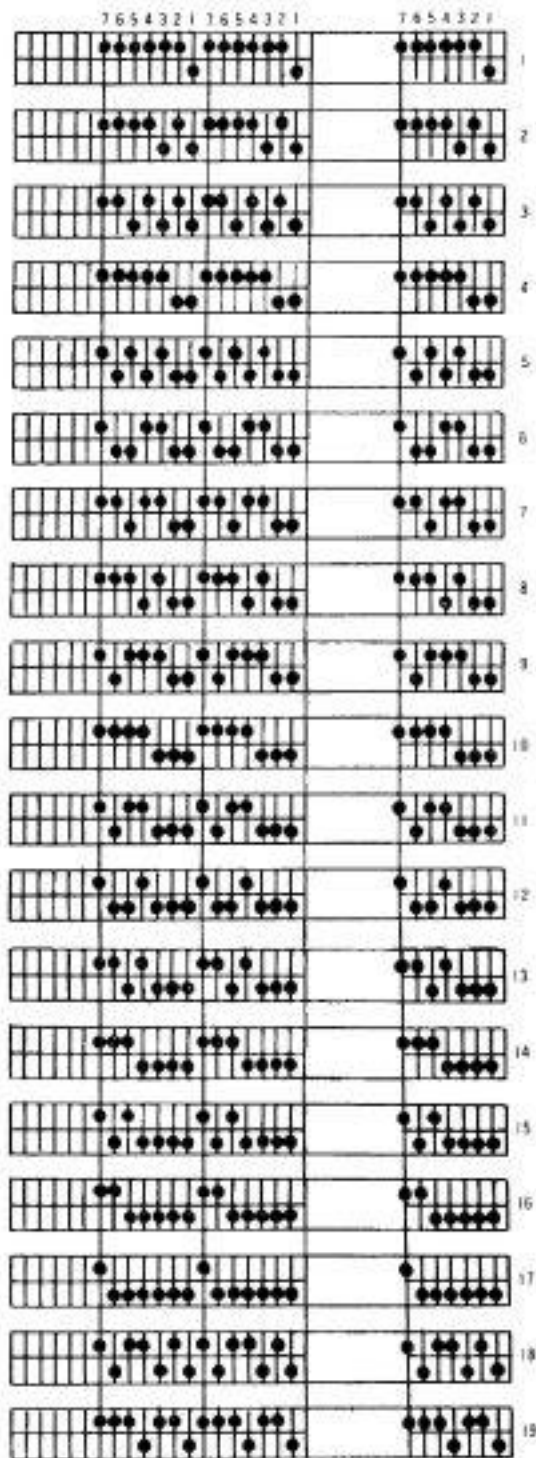


Table 5

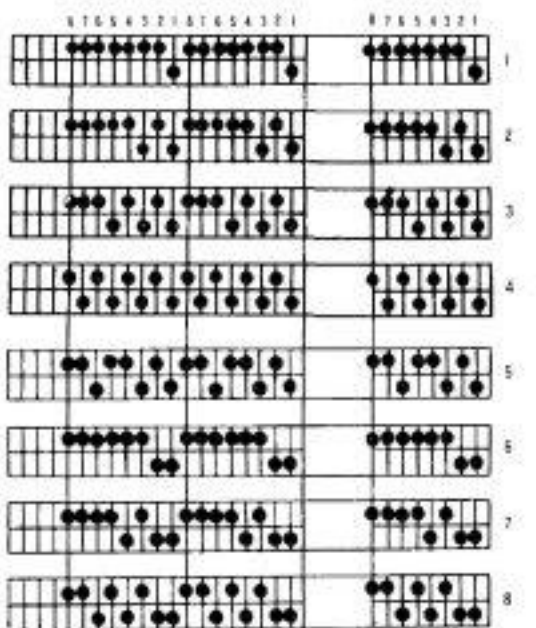
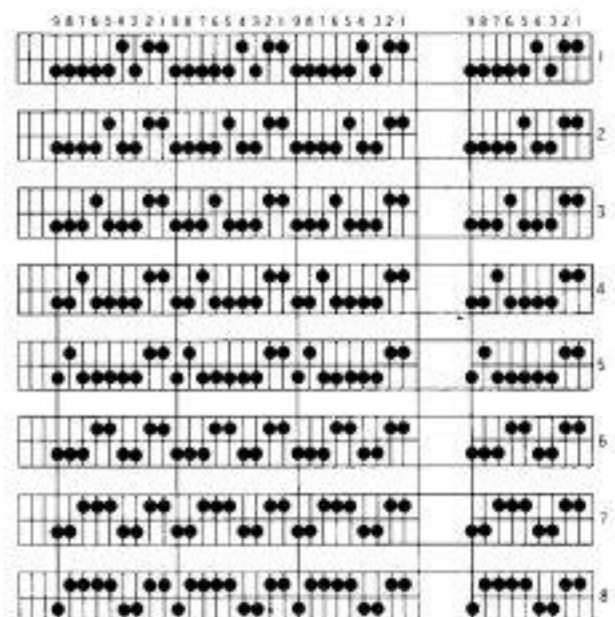


Table 6



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Table 7

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Table 8

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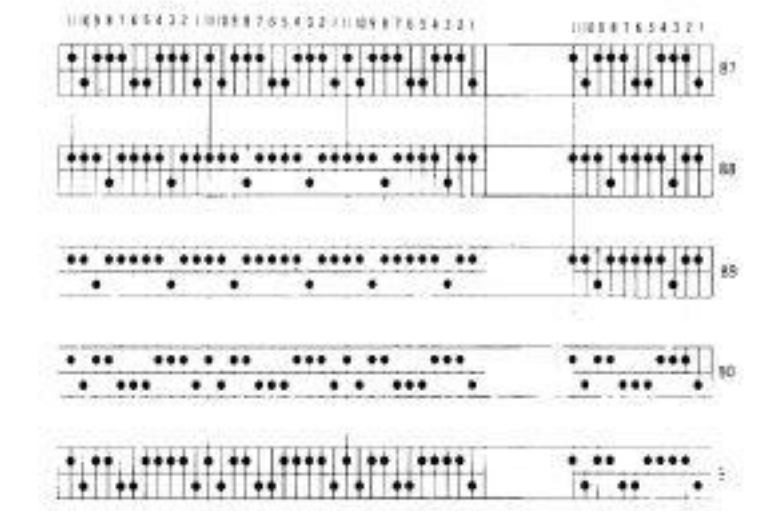
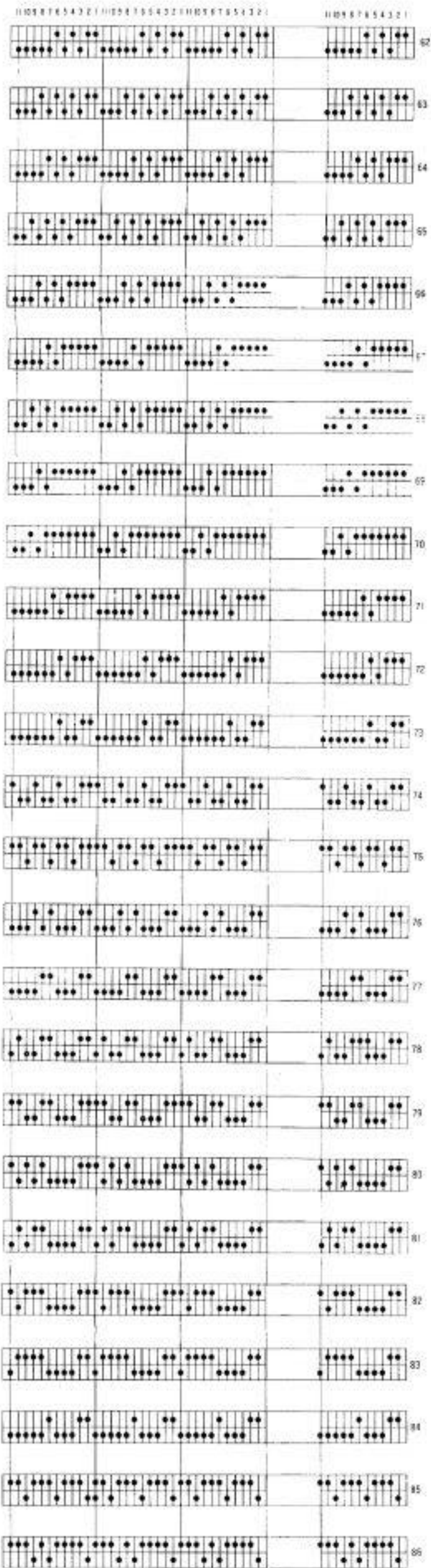
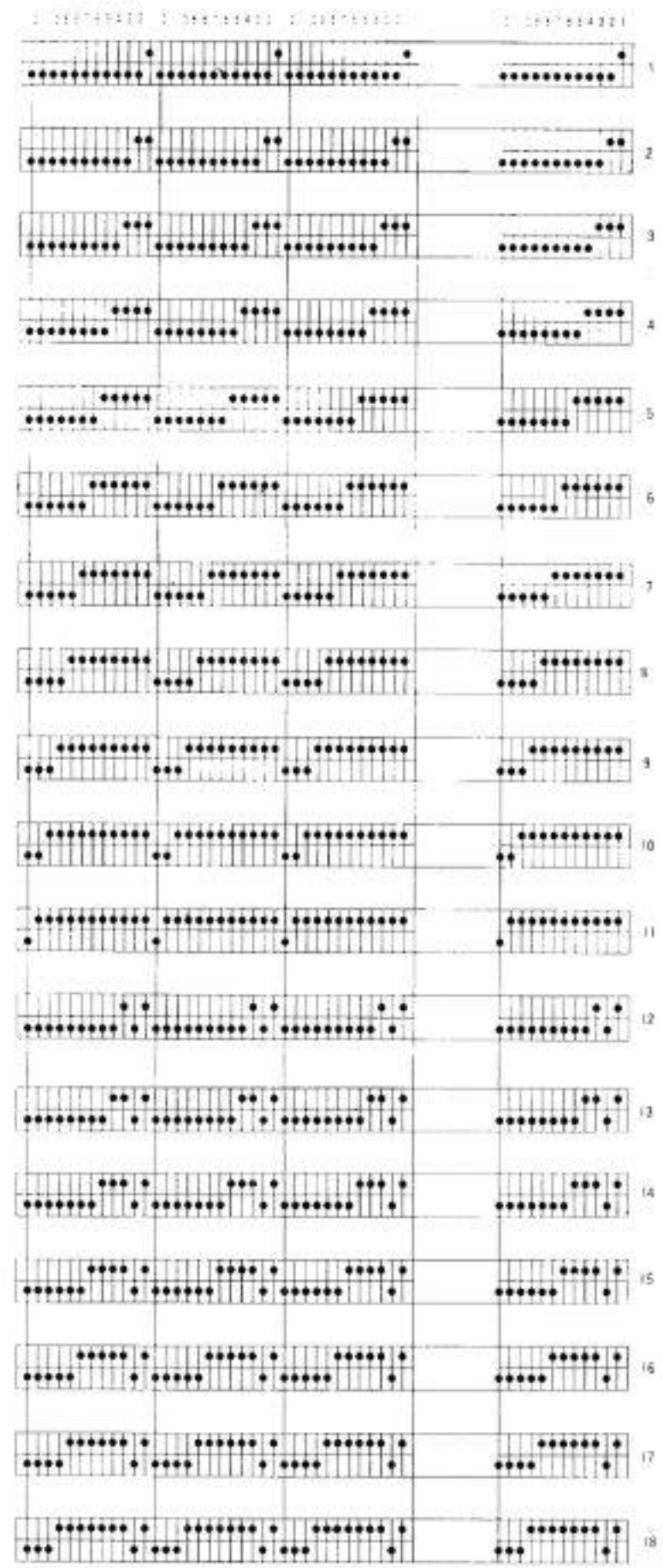


Table 9



(211038765432) (211038765432) (211038765432) (211038765432)

19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68

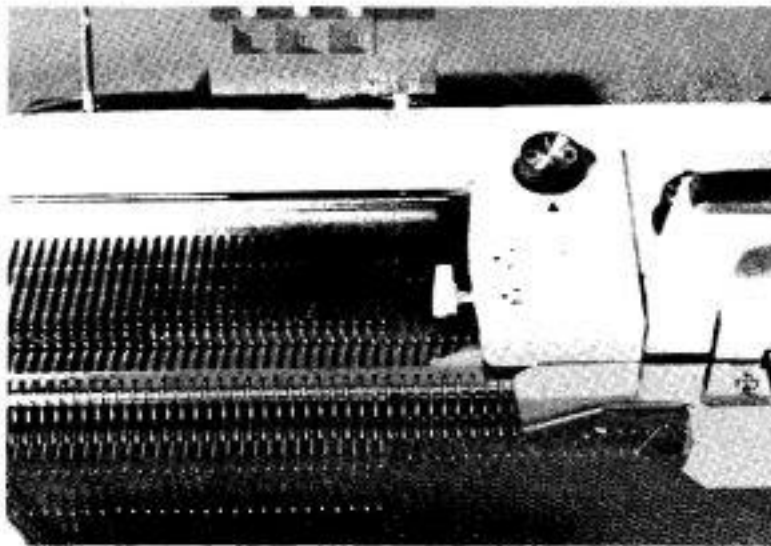


Fig. 88

4. Return Cam Levers (Fig.81-4)

These Levers control the Return Cam, and are set to two positions, namely Position 1—Backward Position, and Position 2—Forward Position.

Position 1. With the lever in this setting, needles in Position (E) will not knit regardless of the position of the Pattern Control Knob, but needles in Position (D) will knit also regardless of the position of the Pattern Control Knob. Therefore, this setting is used for 'turning', 'part knitting' etc. (Fig. 88)

Position 2. With the lever in this setting, needles in Position (E) will also knit, and therefore, with the Pattern Control Knob in Position 'M', needles in any of the Position (B), (C), (D), or (E) will knit.

5. Shifting Cam Lever (T-C Lever) (Fig.81-5)

This lever is located in the centre front of the carriage as shown in Fig. 81-5. Used in conjunction with the Automatic Needle Selector the two positions have the following functions:

Lever at 'T'

Selected needles, i. e. those needles pushed back from Working Position (C) into Position (B) at the start of a row (see Fig. 78) will not only hold the stitches of the previous row, but will pick up and hold wool of the row being knitted.

Needles remaining in Working Position (C) will knit normally. This action is known as 'tucking' and may also be used for 2-tone pattern work or for raised-stitch effects.

Lever at 'C'

Selected needles, i. e. those needles pushed back from Working Position (C) into Position (B) at the start of a row will hold the stitches of the previous row while the remaining needles in Working Position (C) will knit. This position is therefore used for coloured pattern work such as Fair Isle Knitting.

When plain stocking stitch is being produced, i. e. not using the Automatic Needle Selector, the Shifting Cam Lever can be in either setting 'C' or 'T' — preferably 'C'.

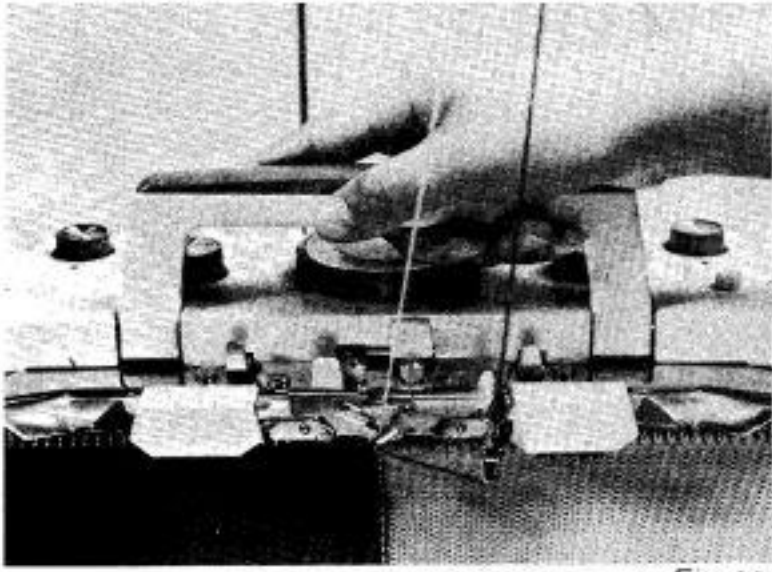
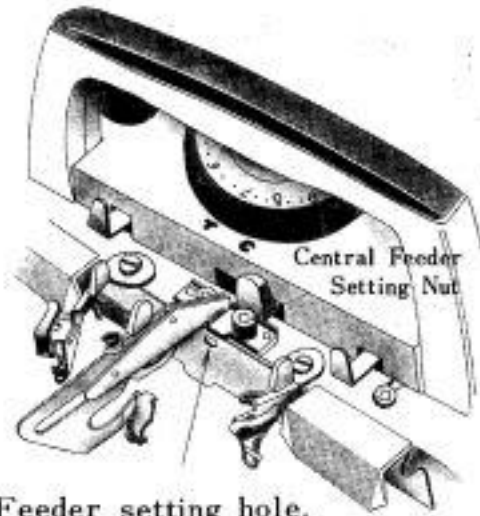


Fig. 89

6. Twin Main Feeders (Fig. 81-6)

When knitting two colour patterns, thread one Feeder with the Main colour and the other with the Second colour. To change from one colour to the other — pull out of action the Feeder being used and flick into action the Feeder to be used. (see Fig. 89)

Note: One Feeder must always be out of action in the fully open position during knitting, otherwise damage may be caused to the machine needles.



Feeder setting hole.

Fig. 90

7. Central Yarn Feeder Setting Nuts

(Fig. 81-7)

These two Nuts located in the centre front of the carriage are used to secure the detachable Central Yarn Feeder when knitting three colour patterns.

