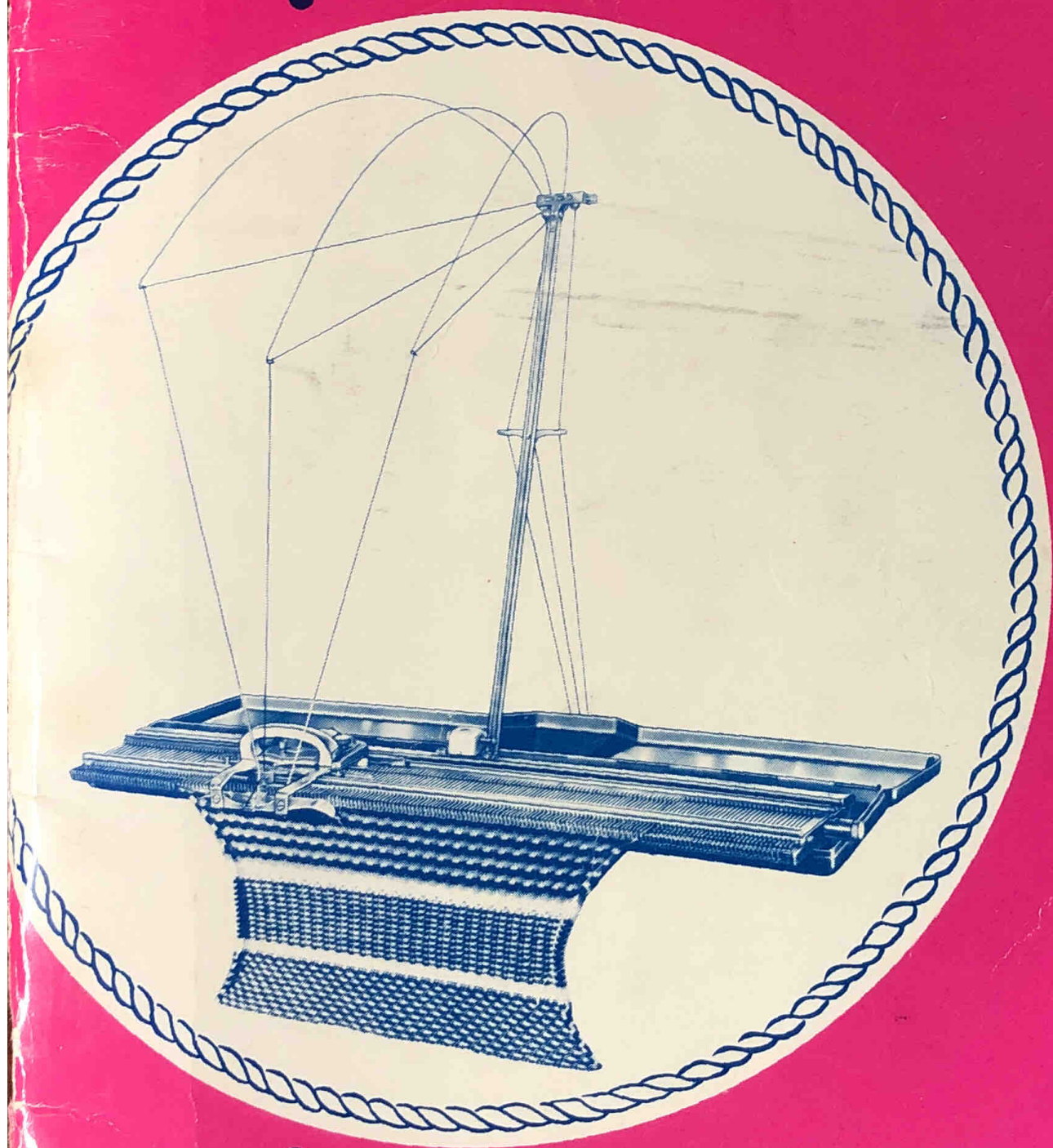


ARS

KNITTING MACHINE
instruction manual



How to master your
Automatic Home Knitter

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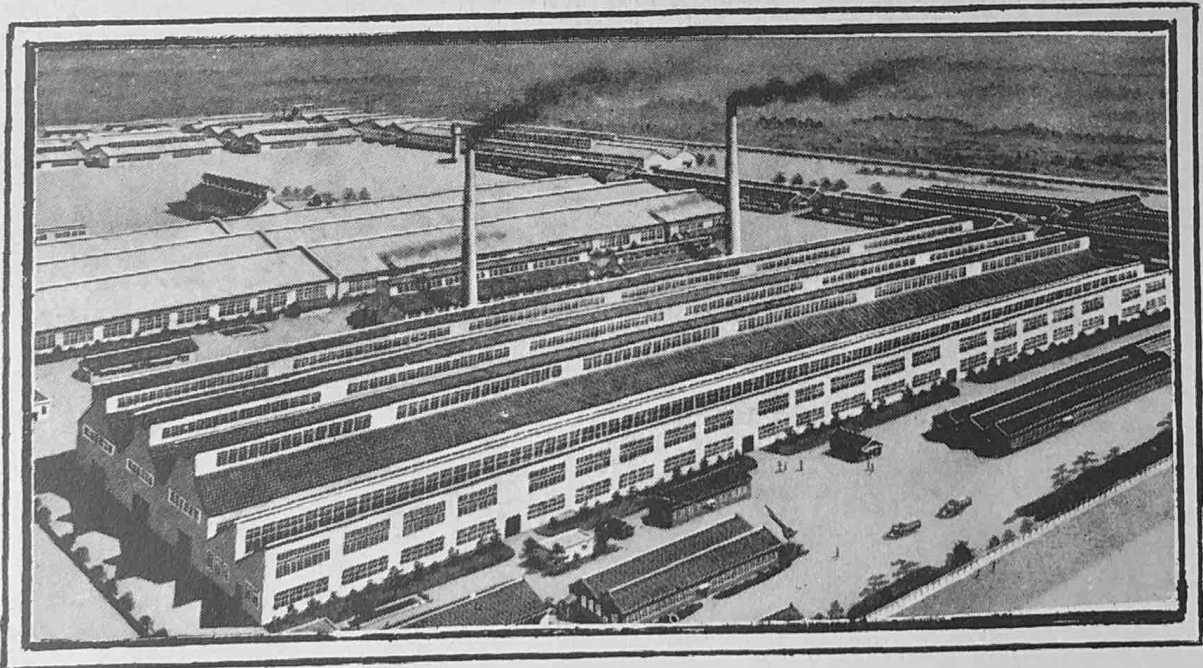
Introducing Your

A R S Hand Knitter

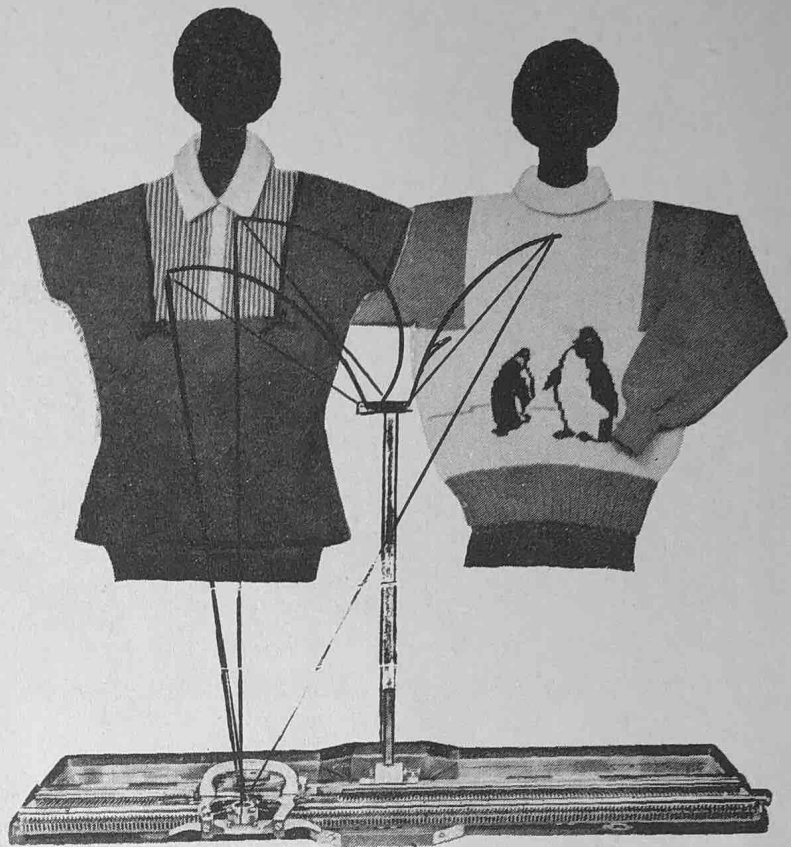
Just as the sewing machine once outdated hand-stitching, new automatic knitters are today replacing the old-fashioned custom of knitting by hand. Those of us who appreciate the luxurious beauty of fine knitted garments can thank these new knitters for giving us a faster and easier method to accomplish in minutes the beautiful work which formerly took days and weeks.

The **ARS KNITTER** is the most compact and complete home knitter ever built. It hand-knits at a fraction of the former time—yet in result cannot be told apart from two needle knitting! Follow standard hand-knitting instructions, do any stitch, like cables, argyles, horizontal or vertical designs, and use all weights of yarn. Even if you've never knitted before, you will see professional result instantly.

All shaping such as increasing, decreasing, neck openings and buttonholes, are done directly on **ARS KNITTER** and a tremendous feeling of satisfaction is derived from seeing the knitted fabric literally grow before your eyes.



The manufacturer of the ARS KNITTER, the Ars Knitting Machine Mfg. Co., Ltd. is one of the foremost manufacturers of weaving and knitting machinery produced in the world.



PAT. No. 229427 E/C 100 in addition to this.

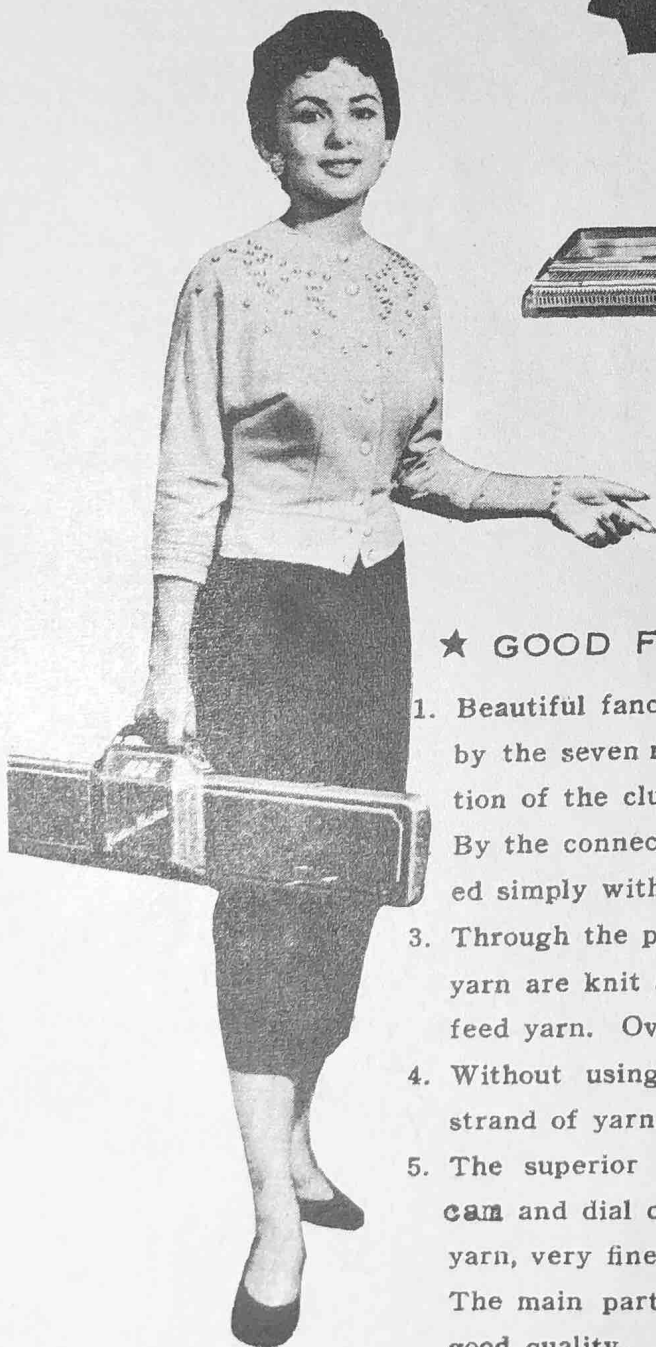
Applications for the patent in the overseas countries are completed.

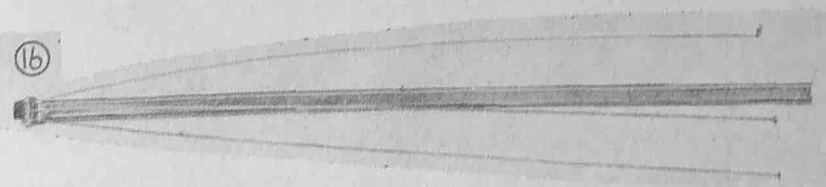
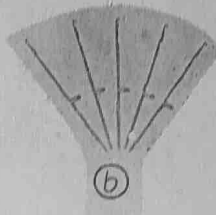
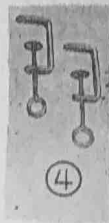
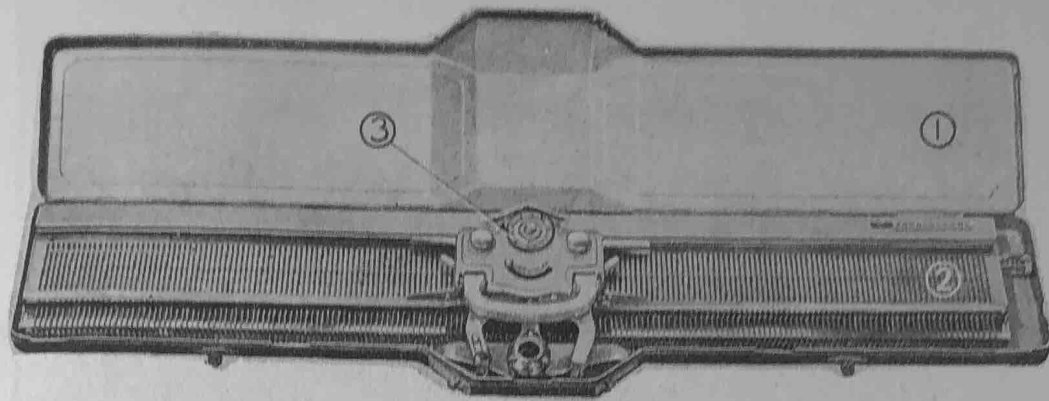
★ GOOD FEATURES OF ARS HAND KNITTER

1. Beautiful fancy knitting of various kind is created automatically by the seven movements of needle which are done by the operation of the clutch-handle.

By the connecting yarn-feeder, three strands of yarn are changed simply with a tip of finger. The operation is quite easy.

3. Through the pole of automatic feeding system, three strands of yarn are knit at the same time evenly without using hand to feed yarn. Over 150 rows per minute. Very speedy.
4. Without using any "weight", you can begin knitting with a strand of yarn. Many good features are seen besides this.
5. The superior operation of the stitch-adjuster with a special **cam** and dial can knit with various kinds of yarn, from a lace-yarn, very fine yarn to thick yarn in this single machine. The main parts of the machine are made of stainless-steel of good quality.





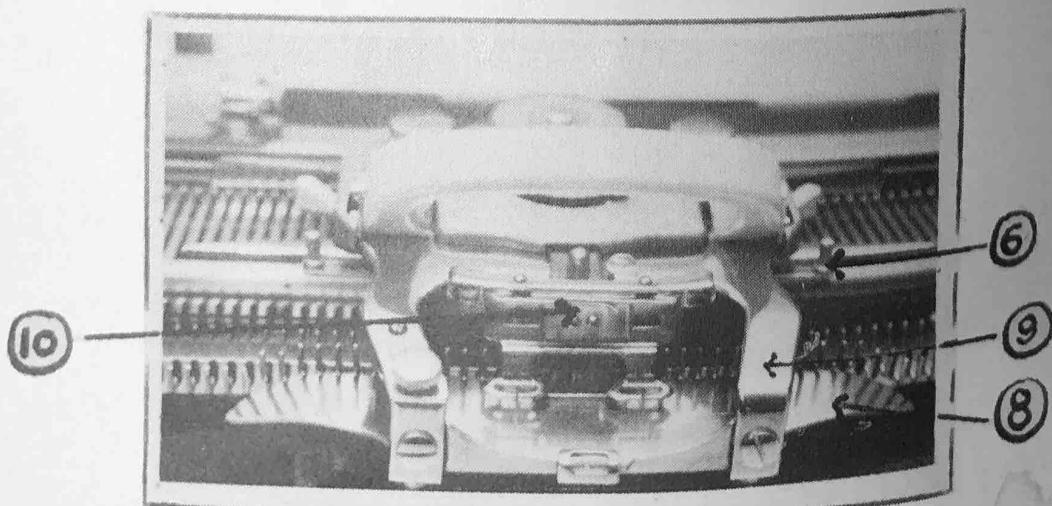
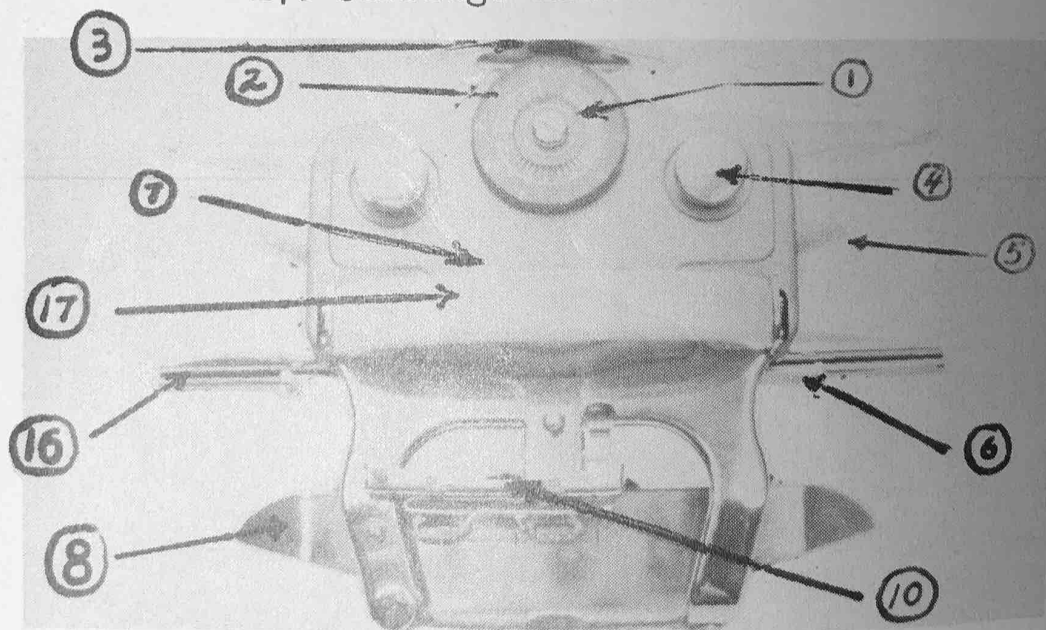
PARTS AND ACCESSORIES OF THE ARS KNITTER

- | | |
|-------------------|---------------------------------|
| 1. Case | 9. Casting on yarn |
| 2. Bed | 10. Hook Needle |
| 3. Carriage | 11. Latch Needle |
| 4. Clamps | 12. Transfer tool (one eyelet) |
| 5. Row Counter | 13. Transfer tool (two eyelets) |
| 6. Spare Needles | 14. Tool Case |
| 7. Case Handle | 15. Tension Guide Spring Plate |
| 8. Cleaning Brush | 16. Yarn Feeder Pole |

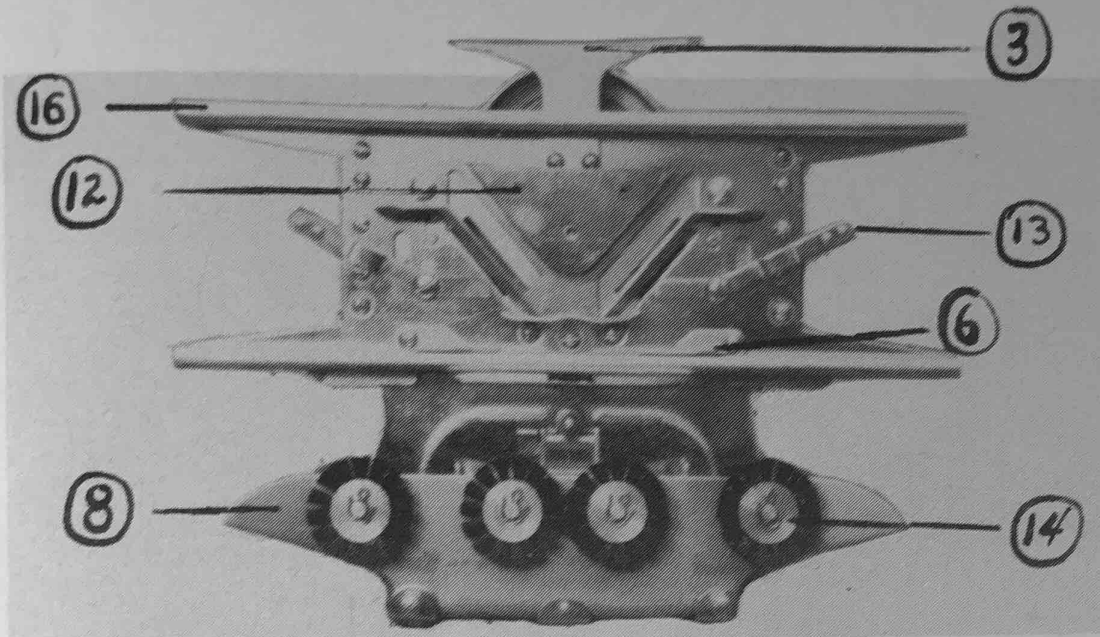
THE CARRIAGE: The heart of the knitter

The parts of the carriage:

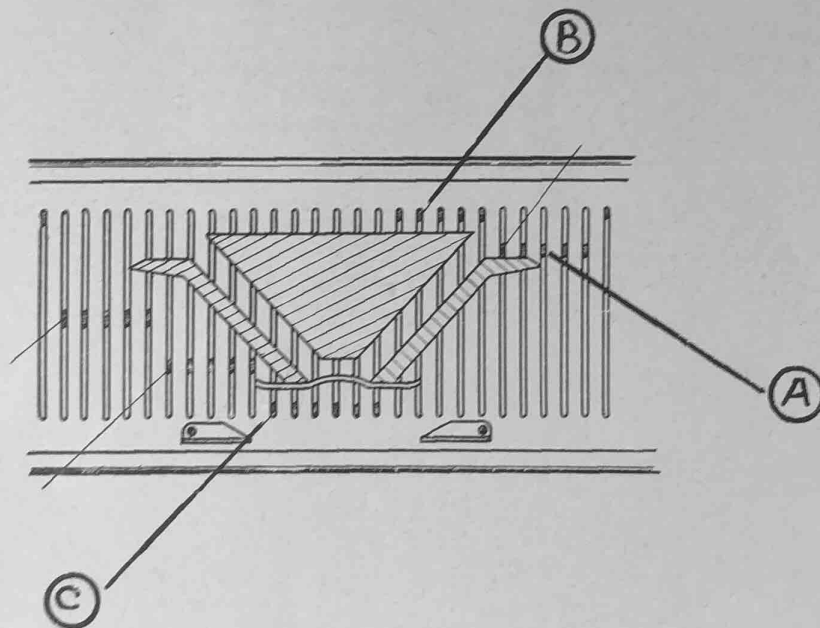
1. Tension regulating knob
2. Tension dial
3. Row counter push cam
4. Stitch hold knobs
5. Side cam levers
6. Sub side cam levers
7. Main cam lever
8. Fabric presser plate
9. Presser plate arm
10. Connecting yarn feeder
11. Latch opener lever
12. Main cam
13. Side cam
14. Rotary brushes
15. Needle pressing plate
16. Slide rail
17. Carriage handle



Top of carriage



Bottom of carriage



Explanation of the Needle Movement

- A. Needles are moved by being guided by means of the cams and the butts of the needles.
1. Needles shown in fig. A position will move (working position).
 2. Needles in fig. B (Locked position) do not move.
 3. Needles in fig. C (Rest position) can be moved by the Sub side cams.