To assemble the Central Feeder in position on the carriage, first loosen and remove two Nuts, and place in position the Central Feeder as shown in Fig. 90, by replacing and tightening firmly the setting nuts.

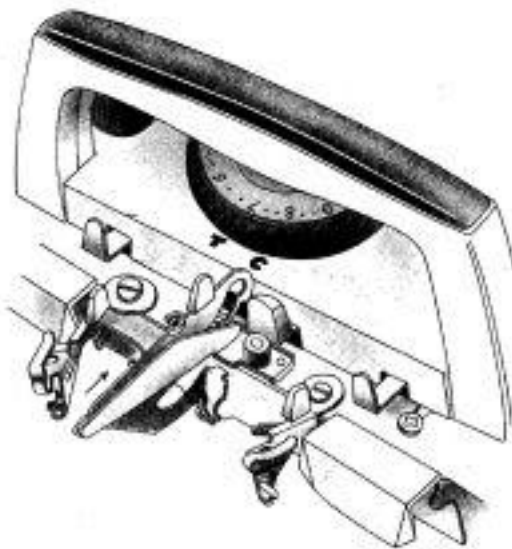


Fig. 91

To bring the Feeder into operation push the knob back towards the Cam Box and ensure that the tongue, on the lower section, engages in the Feeder setting hole. (See Figs. 90 & 91)

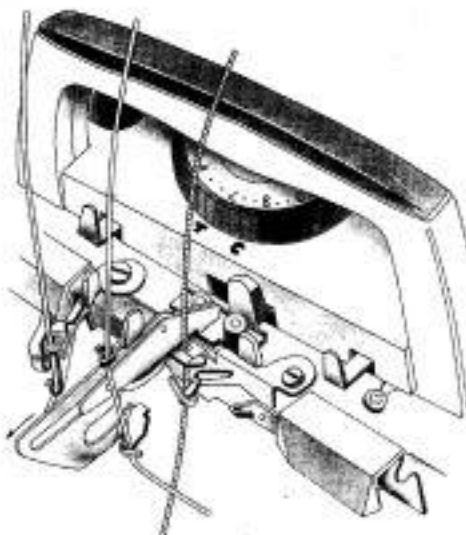


Fig. 92

To bring the Feeder out of action, pull the knob forward to its fullest extent.

This will bring it clear of the Main Feeders. (See Fig. 92)

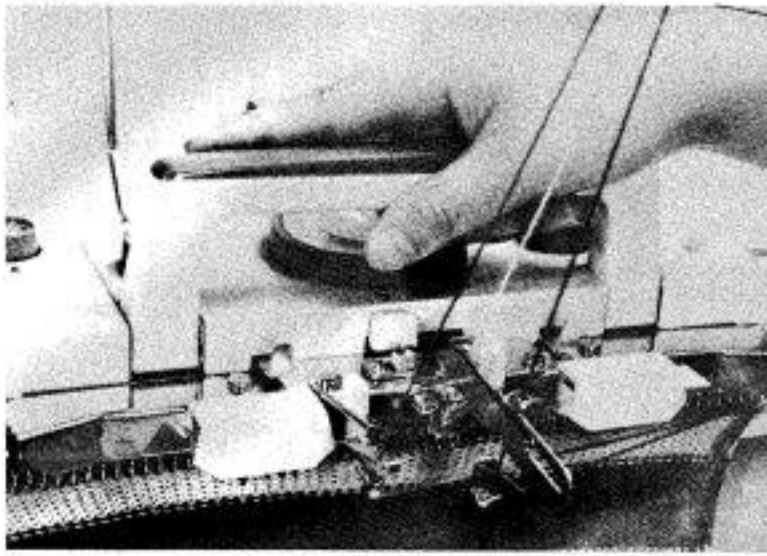


Fig. 93

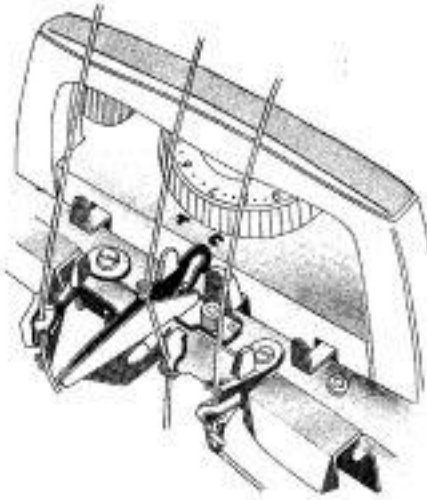


Fig. 94

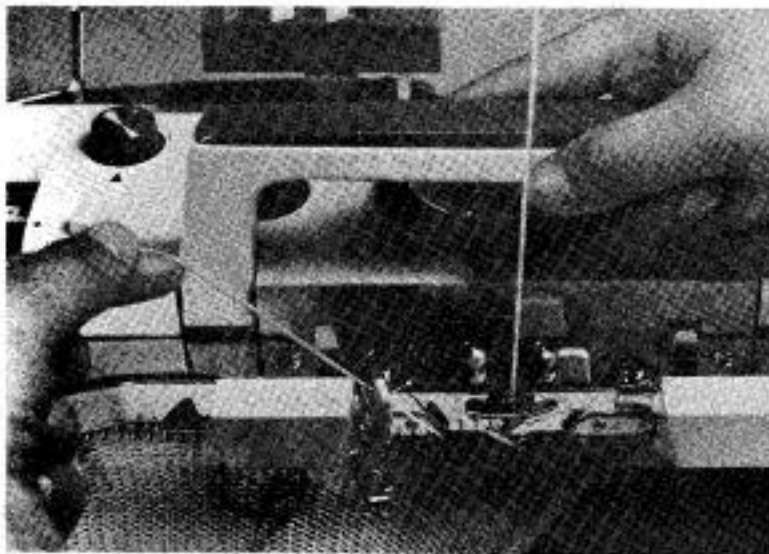


Fig. 95

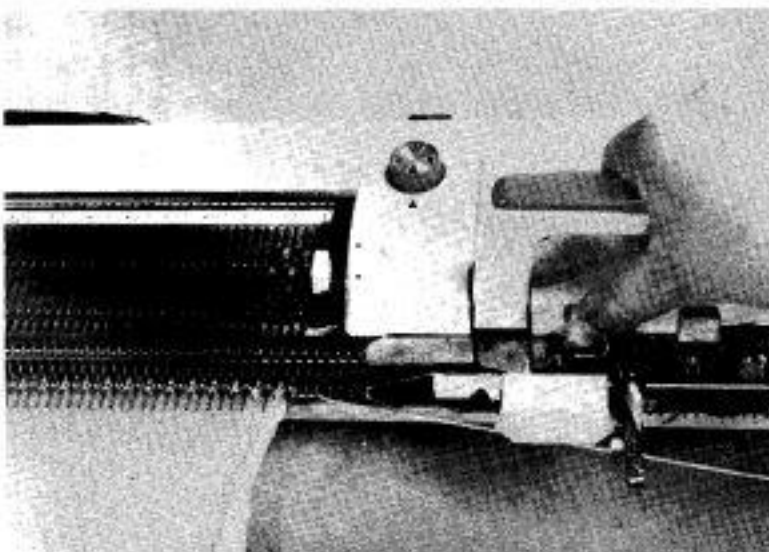


Fig. 96

When knitting three colour patterns, the three strands of different coloured wools should be threaded through the Overhead Feeder Unit, then thread one of the Main Feeders with 1st colour, the other Main Feeder with 2nd colour and the Central Feeder with 3rd colour. (Fig. 93)

To change colour, pull out of action the Feeder in use and engage the Feeder threaded with the colour required. (See Fig. 94)

Note: Always use Central Feeder for the 3rd colour. When knitting only 1 or 2 colour patterns use the Main Feeders.

8. Subsidiary Yarn Feeders (Fig. 81-8)

These Feeders are used when producing complicated colour knitting to prevent the yarns becoming entangled, and therefore, when using the Subsidiary Yarn Feeders the yarn must not be threaded into the Overhead Feeder Unit, but guided with the left hand. It should be noted that you always have to use the leading Sub Feeder. e.g. when moving the carriage from right to left, use left hand Feeder as shown in Fig. 95.

These Feeders are used mainly for knitting two strands of yarn together - 'Reversible Colour Knitting' - as shown in Fig. 95, and also for 'Woven Effects' etc.

9. Needle Forwarding Levers (Fig. 81-9)

Either lever will bring forward needles from Position (C) or (D) into Position (E) when moving the carriage and at the same time pushing in the leading Lever.

For instance, set Pattern Control Knobs to A, Needle Selection Control Knobs to No. 4, and turn the Needle Selection Guide Strip so that the visible face is 43214321 - see Table 1. Push back into Position (B) the 2nd and 4th needles near the Carriage as shown in Fig. 96, and move the carriage at the same time pushing in the leading Needle Forwarding Lever.

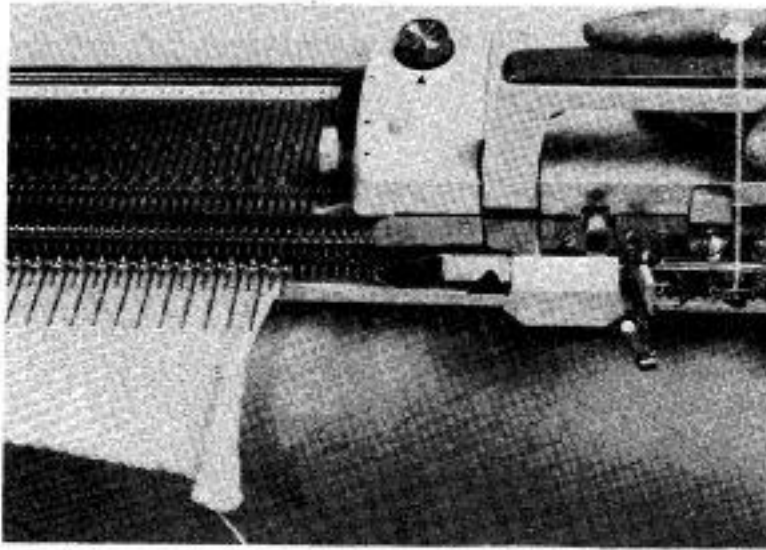


Fig. 97

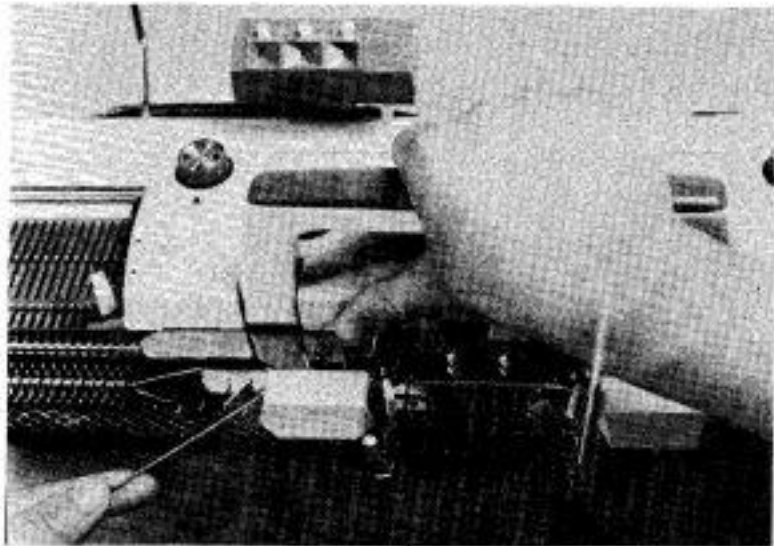


Fig. 98

You will see that every alternate needle will be forwarded into Position (E) leaving the other needles in Position (C) — see Fig. 97.

The needles in Position (E) are the needles previously in Position (C), and the needles in Position (C) are the needles previously pushed back into Position (B).

Note: When using this lever, make sure that both Main Feeders are out of action in the fully open position.

10 Weaving Feeders (Fig.81-10)

These Feeders are used exclusively for 'Weave Effect' Knitting — see page 64.

These Feeders can only be used in conjunction with the Needle Forwarding Levers as shown in Fig.98. The wool should always be placed in the leading Feeder — i. e. the Feeder nearest the knitting.

When knitting with these feeders it is unnecessary to hold the wool with your hand.

Note: The 'Weaving Feeders' should never be used at the same time as the Main or Subsidiary Feeders.

HELPFUL HINTS FOR SUCCESSFUL KNITTING

1. Stitch Must Be Under The Sinker Hooks

a) Be sure that all the stitches are under the sinker hooks during knitting. (Fig.99-a)



Fig. 99-a

b) If the stitch is out of the sinker hooks — Fig. 99-b — the needle will not knit the next row but hold the stitch making a tucking stitch.



Fig. 99-b

c) Even if the stitch is out of the sinker hooks, when it is behind the needle latch — see Fig. 99-c — the needle will knit normally.

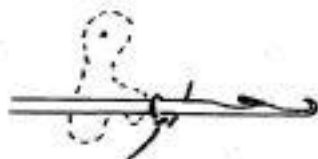


Fig. 99-c

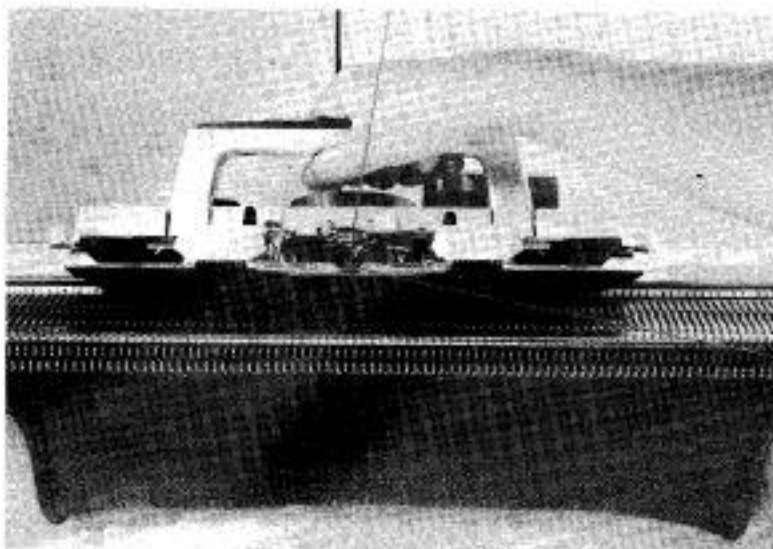


Fig. 100

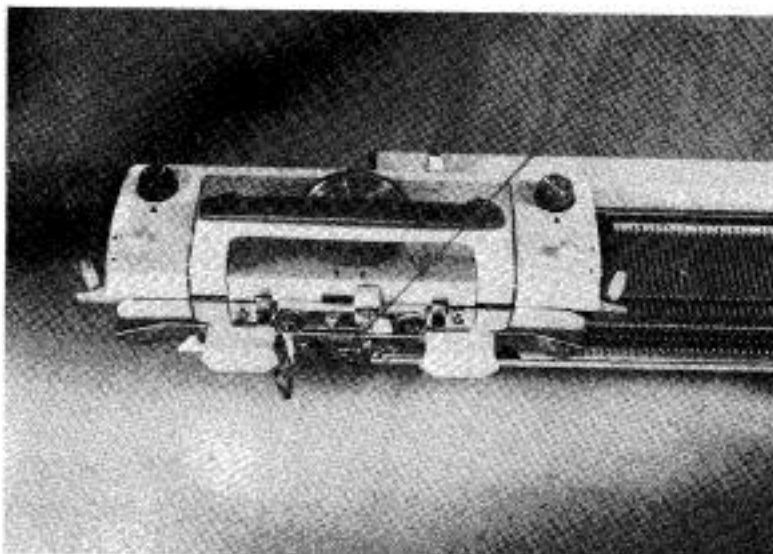


Fig. 101

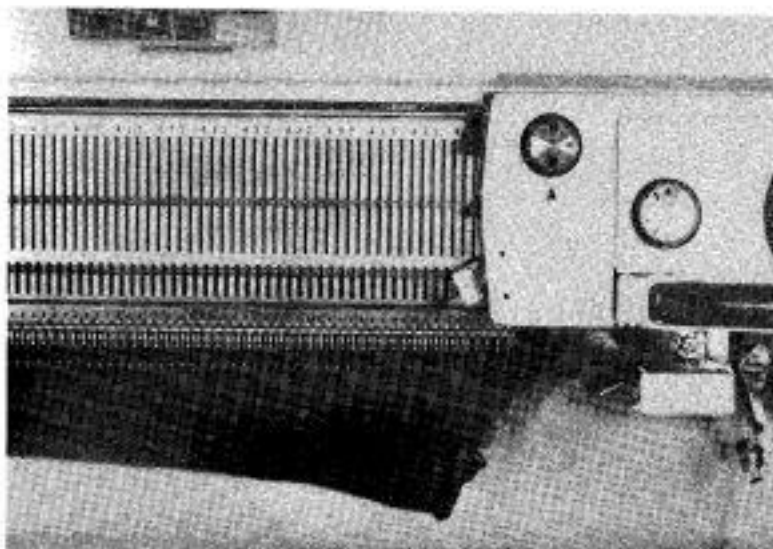


Fig. 102

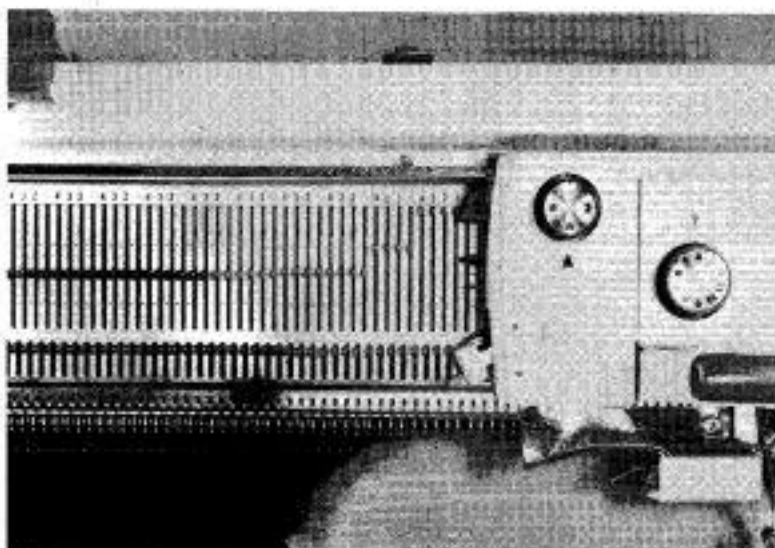


Fig. 103

2. End Needle Does Not Knit.

If stitches held on the end needle 'double-up' during knitting, knit these through manually before knitting the next row, and then, give a light pull to the garment by your left hand during next few rows.