WHAT IS AN AUTOMATIC KNITTER?

Your **ARS KNITTER** is a fully automatic knitter. It knits 180 stitches with a single stroke. Your **ARS KNITTER** is a multiple knitting needle which is based on the latch needle principle.

INTRODUCING A **ARS KNITTER** LATCH NEEDLE

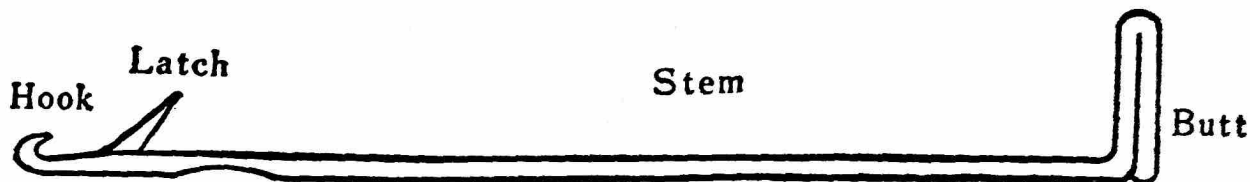


Fig 1

The needles function in three different positions within the needle bed. Let us explain how the latch type needle in the **ARS KNITTER** forms a stitch identical to a hand-knitted stitch.

HOW A STITCH IS FORMED

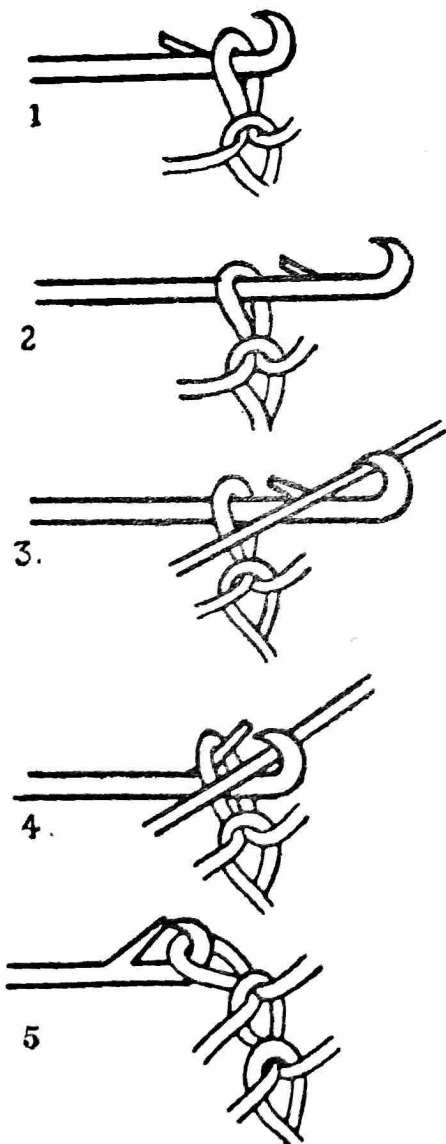
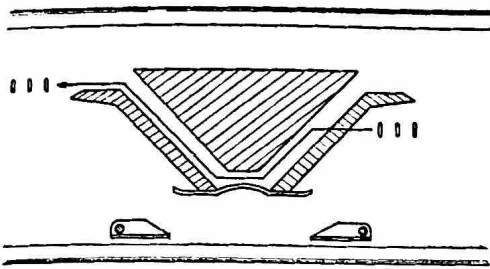


Fig 2

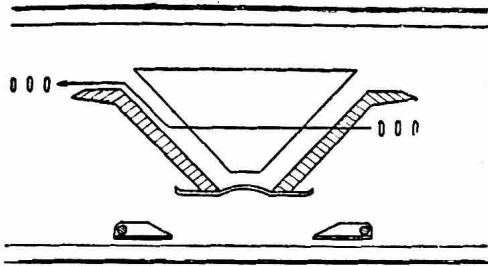
How a stitch is formed?

- Position No. 1 The needle is in the knitting position and Stitch A is hanging from the needle hook.
- Position No. 2 The Cams of the Carriage have commenced to raise the needle and now the needle is forward and Stitch A is below the needle latch and is hanging onto the needle stem.
- Position No. 3 The needle has reached its maximum forward position in the needle groove. Stitch A is hanging on the needle stem, while the yarn feeder has placed a new thread in the hook which will be formed in the next Stitch B.
- Position No. 4 The needle is returning on its rearward course, pulling the one stitch B with it. The old stitch A is at the same time coming nearer to the latch and will then close the latch, causing the new stitch B to be locked inside the needle hook.
- Position No. 5 The needle has completed its rearward passage. It has pulled the Thread B through the Stitch A, thus making a completely new stitch B. This is now hanging onto the needle.

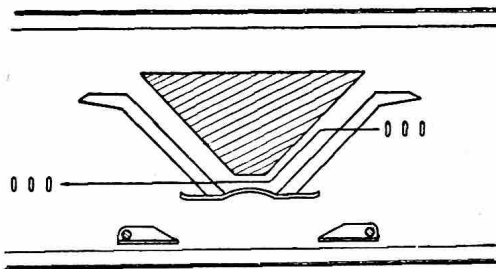
THE CAMS IN RELATION TO NEEDLE MOVEMENT



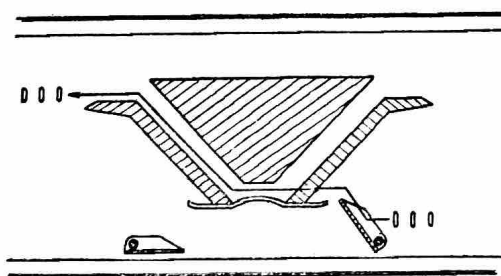
1. All 3 cams are working and the carriage is moving from left side of knitter to the right.



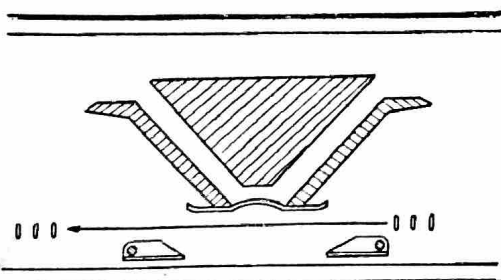
2. By using the two side cams on and the master cam off. The latch needle movement is from left to right of knitter.



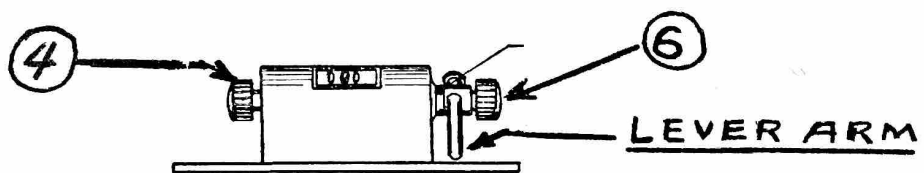
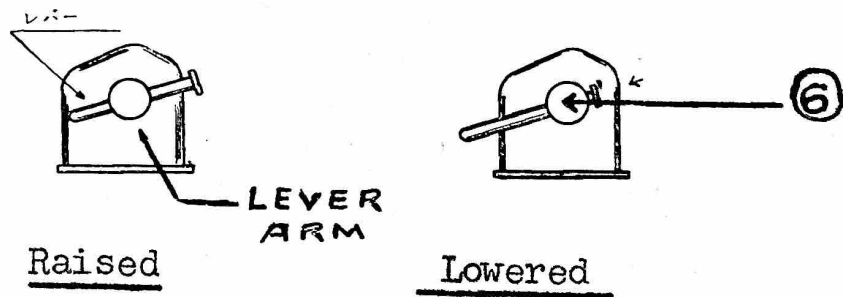
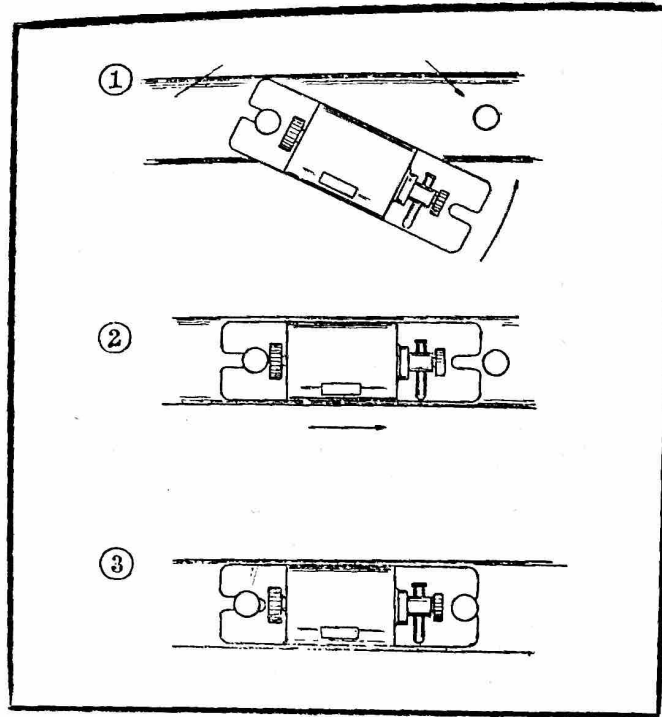
3. By setting both side cams on off position (raises the side cams) and master cam in the on position, all needles will be pushed to the front in rest position.



4. By using sub -cam levers the needles in rest position are made to work.



5. Rest position knitting using all cams with the needle butts forward. The cams cannot touch the needle butts, therefore the needles will not move in this position.

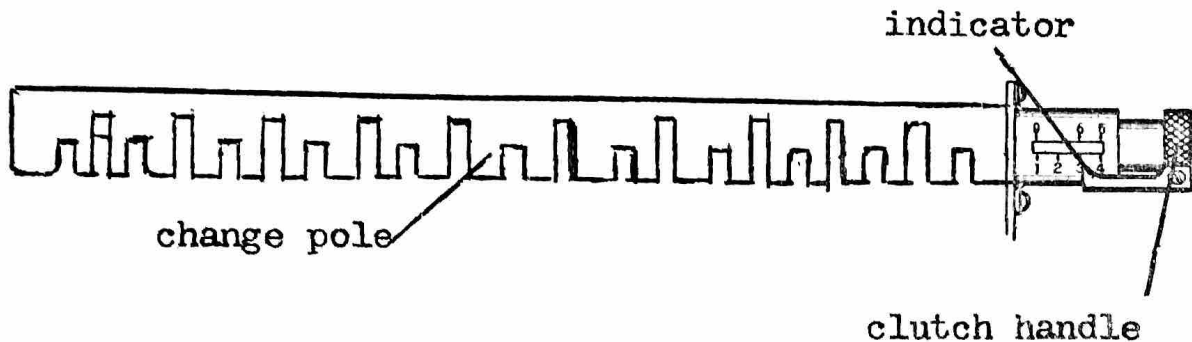


THE ROW COUNTER

The row counter can be placed on the rear cover by loosening the two screws on the back plate as shown in figures 1, 2, and 3. Loosen the set screw figure 6, and lower the lever arm so that it will properly engage the push cam of the carriage. You will now observe that the push cam of the carriage will move the lever arm of the row counter as the carriage is moved across the needle bed. Should you desire to change your counter back to 00, turn screw figure 4 until zeros appear in the window of the counter.

How to operate the CLUTCH and CHANGE POLE

The change pole, operated by the clutch handle is a steel rod with a series of grooves in which various combinations of the needle shanks may rest. By this patented method the needle butts that fall into the grooves of the change pole will not operate while the carriage is in operation. This then permits a great number of pattern combinations by simply rotating the clutch handle. All the needles rest on the change pole. If you desire to knit with all the needles, set the indicator on 0, as this part of the pole has no grooves, all needles will then be in working position.



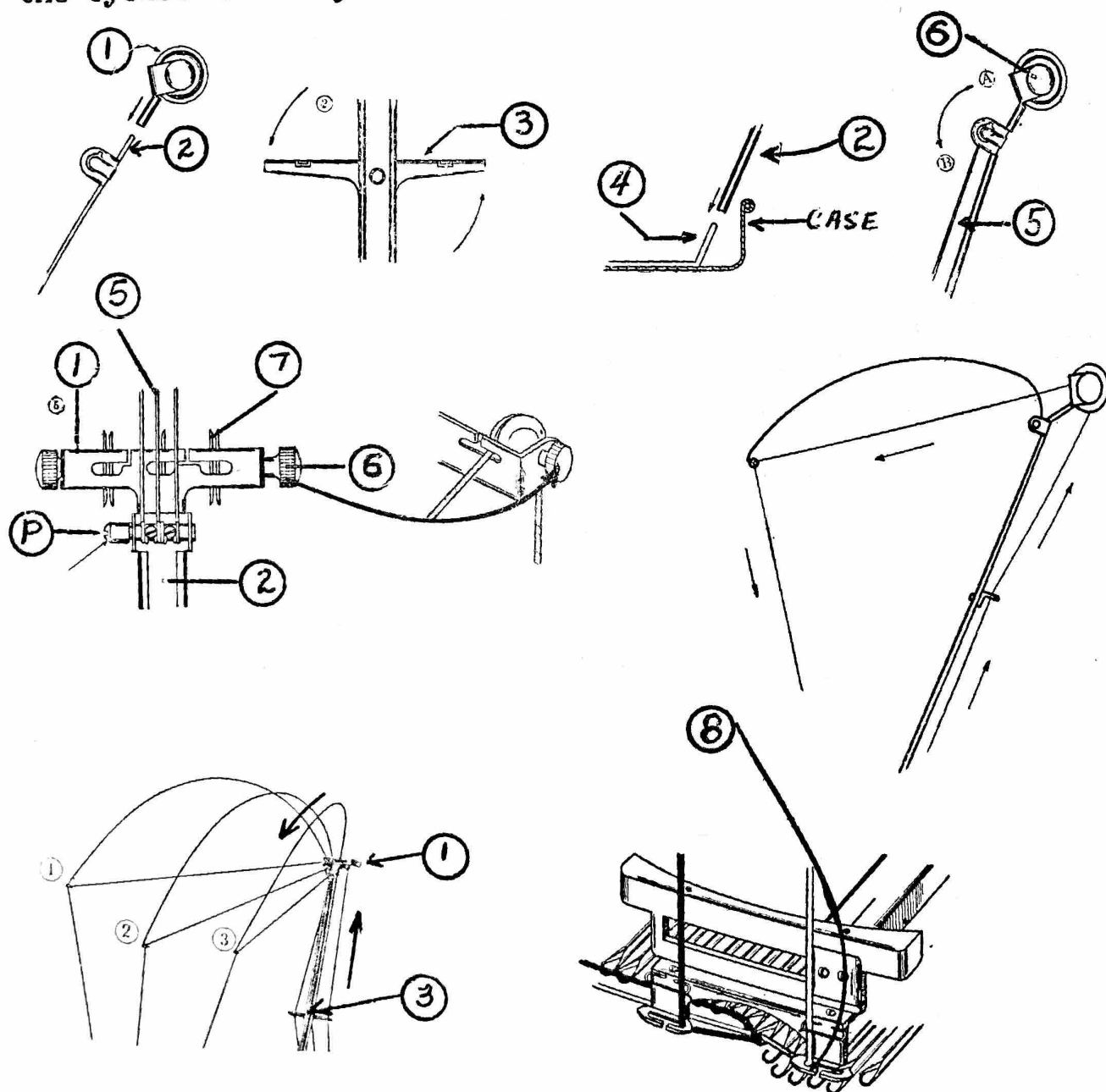
The chart below shows a group of 10 needles and the effect of the clutch. When the clutch indicator is set on the number at the left, the (black ●) needles are lowered and do not move or take the yarn. Always center your work since the clutch is designed to work out from center of the knitter.

Needle Guide No.	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0
1	●	0	0	0	0	●	0	0	0	●
2	0	●	0	0	0	0	●	0	0	●
3	0	0	●	0	0	0	0	●	0	0
4	0	0	0	●	0	0	0	0	●	0
5	0	●	0	●	0	●	0	●	0	●
6	●	0	●	0	●	0	●	0	●	0

0 = Moves needle ● = Not moves needle

The Thread Pole

Put the feeder yarn holder guide Fig. 1, on top of the bar feeder pole Fig. 2, turning the three thread adjustment wheels toward the back. Turn the yarn guide to the horizontal position as in Fig. 3. Place the feeder pole on the extension at the back of the case Fig. 4. Turn screw Fig. P until the pin holds the yarn tension spring upwards. Adjust tension screw Fig. 6 until the tension is correct for the yarn being used. Note, the yarn should never be held tight, but guided evenly through the wheels. Thread the pole as shown in Fig. A running the thread through the eyelet yarn guide Fig. 3, between the three tension wheels Fig. 7, through the guide hole in the feeder in the feeder plate Fig. 7, and finally into the eyelet of the yarn feeder Fig. 8.



THE ARS YARN FEEDERS

Two types of feeders have been developed for the Ars Knitter, the Three Color Slide Feeder and the Three color Rotary Yarn Feeder. Both types accomplish the same results. If you own the Three Color Slide Feeder follow instructions under section 1. If you are the owner of a Rotary Yarn Feeder follow Section 2.

Section 1. THE THREE COLOR SLIDE FEEDER

The Ars yarn feeder has been designed to permit the use of two or three colors of yarn as shown in Fig. 1. Before the feeder is threaded, decide which one of the feeders that you plan to use and slide the yarn feeder bar into place. By sliding the feeder bar as far to the left or to the right as far as it will go, it will properly position itself.

1. If you desire to knit with one thread, either side of the feeder will do. See Fig. A.
2. If you desire to knit with two threads, thread both feeders No.1 and No.2. When you are ready to change colors, be sure to change the position of the second feeder. Never thread the second color until you are ready to use it.
3. If you desire to knit with three threads, thread all three feeders No.1, No.2, and No.3.

Fig. B shows the proper position of the feeder before the carriage handle is folded down to be placed back into the case. Since the feeder and the latch needles are the most important parts of your knitter, always operate with care and never force the carriage. Check the three set screws, Figs. 4, 5, and 6, one on top the thread feeder arm and two in front of the feeder bar. Should they become loose because of vibration, the feeder will not operate properly and which will cause stitches to drop.

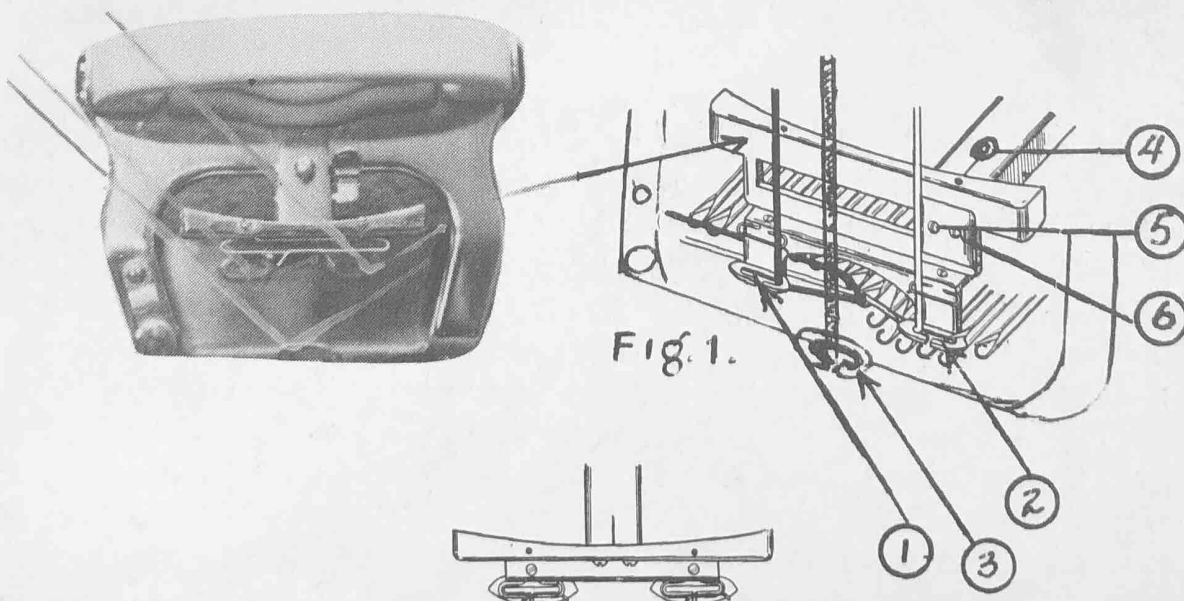


FIG. B

Section 2. THE THREE COLOR ROTARY YARN FEEDER

This yarn feeder is rotary as shown in Fig. C. By revolving the round feeder, you can automatically change the yarn and knit with two or three colors. Changing of the yarn is done by turning the handle of the feeder to the right or to the left. When the yarn feeder is positioned as shown in A of the Fig. D, it is then in position to knit. Should you desire to knit with two or three colors of yarn, simply turn the color of your choice into position A.

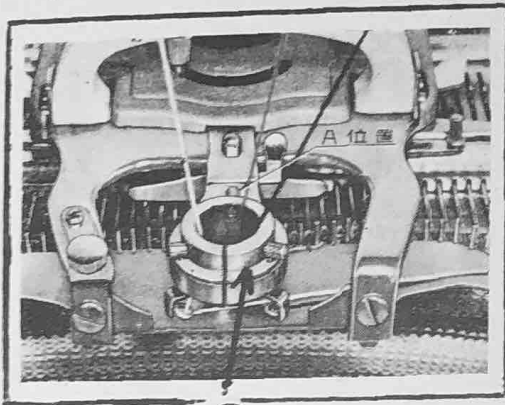


Fig. C

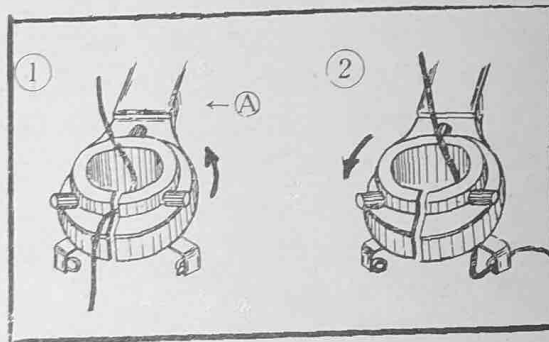
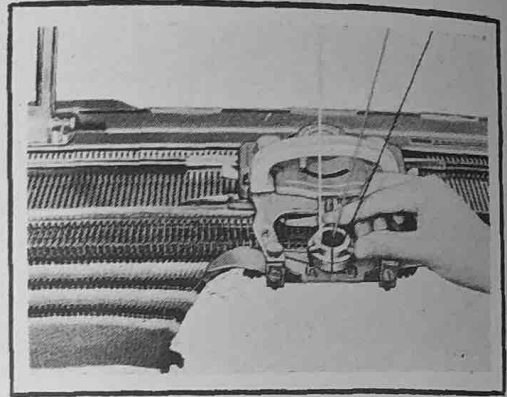


Fig. D

THE CONNECTING PLATE

The connecting plate is used when knitting with more than two colors of yarn and to prevent breaking off any yarns. This is done by hand feeding the new color through the feeder mouth. Start the new color from the left after removing the color in the left feeder mouth. Open the connecting plate and slip the color just removed from the feeder mouth over the connecting plate and close. This holds the yarn in place until ready to use again. Thread the new color through the mouth of the left feeder holding the end of the yarn above the feeder and letting it run smoothly through your fingers. Always make the change on the left hand side of your knitter. The connecting plate is also used for easy threading or removing yarns without cutting your yarn as shown in Fig. A.

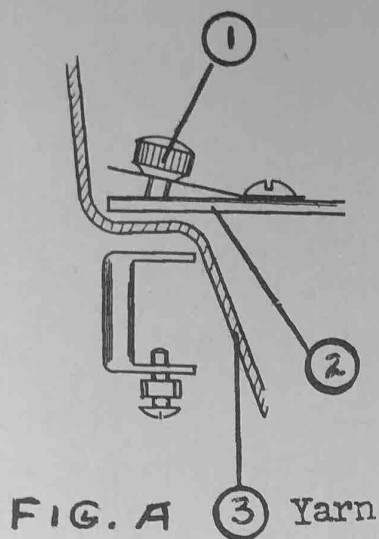
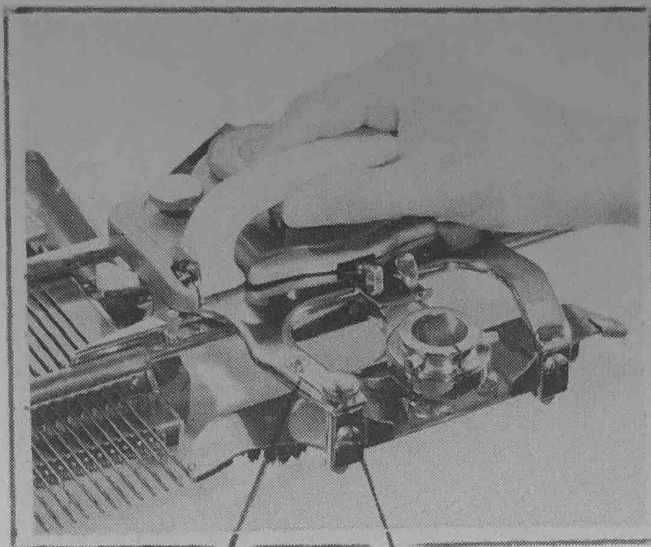


FIG. A ③ Yarn

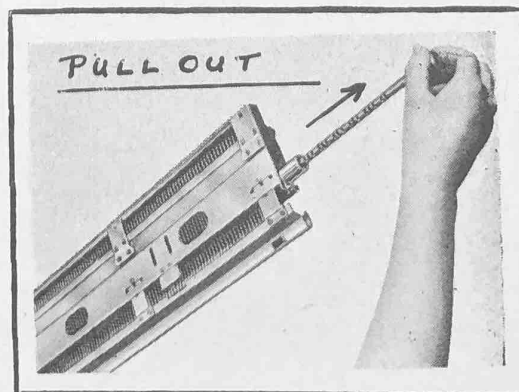
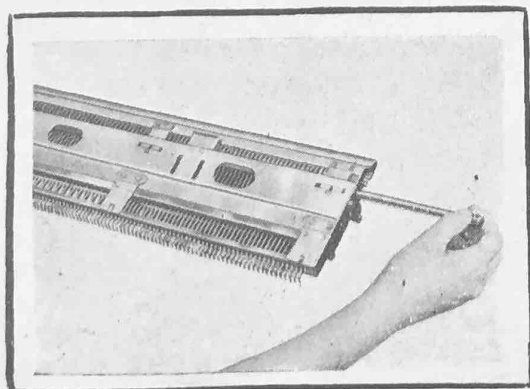


Connecting Plate

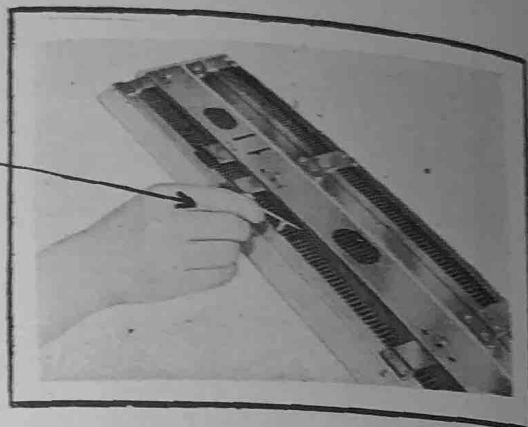
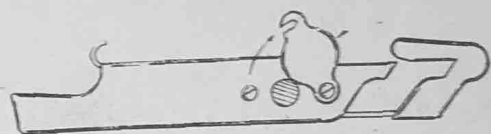
Connecting Pin

REPLACING OR STRAIGHTENING A BENT NEEDLE

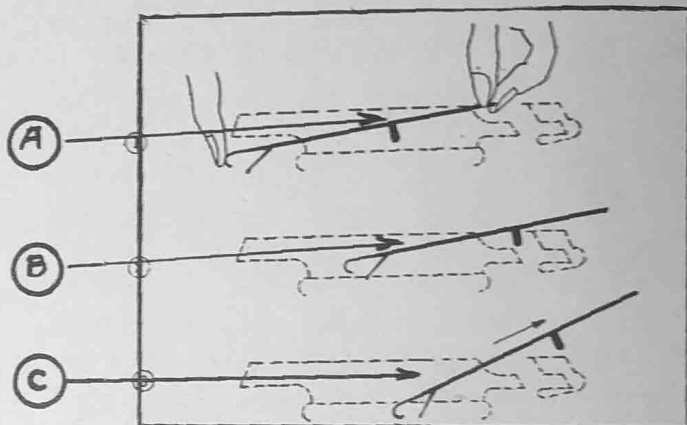
Until enough rows have been knitted for the fabric to touch the round brushes, you should move the carriage slowly, as the yarn may double up on the latch needle and bend the hook or latch if forced. If stitches double up, hand knit them off. At any point, when the carriage will not move smoothly. **STOP!** -- Raise all three cams and the feeder lever. Move the carriage back, correct the trouble and then proceed with your work. At no time force the carriage across the needles as you will damage the hook or latch. After the round brushes are striking the fabric, if one or two stitches double up, it is caused by a damaged needle (the hook is bent or the latch is bent). Or the latch does not open all the way or close properly. To correct this, first try bending the latch back into position. If the hook is bent straighten it. Also check and see if lint has filled the groove in the needle and is preventing the latch of the needle from opening or closing properly.



REPLACE NEEDLE

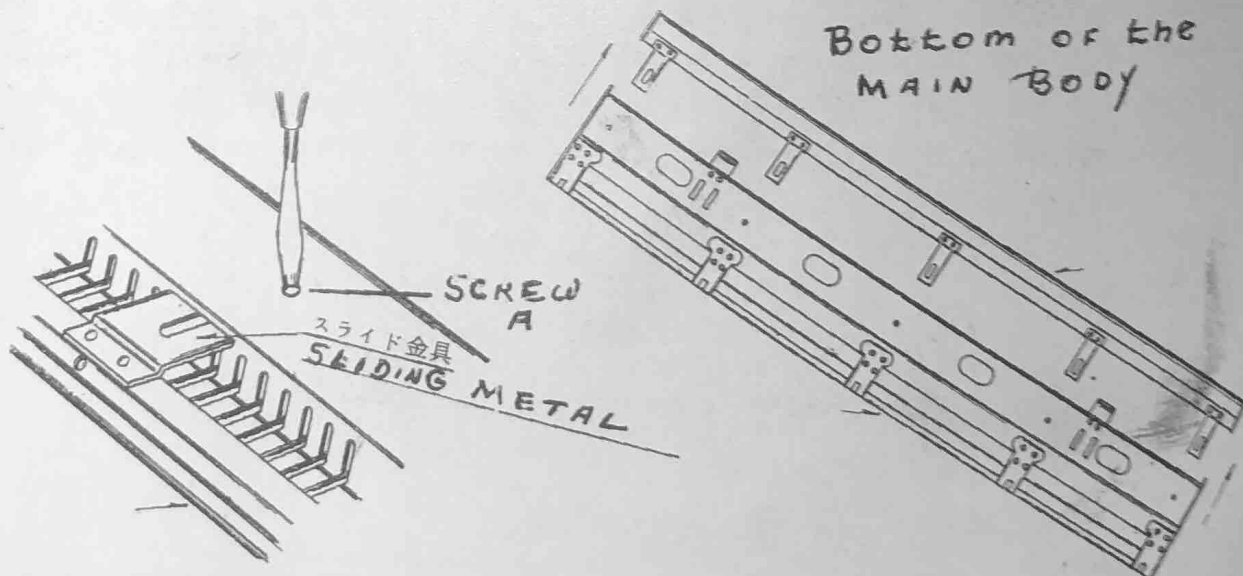


If the needle is damaged and can not be corrected, replace it as shown in Fig. A, B, and C.



First, push all needle shanks back into the rear cover into lock position. Then pull out by the clutch handle, the selector rod just past the needle to be changed, after you have picked the main body up with both hands and turned it over so the bottom of the main body is facing up.

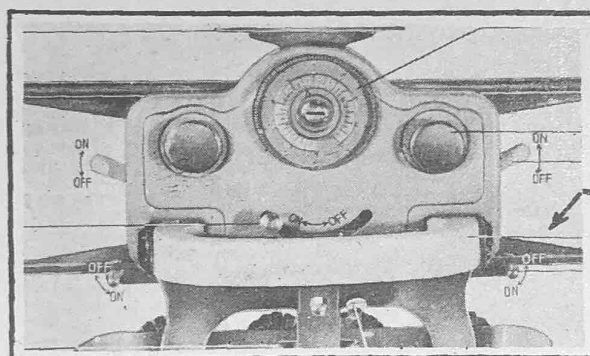
To replace needle, start with diagram C, work through B and then A. Then lock into position under the rear cover. Now replace the clutch pole and put the body of the knitter back into its case front side up.



If the needle to be replaced is under the sliding metal of the rear cover of the main body, first, push all needles back into lock position in the rear cover. Then remove the two screws directly under the needle shank to be replaced. Turn the knitter over being careful not to disturb the needles in lock position in the rear cover. See Fig. D-- Remove screw A and separate sliding metal and rear cover from main body to reach the needle to be changed. If for any reason all needles must be replaced or adjustment made to the rear cover, remove all the screws A of Fig. D and pull apart as in Fig. E. Important - it is unlikely that this repair will ever be necessary. We recommend that all service on your fine ARS AUTOMATIC KNITTER be made by a qualified Ars service man. Simple adjustments and needle - changes can be made by following the diagrams shown.

SUB SIDE CAM LEVER ACTION

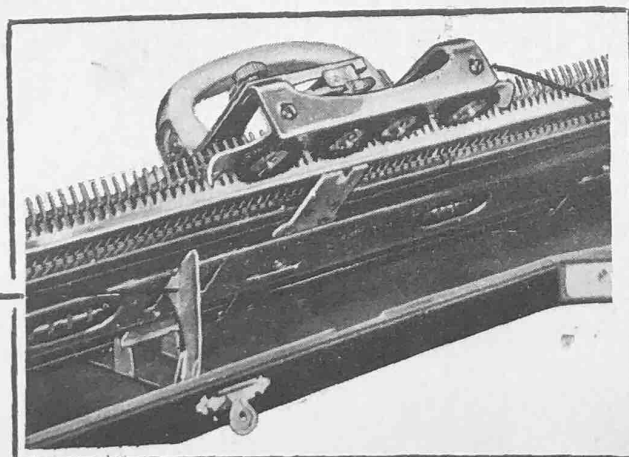
The right and left Sub Side Cam Levers are used for automatically putting the rest position needles back to work position. When using needles in rest position, keep the two side sub cams back. When you are ready to knit on all the rest position needles, pull the side cam levers toward you and all needles will work.



SUB SIDE
CAM LEVERS

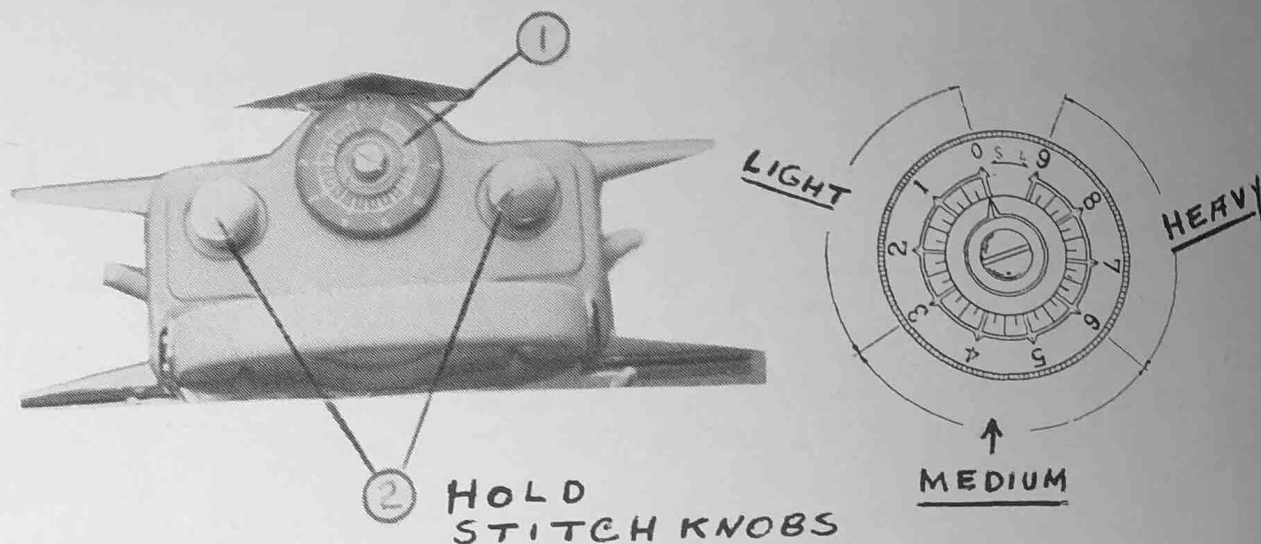
BODY SUPPORT PLATE

By raising the body support plate in the bottom of the case and fitting it into the groove in the bottom of the main body. The main body is tilted as in Fig. A . This is done to knit ribs and fancy stitches easily.



SUPPORT
PLATE

HOW TO ADJUST STITCH AND TENSION SETTINGS



ADJUSTMENT FOR SIZE OF STITCH

All knitting is based on a gauge of how many stitches and how many rows make an inch. The tension on the yarn determines the size stitch by how far the cams will draw the loop of yarn in the hook. Adjustment of the stitch gauge is done by revolving the large circular Fig. 1. This dial is divided into nine main divisions and each division again divided into five sections making a total of 45 stitch adjustments possible. For practical purposes one need only consider the use of the nine major numbers. The larger the number the looser will be the stitch. For the adjustment for yarn refer to the following table:

- 0-3 Light weight yarns
- 3-6 Medium weight yarns
- 6-9 Heavy weight yarns

Important Before turning the Tension Dial BE SURE to loosen the hold stitch knobs! See Fig. 2.

To increase tension after having once been set, you must turn the dial to a number that is one higher than the number you wish to select. For example, if you have been using a tension of 5 and desire to increase to a tension of 4 you must move the dial to 3 and then come back to 4, the number you desire. Be sure to tighten the hold stitch knobs before knitting again.

Avoid using too tight a tension as the garment will be harsh. Never try to determine the stitch gauge while the work is on the knitter. Always remove the swatch to measure. The larger the swatch the truer the gauge. A swatch should never be less than 4" square and measurements taken from the center of the knitted goods.

HOW TO ASSEMBLE AND SET UP THE ARS KNITTER

1. Remove the knitter from its case and wipe off the rust preventing oil. Place the knitter back into the case and set the case on a suitable stand or table. Fix the case firmly with the two clamps through the slots in the base of the case. The case should be firm, but never tighten the clamps so tight that they will raise the rear of the case. See Fig. 1.

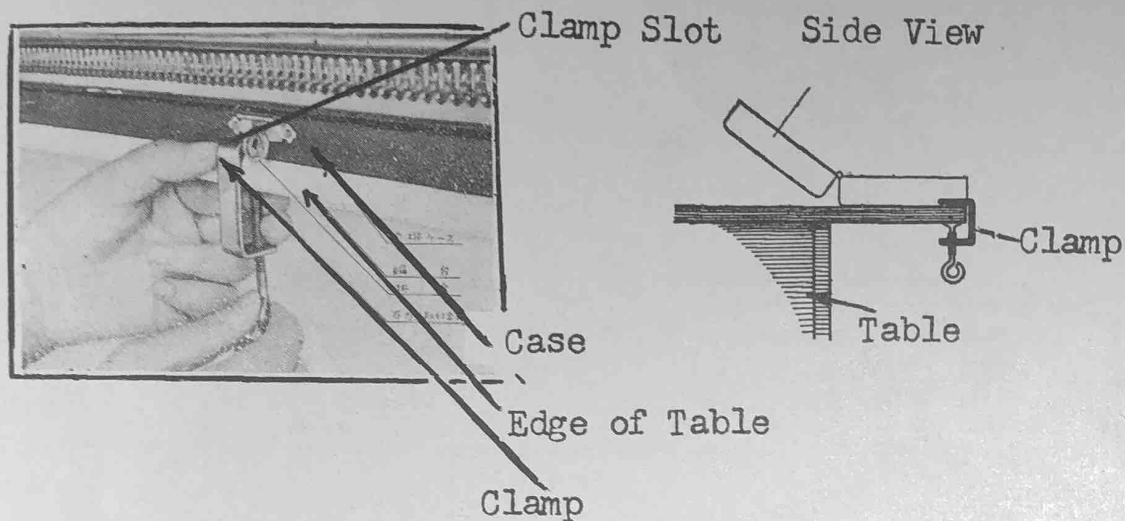


Fig. 1

2. Lift up and pull forward the main body giving it the angle as shown in Fig. 2. Place the two bars on the bottom of the main body into the two grooves at the bottom of the case as shown in Fig. 3.

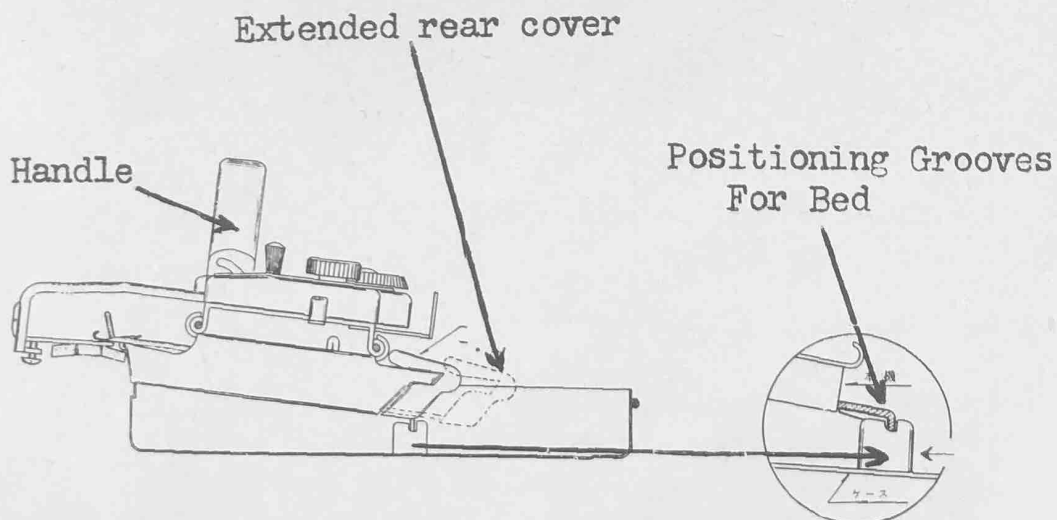


Fig. 2

Fig 3.

3. Push back evenly the rear cover at the back of the main body as far as it will extend. Be sure the full length is all the way back as shown in Fig. A and B of Fig. 4. Now push the needle butts back until the needle shank is firmly locked into place in the rear cover as shown in Fig. C and D of Fig. 4.

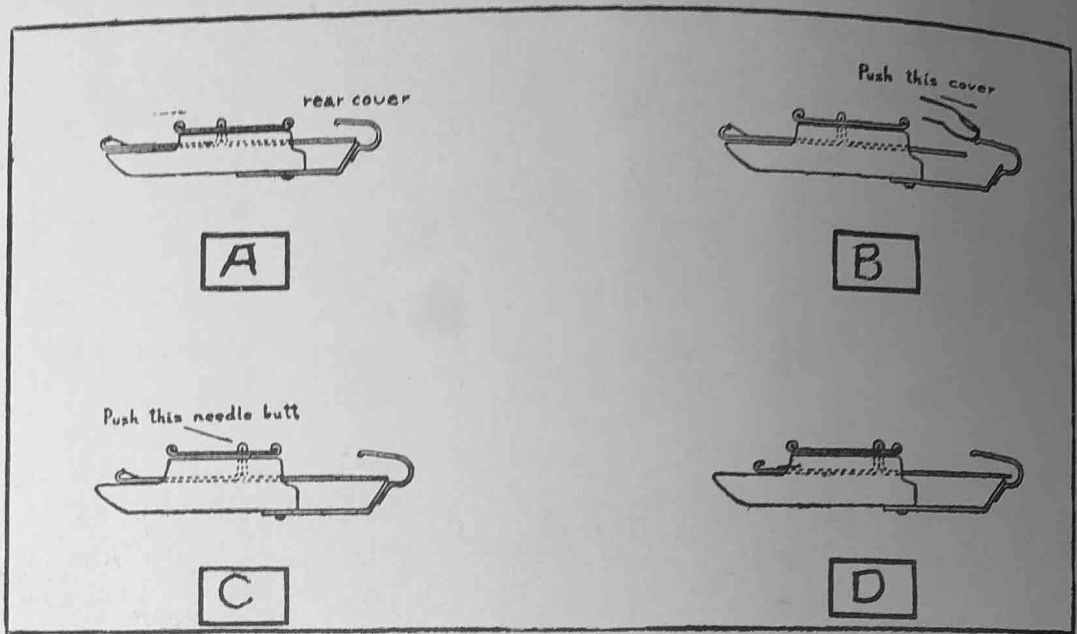


Fig. 4

4. Set up the carriage handle as in Fig. 5. Raise the feeder lever and open all the cam levers or turn to off position. Slide the carriage slowly to the the right hand side of the knitter to free the needles now resting under the carriage. Place these needles back into lock position as shown in Fig. C and D of Fig. 4.

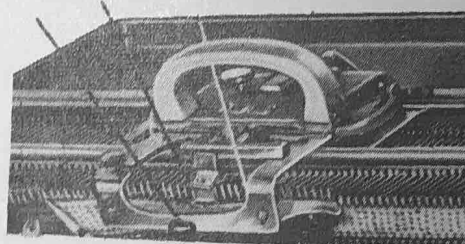


Fig. 5

5. Place the row counter on the rear cover and tighten screws A and B as shown in Fig. 6.

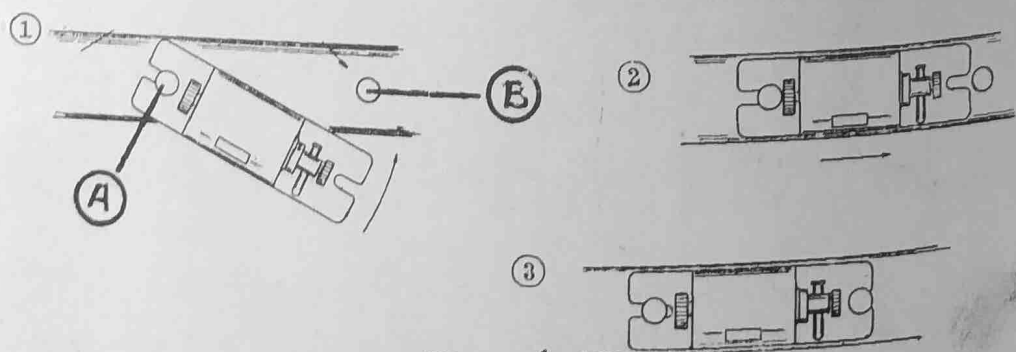


Fig. 6

6. Slide the yarn holder guide Fig. A on top of the bar feeder pole Fig. B, turning the three thread adjustment wheel to the back. Turn the eyelet guide Fig. C to the horizontal position as shown. Turn the screw Fig. D until the pin holds the yarn tension spring Fig. E straight up as shown in Fig. F. See 7.