3. Moving the Carriage Across Needles Without Affecting the Knitting

There are several methods of moving the carriage across working needles without affecting the knitting.

Method A

Lift the carriage slightly at the front, and at the same time move it to the opposite end of the needle bed. (Fig. 100 & 101)

Method B.

Pull out of action both feeders, and turn leading Pattern Control Knob to 'S' opposite pointer. Move the carriage across needles to the other side. (Fig. 102)

Note: When the Shifting Cam Lever is set to 'C', it is not necessary to pull out of action the Feeder.

Method C

This method is particularly convenient when automatic pattern making.

Leaving the Pattern Control Knob still set at 'A', push back into Position (B) at the end nearest the Carriage a number of needles, which must be the same as or a bigger number than that on the Needle Selection Control Knob opposite the pointer, i.e. when the Needle Selection Control Knob is set at No. 4, push back into Position (B) 4 or more than 4 needles. (Fig. 103)

Now, pull out of action both Feeders, and move the carriage across needles to the other side.

Note: When the Shifting Cam Lever is set to 'C', it is not necessary to pull out of action the Feeder.

4. Carriage Jamming During Knitting

Never use force to operate the carriage, and check—

- a) If the wool has twisted around the any eyelets of the Overhead Feeder Unit or Carriage Feeder.
- b) If the tension setting is too tight for the thickness of wool being used.

If the carriage still jams at the middle of a row, and does not move, or is disconnected from the front runner rail, do not use force to free it but proceed as follows: -

When knitting in plain stocking stitches

- 1) Lift the carriage at the front, and move back the carriage to the starting end of this row.
- 2) Push forward into Position (E) all the needles which have already knit the stitches of this row. The wool should run over needle stems from last inside needle in Position (E) to the carriage feeder. (Fig. 104)
Other needles which have not knit this row should be aligned in Position (C).
- 3) Set to No. 1 (Backward Position) the leading Return Cam Lever, and move the carriage across needles.
- 4) Move the carriage back across needles, ensuring that the leading Return Cam Lever of this row is set to No. 2 (Forward Position).

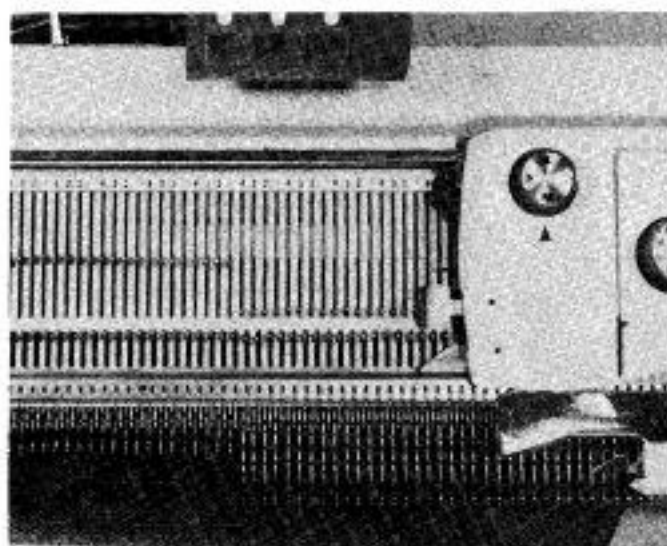


Fig. 104

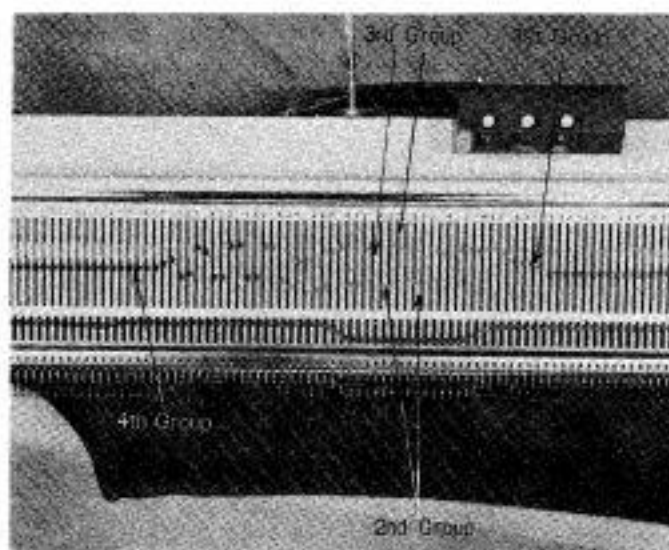
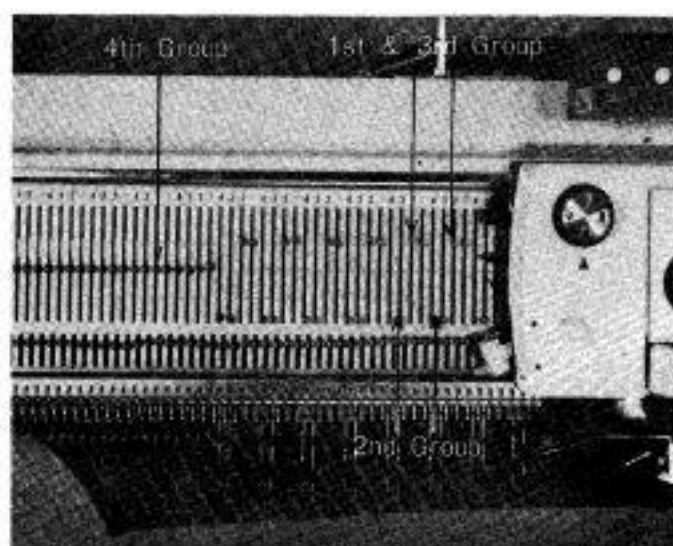


Fig. 105



When knitting in automatic pattern making

- 1) Lift and move back the carriage.
It will be seen that there are four groups of the working needles when carriage is returned to the starting end of this row. First group of them is those that have already knit and are between Positions (B) and (C), the second group is those already selected to knit by the automatic selector and are seen near Position (D), the third group those already selected to hold or to tuck and are near Position (B), and the fourth group those not yet selected and are in line in Position (C). (Fig. 105)
- 2) Now, bring into Position (B) the first group of needles, Position (E) the second group, Position (B) the third group and Position (C) the fourth group as shown in Fig. 106. The wool should run over needle stems in Position (E) to the carriage feeder.
- 3) Set the leading Return Cam Lever to No. 2, and move the carriage across needles.

ADVANCED PATTERN KNITTING

Colour Pattern Work – Manual Method

Where the design consists of 13 or more adjacent stitches in the one colour within the pattern (see Figs. 107 & 108) i. e. beyond the range of the Automatic Selector, the manual method as described below should be used.

- (1) Turn both Pattern Control Knobs to 'S'.
Move the Shifting Cam Lever to 'C' and both Return Cam Lever in Position '2'.
- (2) The number of needles required for the contrasting colour should be brought forward into Holding Position (E) — see Fig. 109.
The contrast colour wool is then threaded in the Carriage Feeder and the row knitted.
- (3) With the carriage now at the opposite end bring into Holding Position (E) those needles which were previously in Position (C).
Change to the main colour and knit 1 row.
- (4) Repeat this procedure selecting the needles according to the requirements of the two colour patterns illustrated at Figs. 107 & 108.
It will be noted that only those needles in Position (E) knit a new row, while the needles left in Position (C) hold the stitches of the previous row. It is therefore necessary to bring these needles forward into Position (E) to receive the new colour with a further movement of the carriage. Accordingly two movements of the carriage are required in order to produce one complete row of knitting. If three colours are introduced into the one row of knitting then three movements of the carriage will be required, and so on.

Important: After completing each row with Pattern Knobs at 'S' make sure that all needles which are to remain in Position (C) for the next row are in a straight line in this Position.



Fig. 107

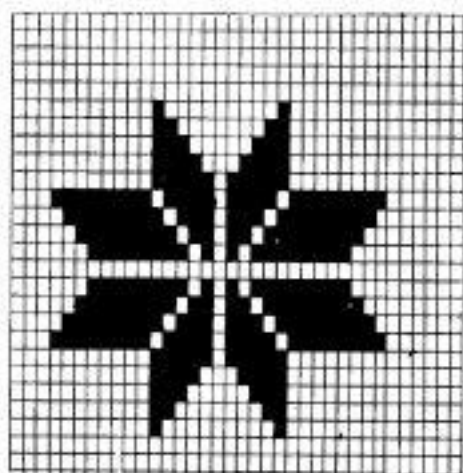


Fig. 108

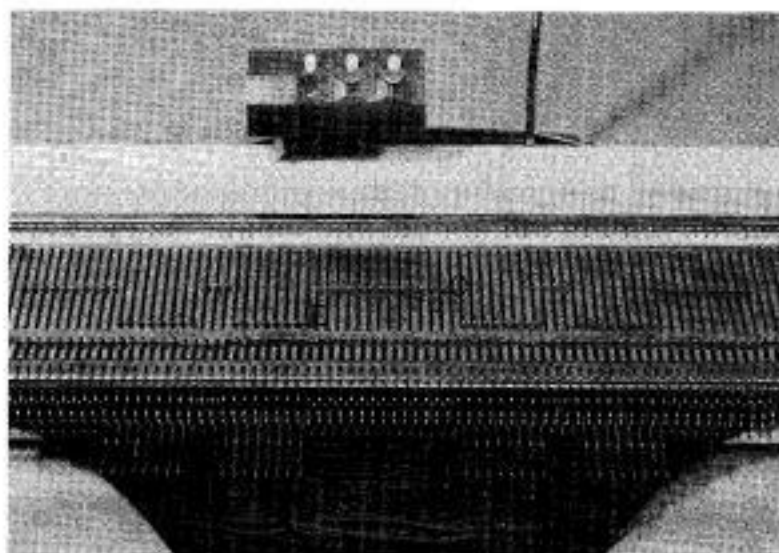


Fig. 109

Tucking Pattern Work — Manual Method

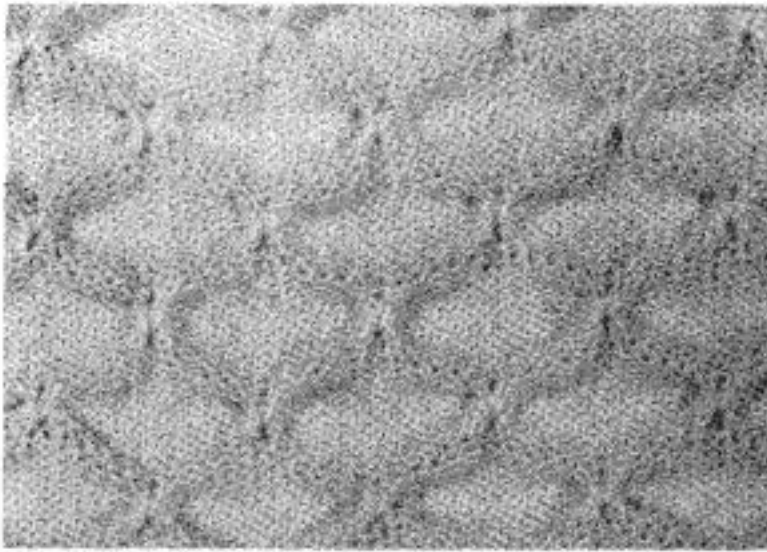


Fig. 110

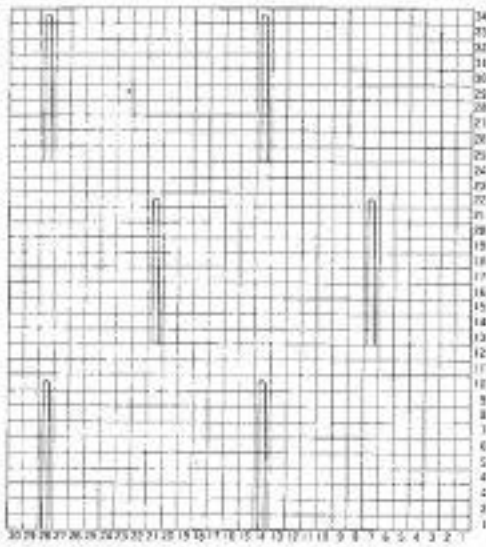


Fig. 111

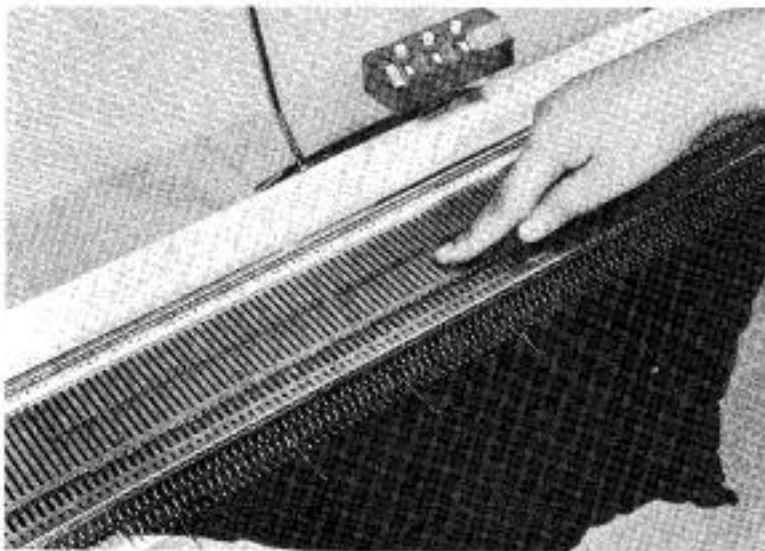


Fig. 112

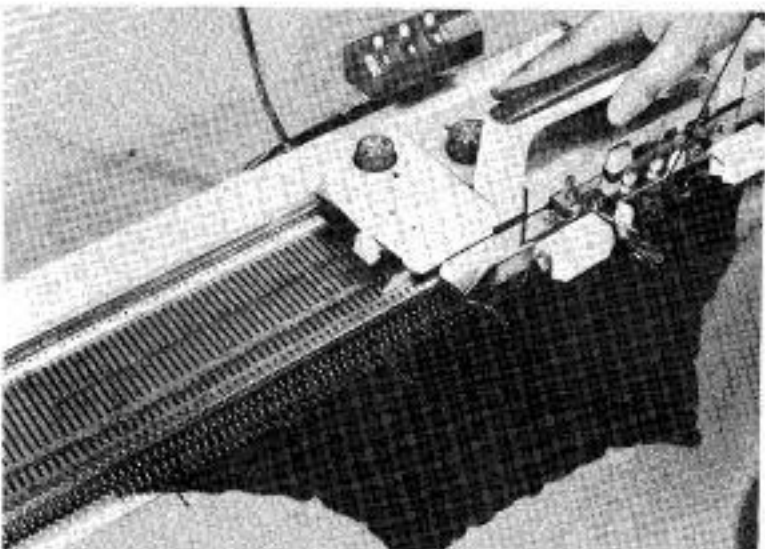


Fig. 113

As in the case of Colour Pattern work if the Tucking Pattern repeats at intervals of 13 or more stitches (Figs. 110 & 111) the following manual method is employed.