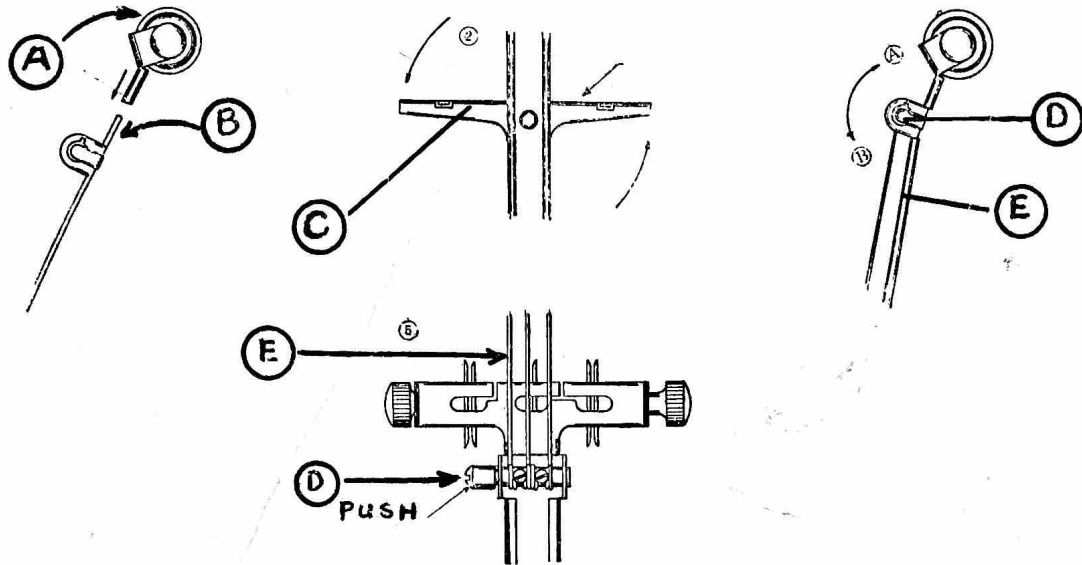


Fig. 7

7. Place the pole assembly on the support plate located at the rear of the case in the center. See Fig. 8.

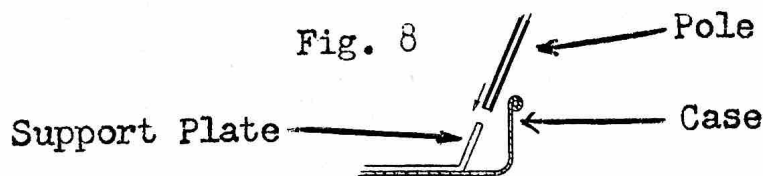


Fig. 8

8. Setting up the carriage

- A. Place the carriage to the right of the knitter.
- B. Locate the feeder you plan to use by centering it at the indicating marks.
- C. Lower the feeder lever.
- D. Set right and left cams to ON position.
- E. Put master cam lever on the On position.
- F. Handle is up.
- G. Stitch size has been selected and the stitch hold knobs have been tightened.
- H. Connecting plate is closed and the screw is tight.
- I. With the clutch handle, set the indicator on 0, to knit as in Fig. 9.

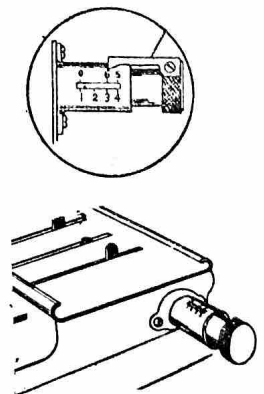
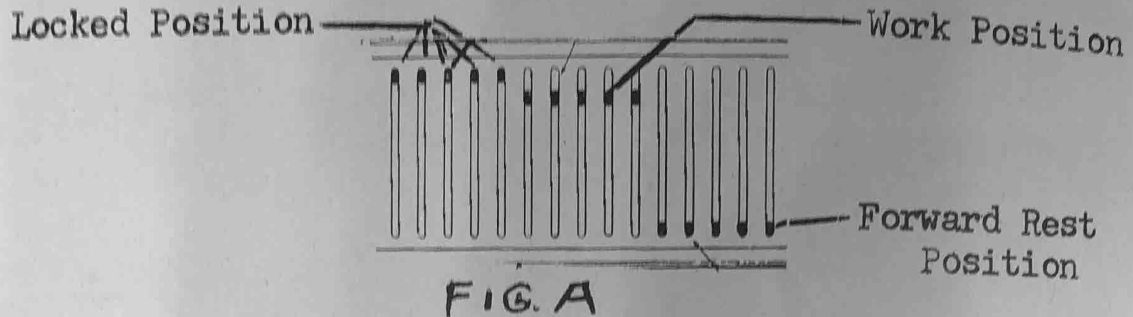


Fig. 9

STARTING TO KNIT * LESSON 1

1. Assemble your knitter as per instructions earlier in this book.
2. Pull out of lock position to work position 40 needles. Always center your work on the knitter when possible and use the needle count marks on the guide rail to count and center work quickly. See Fig. A.



3. Set the tension gauge indicator to a suitable gauge for the yarn with which you are practicing--#3 is a good starting place. Be sure to loosen the tension hold knobs before turning the tension dial and always tighten them back after the proper tension has been selected. A light weight 2 ply or or light sock and sweater yarn are excellent for practice.
4. Place the row counter on the rear cover (see instructions under row counter) and set to 000.
5. Cast on in open cast as shown in Fig. B. Casting on stitches means making a first row, of the foundation of knitting. This can automatically be done on your Ars Knitter by turn the clutch on #5 and knitting one row, then turn clutch to 6 and knit another row. Finally set clutch on 0 and knit a few rows until each stitch is perfectly placed on all the working needles.

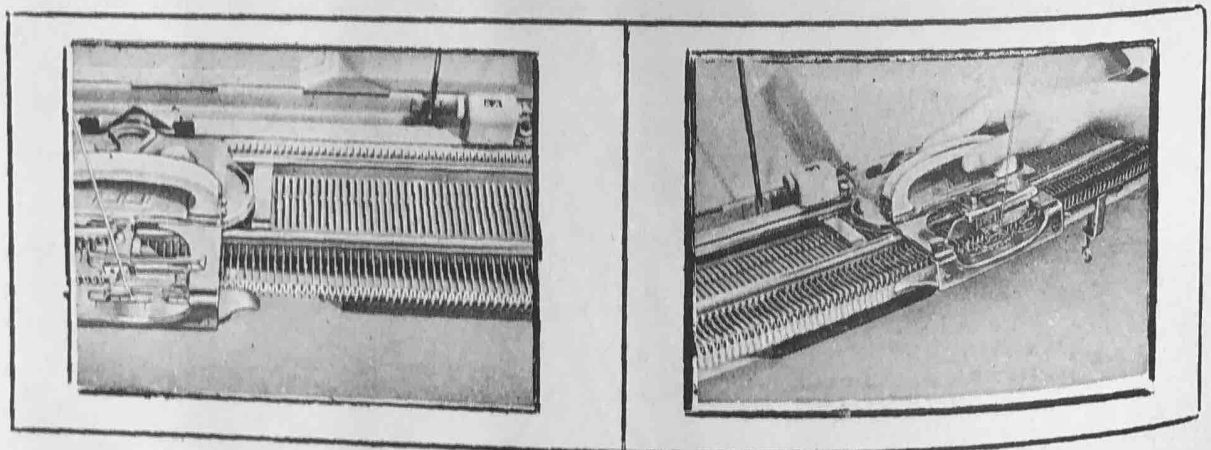


Fig. B

6. Knit slowly at first - Speed Comes With Practice. As the row counter will indicate you have now knitted several rows. Easy, isn't it! At the beginning knit with slow, non-stop movements in both directions. Do not stop in the middle of the row or try to go backwards while knitting- it will only move in one direction at a time. Guide your yarn loosely and check that the yarn feeds smoothly.

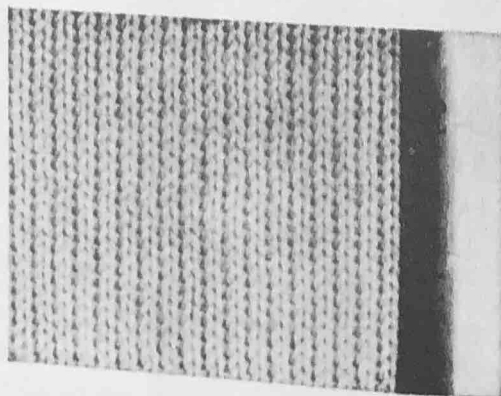
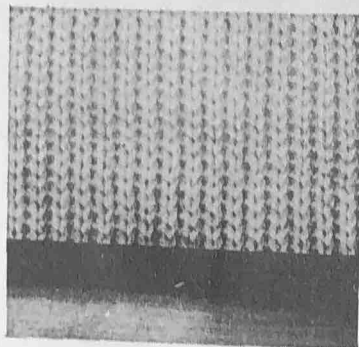
* IMPORTANT THINGS TO REMEMBER

1. When sliding the carriage across the needles in lock position, if a sharp metal to metal thump sound is heard and the carriage stops suddenly, this means a needle butt is slightly forward out of lock position and far enough out to be in the work position. To remedy this, move the carriage back, find the needle, push it back into lock position and continue to knit.
2. If the carriage stops and will not continue to slide across and you are in the middle of your work, never try to force or wiggle the carriage. Stop right there and release all cams, then return the carriage to the side from which you knitting, rip out from where you stopped to the beginning of the row and start over. Another method of correcting this trouble is not to rip, but put the knitted stitches in rest position, correct the trouble and knit the remaining stitches. Draw the sub side cams toward you so that the rest needles will knit on the next row and knit all stitches.
3. Thread the yarn on your right in the right feeder and thread the yarn on the left in the left feeder.
4. Do not thread the second color yarn until you are ready to do color work.
5. Use a light weight yarn for an open cast on before starting to knit with a heavy yarn.
6. Always be sure that the yarn feeder is centered between the the positioning marks for the color you are using as the work will all come off the knitter if you knit a row without yarn.
7. When using the knitter be sure to clean it with the cleaning brush after each use and keep it covered when not in use.

8. Never tighten the clamps in the case so tight that they will raise the case off the table as this will put the knitter off balance causing stitches to drop.
9. Check the screw on top of the feeder and tighten it about once a week or when feeder feels loose and drops stitches.
10. Always sit at a side angle to the knitter with the heel of your hand resting on the carriage, never pressing down hard on the handle. Take long smooth even strokes as good balance and smoothness is very important for trouble free knitting.

ADAPTING STANDARD HAND-KNITTING INSTRUCTIONS TO ARS KNITTER

Based on your understanding of the gauge or tension, it is comparatively simple to adapt standard hand-knitting instructions to your **ARS KNITTER**. Follow these simple rules when adapting from standard two-needle instructions:



1. Determine the proper gauge by making a swatch. Knit a small test piece of about 30 needles, working 30 rows in several different tensions. Knit a single row of a different color between tension changes for easy identification. Block the swatch before measuring for correctness.
2. Select those hand-knitting instructions that best lend themselves to the Knitter.
3. Many intricate two-needle patterns may be closely reproduced by adapting a similar stitch with the same effect and texture, and with the amazing **ARS KNITTER** speed.

HOW TO TAKE A STITCH GAUGE

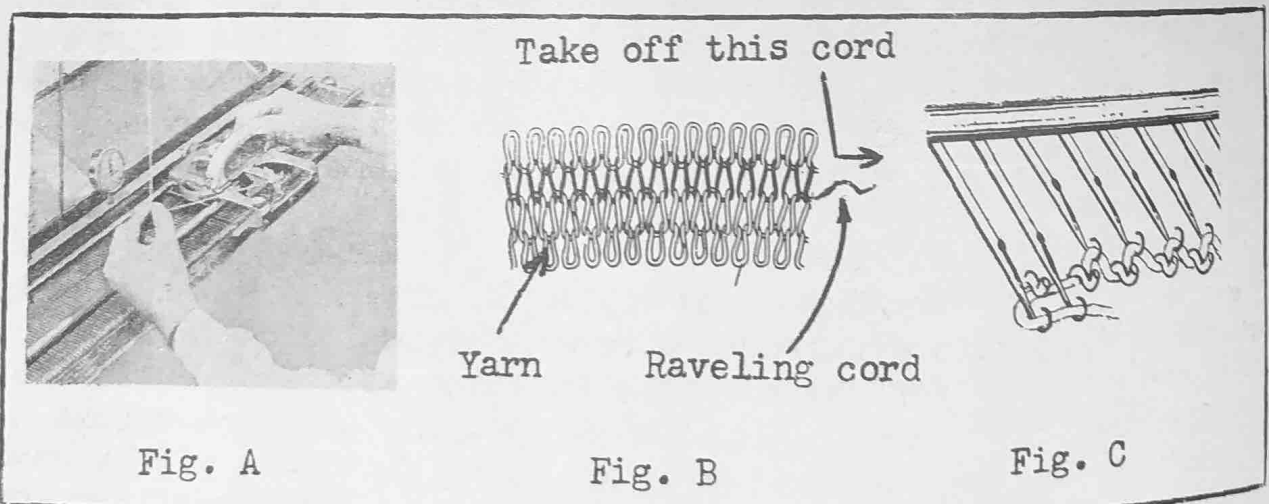
All patterns for the ARS AUTOMATIC KNITTER will give the required number of stitches and rows on each pattern and at the point on the indicator plate where it was taken. The figure given on the pattern is a good starting place to take a stitch gauge, but may not be the correct one for your knitter. Therefore, you must take your own stitch gauge, using the yarn that is called for until you obtain the same number of stitches and rows as called for in the pattern to assure proper size and fit after the garment is completed. Never attempt to measure a stitch gauge on less than a 4" swatch. For larger items such as dresses, coats, sweaters, etc., always make an 8" swatch and take a 4" gauge in the center of the swatch.

For an example, let us consider one of the patterns which has been made available to you, a knitting bag. This pattern calls for seven stitches to the inch and nine rows to the inch at a tension of #5. Material or yarn used is 50-50 nylon and wool sports yarn. This is for a small item so a 4" swatch is fine. Cast on $7 \times 4 = 28$ (7 stitches x 4" desired width = 28 needles) in open cast on. Tension indicator is on #5 and the row counter on 000. Now knit until the row counter reads $9 \times 4 = 36$ or (9 rows to the inch x 4" desired size = 36 rows). Remove the swatch and holding one end in each hand, lock the stitches in place by pulling on the knitted piece. Hold a steam iron just above the knitted piece and gently press and pat with your hand to hold the permanent finish. Dry then take a 2" square measurement in the center of the 4" swatch. Line up the number of rows and a line of stitches and place a rule flat against the knitted piece and count the stitches and rows. If there are fourteen stitches in the two inch horizontal line and eighteen rows vertically in length, this is correct. If you have 15 stitches or more and nineteen or more rows, turn your tension indicator in the direction of #6 just a fraction, (try $4\frac{1}{4}$). Cast on again and make another swatch. If your first gauge came out $1\frac{1}{4}$ stitches to the 2" and 16 rows to the 2" measurement, then turn the indicator down in the direction of 0. Since the adjustment screw is very sensitive, turn it only a small amount between the swatches. Never attempt to make a stitch gauge while the work is still on your knitter. You must remove the work, lock the stitch and steam since all patterns will be designed for the finished product. If the item or garment is not to be blocked after it is made then the pattern will tell you not to steam the stitch gauge. A simple rule to remember is that the stitch gauge taken must be taken from a swatch to match the finished product. If the item is done in pattern stitch, take the stitch gauge in pattern work to match the finished product. If the garment is blocked or pressed when completed, then the swatch must be taken before the rows and stitches are counted.

CASTING ON WITH OPEN STITCHES USING A RAVEL CORD

The open stitch method is often preferred if one wishes to join a border on the sleeves, neck opening, waist, etc. It is also used for quick starting, leaving open loops to pick up and finish later, such as for picking up stitches to form a hem, running a thread through all stitches to hold, or to bind off with a hook to obtain a finished edge.

Start with the carriage on the right hand side of the knitter with all cam levers in working position. Set tension dial on #3, now slowly as shown in Fig. A, holding yarn in the left hand, move the carriage across the needles from right to left. The yarn will form the first loop as in Fig. B. Pull forward the two end needles at the left before knitting the second row, slide the carriage back across the needles to the right side of your knitter. Don't pull the two end needles forward again as the yarn will form stitches from this point. Now continue knitting for five or six more rows until all needles form perfect stitches and the fabric is held in place by the four round brushes of the carriage. If stitches double up, knit them off by hand. To separate the cast on stitches from the body of the garment, a ravel cord or strong thread of contrasting color is used for only one row (crochet purl cotton is excellent for this purpose). Cut off the cast on thread.

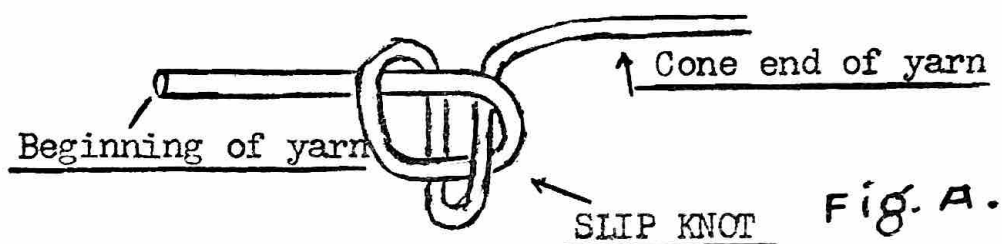


Thread only the feeder mouth with the ravel cord letting the cord feed through your left hand, held over the feeder mouth. Push the carriage slowly across your knitter letting the ravel cord form a new row of stitches as in Fig. C. Open all cams and move the carriage to the right side of the knitter. Now set the row counter into working position and thread the yarn you plan to use. Lower all cams into working position. Clutch is set on 0 for plain stockenett stitch or knit. Finally the ravel cord is removed when hem is taken up or finishing is done.

HOW TO CAST ON FOR BOUND EDGE

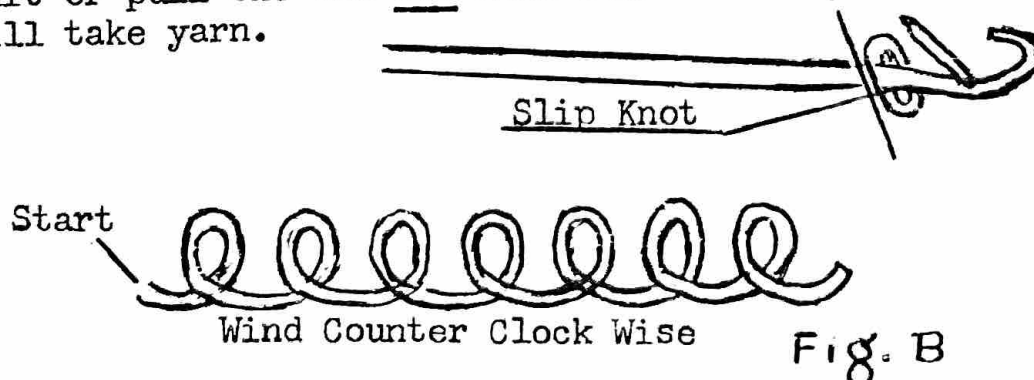
This method of casting on, will provide you with a neat looking finished or bound edge.

Carriage is on the right hand side of the knitter. Always cast on from left to right. Pull forward the desired number of needles to rest position, centering the needles you are using when possible. Set the row counter on 000 since this cast on will be your finished edge and start of the garment. Make a slip knot at the beginning of the yarn by forming a small loop and then pulling a long loop through the small one as shown below.



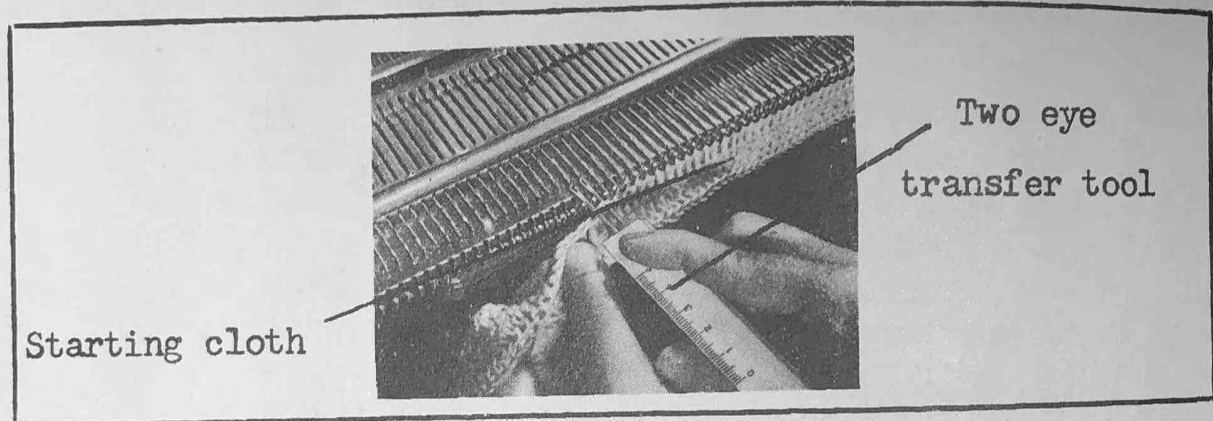
Place the slip knot in back of the latch of the needle as far as far as possible on the shank of the needle and under the sinker needle. Hold this stitch in place with you left thumb. With no slack bring the yarn up on the right side of the next needle (winding each needle to be cast on counter clock wise). Wind the yarn loosely but leave no slack, never tight enough to raise the sinker hooks. Move your left thumb along as you cast on each needle to hold the yarn in place. See Fig. B.

After all the needles have been cast on and are in rest position, with all the needle latches open, raise the master cam, the feeder lever and the left side cam. Use the right cam only when sliding the carriage from right to left. This is done only when all needles are forward in rest position. Close all cams and lower the feeder lever before knitting the next row as the needles are now in work position. Should any stitches double up on the needles for the first few rows, knit them off by hand. When all needles have been cast on - put into work position and knit or pull the two sub side cams toward you and all needles will take yarn.



CASTING ON USING A STARTING CLOTH

The advantage of a starting cloth in casting on when an open cast on is required is that it can be used over and over and started with one row of ravel cord knitted directly to the starting cloth. Using a light weight two or three ply wool sock and sweater yarn, cast on twenty stitches using a closed cast on. Set row counter on 000 and use a loose tension #5 or #6 on your stitch guage plate is fine. Knit with clutch on 0 until the row counter reads 360. Then bind off all twenty stitches. To use the starting cloth, pick up the stitches between the two knots and place the stitches on the needles to be used as below. Knit one row of ravel cord, set the row counter on 000 and start your garment.



PART KNITTING USING SUB SIDE CAMS

Part knitting is used for shaping heels of socks, pockets, horizontal darts, circular pieces, zig-zag pieces, knitting in the cap of a sleeve, shoulder shaping, or wherever slack is needed in the fabric, or color change. Part knitting or short row is easy to do with your ARS--- Automatic Knitter since it is equipped with sub side cams which have been designed to expedite this work. To understand this principle of knitting, you must understand the rest position on the knitter is the forward position of the needle butt. When the needles are pulled all the way forward and the sub side cam lever is back, these needles will not take yarn and knit.

WHAT DOES THE ONE EYE TRANSFER NEEDLE DO ?

The one eye transfer tool, is your simple aid for producing many beautiful lacy patterns. The transfer needle, is used to transfer one or more stitches from one needle to another.

HOW TO USE THE TRANSFER TOOL

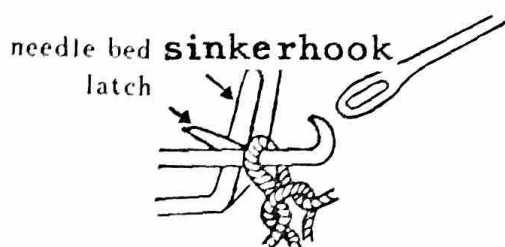


Fig 24

2. With the transfer tool, bring forward the needle. By bringing this needle forward, the stitch in the hook of the needle will slide behind the latch.

1. Hold the transfer tool parallel with the needles in the needle bed. Place the eye of the transfer tool into the hook of the needle.

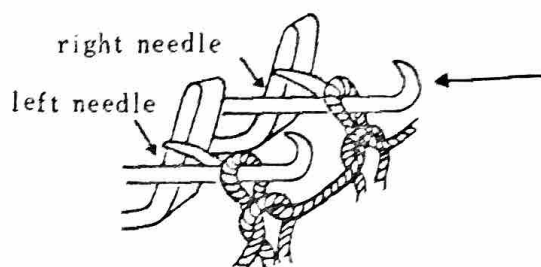


Fig 25

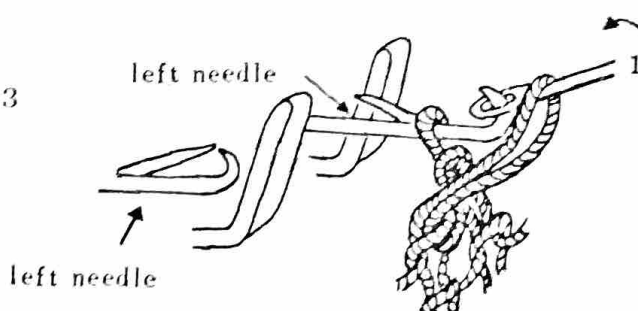
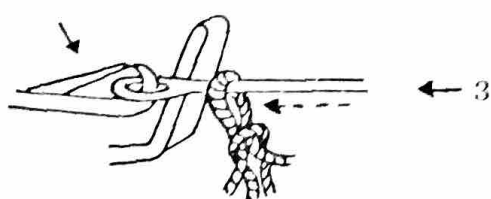
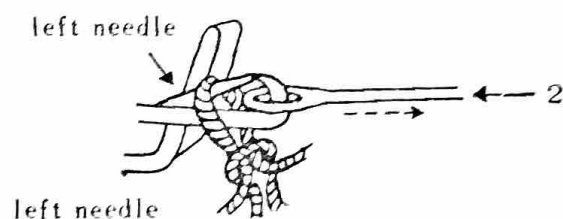
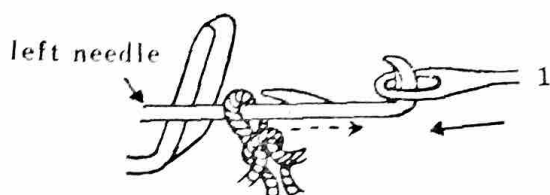


Fig 26

3. With the eye of the transfer tool on the hook of the needle, push the needle all the way back until the stitch is transferred onto tool. This is a forward and back motion.
4. Lift the transfer tool with the stitch on it to the adjacent needle, right or left as desired.
 - a) You now have two stitches on one needle and one empty needle.
 - b) This method is used for decreasing, yarnover, with one or many stitches.

2. How to Pick up Dropped Stitches

A. If you drop a stitch one row, follow these directions:

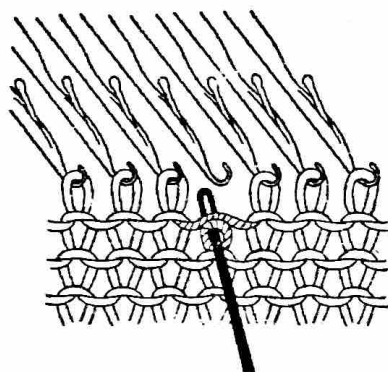


Fig. 28

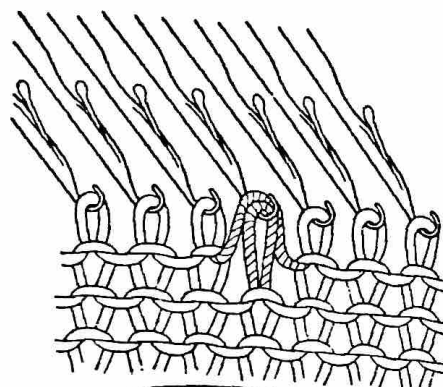


Fig. 29

1. Put the one eye transfer tool through the loop of the last knitted stitch, pick up the stitch and the unknitted thread and put them both on the needle (Fig. 28 29).

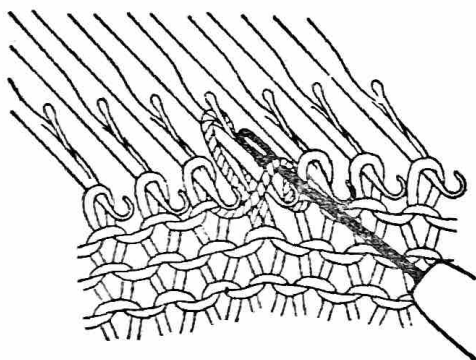


Fig. 30

2. Move the knitted (tighter) stitch behind the latch, the unknitted (looser) stitch remains in front of the latch (Fig. 30).
3. Push the needle all the way back (away from you) by pushing on the butt of the needle (Fig. 31). The stitch will slide over the hook and the yarn on the hook of the needle will be knitted (Fig. 32).

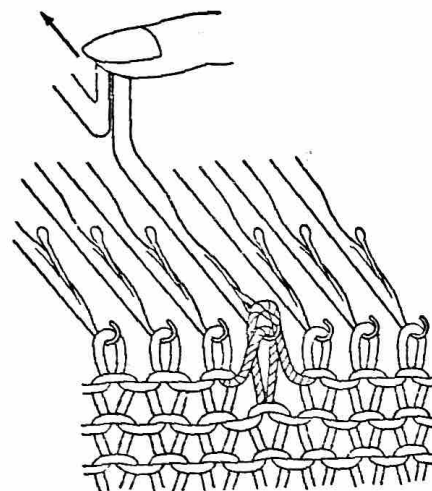


Fig. 31

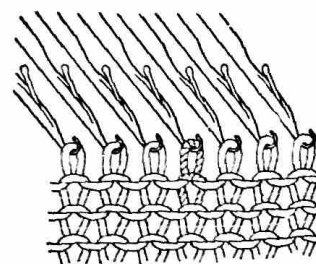


Fig. 32

B. If you drop a stitch several rows down:

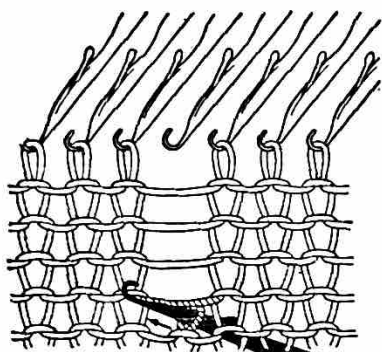


Fig. 33

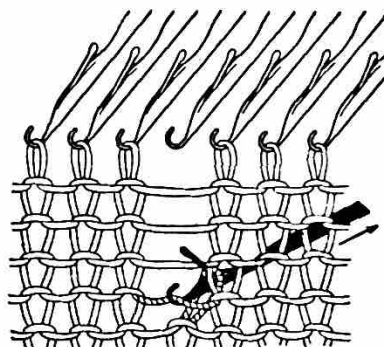


Fig. 34

1. Insert the latch hook into the stitch in the row below the dropped stitch from the back of your work.
2. Push the latch hook towards you so that the loop of the stitch falls behind the open latch and the hook of the latch grasps the horizontal thread in the row above (Fig. 33).
3. Now pull the latch hook away from you. The latch will close and the yarn on the hook will be trapped (Fig. 34).

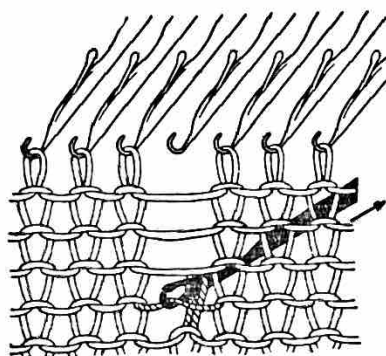


Fig. 35

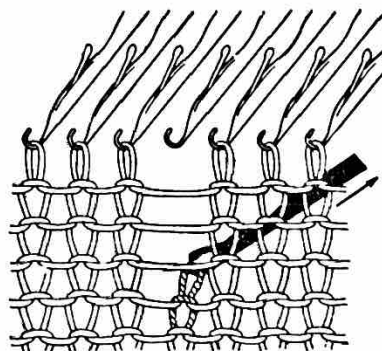


Fig. 36

4. Pull this yarn through the loop on the latch hook (Fig. 35 36) and continue, repeating the same process until the last stitch is knitted.
5. Place the stitch on its respective needle (Fig. 37).

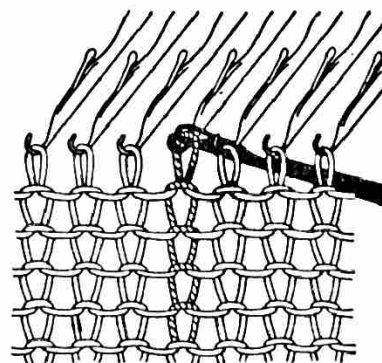


Fig. 37

HOW TO INCREASE more than one stitch on either side of the garment.

After you have knitted the garment to the point where the directions call for the increasing of more than one stitch on either side of the work, do the following :

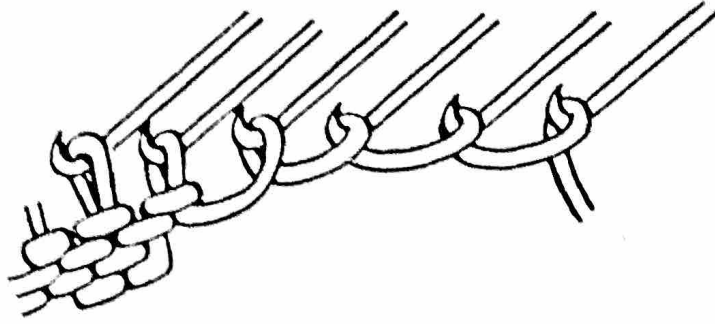


Fig 27

1. Push up the desired number of needles to be increased.
2. Loosely wind yarn around stems of each needle as in closed cast on.

HOW TO DECREASE

A. How to decrease one stitch on either or both sides.

1. With the aid of your one eye transfer tool, transfer the last stitch to the neighboring stitch on either side of the row.

2. Continue to knit.

B. If you wish to decrease more than one stitch on either side of the garment.

1. You can employ this method for taking a garment off the knitter. Use latch tool or hook. On the opposite side of the carriage with the crochet hook, take the last stitch and the next one off the needle.

2. Slide the last stitch through the second stitch on the crochet hook.
3. Take the next stitch off the needle on the knitter and with the crochet hook, slide it through the next to the last stitch.
4. Repeat until the required number of stitches are bound off.

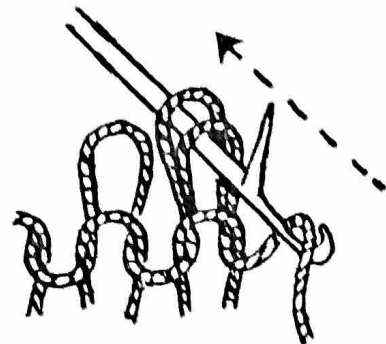
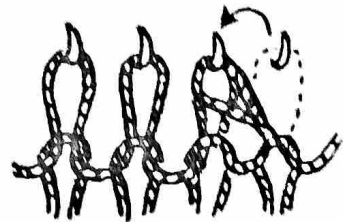
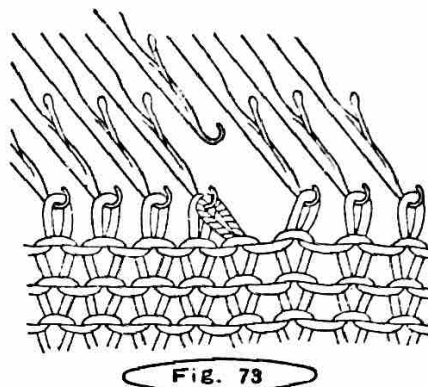


Fig 28

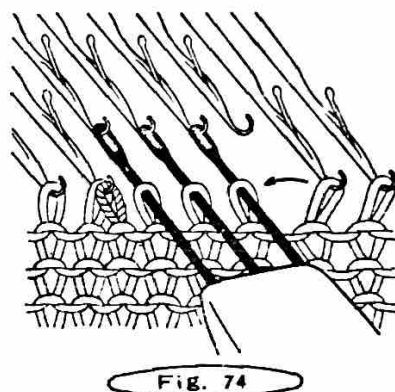
B. Decreasing in the center:

1. Decreasing one stitch:

- a. With the one eye transfer tool remove the stitch from the needle at which you desire to decrease, and transfer to the adjacent more central needle (Fig. 73).

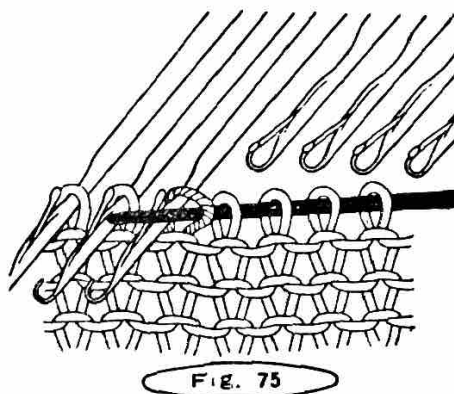


- b. With the three eye transfer tool move all the stitches over one needle centrally (Fig. 74).
- c. Push the last needle back into inoperative position.

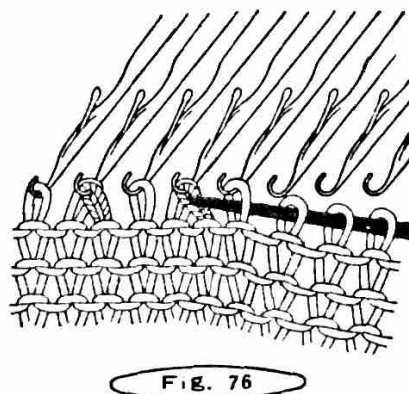


2. Decreasing More than one stitch:

- a. Transfer the stitches from the ARS KNITTER onto a knitting needle (Fig. 75).



- b. Replace the stitches onto the machine, placing two stitches on one needle as often as desired (Fig. 76).



BINDING OFF OR DECREASING MORE THAN ONE STITCH

Binding off or decreasing means you are finishing or decreasing. This method is employed either for taking the article off the knitter or for the decreasing of more than one stitch on either side.

1. Unthread the yarn and move the carriage away from the knitting.
2. Bring forward the end needle closest to the yarn by placing your fingers at the butt of the needle and pushing it toward you.
3. Using transfer tool, move end stitch over to next needle, making sure both stitches are now behind the latch. Place yarn in front of latch and manually push needle back to form a single stitch.
4. Transfer the stitch to the needle next to it by using your one eye transfer tool
5. Continue to feed the yarn into the open hook of the needle as directed. Decrease as many stitches as your directions advise, or work across entire piece for binding off

FULL FASHIONED DECREASE

If a smart reglan sleeve is desired, instead of transferring the last stitch when decreasing, with your 3 prong transfer tool, move the third stitch to the 4th needle, and move two other stitches over to fill empty needle. Knit the required number of rows and repeat transfer.

INCREASING AND DECREASING IS REQUIRED TO SHAPE THE KNITTED GARMENT

In dressmaking, you would employ a pair of scissors to cut the pattern in the fabric. In knitting, we shape the fabric while producing it.

HOW TO INCREASE: Increasing **one stitch** on either side.

1. Simply pull put one needle from the resting position on either side where you wish to increase until it reaches the edge of the needle bed.
2. Knit one row.
3. Repeat wherever the pattern requires, ncreasing one stitch on either or both sides.

HOW TO MAKE A KNIT AND PURL STITCH OR RIBBING

The knit and purl stitch together on one side of the material, leaves an uneven texture of a ribbed effect. The ribbing is produced by having knit stitch over knit stitch, and purl stitch over purl stitch, in vertical lines. The ribbing narrows and lengthens the knitted fabric and increases its elasticity.

It is widely used for waistbands in sweaters, cuffs, collars, pockets, and many other decorative purposes. You can make many variations of ribbing. For example, 1 knit 1 purl, 2 knit 2 purl, 3 knit 1 purl, etc. Select any number of combinations of knit and purl to suit your particular desire, or follow your instructions.

For ONE KNIT, ONE PURL do the following:

Knit as many rows as required for the length of the ribbing on a slightly tighter tension.

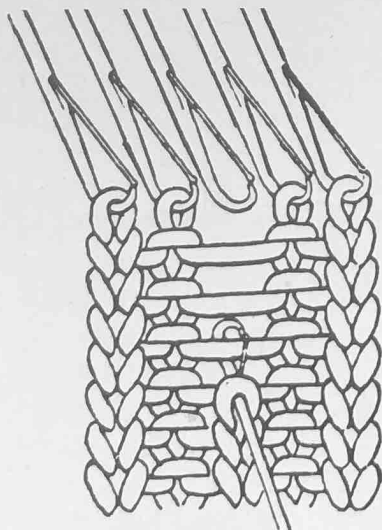
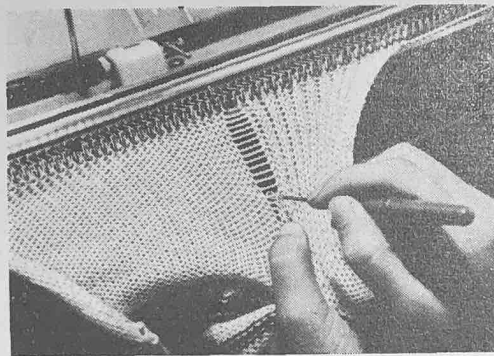


Fig 32

Drop the third stitch from the last stitch by pushing back the needle until stitch drops. Rip to three rows from the bottom edge of knitted fabric. Insert the hook of the latch tool into the loop of the dropped stitch (near bottom edge), hold tool parallel, stitch is now in back of latch. Place next parallel thread in front of latch. Pull forward until new stitch is formed

Keep eye on latch of tool, always pick up parallel threads one by one noting that last formed stitch is behind latch, next parallel thread in front of the latch. A push, pull motion soon become mechanical. When all parallel threads are picked up, the last stitch is placed back on empty needle. In this manner, you are reversing your stitch, making each purl

UNDOING OF ROWS OR UNRAVELLING

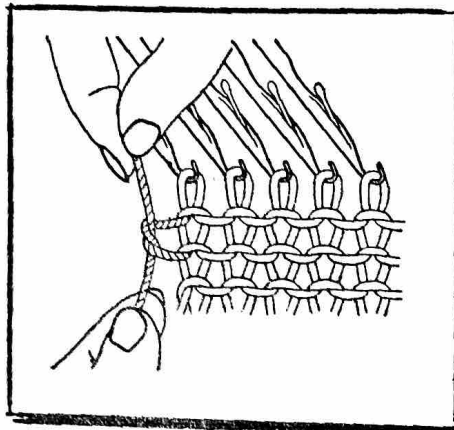
DON'T take the work off the knitter when you make a mistake. Simply unravel one or several rows, by doing the following :

Pull the yarn slightly, drawing it out of the stitches. The stitches of the row below will slip into the needles automatically.

To move the carriage in either direction without knitting, **open all the cams** Now the carriage will slide over the needles which are in operation. without knitting This is also useful for multicolor knitting.

JOINING YARNS

1. The best way of joining yarns whether they are of the same or different colors, is in the **beginning** of a row. After one row is knitted, the yarn can be tied into a knot at the edge. The loose ends are

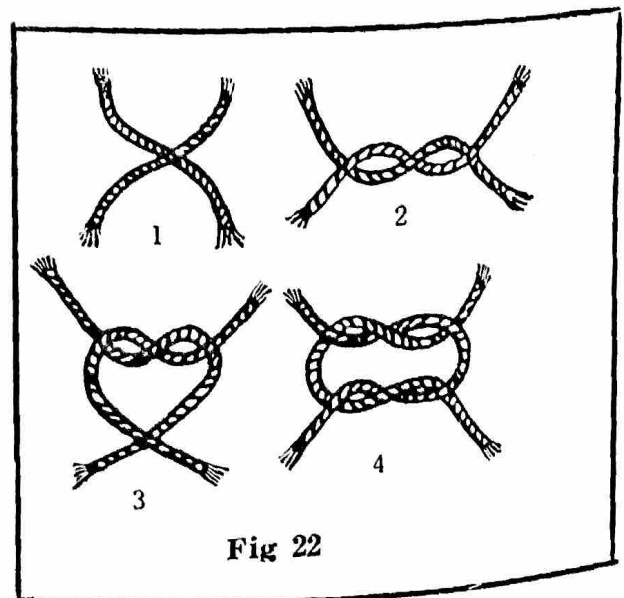


woven into the seams or edge when finished.

2. If the yarn must be joined in the middle of a row, use a reef knot (square knot).
 - a) Allow 4 inches of the old yarn to hang down.
 - b) Rethread the branch tension arm and the yarn feeder with the new yarn

NOTE : See that the second opening of the yarn feeder is threaded

- c) Finish the row you are knitting and tie the reef knot in the same tension as you are knitting.



JOINING OF SEAMS

The fit of a garment depends very much on how the seams are joined.

The basic method of sewing pieces together :

First pin or baste corresponding pieces together, then choose one of the following methods :

1. Using a tapestry needle weave or over-cast seams.
2. Crochet with crochet hook.
3. A quick modern way is two rows of very small machine stitching close to the edge. This is advisable on garments knitted with any of the novelty dress yarns where a narrow strong seam is needed.

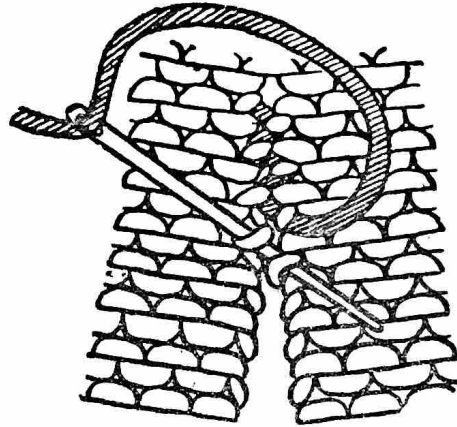


Fig 56

A REMINDER : Never stretch, or pull seams too tight when assembling.

TRIMMINGS

The edge finishes on your garment, help give it that custom made look. If it is a dressy woman's blouse, a piping of satin, an edging of beads, or a border of fur on the neck, give it added glamour. If it is a child's sweater, a crochet edge of contrasting colored yarn or angora, gives it just the proper finish. Use your ingenuity. Create garments that are original and will be the envy of your friends.

LAUNDERING THE KNITTED FABRIC

Do not put into washing machine.

1. Before washing, measure the length and width of the garment.
2. Take alkali (mild) free soapflakes and make suds in lukewarm water.
3. Put your garment into the suds and handle it gently by squeezing the suds throughout the fabric.
4. Rinse three times in clear lukewarm water. **ALWAYS SUPPORT THE GARMENT WITH YOUR HANDS WHEN LIFTING IT OUT OF THE WATER.**
5. **SQUEEZE** out as much water as possible. **DO NOT WRING THE GARMENT.**
6. Spread the garment on a couple of turkish towels, wrong side out, and shape it in its original size.

Ribbings, neck and sleeve borders, should be held for a snug fit.

NEVER HANG A KNITTED GARMENT ON A HANGER! ALWAYS PLACE IT ON A FLAT SURFACE FOR DRYING, AWAY FROM ARTIFICIAL HEAT!

HOW TO MAKE A HEM ON THE ARS KNITTER

THE HEM: The hem is extremely useful as it prevents the knitted fabrics from curling. In addition, it is strong and secure.

It will give long life to any garment to which it is applied. It can also be used on any skirt as a waistband through which an elastic may be pulled or as an attractive trimming for any pocket collar and cuffs.

To Start: Use the open method for casting on.

1. Cast on the required number of stitches on every needle.
2. Knit 20 rows. If a deeper hem is desired, knit more rows.
3. Now gradually picking up stitches one by one using one eye transfer tool and placing them on corresponding needles in front of the needle latch.

PICOT EDGE HEM

Cast on as usual. Knit 10 rows. Transfer every other stitch to adjacent needle. Be sure to push empty needles back to knitting position. Knit another 10 rows. Now, pick up first row of unfinished cast on loops and put on corresponding needles. Continue to knit.

HOW TO MAKE A HORIZONTAL BUTTONHOLE

1. Hand knit the first four stitches.
2. Bind off next four stitches.
3.

Push up needles in

remainder of row to partial knit and knit across and back to buttonhole with carriage,
4. Cast on four stitches with same thread and knit balance four stitches, by hand or manually (working needles one by one with your hand).

HOW TO MAKE A VERTICAL BUTTONHOLE

When knitting a vertical buttonhole, knit up to the row where the buttonhole starts.