- (1) Turn both Pattern Control Knobs to 'M'.
Move the Shifting Cam Lever to 'C' and push BACK into Position '1' both Return Cam Levers.
- (2) The number of needles required for Tucking (Holding) should be brought forward into Position (E) (Holding Position), — Figs. 112 & 113. Knit the number of rows required by the pattern with the selected needles remaining in the Holding Position. In the pattern illustrated at Fig. 110, every 14th needle is in Position (E) and 10 rows are knitted with these needles remaining in the Holding Position.
- (3) Before knitting the 11th row of the pattern illustrated at Fig. 110 the Return Cam Levers are pulled FORWARD into Position '2' so that the holding needles will knit along with the rest. At the end of the 11th row the Return Cam Levers must be pushed BACK into Position '1'.
After 2 rows of knitting over all the needles another sequence of single needles is brought forward into Position (E) and the procedure is repeated. (Figs. 112 & 113)

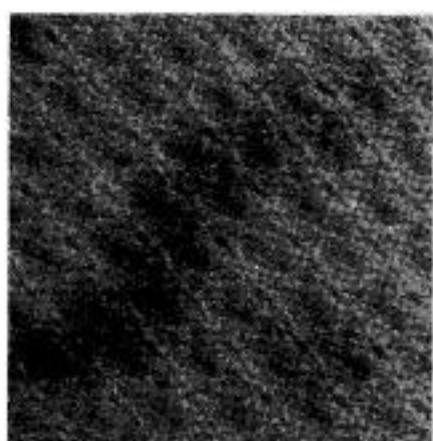


Fig. 114

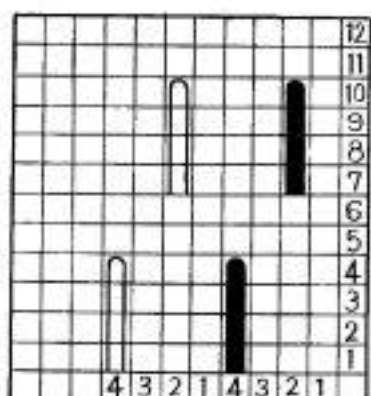


Fig. 115

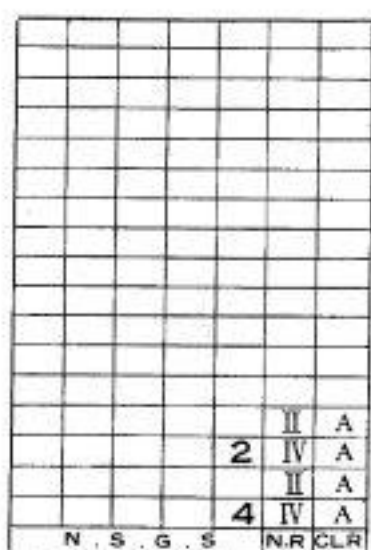


Fig. 116

Tucking Pattern – Automatic Method

Tucking patterns can be produced automatically in the following manner:

- (1) Turn Pattern Control Knobs to 'A'.
Move the Shifting Cam Lever to 'T' and pull FORWARD into Position '2' the Return Cam Levers.
- (2) Turn the Needle Selection Control Knobs to number 4.5.6.7.8.9.10.11 or 12 according to the combination of needles required (see Tables of Needle Combinations).
- (3) Use the Needle Selection Guide Strip to correspond with the setting of the Needle Selection Control Knobs.
- (4) Push back into Position (B) from Position (C) those needles required for Tucking.
Only the first few needles at the end require to be pushed back as the Carriage will automatically select the rest of the working needles when moved across the machine (see Tables of Needle Combination).

How To Knit The One-Colour Tucking Pattern (Fig. 114)

Settings Pattern Control Knobs at 'A'

Shifting Cam Lever at 'T'

Return Cam Levers — Position '2'

Needle Selection Control Knobs at 4.

Needle Selection Guide Strip — 4321

Fig. 114 One-colour Tucking Pattern

Fig. 115 (a) The symbol '∩' indicates a tuck stitch.

- (b) The symbol '■' indicates a needle pushed back into Position (B) from Position (C) before commencement of a row i.e. in this case, from 1st row to 4th row you should push back only one needle opposite No. 4 on the Needle Guide Strip at the carriage end before knitting each row. And, in same way, from 7th to 10th row push back to Position (B) a needle opposite No. 2

(c) Reading up the chart each square represents a stitch.

Fig. 116 (a) Clr. denotes the Colour, and the letter 'A' represents main colour — in this case only one colour is used.

(b) N.R. means the 'Number of Rows'

(c) N.S.G.S. means 'Needle Selection Guide Strip'. In this case, the diagram shows that you should knit from 1st to 4th row pushing back into Position (B) only one needle opposite No.4 on the Needle Selection Guide Strip at the commencement of each row, then after knitting 2 rows i.e. 5th and 6th rows, without selection, you should repeat the procedure from 7th to 10th row but by pushing a needle opposite No. 2 on the N.S.G.S. back into Position 'B'.

(d) The blank squares in the row above represent rows knitted without any needles being selected.

* 1st row Carriage on right. Push back into Position (B) the 4th needle from the right-hand end. This needle will be that opposite No. 4 on the N.S.G.S. (Fig. 117) Knit 1 row.

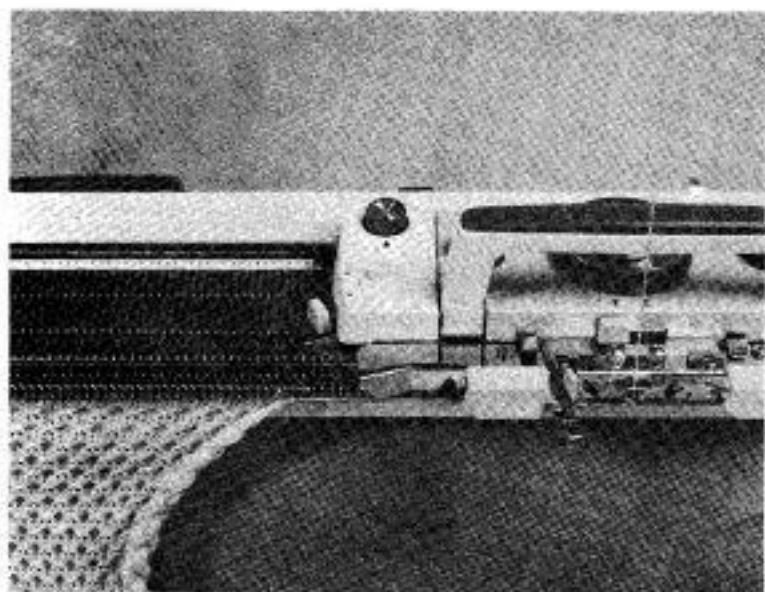


Fig. 117

Note: You will see that every 4th needle will hold the stitch of the previous row and also pick up a strand of wool of the row being knitted while the remainder will knit.

2nd row Carriage on left. Push back into Position (B) that needle opposite the first No. 4 on the N.S.G.S. reading from left to right of the working needles. Knit 1 row.

3rd row Carriage on right. Push back into Position (B) the 4th needle from right end opposite No. 4 on the N.S.G.S. (Fig. 117) and knit 1 row.

4th row Carriage on left. Push back into Position (B) the end needle opposite No. 4. Knit 1 row.

Note: You will see that every 4th needle opposite No. 4 on the N.S.G.S. will hold the stitches of the previous 3 rows and also pick up a strand of wool of the row being knitted while the remainder will knit.

5th row Carriage on right. Knit one row, and all the needles will knit along this row.

6th row Carriage on left. Knit one row.

7th row Carriage on right. Push back into Position (B) the 2nd needle from the right end opposite No. 2 on the N.S.G.S. Knit 1 row.

8th row Carriage on left. Push back into Position (B) the 3rd needle from the left end needle opposite No. 2. Knit 1 row.

9th row Carriage on right. Push back into Position (B) the 2nd needle from the right opposite No. 2. Knit 1 row.

10th row Carriage on left. Push back into Position (B) the 3rd needle from the left end opposite No. 2. Knit 1 row.

11th row Carriage on right. Knit one row, and all the needles will knit along this row.

12th row Carriage on left. Knit one row, and all the needles will knit along this row. *

For Pattern repeat from * to *.

How To Knit The One-Colour Pull-Up Pattern (Using Needle Forwarding Lever)

The one colour tucking pattern as referred to in the preceding paragraph (see Fig. 114) can also be produced using the Needle Forwarding Lever, and this method is called a 'Pull-up Pattern'.

Formation of the stitches is the same as for a 'Tucking Pattern', but the tucking pattern has a slightly more raised effect. To produce the pull-up pattern as referred to in Figs. 114, 115 and 116 proceed as follows:

Settings Pattern Control Knobs at 'A'
Shifting Cam Lever at 'C'
Return Cam Levers to Position 1
Needle Selection Control Knobs at 4
Needle Selection Guide Strip —

43214321

Pattern Chart Refer to Fig. 115.

*** 1st row** Carriage on right. Open both Feeders (out of action position) as shown in Fig. 118. Push in the Row Counter Trip Arm so that the Row Counter will not register. Push back into Position (B) the end needles opposite Nos. 1, 2 and 3 on the N.S.G.S. Move carriage from right to left at the same time pushing in the leading Needle Forwarding Lever (left hand lever). (Fig. 118)

You will see that every 4th needle will come forward into Position (E). With carriage on left, turn the leading (right hand) Pattern Control Knob to 'S' and return the carriage from left to right. These two movements of the carriage are made only to bring forward every 4th needle into Position (E). Flick the threaded carriage feeder in position, pull out the Row Counter Trip Arm, and turn the right hand Pattern Control Knob to 'A'. Knit the first row by moving the carriage from right to left.

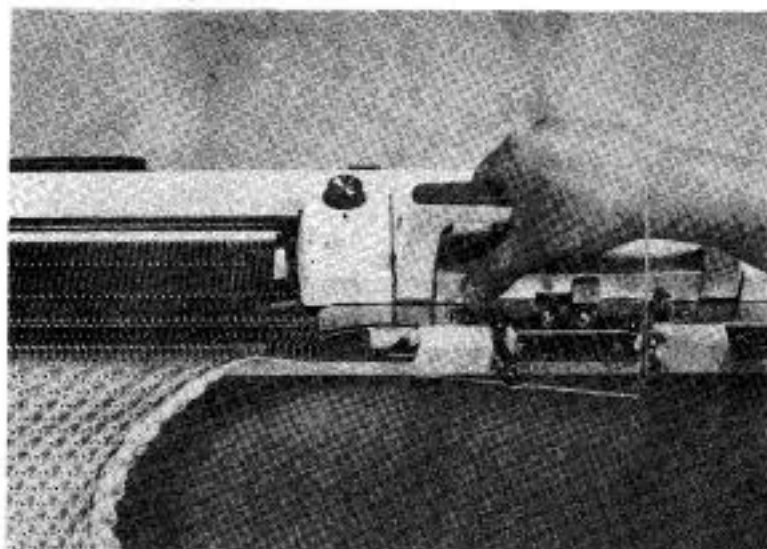


Fig. 118

2nd row Carriage on left. Knit 2nd row by moving the carriage from left to right.

3rd row Carriage on right. Knit 3rd row by moving the carriage from right to left.

4th row Carriage on left. Knit 4th row by moving the carriage from left to right.

5th row Carriage on right. Bring forward to Position 2 the leading Return Cam Lever (left hand), and knit this row. You will see that all the needles have now been aligned in Position (C).

6th row Carriage on left. Move carriage from left to right.

7th row Carriage on right. Push back into Position 1 the leading Return Cam Lever. Pull the Yarn Feeder out of action. Push into Position (B) the end needles opposite Nos. 1, 3 and 4. Push in the Row Counter Trip Arm, and move carriage at the same time pushing in the leading Needle Forwarding Lever (left hand). You will see that every 4th needle opposite No. 2 is now brought forward into Position (E). With carriage on left, turn leading Control Knob to 'S' and move carriage from left to right. Flick the Yarn Feeder into action. Pull out the Row Counter Trip Arm and turn the right hand Pattern Control Knob to 'A'. Knit this row.

8th - 10th row

Simply move the Carriage across all the needles.

11th row Carriage on right. Bring forward the leading Return Cam Lever into Position 2, and knit this row.

12th row Push back the left hand Return Cam Lever into Position 1 and knit this row moving the carriage from left to right. *

For pattern repeat from * to *.

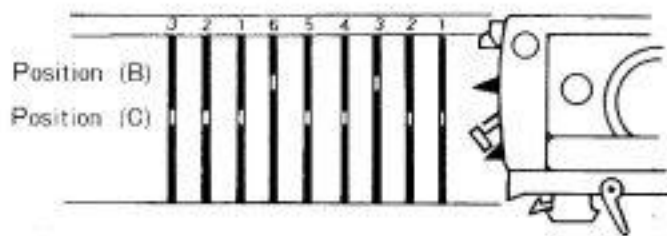


Fig. 122

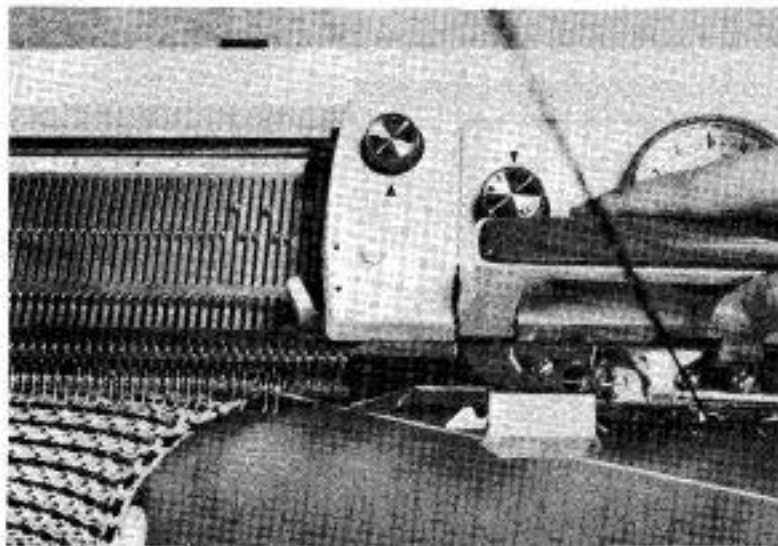


Fig. 123

- * 1st row With Carriage on right. Push back into Position (B) the 3rd and 6th needles from the right end opposite Nos. 3 and 6. (Fig. 122) Knit 1 row with main colour. (Fig. 123)
- 2nd row With carriage on left. Push back into Position (B) 1st and 4th needles opposite Nos. 6 and 3. Knit 1 row.
- 3rd row With carriage on right. Replace main colour with contrast colour by switching feeders. Push back into Position (B) 2nd and 5th needles from the right end opposite Nos. 2 and 5, and knit with contrast colour.
- 4th row With carriage on left. push back into Position (B) 2nd and 5th needles from the left opposite Nos. 2 and 5. Knit 1 row with contrast colour.
- 5th row With carriage on right, push back into Position (B) the 1st and 4th needles opposite Nos. 1 and 4. Knit 1 row with contrast colour.
- 6th row With carriage on left, push back into Position (B) the 3rd and 6th needles from the left end opposite Nos. 3 and 6. Knit 1 row with contrast colour.* For Pattern repeat from * to *.

Fancy Lace Pattern – Automatic Method (Fig. 124)

- Settings:** Pattern Control Knobs at 'A'.
Shifting Cam Lever at 'T'.
Return Cam Levers at '2'.
Needle Selection Control Knobs at 4
Needle Selection Guide Strip –
4. 3. 2. 1.

- Fig. 124** Fancy Lace Pattern with One Colour.
Fig. 125 The symbol '□' indicates a tucking stitch. The solid black '■' represents the needle selected for tucking stitch at the beginning of a row. Reading along the pattern chart from right to left each square represents a needle, but in this case, it should be noted that every 4th needle from the right end needle i. e., opposite No. 4 on the N.S.G. S., must be pushed back into Rest Position (A). Before commencing to knit the pattern you should transfer every 4th stitch (opposite No. 4 on the N.S.G.S.) onto each adjacent needle with the Transfer Tool, and the empty needles should be pushed back into Position (A) as shown in Fig. 127.

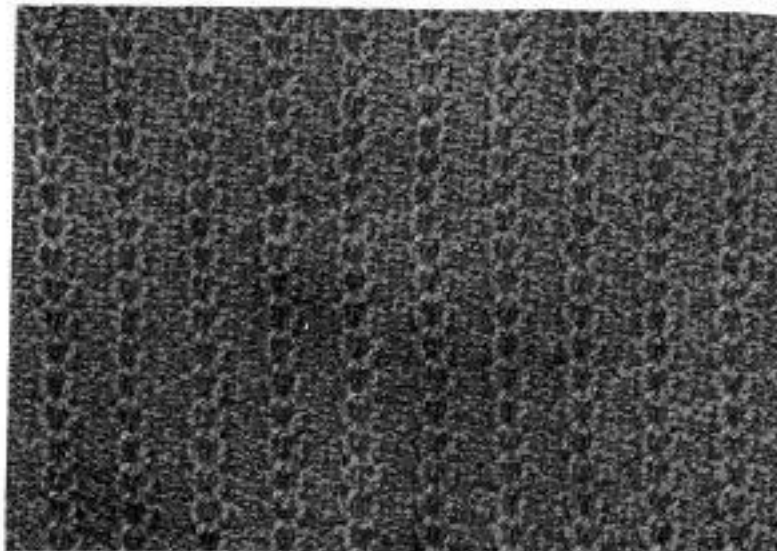


Fig. 124

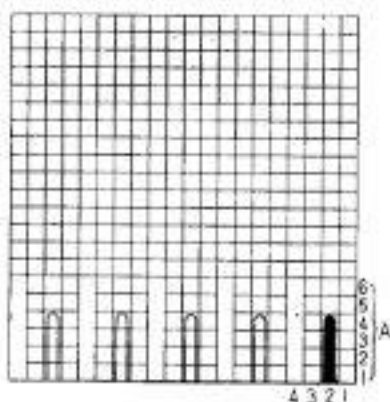
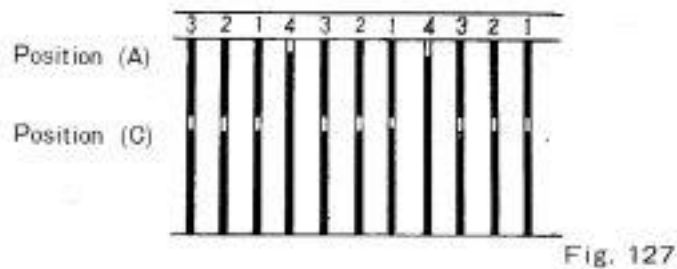
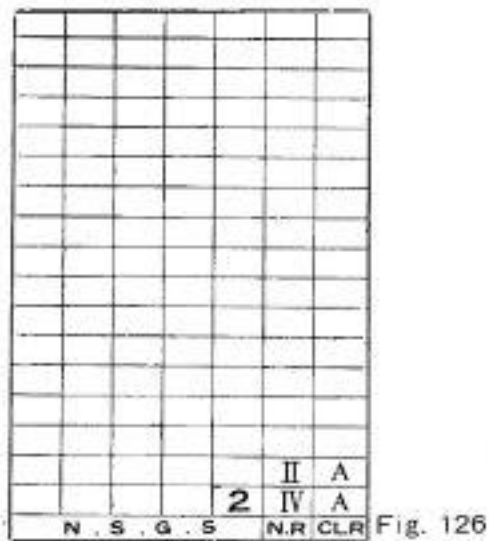


Fig. 125



- * 1st row With carriage on right. Push back into Position (B) the 2nd needle from right hand end opposite No. 2 on the N.S.G.S. Knit 1 row. (Fig. 126)
- 2nd row With carriage on left. Push back into Position (B) at the left hand end the 2nd needle at that end — the needle opposite No. 2 on the N.S.G.S., and knit 1 row.
- 3rd row With carriage on right. Push back into Position (B) 2nd needle from right and knit 1 row.
- 4th row With carriage on left, push back into Position (B) a needle opposite No. 2 nearest to the carriage. Knit 1 row.
- 5th row With carriage on right. Knit a row across all working needles. (Fig. 126)
- 6th row With carriage on left. Knit a row across all working needles.*
For Pattern repeat from * to*.

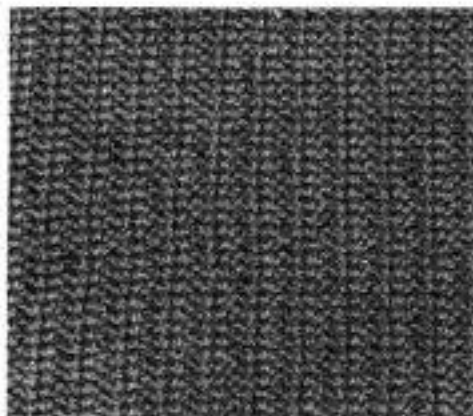


Fig. 128

Fancy Ribbing Stitches (Fig. 128)

- Settings:** Pattern Control Knob L/H at 'A'
R/H at 'S'
Shifting Cam Lever at 'T'
Return Cam Levers at '1'
Needle Selection Control Knobs at 4
Needle Selection Guide Strip —
4. 3. 2. 1.

- * 1st row With carriage on right, push back the two needles at the carriage end opposite numbers 2 and 4 on the N.S.G.S. into Position (B). Pull the feeder out of action and, pushing in the leading Needle Forwarding Lever (the left hand lever) move the carriage from right to left. (Fig. 129)

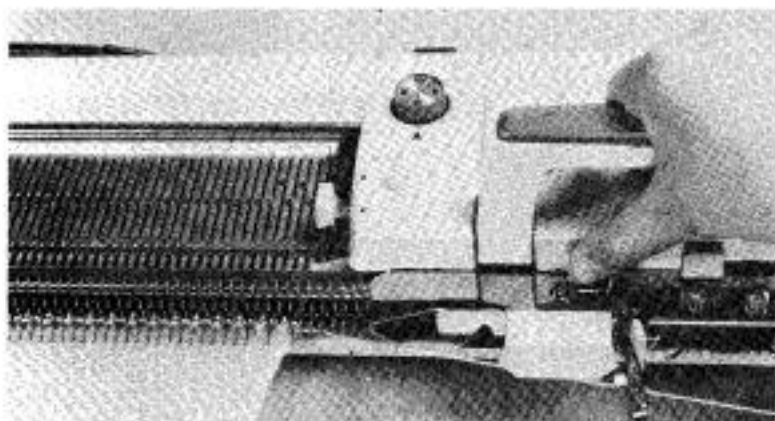


Fig. 129

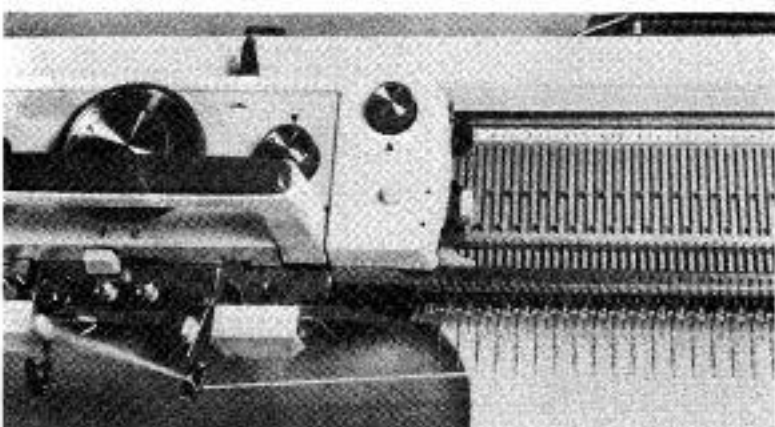


Fig. 130

Making sure that the leading (right hand) Return Cam Lever is in position 1 (Fig. 130), bring the carriage back to the right.

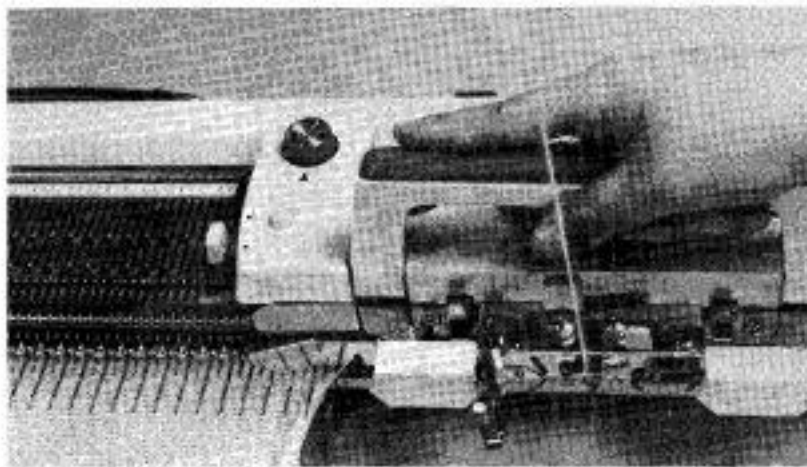


Fig. 131

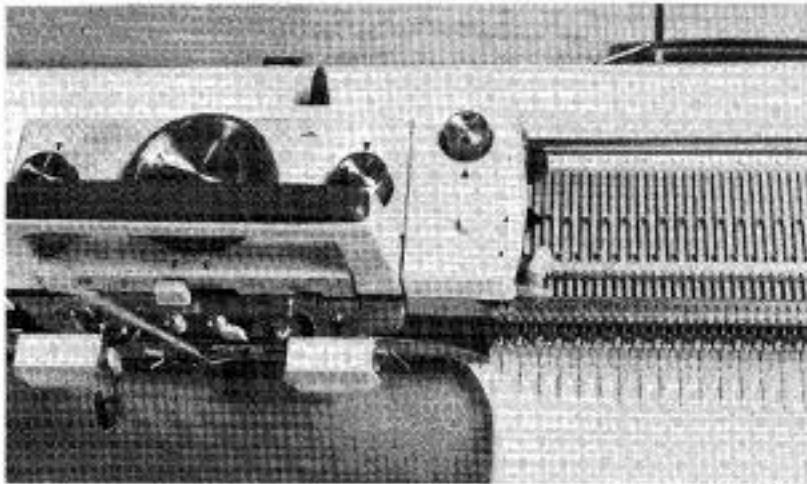


Fig. 132

The above operations are to bring forward into Position (E) every alternate needle. Now, with carriage on right, flick into action the feeder and move the carriage across the needles to the left. (Fig. 131)

2nd row With carriage on left, bring forward the leading (right hand) Return Cam Lever to position 2 and knit this row. (Fig. 132) Push back the right hand Return Cam Lever into position 1. * Repeat from * to *.

Weave Effect Knitting (Fig. 133)

Method 1— Using Subsidiary Yarn Feeders

Settings: Pattern Control Knobs at 'A'
Shifting Cam Lever at 'C'
Return Cam Levers — Position 2
Needle Selection Control Knobs at 4
Needle Selection Guide Strip —
4. 3. 2. 1.

1st row With carriage on right. Knit one row with main colour threaded in one of the Main Feeders.

2nd row Carriage on left. Turn right hand Pattern Control Knob to 'S' and move the carriage from left to right. The actual knitting of the 2nd row will start from right end.

Turn right hand Pattern Control Knob to 'A'. Push back 2 needles at the carriage end opposite Nos. 2 and 4 on the N.S.G.S. into Position (B).

Form a loop in the end of the contrasting colour wool and hang it onto the hook of the needle in Position (B) nearest the end.

* Pull Main Feeder out of action, and hold the contrasting colour with your left hand and guide it into the leading Subsidiary Yarn Feeder (left hand). Push in the leading Needle Forwarding Lever, and move the carriage across the needles. (Fig. 134) This completes the 2nd row.

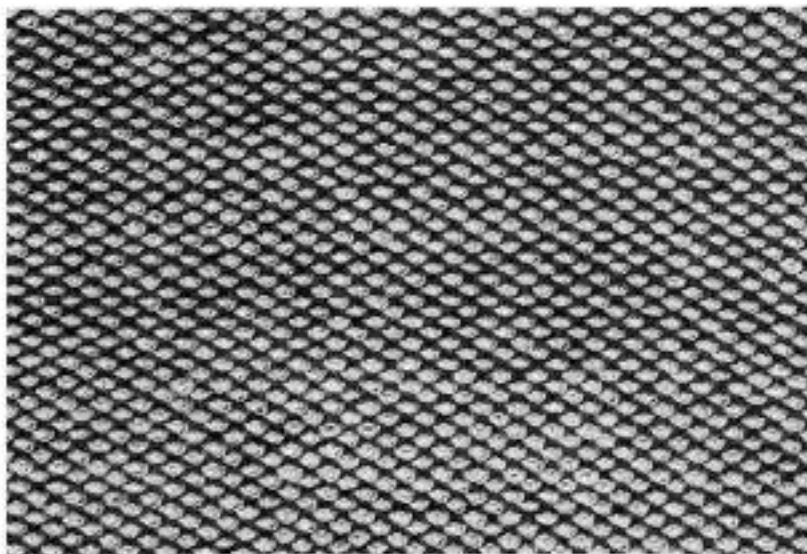


Fig. 133

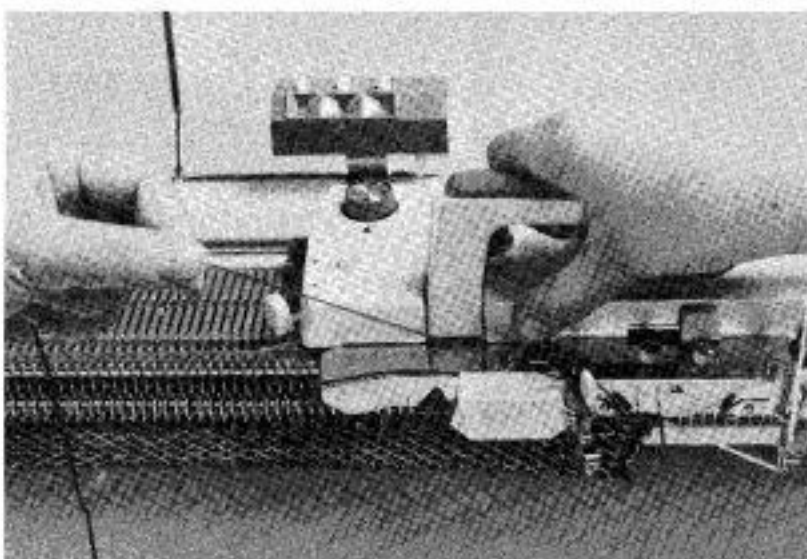


Fig. 134

- 3rd row** Carriage on left. Remove the contrasting colour from Subsidiary Yarn Feeder, and flick the Main Feeder with main colour wool into action. Knit this row moving the carriage across from left to right.
- 4th row** Carriage on right. Turn leading Pattern Control Knob (left hand) to 'S' and move the carriage from right to left. Turn the left hand Pattern Control Knob back to 'A'. Push back 2 needles at the Carriage end opposite Nos. 1 and 3 into Position (B). Pull out of action the Main Feeder and wind the contrasting colour wool in a **clockwise direction** once around the hook of extreme end needle pushed back into Position (B). Holding this contrasting colour with your left hand, guide it into the leading Subsidiary Yarn Feeder (right Hand). Knit this row by moving the carriage from left to right at the same time pushing in the leading Needle Forwarding Lever (right Hand).
- 5th row** Carriage on right. Remove the contrasting colour from Subsidiary Yarn Feeder. Flick the Main Feeder into action and knit this row.
- 6th row** Carriage on left. Turn right hand Pattern Control Knob to 'S' and move the carriage from left to right. Turn right hand Pattern Control Knob to 'A'. Push back 2 needles at the carriage end opposite Nos. 2 and 4 on the N.S.G.S. into Position (B), and wind the contrasting colour wool in an **anti-clockwise direction** once around the hook of the extreme end needle pushed back into Position (B). * Repeat from * to *.

Note: An alternative method for moving the carriage from one end of the machine to the other, is, by raising the Carriage slightly at the front to clear the needles and slide it along the back Runner Rail to left or right — see Fig. 135. This method is also useful should any obstruction occur during knitting causing the Carriage to jam in the middle of a row. Before the front of the Carriage is lowered it must be moved to the **extreme end of the machine** otherwise the Sinker Cam will be unable to engage the Butts of the Sinker Needles.

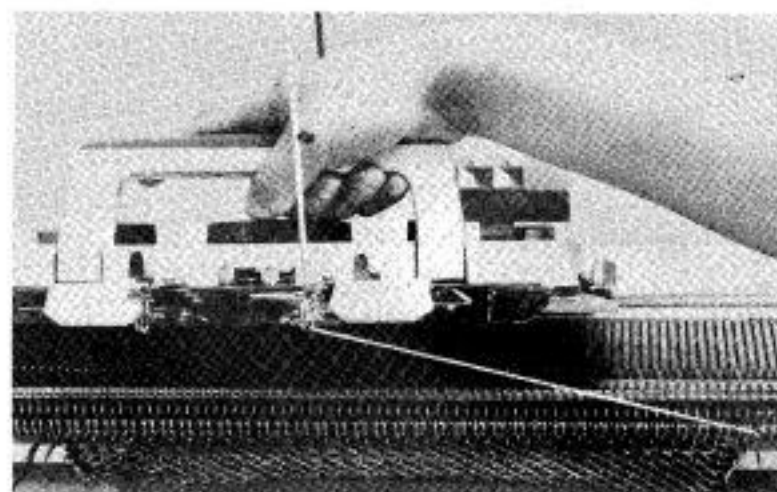


Fig. 135

Method 2— Using Weaving Feeders.

'Weave Effect' Knitting — see Fig. 133 — can also be produced using the Weaving Feeders.

Settings: Same as Method 1.

- 1st row** With Carriage on right, using main feeder, knit 1 row in main colour.
- 2nd row** Carriage on left, turn right hand Pattern Control Knob to 'S' and move carriage back to right. Turn right Pattern Control Knob to 'A'. Push back two needles at the carriage end opposite Nos. 2 and 4 on the N.S.G.S. into Position (B). Form a loop in the end of the contrasting colour wool and hang this loop in hook of the end needle pushed back into position (B) nearest the carriage. * Pull out of action the main feeder and place the contrasting colour wool in the leading (left hand) Weaving Feeder as shown in Fig. 136. Holding in the leading Needle Forwarding Lever, move the carriage across to the left and, at the same time, hold the wool taut until the right hand end needle is just under the leading Weaving Feeder. (Fig. 136) Allowing the wool to run freely through your fingers, continue to knit this row.

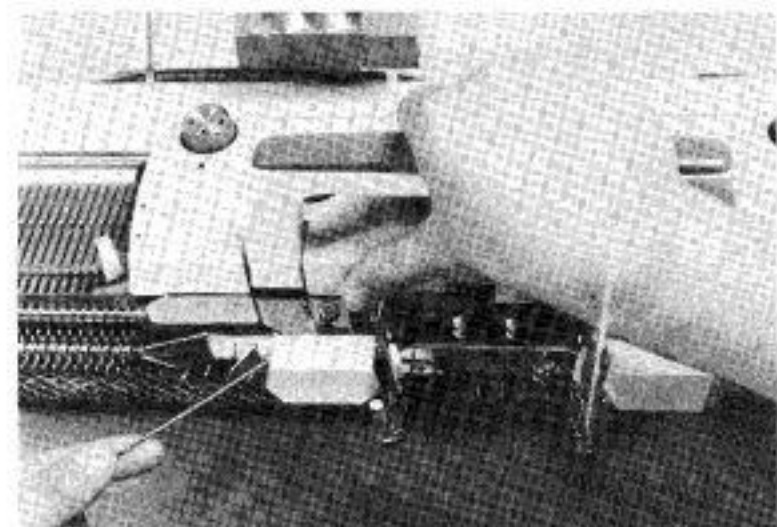


Fig. 136

3rd row Carriage on left. Remove the contrasting colour wool from the Weaving Feeder and flick the main feeder, containing the main colour wool, into action and knit this row.

4th row Carriage on right. Turn left hand Pattern Control Knob to 'S' and move carriage back to left. Turn left hand Pattern Control Knob to 'A'. Push back two needles at the carriage end opposite Nos. 1 and 3 on the N.S.G.S. into Position (B). Pull out of action the Main Feeder and wind the contrasting colour wool in a **clockwise direction** once around the hook of the extreme end needle in Position (B). Place the contrasting colour wool into the leading (right hand) Weaving Feeder. Holding in the leading Needle Forwarding Lever, move the carriage across to the right and, at the same time, pulling back the loose wool until the left hand end needle is just under the leading Weaving Feeder.

5th row Carriage on right. Remove the contrasting colour from the Weaving Feeder and flick into action, the Main Feeder containing main colour. Knit this row.