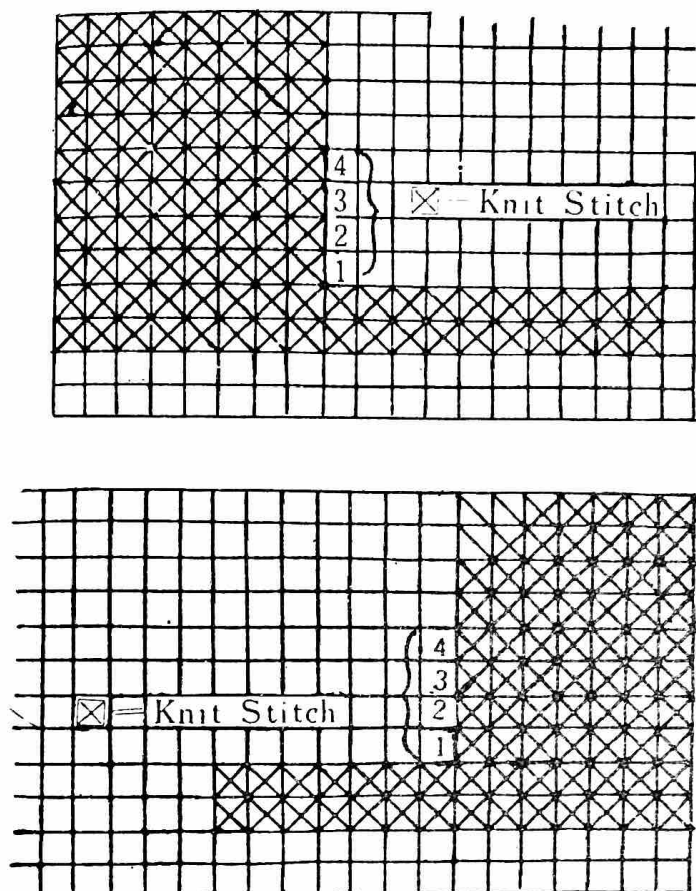


Fig 35

1. **Set cams for Partial Row Knitting")**
2. If the carriage is on the right side of the needle bed, knit first the right side of the buttonhole, by bringing out all needles on the right side of the button-hole.
3. Knit four rows partially. If a larger buttonhole is desired, knit as many rows as are necessary for the size of the button.
4. Break the thread and in partial knit position, knit the left side of the buttonhole in the same order as you knitted the side.
5. After you have completed the same number of rows on the left side of the buttonhole, **put all cams in Knit position**

HOW TO SHAPE HEEL

1. Pick up 30 stitches.
2. Knit 10 rows.
3. **Set cams for Partial Row Knitting.**
4. Decrease one needle beginning of each row, keep stitch on the hook of the needle being decreased and wind yarn completely around decreased needle. (Always wind towards center and knit across.)
5. Continue decreasing until $\frac{1}{3}$ of total number of stitches used for heel remain in center.
6. Reverse process by increasing one stitch beginning of each row just as you do for single increases. (Winding of yarn not necessary.)
7. **Put all cams in knitting position. Knit 10 rows to complete heel.**

HOW TO KNIT "V" NECKLINE

For the knitting of the "V" neckline or any other neck openings, vertical or round, we employ the method of partial knitting, which means that we will only knit one side at a time, by dividing the work at the start of the neckline. After one side is completed, we then, shall continue the other half of the garment and shape the neckline corresponding to the finished side.

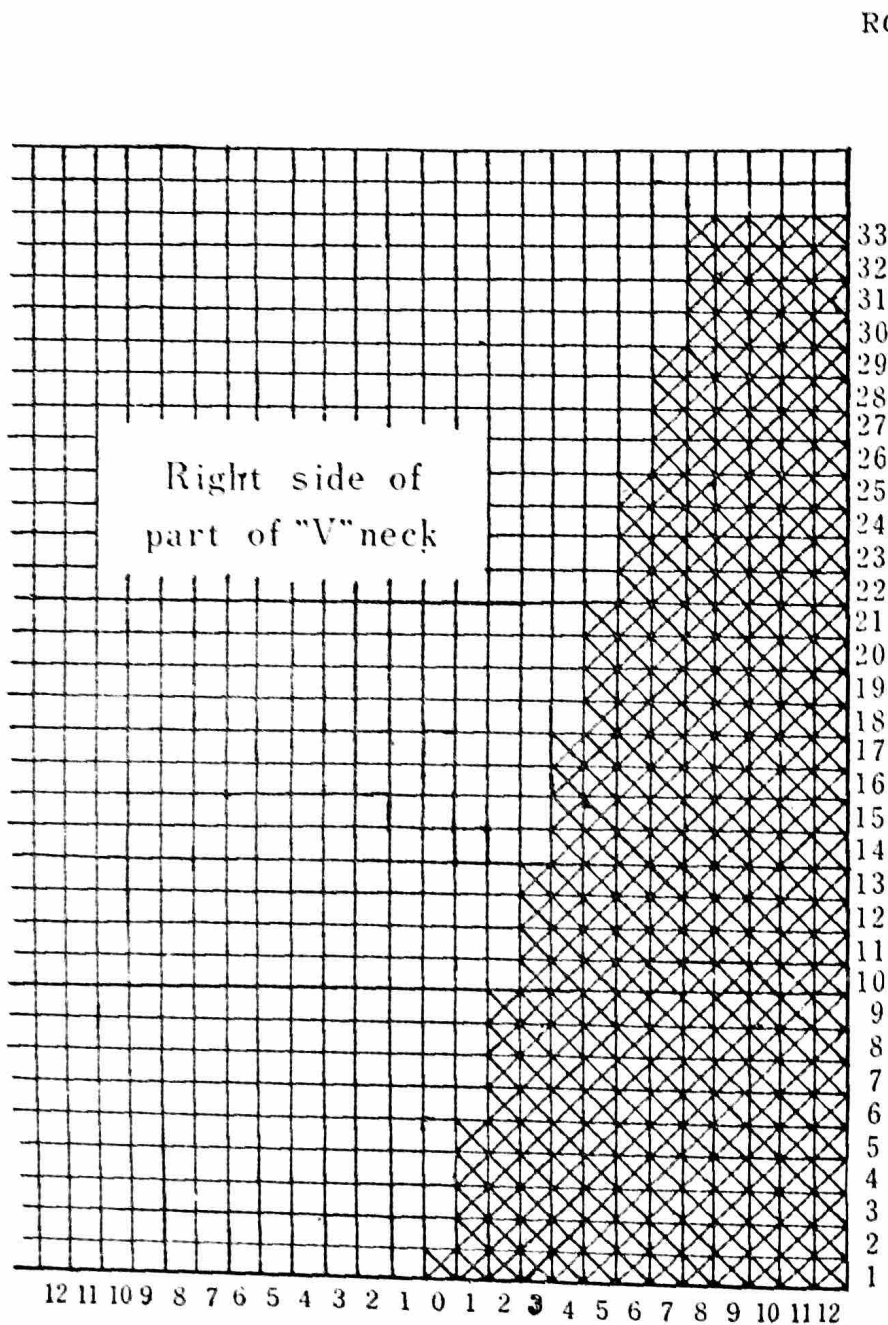


Fig 36 ☒ = Knit Stitch STITCHES

ROWS

1. Knit up to the start of the neck opening. Then set the **cams** to partial knitting position
2. The carriage should be at the right side of the needle bed, divide the work in half, bring forward one side of the needles engaged in knitting the garment.
Check that the latches are open. Knit one row.
3. Decrease one stitch on the neck edge and again bring forward all the needles of that side. Watch the latches are open. Knit one row.
4. Repeat, but do not decrease every second row. Only decrease stitches in the required number of rows. The average size "V" neck, requires the decreasing of one stitch every fourth row.

After you are completely finished with the right half of the garment:

1. **Set the cams to Knitting Position.**
2. Continue to knit in the regular way and shape the neck. Knit other side to correspond.

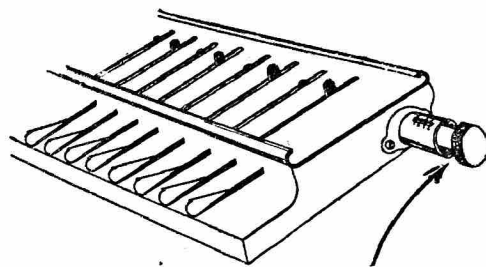
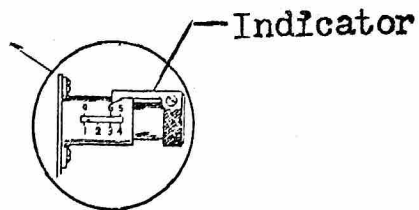
AUTOMATIC TWO AND THREE COLOR PATTERN STITCH KNITTING (AN ARS KNITTER EXCLUSIVE PATENT)

By use of the automatic clutch handle Fig. A, limitless patterns and color work can easily be done automatically. As explained earlier in this booklet, this is accomplished by having the needle shanks fall into the grooves of the change pole. This then lowers the needle butts in many combinations which in turn will allow you to create an unlimited number of patterns.

Needle Guide No. \ No.	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0

0 = Moves needle 0 = Not moves needle

Relation of clutch numbers
to needles working in every
ten



Clutch Handle

To change the working needles by the clutch handle, slide the indicator down the slot until it points to the selected number. Then turn the clutch handle as far as it will turn with the indicator on the number selected. Numbers 1-2-3-4, will turn toward you and down, 5 and 6 will turn away from you and down, while 0 turns only slightly back from the slide slot. It is important to note that the clutch should always be in its proper position before sliding the carriage across as only the raised needles will be in working position to knit.

For color work it is best to establish an A, B, C, color for each feeder when first learning to knit so there can be no confusion in reading pattern codes. The right feeder will be designated to be A, the center feeder - B, and the left feeder - C. If your machine is equipped with the three color slide feeder (see instruction under The ARS YARN FEEDERS), before threading the yarn decide which side of the feeder you plan to use and thread the yarn through the eyelet on that side. If your machine is equipped with the Rotary Yarn Feeder, the center feeder B should be used for solid work or plain knit.

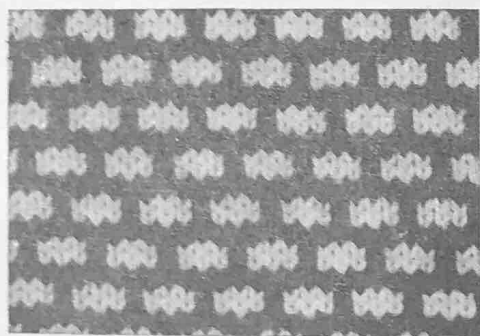
In reading color codes, the colors of yarn A - B - C are in the vertical column on the left side. The number on which to set the clutch is always written on the top row of the pattern stitch selected. The figure given in the vertical column reading down from the clutch number and across from the color to be used indicates how many rows to knit with this clutch number and color combination. Establish a rhythm in pattern knitting for speed and efficiency by first changing clutch, then color, and then knit. (CLUTCH - COLOR - KNIT).

For an example, let us consider Pattern #1 of the following pages.

1. Set the clutch indicator on the fig. 1, slide or turn the feeder (depending on the type of feeder on your machine) to color B yarn and knit two rows.
2. Turn the clutch indicator to 0, change the feeder color to A and knit two rows.
3. Clutch on 3, color B, knit two rows.
4. Clutch 0, color A, knit two rows.

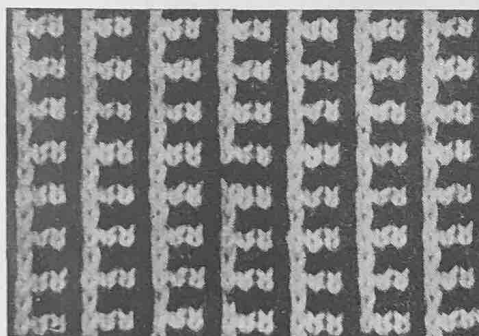
Repeat steps 1-4 until as many rows of pattern stitches have been knitted as required. Return the clutch indicator to 0 and with the main color in the correct feeder knit on in a stockinette stitch. The following are only a few pattern and color combinations you can knit on your automatic ARS HAND-KNITTER and with a little practice and imagination you will work out many more in plain or color combinations.

No. 1



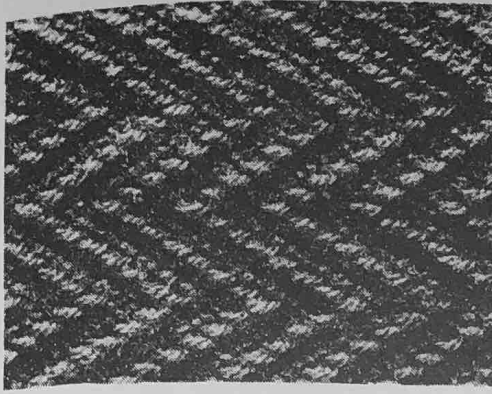
Colour \ No	0	1	2	3	4	5	6
B		2					
A	2						
B				2			
A	2						

No. 2



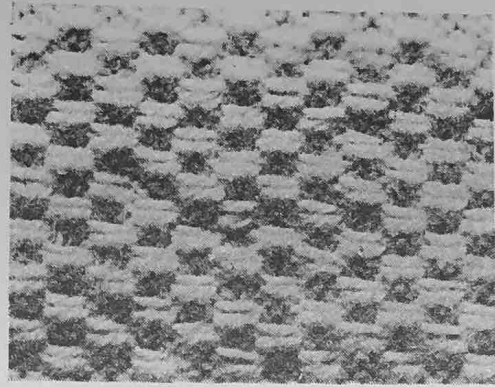
Colour \ No	0	1	2	3	4	5	6
B		2					
A					2		

No. 3



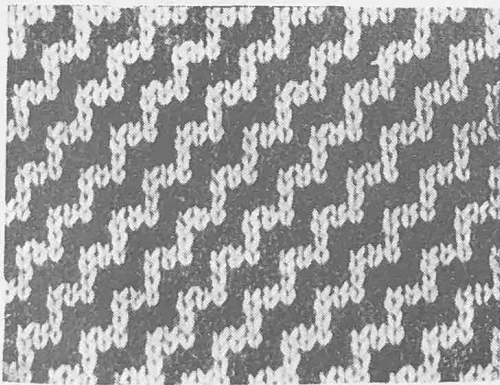
	0	1	2	3	4	5	6
B		1					
"			1				
"				1			
"		1			1		
"			1				
"				1	1		
"				1			
"		1					
"					1		
"			1	1			
"		1					
"				1			
"			1				

No. 4



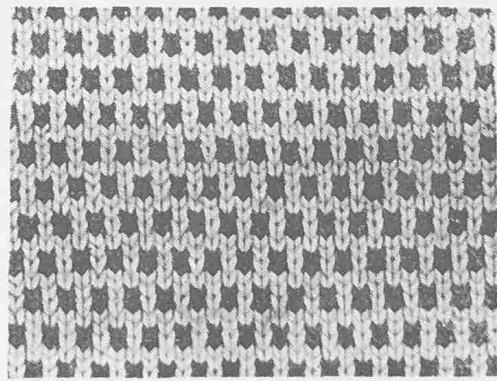
	0	1	2	3	4	5	6
B		2					
"				2			
"							
"							
"							
"							
"							
"							
"							
"							
"							
"							
"							

No. 5



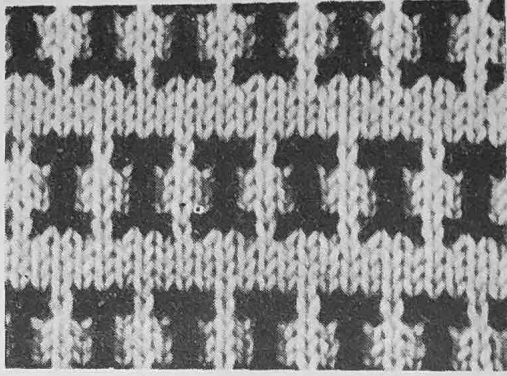
	0	1	2	3	4	5	6
B		2					
A			2				
B				2			
A					2		
"							
"							
"							
"							
"							
"							
"							
"							
"							

No. 6



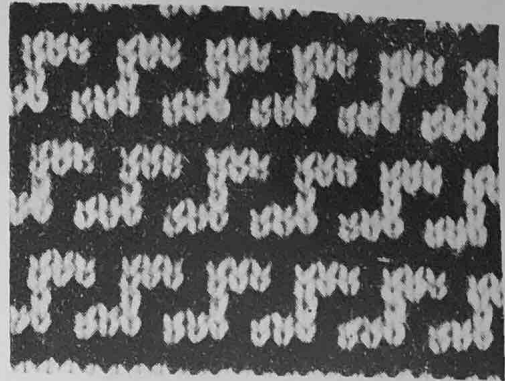
	0	1	2	3	4	5	6
B	2						
A						2	
B	2						
A							2
"							
"							
"							
"							
"							
"							
"							
"							
"							

No. 15



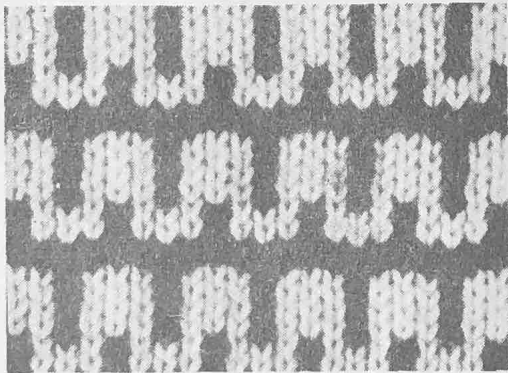
	0	1	2	3	4	5	6
B	4						
A		2					
B				4			
A		2					
B	4						
A				2			
B		4					
A				2			

No. 16



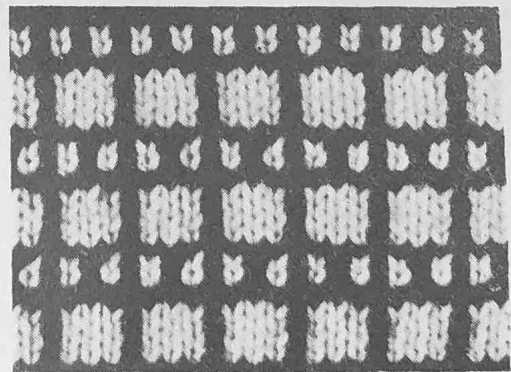
	0	1	2	3	4	5	6
B	2						
A		2					
B			2				
A				2			

No. 17



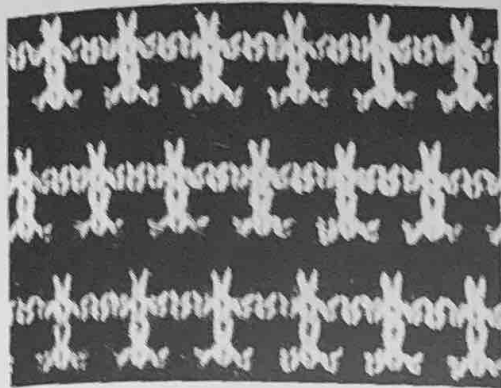
	0	1	2	3	4	5	6
B	2						
A			2				
B						2	
A					4		

No. 18



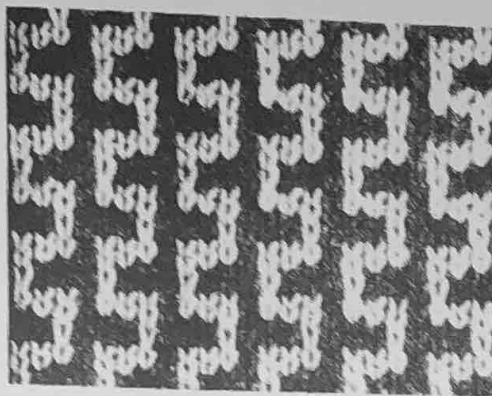
	0	1	2	3	4	5	6
B	2						
A		4					
B	2						
A						2	

No. 19



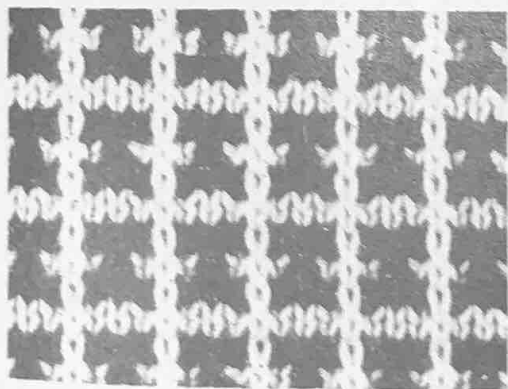
	0	1	2	3	4	5	6
B	2						
A		2					
B				2			
A	2						
B				2			
A	2						
B		2					
A	2						
B		2					

No. 20



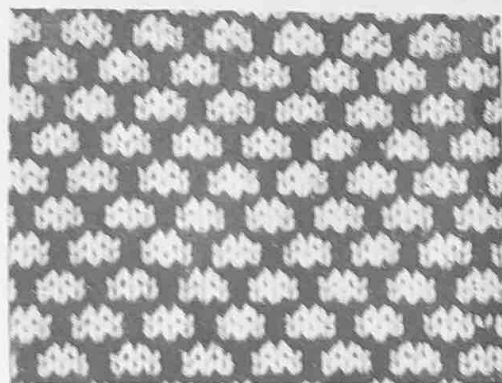
	0	1	2	3	4	5	6
B					2		
A		2					
B				2			
A					2		
B		2					
A						2	
B				2			
A							2

No. 21



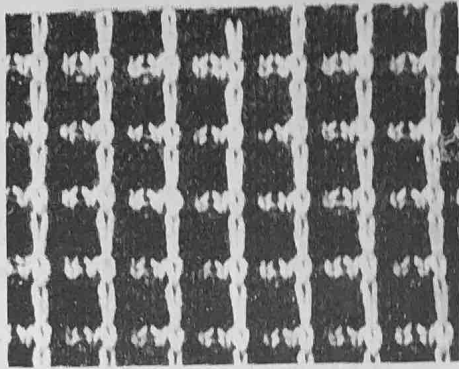
	0	1	2	3	4	5	6
B	2						
A		2					
B				2			
A		2					

No. 22



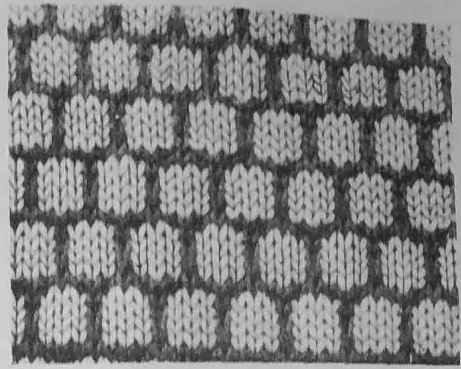
	0	1	2	3	4	5	6
B	1						
A		2					
B	1						
A				2			

No. 23



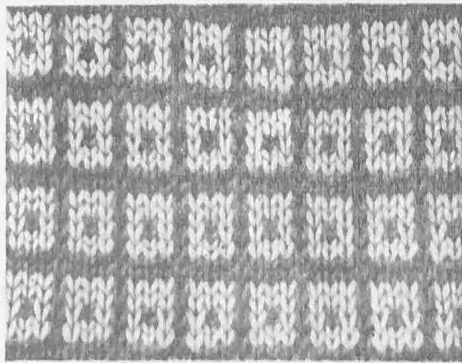
	0	1	2	3	4	5	6
<i>B</i>					2		
<i>A</i>		4					
<i>B</i>					2		
<i>A</i>		4					

No. 24



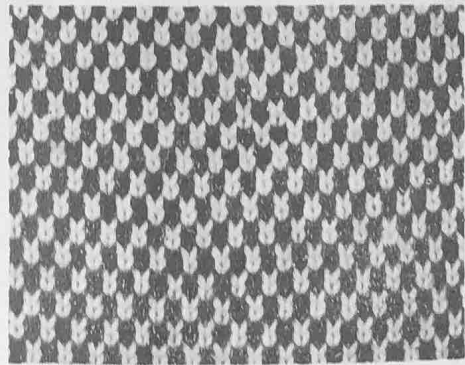
	0	1	2	3	4	5	6
<i>B</i>	2						
<i>A</i>			4				
<i>B</i>	2						
<i>A</i>					4		