6th row Carriage on left. Turn right hand Pattern Control Knob to 'S' and move carriage back to right. Turn right hand Pattern Control Knob back to 'A'. Push back two needles at the carriage end, opposite Nos. 2 and 4 on the N.S.G.S. into Position (B) and wind the contrasting colour wool in an **anticlockwise direction**, once around the hook of the extreme end needle in position (B). *

Repeat from * to *.

The method described for Weave Effect Knitting using a needle selection of 1×1 can be varied by using a selection of 2×2 for every alternate row or 2×1 for every third row etc.

Reversible Colour Knitting

Two strands of wool are knitted together. The main colour should be threaded into the Main Feeder and contrasting colour should be fed through the leading Subsidiary Feeder. The contrasting colour will appear on the knit-side and the main colour on the purl-side of the fabric.

It should be emphasised that a fine yarn must be used as the contrasting colour.

settings: Pattern Control Knobs at 'M'
Shifting Cam Lever at 'C'
Return Cam Lever - Position 2

Note:

When producing 'Reversible Colour Knitting' the desired effect can only be obtained in plain Socking Stitch.

1st row Thread the main colour wool into one of the Main Feeders. With the left hand guide the fine contrasting colour yarn through the leading Subsidiary Feeder (left hand), and move carriage from right to left. (Fig. 137)

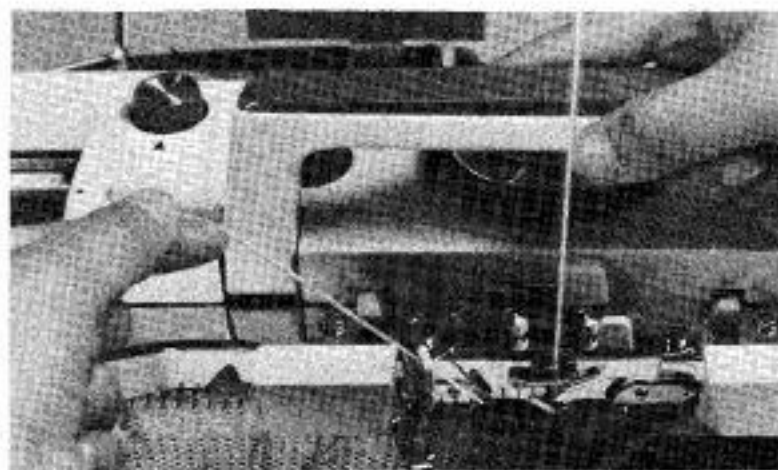


Fig. 137

2nd row Still holding the contrasting colour with your left hand, transfer it to the leading right hand Sub-Feeder and move the carriage across to the right. Repeat the above procedure.

When producing the pattern knitting, i.e. by inserting some pattern on the knit side with the contrasting colour as shown in Fig. 138, you should knit with only the main colour until you want to insert the pattern - at this point introduce the contrasting colour yarn to produce a pattern effect, and remove the contrasting colour at any desired point along the row according to the effect you wish to achieve.

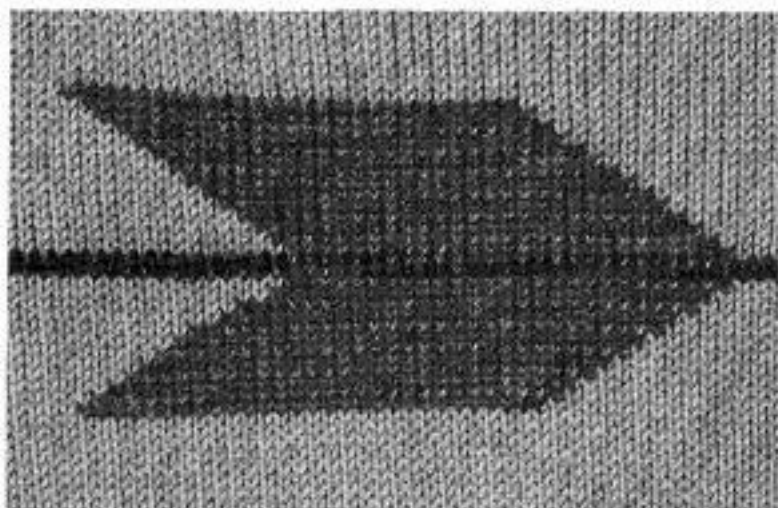


Fig. 138

Note: When knitting with Subsidiary Yarn Feeders, remember —

1. Always use the leading feeder, i.e. when moving the carriage from right to left use left hand Subsidiary Feeder — and when moving the carriage from left to right use the right hand Sub-Feeder.
2. Never thread the wool through Overhead Yarn Feeder when knitting with Subsidiary Feeder, but always control and guide it with your left hand. (see Fig. 137)

Free-Style Colour Pattern

This is Fancy Colour Knitting using two or more colours in the same row of stocking stitch.

(Fig. 139)

The same pattern appearing on both sides of the fabric.

Setting: Pattern Control Knobs at 'M'
Shifting Cam Lever at 'C'
Return Cam Levers in Position '2'

For knitting two colour pattern as shown in Fig. 139, use both main feeders.

1. With the Carriage on right, thread the 1st colour wool through the left hand main feeder to knit the right half of the row, and also thread the 2nd colour wool through the right hand feeder to knit the left half of a row.

Flick into action the left hand feeder with 1st colour, move the carriage across needles until you reach the last needle for this colour as shown in Fig. 140 i.e. until the needle marked 'A' in Fig. 141.

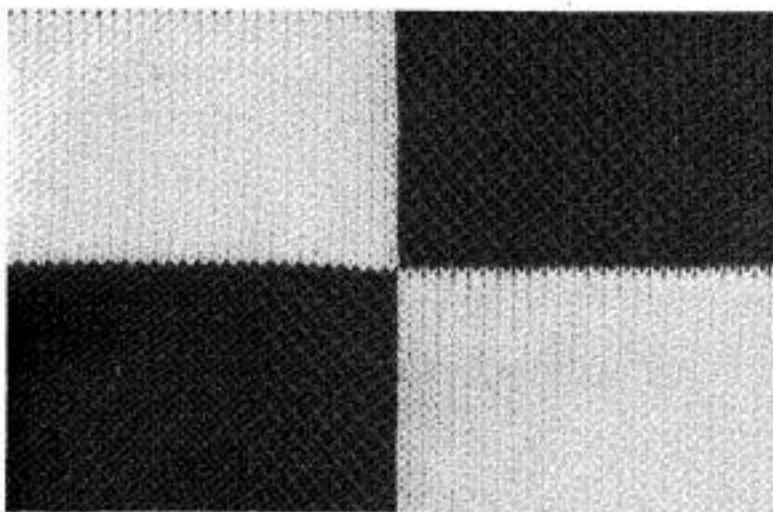


Fig. 139

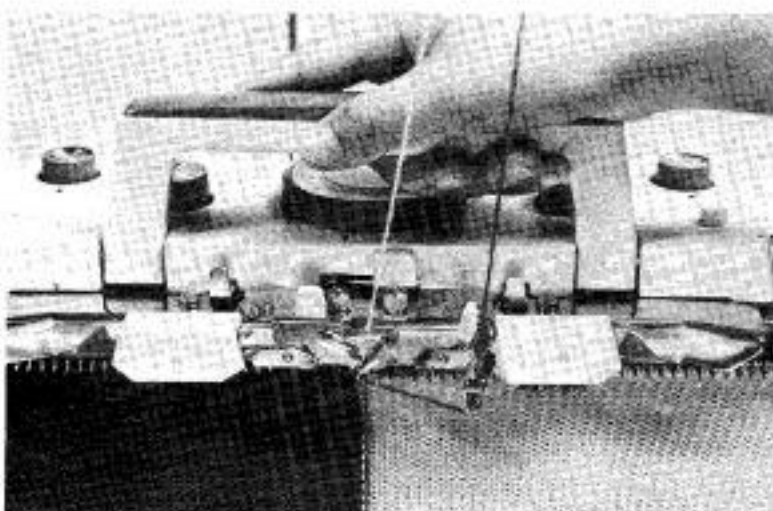


Fig. 140

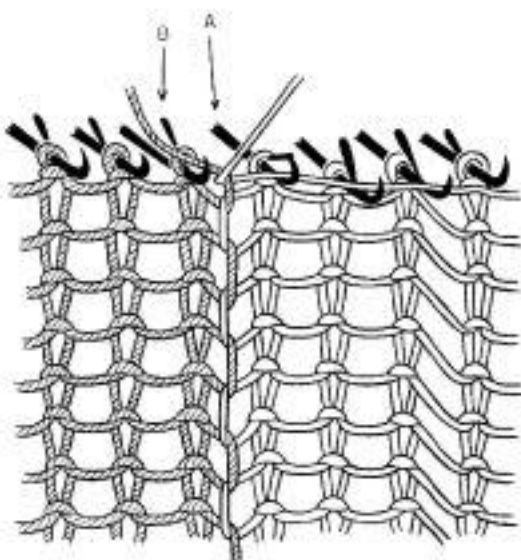


Fig. 141

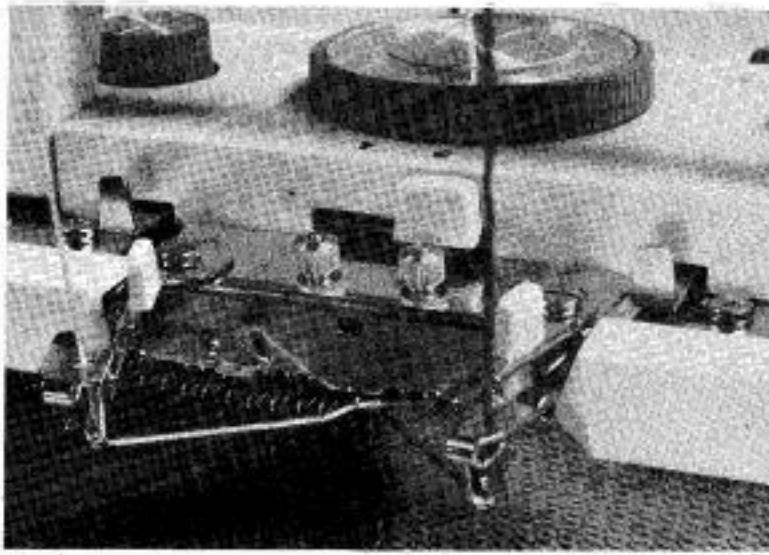


Fig. 142

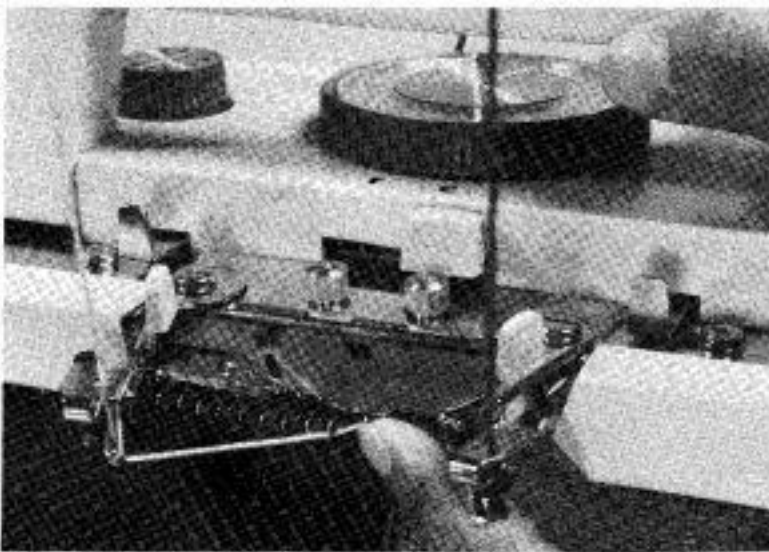


Fig. 143

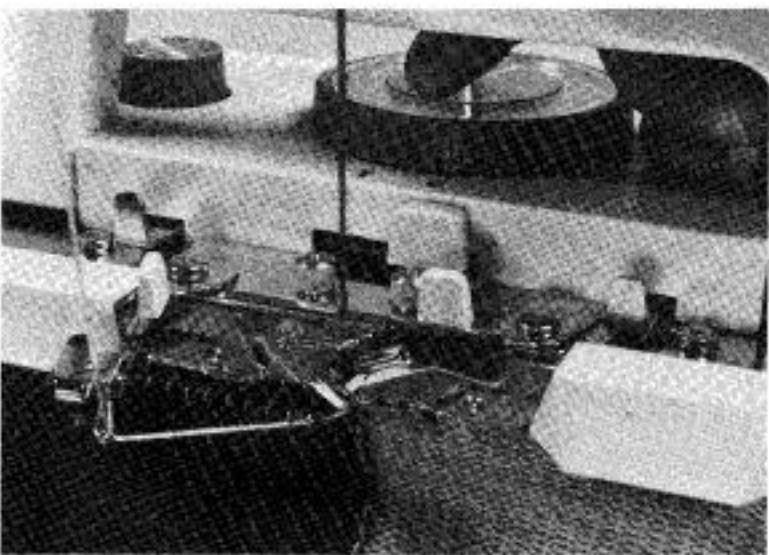


Fig. 144

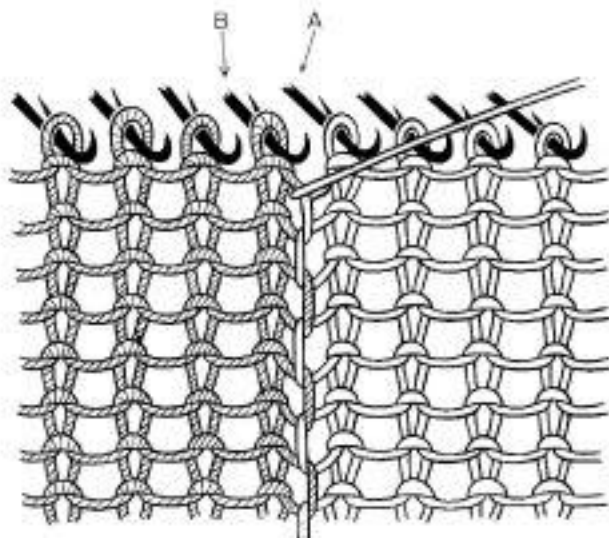


Fig. 145

2. Pull out of action the left hand feeder as shown in Fig. 142.

Note: It is advisable to lift the feeder slightly during this action to avoid touching the bottom of the feeder with the needle hook.

Be sure that the 1st colour wool has been placed in the hook of the last needle for this colour — needle marked 'A' as shown in Fig. 141.

3. Push in the last needle for the 1st colour (needle 'A') with your finger. (Fig. 143)

4. Flick into action the right hand feeder to knit the remaining half of a row with 2nd colour. (Fig. 144) Start the knitting at the left adjacent needle (needle marked 'B' in Fig. 141) from the needle marked 'A' — also see Fig. 141.

Move carriage to left. (Fig. 145)

5. Move carriage back to right until the end needle of the 2nd colour — until the needle marked 'B'. Pull out of action the right hand feeder ensuring that the 2nd colour wool remains in the hook of the needle marked 'B'. Push in this needle with your finger.

6. Flick into action the left hand feeder with 1st colour, and knit from the needle marked 'A' for 1st colour to right.

Repeat the above procedure for pattern.

Mock Lace Pattern (Lacy See-through Look Pattern)

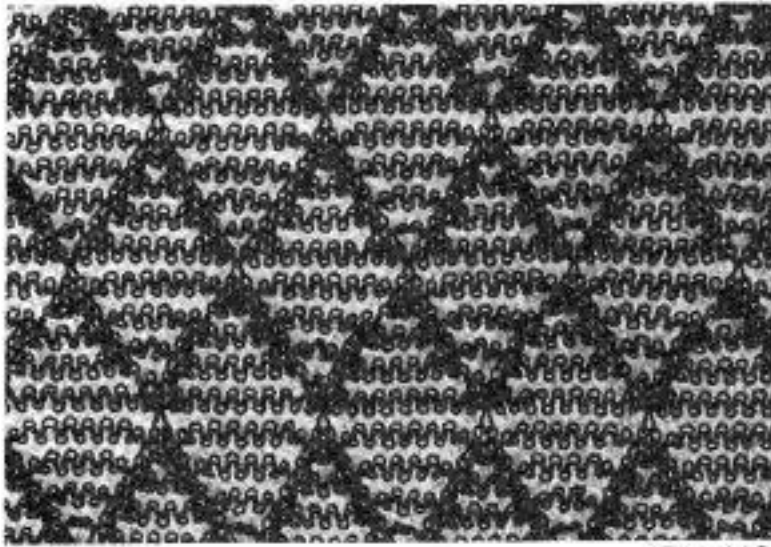


Fig. 146

Extra fancy pattern like the Lacy See-through Look Pattern as shown in Fig. 146 ca. be easily knitted by using a nylon or transparent synthetic thread.

Settings: Pattern Control Knobs at 'A'
Shifting Cam Lever at 'C'
Return Cam Levers in Position '2'
Needle Selection Control Knobs at 10
Needle Selection Guide Strip —
10. 9. 8. 7. 6. 5. 4. 3. 2. 1.

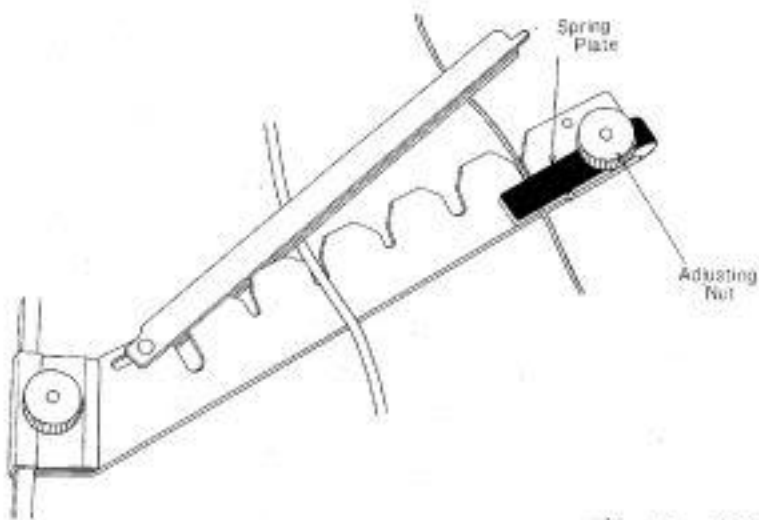


Fig. 147

1. Thread the main colour (preferably cotton or synthetic coloured yarn) through one of the main feeders. The transparent thread, used as the contrasting colour, should be threaded through the special eyelet at the end of the Yarn Guide Arm. After inserting the thread under the spring plate as shown in Fig. 147, pull the thread in order to check if there is sufficient friction on it. If not, adjust by turning the Adjusting Nut—also see Fig. 147. Now, thread overhead feeder in the usual way, down to the other Carriage Feeder.

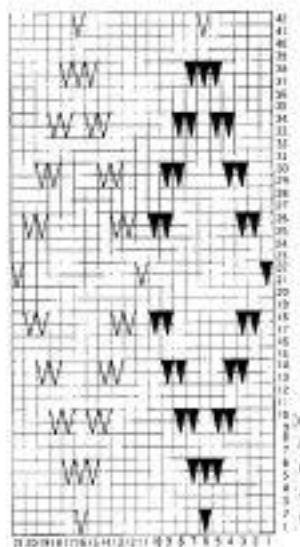


Fig. 148

2. Referring to the Chart shown in Fig. 148, bring into Position (B) the needle opposite No. 6 on the Needle Selection Guide Strip as shown in Fig. 149, and knit with transparent thread represented by letter 'B' on the Chart. Fig. (148)

Proceed to knit according to the Chart—also refer to the Paragraph 'Colour Pattern - Automatic Method' for further details.

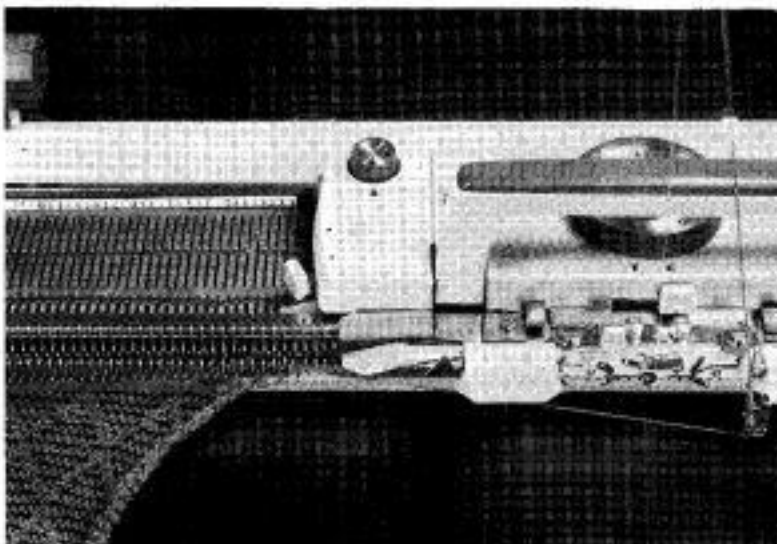


Fig. 149

Fancy Patterns Using 'Vertical Pattern Knitter'

You can obtain a variety of extra fancy pattern effects by using the unique 'Vertical Pattern Knitter'.

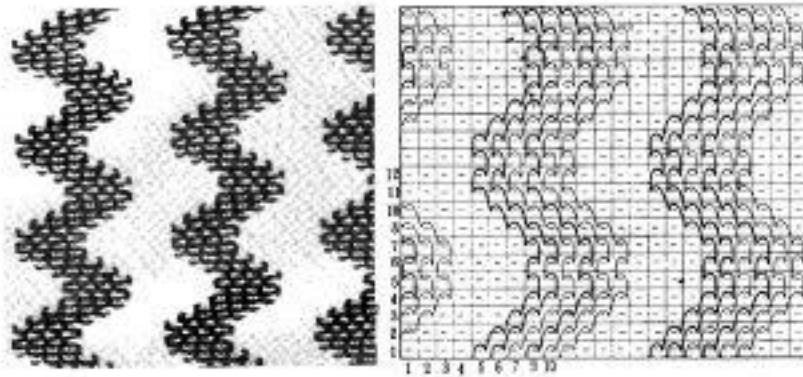


Fig. 150

Fig. 151

I. Vertical Pattern (Figs. 150 & 151)

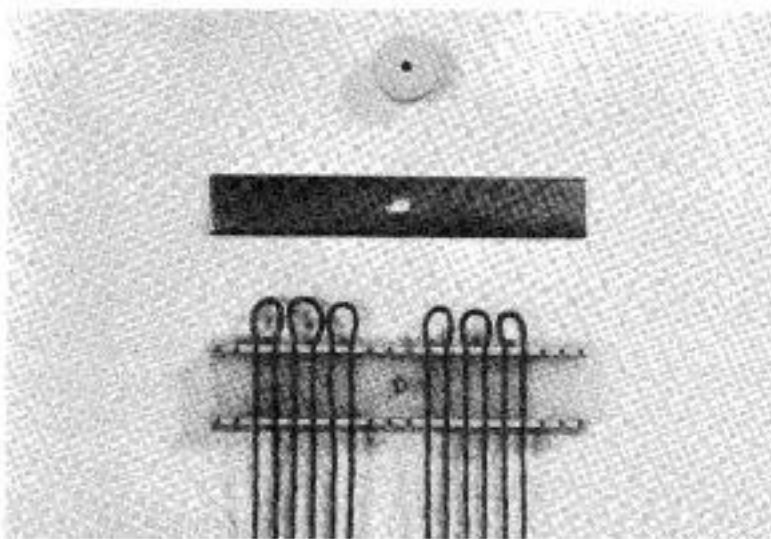


Fig. 152

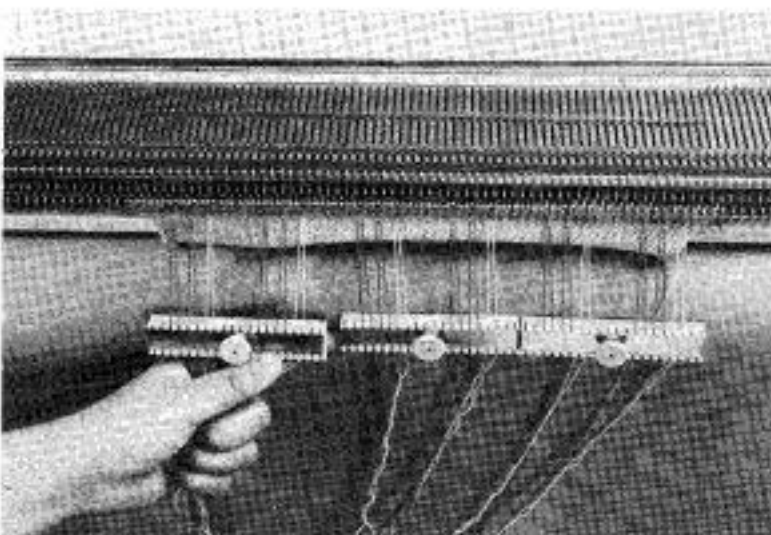


Fig. 153

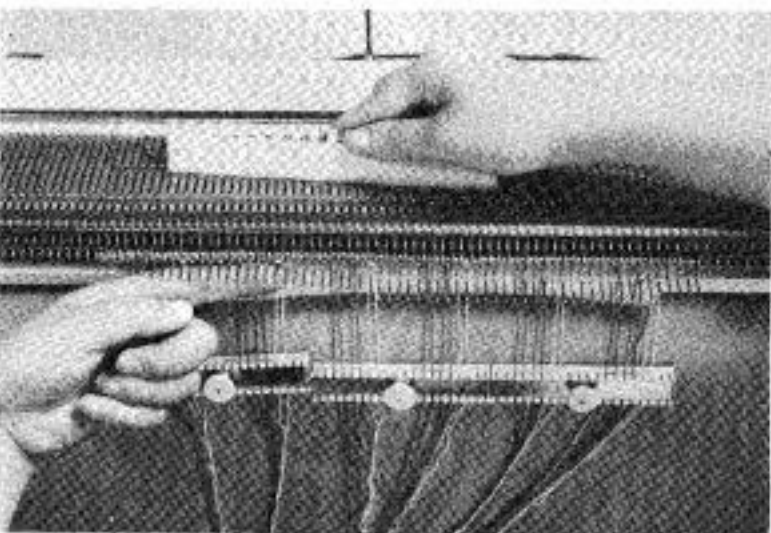


Fig. 154

(a) Loosen the securing nut and remove the cover of the Vertical Pattern Knitter. (Fig. 152) Put the required number and lengths of contrasting colour yarn into each slot of the Vertical Knitter as shown in Fig. 152. Replace the cover and secure it by tightening the nut.

(b) Set the Pattern Control Knobs to 'M'. Shifting Cam Lever in either 'T' or 'C', and the Return Cam Lever in Position '2'.

(c) Hook each loop onto every alternate needle hook. (Fig. 153)

(d) Bring forward into Position (E) every working needle and knit one row. (Fig. 154)

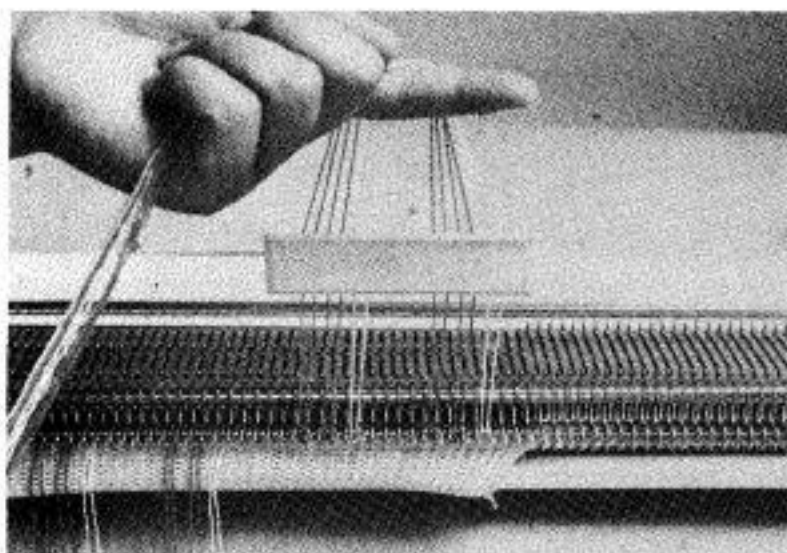


Fig. 155

- (e) Raise the Vertical Pattern Knitter as shown in Fig. 155.

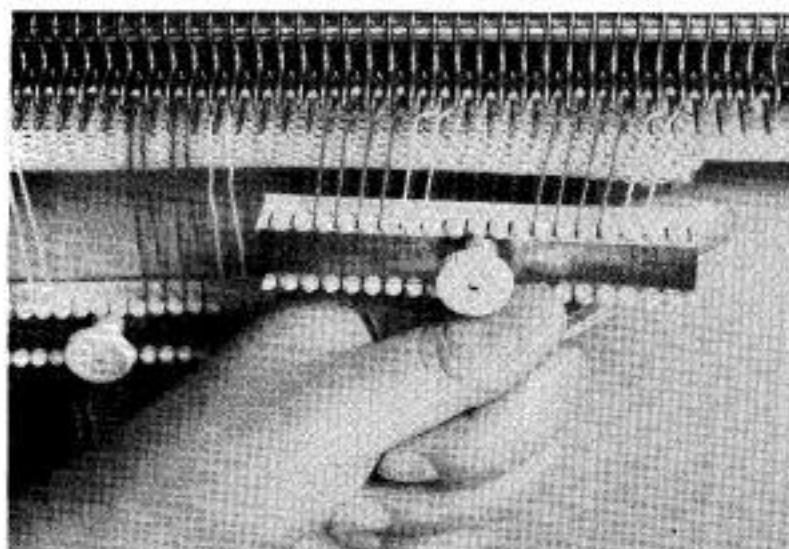


Fig. 156

And hook each strand onto its adjacent needle **on the left**. (Fig. 156)

Knit 2nd row.

- (f) Continue to knit until 4th row in just the same manner as described in (e) above.

- (g) Before knitting the 5th row hook each strand onto its adjacent needle **on the right**.

- (h) Hook each strand onto its adjacent needle **on the left** and knit the 6th row.

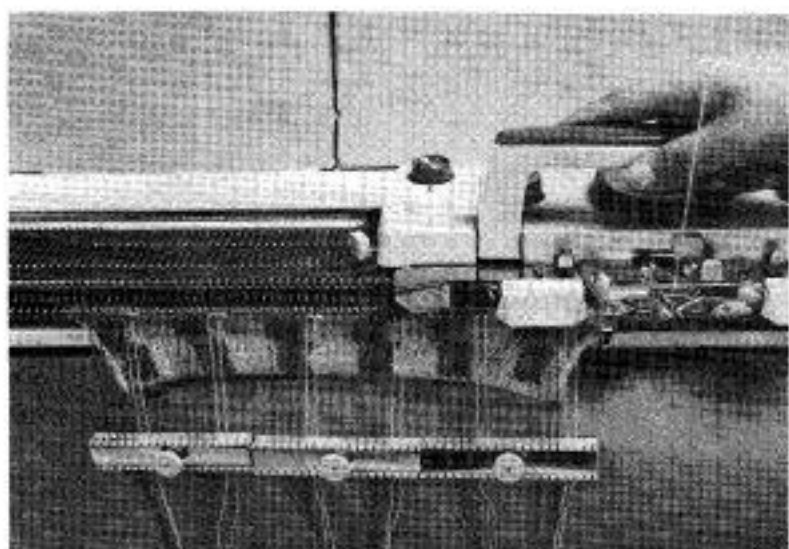


Fig. 157

- (i) Hook each strand onto its adjacent needle **on the right** and continue to knit until the 11th row. (Fig. 157)

Repeat this procedure from (e) above.

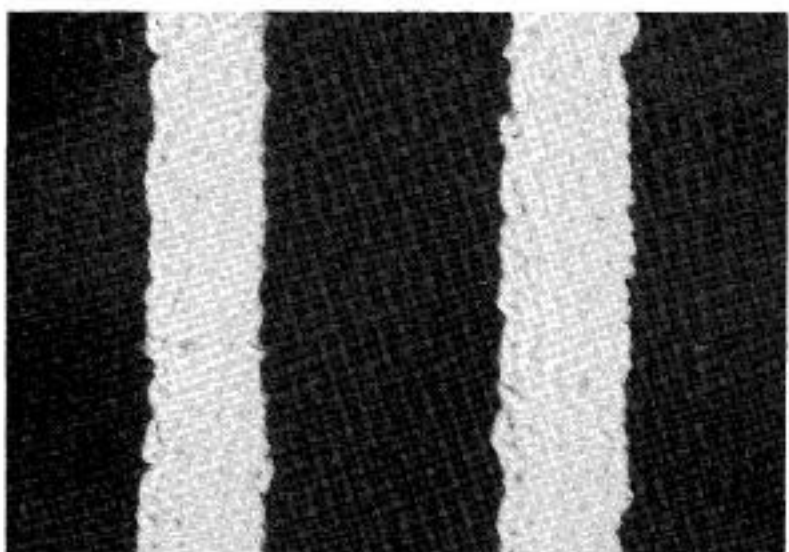


Fig. 158

2. Carpet Effect Knitting (Fig. 158)

- (a) Put the required number and length of contrasting colour wool, preferably thicker wool, into each slot of the Vertical Pattern Knitter in the same manner as described in preceding paragraph.

- (b) Set Pattern Control Knobs to 'M'. Shifting Cam Lever at 'C', and Return Cam Levers in Position 2.

- (c) Hook each loop onto every alternate needle hook.

- (d) Knit one row simply moving the carriage from right to left

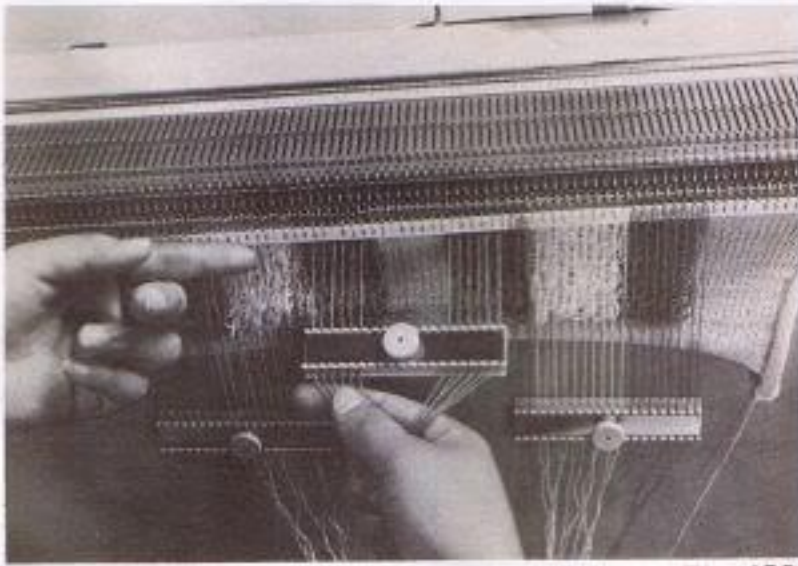


Fig. 159

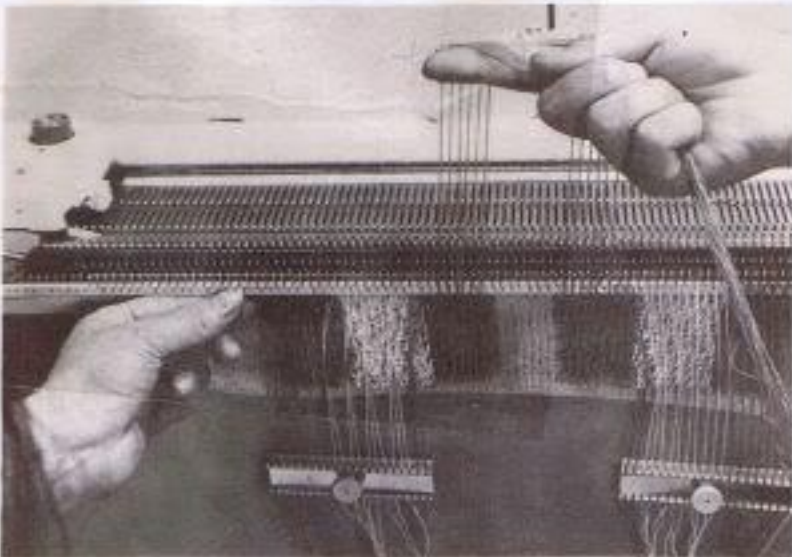


Fig. 160



Fig. 161



Fig. 162

(e) Place a piece of Needle Selection Guide Strip just below and along the sinker hooks holding it with your left hand as shown in Fig. 159.