No. 25



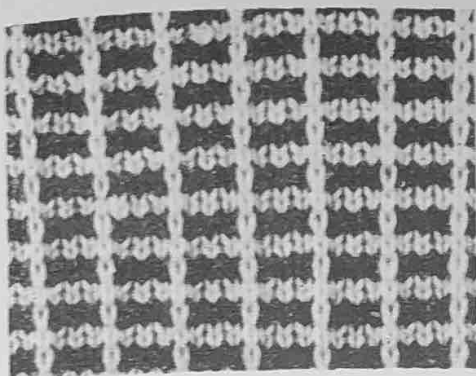
	0	1	2	3	4	5	6
<i>B</i>	2						
<i>A</i>		2					
<i>B</i>							2
<i>A</i>		2					

No. 26



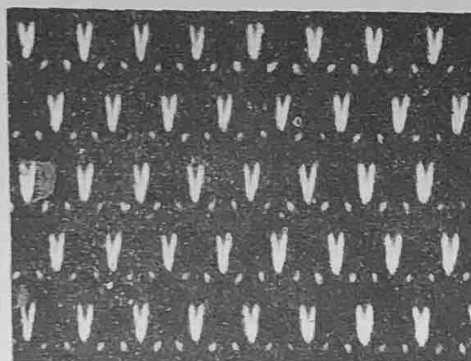
	0	1	2	3	4	5	6
<i>B</i>	1						
<i>A</i>						2	
<i>B</i>	1						
<i>A</i>							2

No. 27



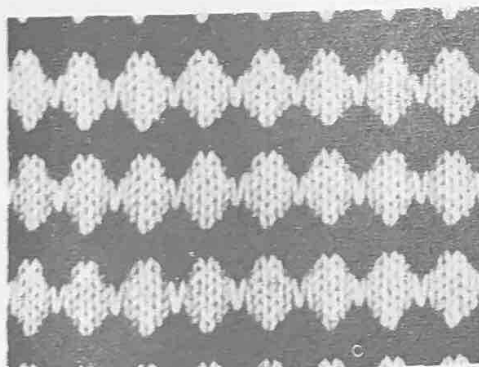
	0	1	2	3	4	5	6
B	2						
A		2					

No. 28



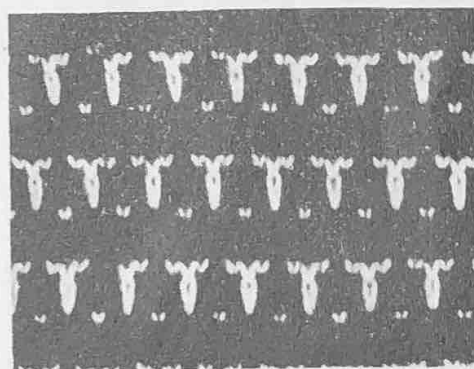
	0	1	2	3	4	5	6
B	2						
A		1					
B				4			
B	2						
B				1			
A		4					

No. 29



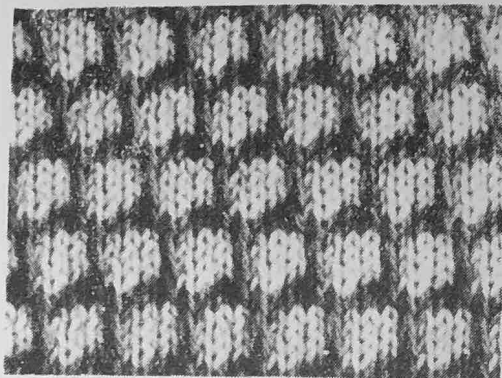
	0	1	2	3	4	5	6
B	1						
B		5					
A	1						
A				5			

No. 30



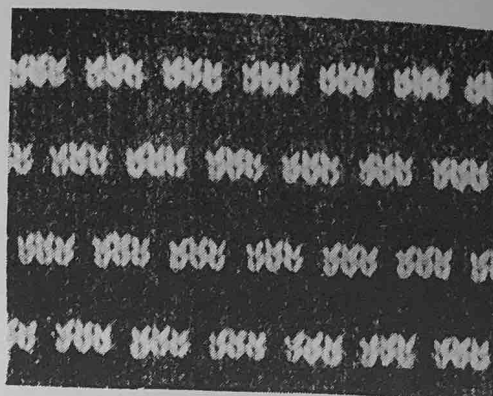
	0	1	2	3	4	5	6
B	4						
A							1
B		4					
A				1			
B	4						
A							1
B				4			
A		1					

No. 31



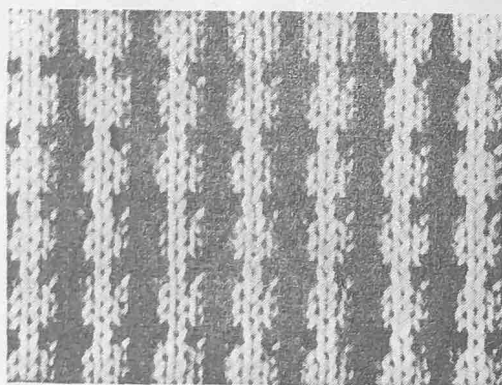
	0	1	2	3	4	5	6
B	2						
A		4					
B	2						
A			4				
B	2						
A				4			
B	2						
A					4		

No. 32



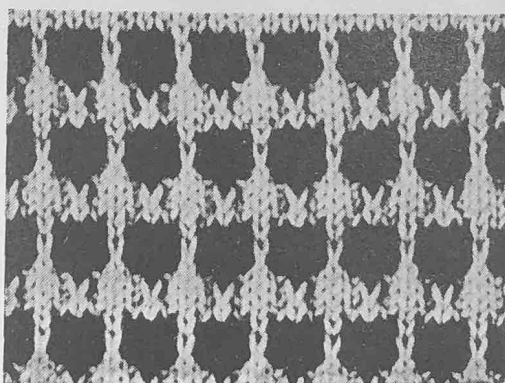
	0	1	2	3	4	5	6
B	4						
A		2					
B	4						
A				2			

No. 33



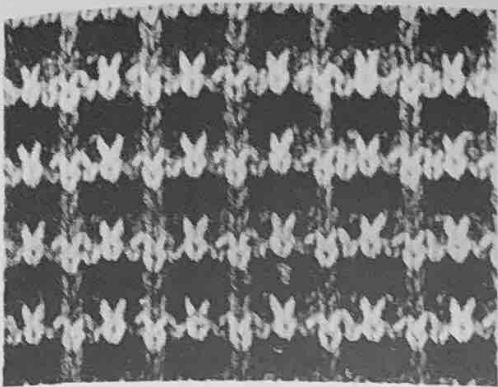
	0	1	2	3	4	5	6
B		4					
A				2			

No. 34



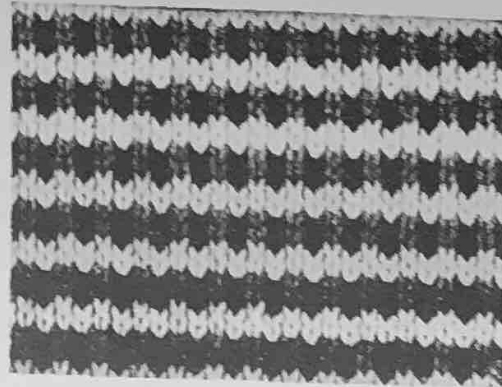
	0	1	2	3	4	5	6
B	2						
A			4				
C					4		

No. 35



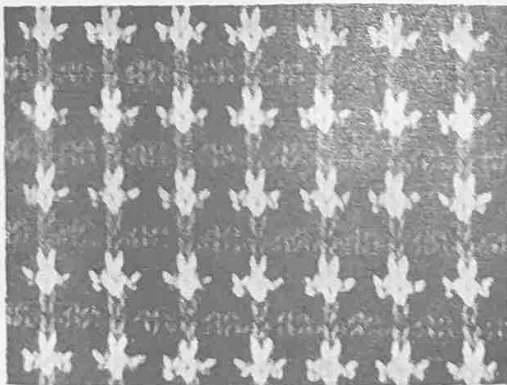
	0	1	2	3	4	5	6
B	2						
A		2					
C				2			

No. 36



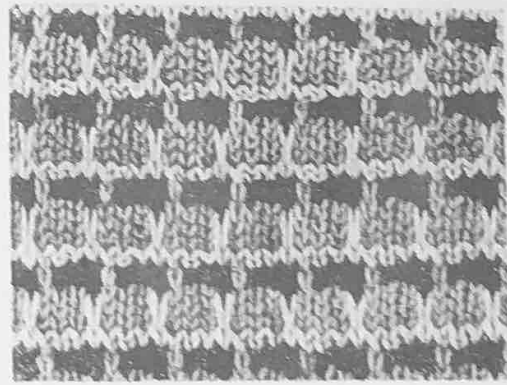
	0	1	2	3	4	5	6
B	2						
A						2	
C							2

No. 37



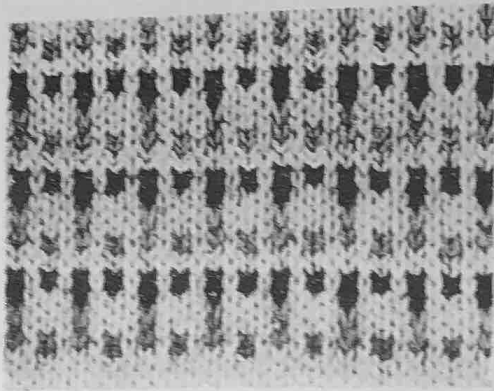
	0	1	2	3	4	5	6
B	2						
A		2					
C				2			
A		2					

No. 38



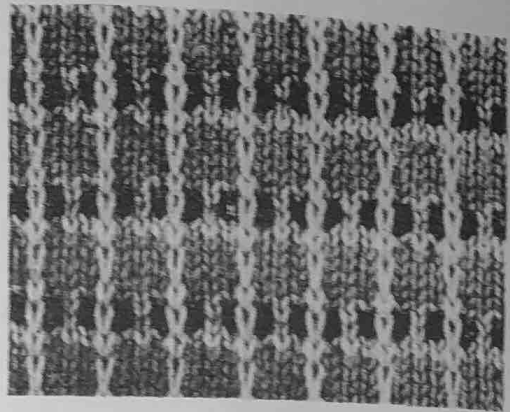
	0	1	2	3	4	5	6
B	2						
A		4					
C					2		

No. 39



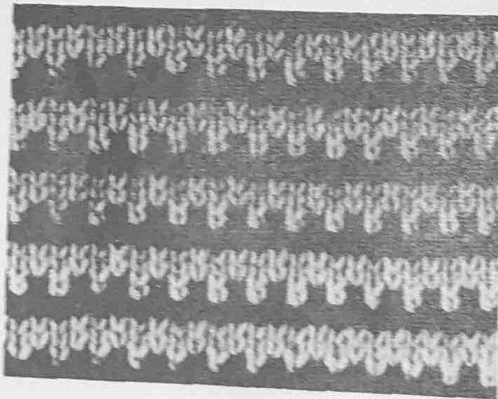
	0	1	2	3	4	5	6
B	2						
A					2		
B				4			
C					2		

No. 40



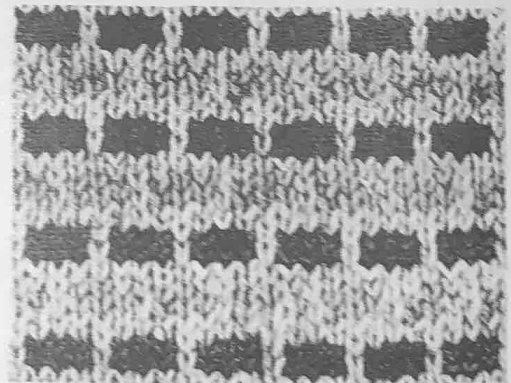
	0	1	2	3	4	5	6
B	2						
A		4					
B	2						
C						2	

No. 41



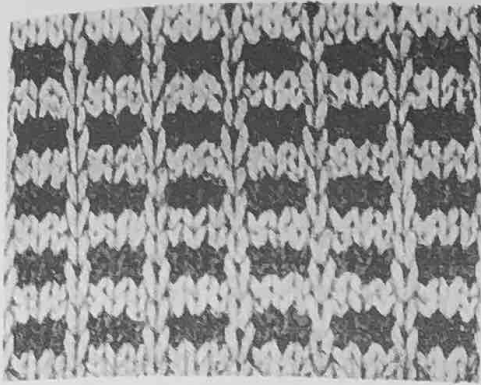
	0	1	2	3	4	5	6
B	2						
A	2						
C					2		

No. 42



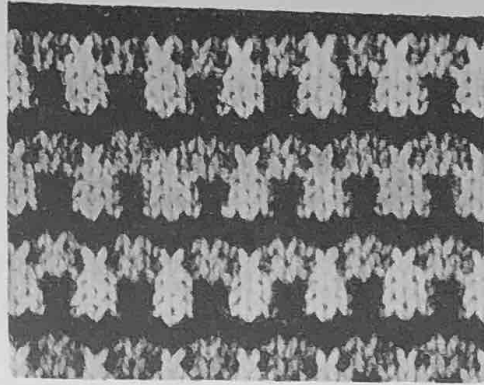
	0	1	2	3	4	5	6
B		2					
A			2				
C				2			
A					2		

No. 43



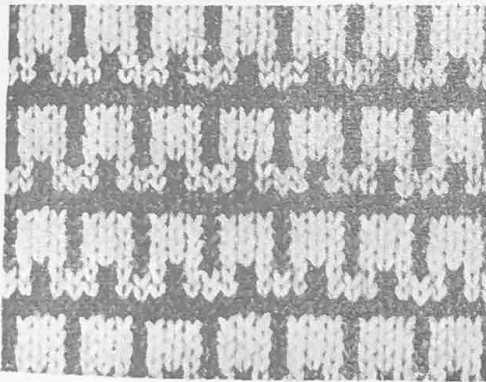
	0	1	2	3	4	5	6
B		2					
A				2			
C		2					

No. 44



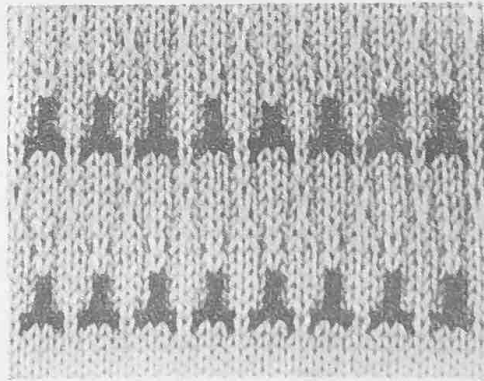
	0	1	2	3	4	5	6
B	2						
A		4					
C				2			

No. 45



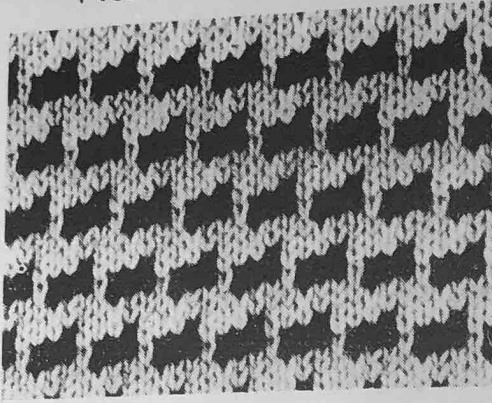
	0	1	2	3	4	5	6
B	2						
A			2				
B					2		
C					4		

No. 46



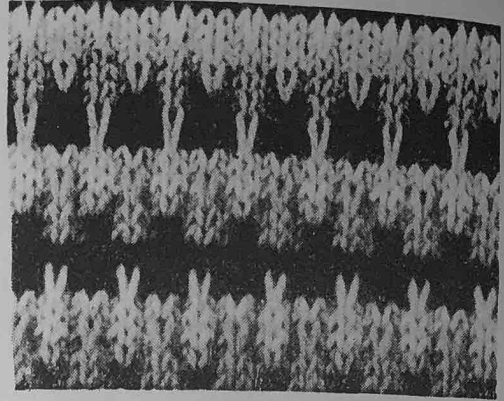
	0	1	2	3	4	5	6
B	2						
A		2					
B				4			
C	2						
B			2				
B		4					

No. 47



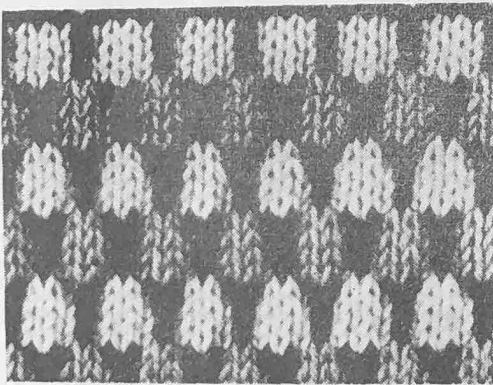
	0	1	2	3	4	5	6
B		2					
A			2				
C				2			
B					2		
A		2					
C			2				
B				2			
A					2		

No. 48



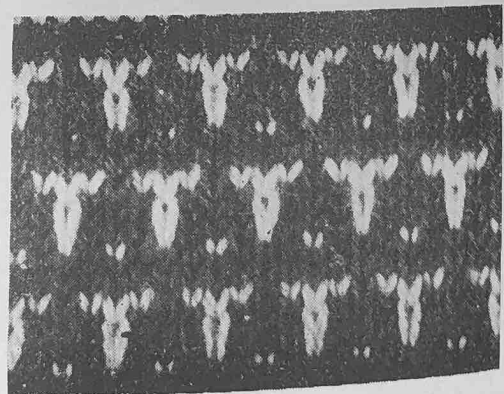
	0	1	2	3	4	5	6
B		3					
B				1			
A				3			
A		1					
C		3					
C				1			
B				3			
B		1					
A		3					
A				1			
C				3			
C		1					

No. 49



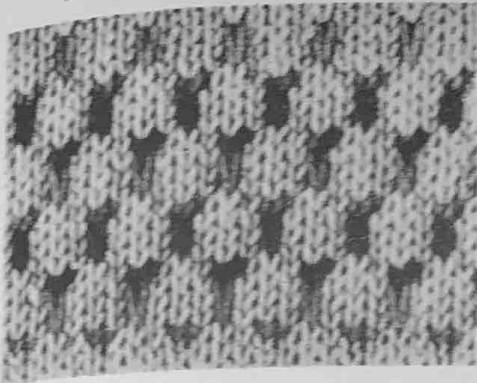
	0	1	2	3	4	5	6
B	1						
A		4					
B	1						
C			4				

No. 50



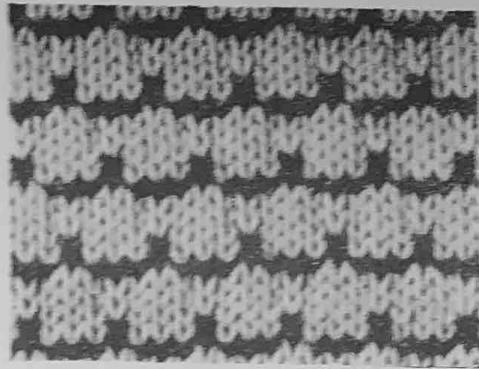
	0	1	2	3	4	5	6
B	2						
A							1
B				4			
A		1					
B	2						
C							1
B		4					
C				1			

No. 51



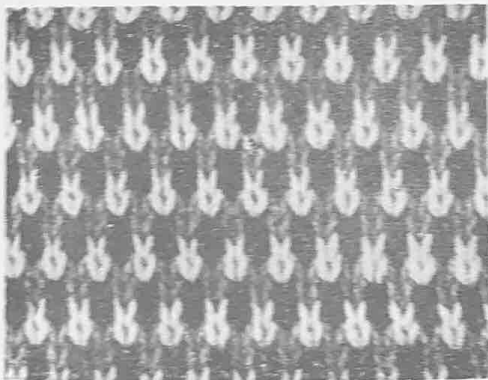
	0	1	2	3	4	5	6
B		1					
A			4				
C				1			
A					4		

No. 52



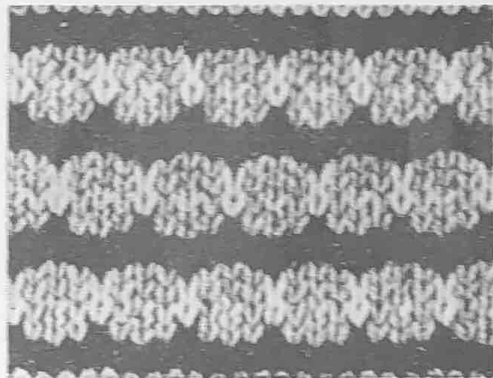
	0	1	2	3	4	5	6
B	2						
A	1						
B		2					
B	2						
C	1						
B				2			

No. 53



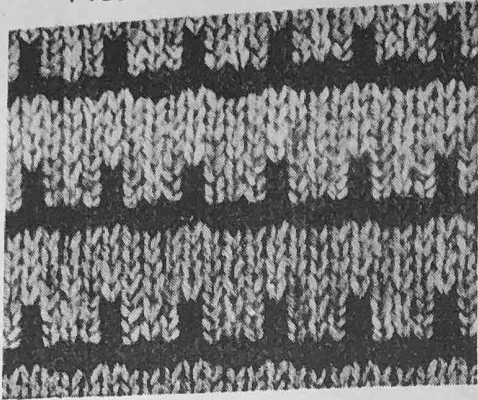
	0	1	2	3	4	5	6
B						2	
A							2
C						2	
B							2
A						2	
C							2

No. 54



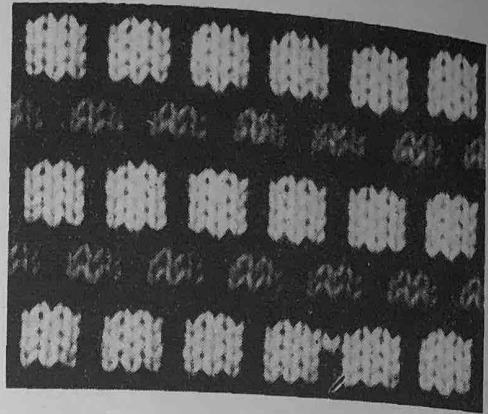
	0	1	2	3	4	5	6
B	2						
A		2					
C							2
A		2					
B	2						
A				2			
C							2
A				2			

No. 55



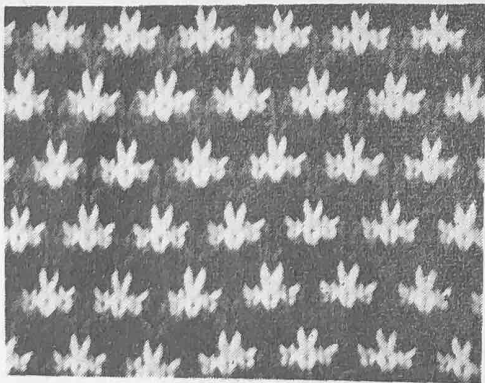
	0	1	2	3	4	5	6
B	4						
A	2						
B			2				
C							2

No. 56



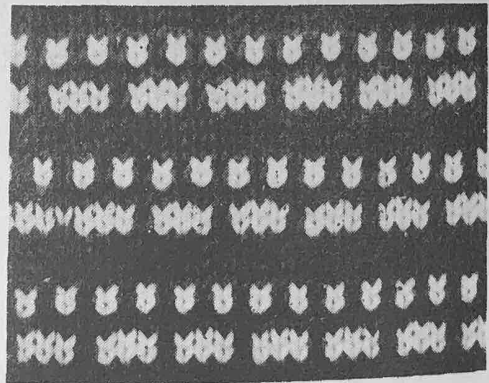
	0	1	2	3	4	5	6
B	2						
A		4					
B	2						
C				2			

No. 57



	0	1	2	3	4	5	6
B		2					
A				2			
C		2					
B				2			
A		2					
C				2			

No. 58



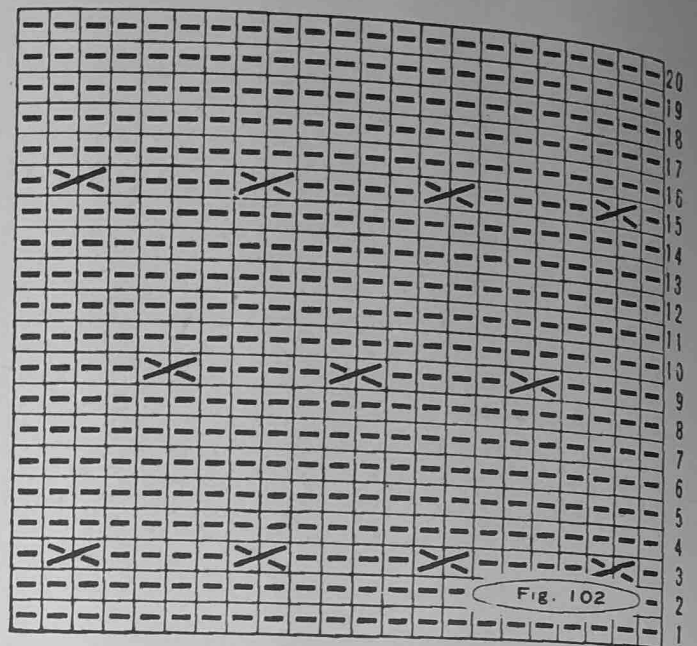
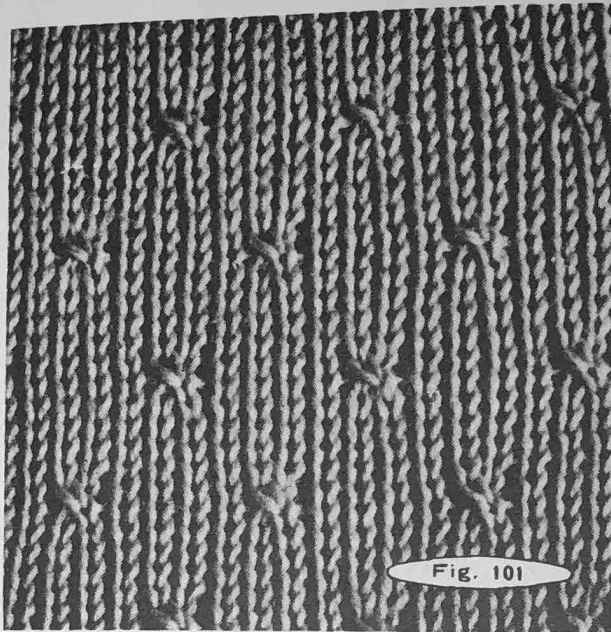
	0	1	2	3	4	5	6
B	4						
A		2					
B	2						
C						2	
B	4						
A			2				
B	2						
C							2

0. Knitting symbols

The following set of symbols has been adopted to help you understand your patterns at a glance and to save countless lines of description for each stitch.

—	Knit stitch	Face loop of plain stitch.
—	Purl stitch	Back loop of plain stitch.
○	Empty stitch	Hole made by transferring the stitch to the next needle.
↘	Two stitches together	Transfer left stitch to the adjacent right needle.
↙	Two stitches together	Transfer right stitch to the adjacent left needle.
/	Lean stitch to the right	Transfer the stitch to the right
\	Lean stitch to the left	Transfer the stitch to the left
↗	Three stitches together	Right stitch on top
↖	Three stitches together	Left stitch on top
⤴	Three stitches together	The center stitch on top of the left and right stitches
┘	Increased stitch to the right	Increase one stitch to the right
┙	Increased stitch to the left	Increase one stitch to the left
×	Crossing, left over right	Cross the stitches with the left stitch over the right
×	Crossing right over left	Cross the stitches with the right stitch over the left.
∩	Tucking stitch	Several unknitted stitches with the loops on one needle
□	Skipped stitch	A skipped stitch has its needle in inoperative position
∇	Float stitch	Several unknitted stitches, the first one of which is over the needle, the others under the needle and with the loops protruding out the knit side.
⌚	Twisted stitch	Stitch formed by removing the stitch from the needle, twisting the loop, and then replacing it.
⌚	Twisted tucking stitch	Drop a stitch, twist its loop, and replace on the needle.
⊗	Rolled stitch	Wind the yarn around the needle in a roll similar to the illustration.

1 by 1 Cable Stitch: #1



- a. Knit six rows.
- b. Using both hands, take the one eye transfer tools and insert them into the sixth and seventh needles from the end.
- c. Remove the stitches from the needles to the transfer tools.
- d. Transfer the stitch from the seventh needle to the eighth needle, and the stitch from the eighth to the seventh needle.
Repeat steps b, c and d every seventh and eighth needle.
Remember to be consistent in your crossings; cross either left over right or right over left, but be consistent throughout your pattern.
- e. Knit six rows.
- f. Repeat steps b, c and d, making the pattern stitches on this row so that they are staggered midway between the pattern stitches six rows down.
Continue as long as this pattern is desired.

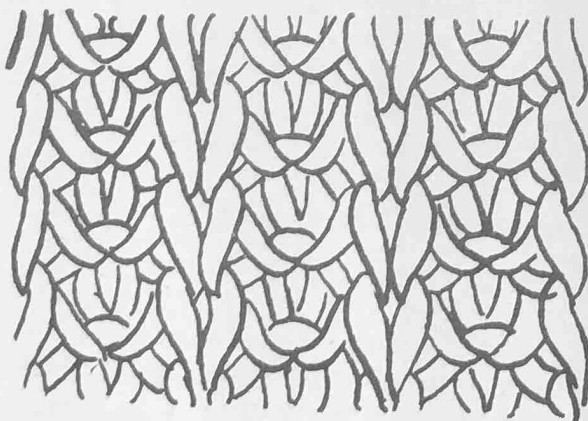
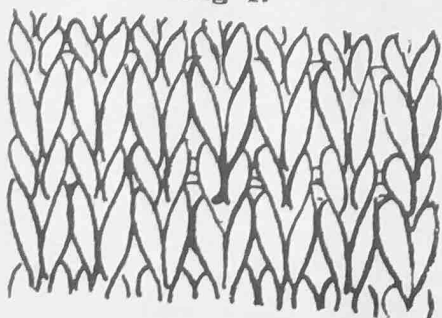


Fig 47



PATTERN # 2

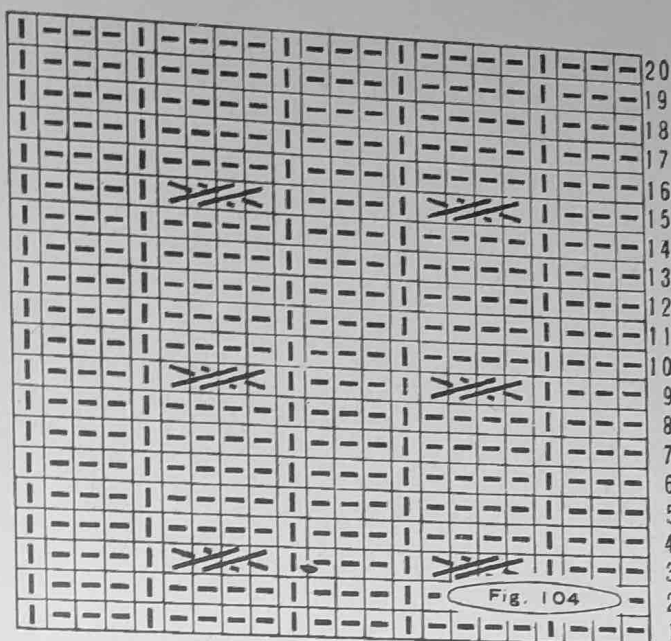
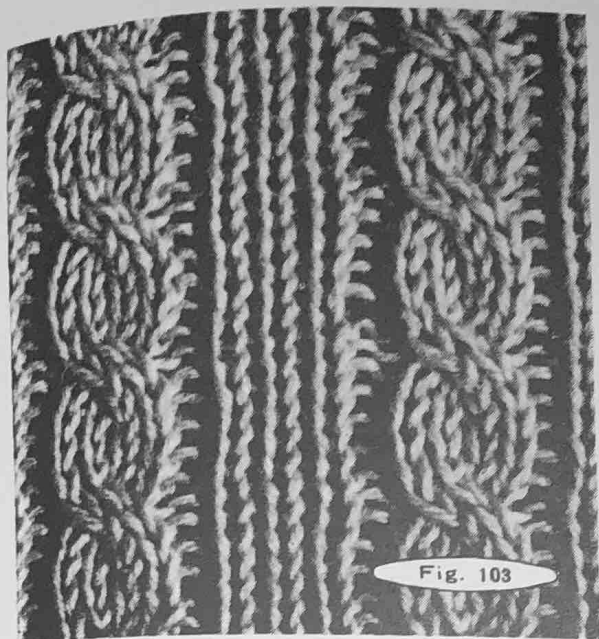
PATTERNS WITH NEEDLES IN RESTING POSITION

1. Knit 1 row.
If carriage is on the right side of the needle bed, turn the left rising cam knob to partial knitting position "P".
2. With the needle pusher 1 X 1 bring forward every second needle, knit 1 row. Repeat 1 and 2.

TENSION EFFECT PATTERN # 3

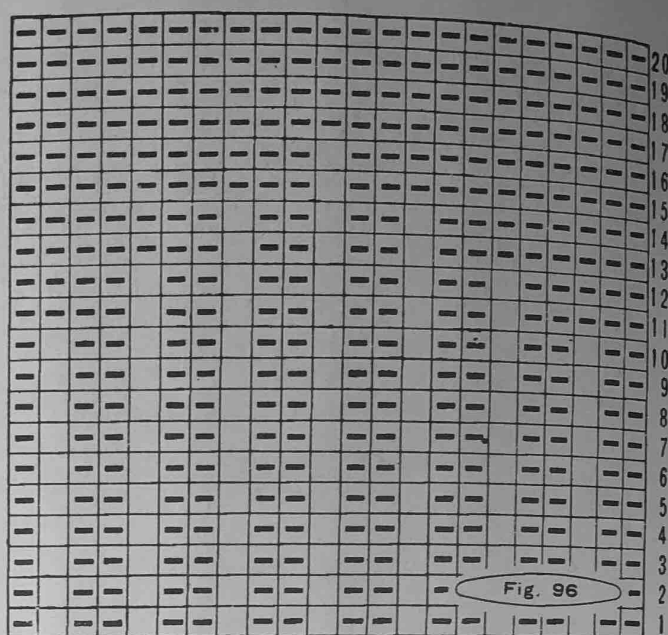
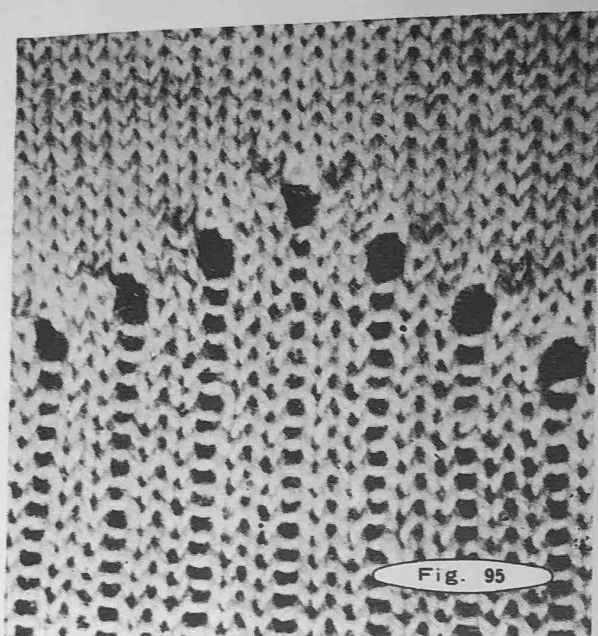
1. Knit one row on tension 15.
2. Knit one row on tension 28.
3. Repeat 1 and 2.

2 by 2 Cable Stitch: # 4



- a. Knit six rows.
- b. Using both hands, take the two eye transfer tools and insert them into the tenth and eleventh, twelfth and thirteenth needles from the end.
- c. Remove the stitches from the needles to the transfer tools.
- d. Transfer the stitches from the tenth and eleventh needles to the twelfth and thirteenth needles, and the stitches from the twelfth and thirteenth to the tenth and eleventh needles.
- e. Bring the tenth through the thirteenth needles toward you slightly for easier knitting.
Repeat b and c whenever the cable is desired.
- f. Knit six rows.
- g. Repeat b and c.
- h. Knit about four inches.
- i. Drop a stitch on either side of the cable (ninth and eleventh needles in this example) from the needle down to a level just below the beginning of the cable.
- j. Rib these dropped stitches with the latch hook and replace them on their respective needles.

Pattern in English Ribbing: # 5



- a. Bring into working position the desired number of needles.
- b. Beginning at either right or left end, push every third needle back into **locked** position.
- c. Cast on.
- d. Knit a desired length.
- e. Bring into working position the last needle which is in **locked** position on both right and left ends.
- f. Knit two rows.
- g. Now again bring into working position the last needle that is in **locked** position on right and left ends.
- h. Knit two rows.

Repeat g and h until all needles are in working position.

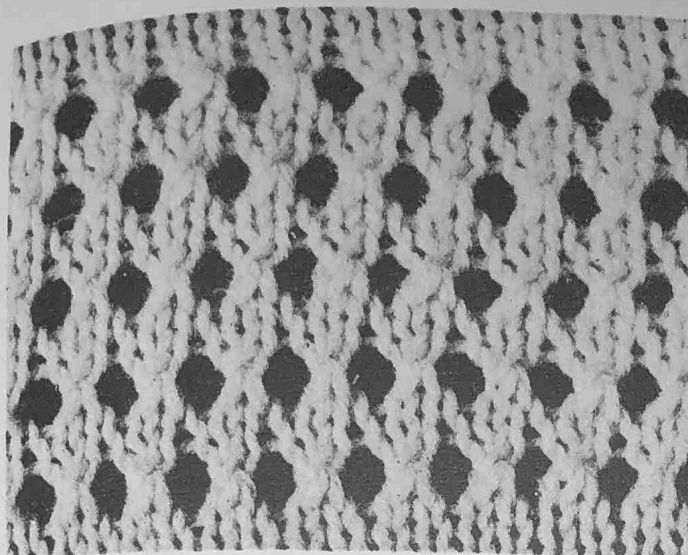


Fig 53

PATTERN # 7

CABLE STITCH

1. Using both hands, take the two, three eye transfer tools and insert them in needles 1, 2, 3, 4, 5, 6 next to each other.
2. Transfer the first 3 stitches or stitch 1, 2, and 3 over to needles 4, 5, and 6. Stitches 4, 5, and 6, should be transferred to needles 1, 2, and 3.
3. Knit 6 or 8 rows between each twist of the cable.

NOTE; If narrower cables are desired, the 1 or 2 eyed transfer tools may be used.

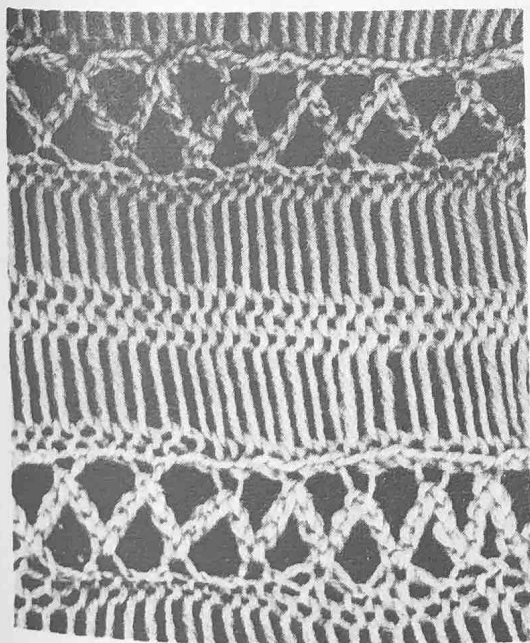


Fig 55

PATTERN # 6

LACE OR OPEN WORK PATTERN

Knit 4 rows.

1. With your transfer tool, transfer every stitch to the next needle.
2. Leave empty needles in Knitting Position.
3. Knit 4 rows. Repeat 1, 2, and 3.

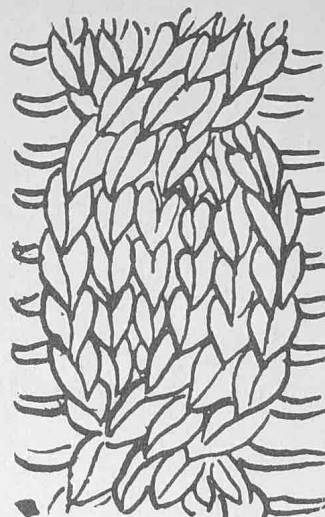


Fig 54

PATTERN # 8

HAIR PIN LACE

Arrange Needles as follows:
 Two needles in Knit. Position;
 Eight needles in Lock Position
 Repeat this setting for desired width of Lace. A fairly tight tension is necessary. Cast on in closed Cast-on. Knit the required length. This lace may be used for stoles, blouses or wherever hand loomed lace is used.

#9

DIAMOND YARNOVER PATTERN

1. 20 stitches for design — 10 on each side of center "O". Remember to put back empty needles by knitting position after each line of transfer. Always knit two rows between each line of transfer.
2. All stitches are transferred toward center to needle # 1.

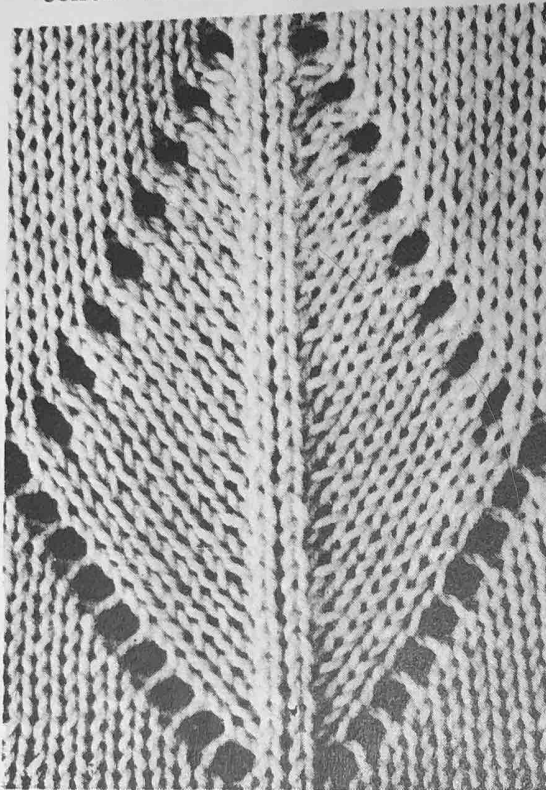
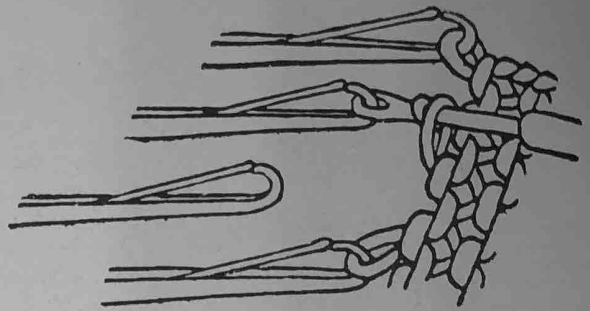


Fig 42

Right	Left
Row 1 — transfer stitch 2 to 1 Knit 2 rows even	2 to 1
Row 4 — transfer stitch 3 to 2 Knit 2 rows even	3 to 2
Row 7 — transfer stitch 4 to 3 Knit 2 rows even	4 to 3
Row 10 — transfer stitch 5 to 4 Knit 2 rows even	5 to 4
Row 13 — transfer stitch 6 to 5 Knit 2 rows even	6 to 5
Row 16 — transfer stitch 7 to 6 Knit 2 rows even	7 to 6
Row 19 — transfer stitch 8 to 7 Knit 2 rows even	8 to 7
Row 22 — transfer stitch 9 to 8 Knit 2 rows even	9 to 8
Row 25 — transfer stitch 10 to 9 Knit 2 rows even	10 to 9

#10 CAT'S PAW PATTERN



Every tenth stitch is transferred to adjacent needle forming one yarnover.

Knit two rows.

Transfer one stitch to the right of first yarnover and one stitch to the left leaving a center knit stitch.

Knit two rows.

Transfer last yarnover to correspond with first one to complete Cat's Paw design.

BODY MEASUREMENTS

To take body measurements for misses, women's, juniors and teens sizes, measure around fullest part of bust (with bra), natural waistline, and fullest part of hip. Find the column of measurements in the tables below which approximates the measurements taken. The size at the top of the column is the size to make. Necessary allowance has been made in the directions for the proper fit of each garment according to style, stitch, and yarn type. The blocked or finished bust measurement of the knitted or crocheted garment, is given with the directions. Body measurements for men, are given below

To take body measurements for children's sizes, measure around fullest part of child's chest over underwear, holding tape comfortably, neither snugly nor loosely. Find the chest measurement in table, then find size to make directly above in same column. Other measurements in table will help you decide whether your child differs in build from the average so that adjustments can be made easily as you work. Our children's garments are designed for a casual, easy fit and allow for a child's growth. The chest or breast measurement, not the child's age, is your guide in choosing the correct size to knit. This is the most important measurement in fitting a child's knitted garment. Shoulders are designed in proportion to chest. Room for growth has been allowed in the knitting and crocheting directions.

ADJUSTING TO LARGER OR SMALLER SIZES

There is a 2 inch difference in bust, waist, and hip between each misses and each woman's size, except for size 10. To make a garment one size larger than given in directions, and the number of stitches equaling 1 inch to both back and front for a pullover, 1 inch to back and $\frac{1}{2}$ inch to each front for a cardigan or jacket, 2 inches to a skirt. Subtract the same number for a smaller size. For size 10, subtract only half these amounts from size 12. When stitch is a repeat pattern, add or subtract the number of stitches equal to one or more multiples.

There is $\frac{1}{2}$ inch difference across back and front at shoulders for each misses and each woman's size, 1 inch for each men's size. To obtain desired width at shoulders, decrease more or less stitches at armhole shaping, dividing evenly between armholes. There is $\frac{1}{4}$ inch difference at wrist and $\frac{3}{2}$ inch at underarms for each size,

Directions for changing the length of skirts are given with skirt directions. The length of sweaters, jackets, dress waists, and sleeves, is changed by adding or subtracting required number of inches before armhole is reached.

MISSES BODY MEASUREMENTS

SIZE	10	12	14	16	18	20
BUST	31	32	34	36	38	40 ins.
WAIST	23	24	26	28	30	32 "
HIP	33	34	36	38	40	42 "

JUNIOR'S BODY MEASUREMENTS

SIZE	9	11	13	15	17
BUST	28	30	32	34	36 ins.
WAIST	22 $\frac{1}{2}$	23 $\frac{1}{2}$	25	27	29 "
HIP	31	32	34	36	38 "

TEEN'S BODY MEASUREMENTS

SIZE	10	12	14	16
BUST	30	31	33	35 ins.
WAIST	23	24	26	28 "
HIP	32	33	35	37 "

WOMEN'S BODY MEASUREMENTS

SIZE	36	38	40	42	44	46
BUST	38	40	42	44	46	48 ins.
WAIST	30	32	34	36	38	40 "
HIP	40	42	44	46	48	50 "

MEN'S BODY MEASUREMENTS

SIZE	34	36	38	40	42	44
CHEST	34	36	38	40	42	44 ins.
WAIST	30	32	34	36	38	40 "

HINTS ON HOW TO FINISH A GARMENT

BLOCKING & STEAMING

Blocking:

1. Place the knitted pieces wrong side up on an ironing board or any other padded surface.
2. Using rustproof pins, pin the top and the bottom of the article to the board or padded surface. Each pin should be spaced about one inch apart.

IMPORTANT : Do not pin or block ribbings, cable stitches or any other texture designs.

3. Pin the two sides of the garment in the desired shape and size — stretching them slightly wherever necessary.

HELPFUL HINT : Identical pieces, such as two fronts or two sleeves, etc., can be pinned on top of each other (the two right sides facing) and blocked and steamed together.

4. If you are using a pattern for the garment are blocking, first put your pattern on the board and place your knitting over it and pin knitting to correct size of pattern.

Steaming :

1. Very lightly and slowly run a steam iron over the knitted pieces allowing the steam to penetrate into the garment. **Do not allow the iron to rest on the article.** When using a dry iron, take a very damp but not wet cloth, place it over the knitting, and press very lightly.
2. Leave the knitting pinned to the board until it is completely dry.
3. After you have removed pins, remeasure the garment. If the size is not correct, steam again for correct width or, if necessary, shrink it with the aid of a damp cloth.
4. After the work is assembled, press the seams slightly on the wrong sides directed above.

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