(f) Raise up the Vertical Pattern Knitter as shown in Fig. 160 and hook each strand onto each adjacent needle on the right.

Note: According to the thickness of strip being applied, such as two strips together, the size of each loop will be changed.

(g) Carriage on left. Knit three rows, simply moving the carriage back and forth.

(h) Carriage now on right. Pull out the Needle Selection Guide Strip. Again place the Strip just below and along the sinkers — see Fig. 159. In the same manner as described in (f) above, hook each strand onto its adjacent needle on the left.

Knit three rows.

Repeat the above procedure.

3. Bead Knitting (Fig. 161)

(a) Thread beads on to a series of strands of cotton. Lay the strands into the grooves of a Vertical Pattern Knitter — see Fig. 152.

Ensure that all beads are between the loop ends of the cotton and the Vertical Pattern Knitter as in Fig. 162.

Replace cover and secure firmly with the nut.

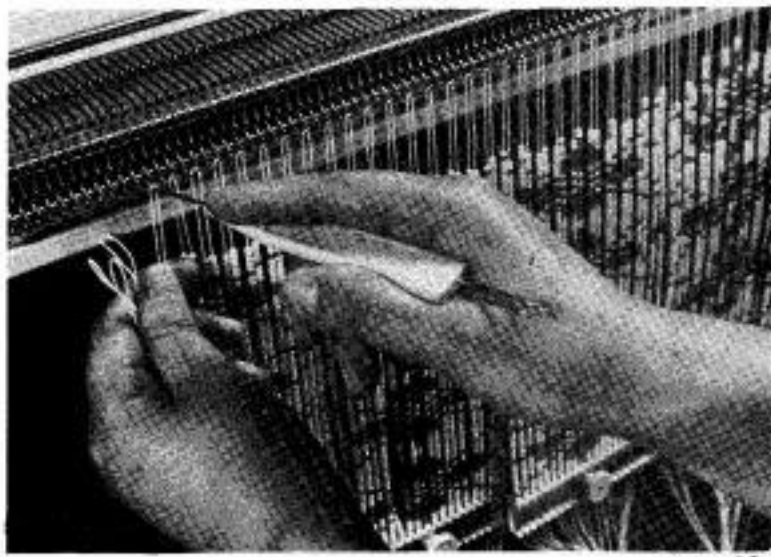


Fig. 163

- (b) Place each loop of the cotton into the hook of alternate working needles along that section of the work where the bead patterning is to be introduced (Figs. 163 & 164)

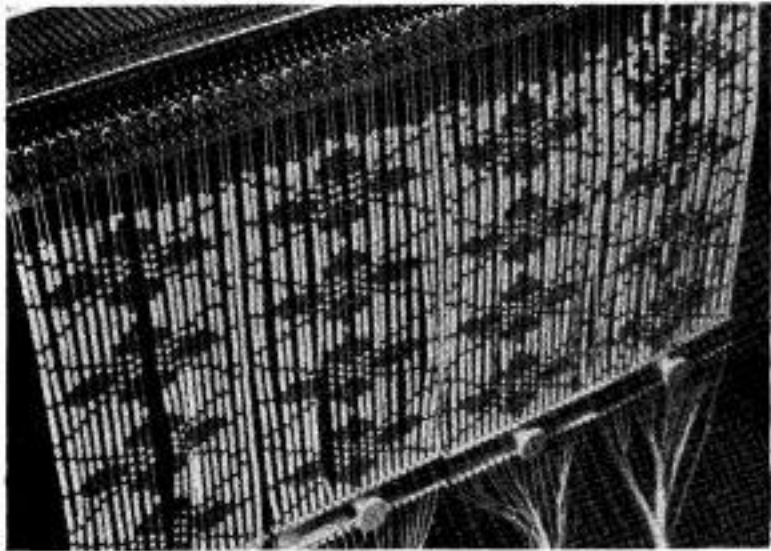


Fig. 164

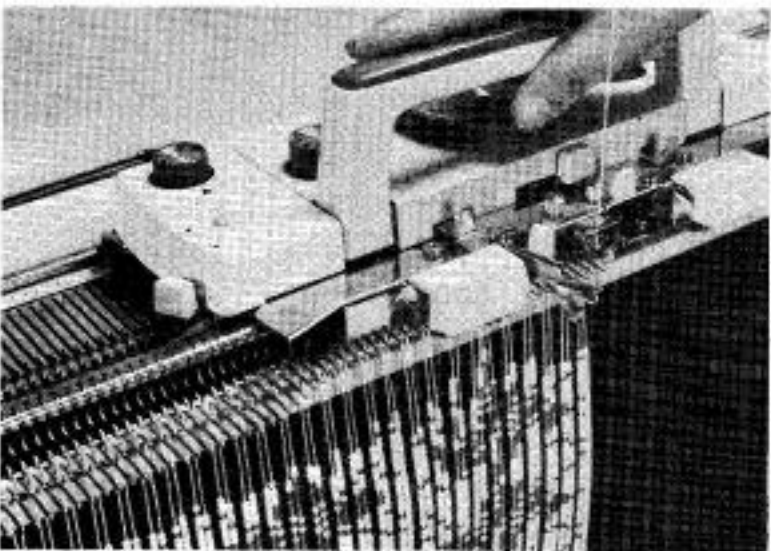


Fig. 165

- (c) With Carriage on the right and the leading Return Cam Lever at 2 bring forward all the working needles into position (E). Knit one row by moving the Carriage from right to left. (Fig. 165)

- (d) Raise the Vertical Pattern Knitter as shown in Fig. 155 and place each strand of cotton into the hook of the adjacent needle to the left as you lower the Vertical Pattern Knitter. Knit this row by moving the Carriage from left to right.

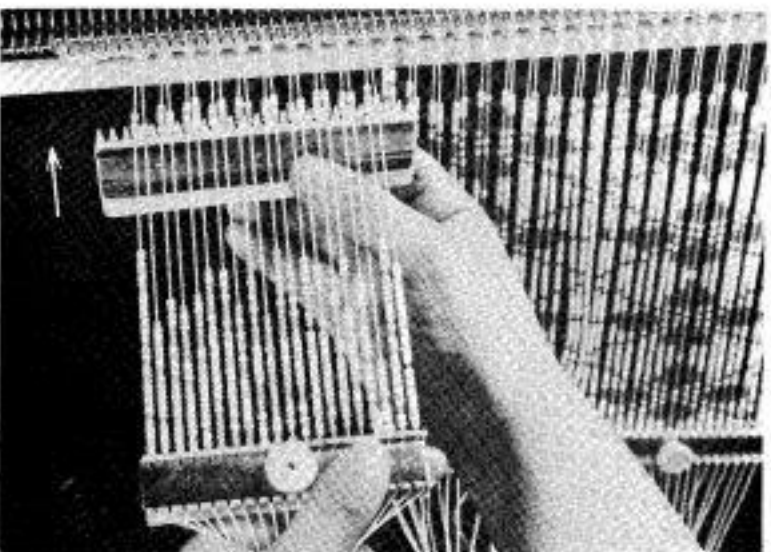


Fig. 166

- (e) Before knitting the 3rd row place the Sinker Stopper between the Sinker Needle Butts and the Front Runner Rail at a point immediately above the Vertical Pattern Knitter.

(Fig. 168)

Hold the Vertical Pattern Knitter with your left hand and the Bead Comb (Illustration 'Standard Accessories, Item No. 15) in your right hand. Separate a convenient number of beads from the rest and move them up to within an inch or so of the needles. (see Fig. 166)

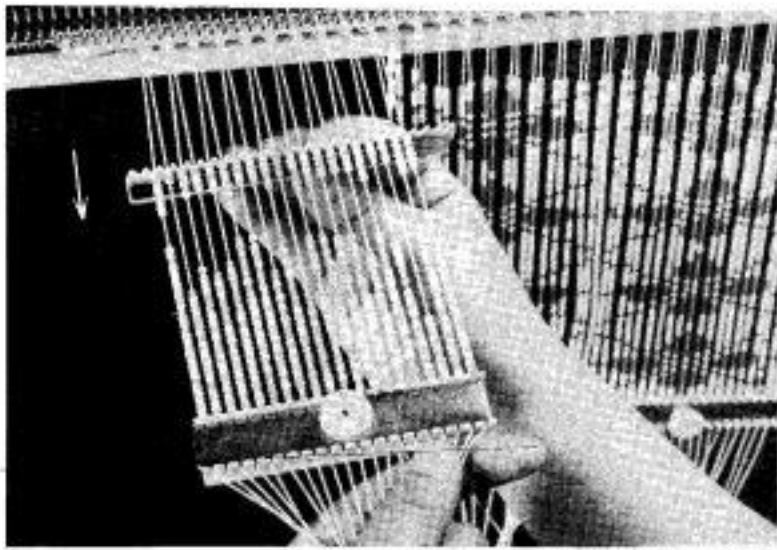


Fig. 167

Align the top row of beads as shown in Fig. 167.

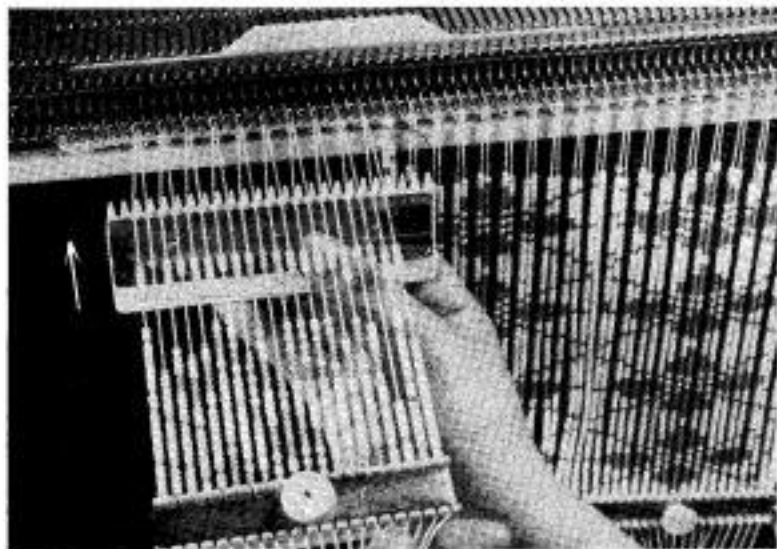


Fig. 168

Now separate the top row of beads and move them up until they touch the under part of the needle hooks. (see Figs. 168, 169 & 170)

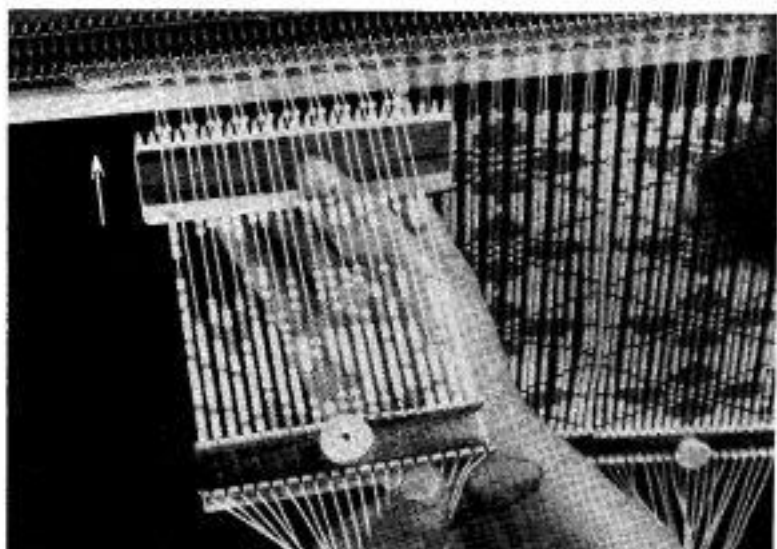


Fig. 169

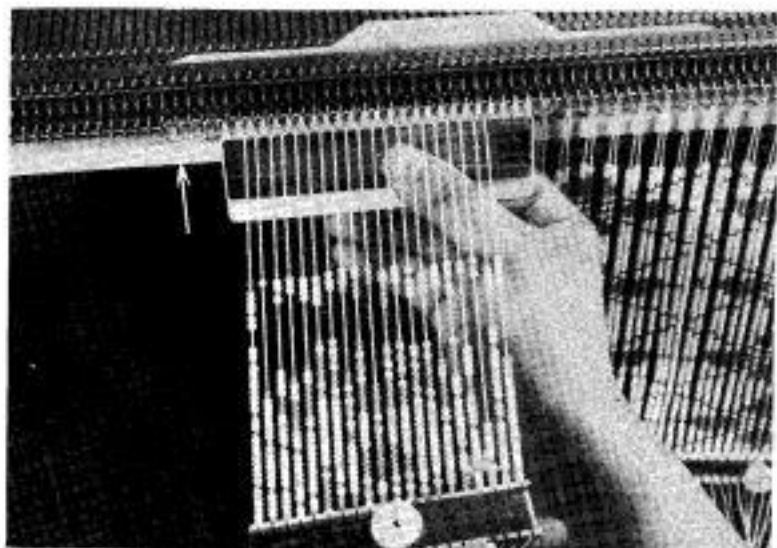


Fig. 170

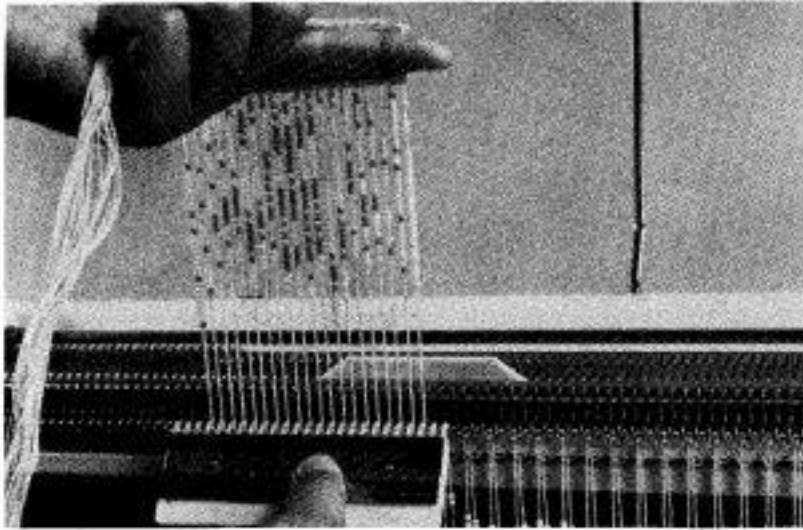


Fig. 171

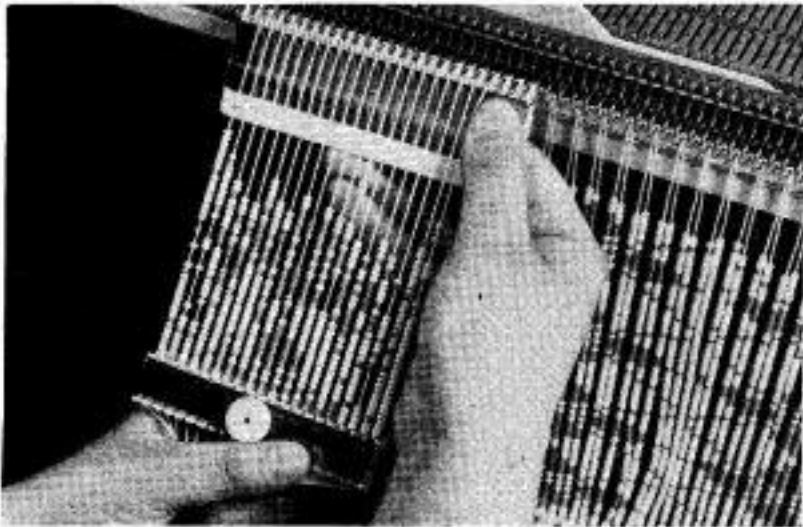


Fig. 172



Fig. 173

Holding the beads firmly in this position with the comb, raise the Vertical Pattern Knitter and when it is above the needles move to the right so that when it is lowered the strands will each enter into the hook of the adjacent needle on the right. Do not forget to keep the strands reasonably taut while raising and lowering the Vertical Pattern Knitter. (see Figs. 171, 172 & 173)

When the operation is completed the beads should be on the left of the needle hooks while the strands of cotton emerge from the right of the hooks as shown in Fig. 173. Remove the sinker stopper. Knit this row by moving the Carriage from right to left.

Continue knitting by repeating (d) & (e).

