



# Instruction manual

## AM 3

WITH COORDINATED RIBBER







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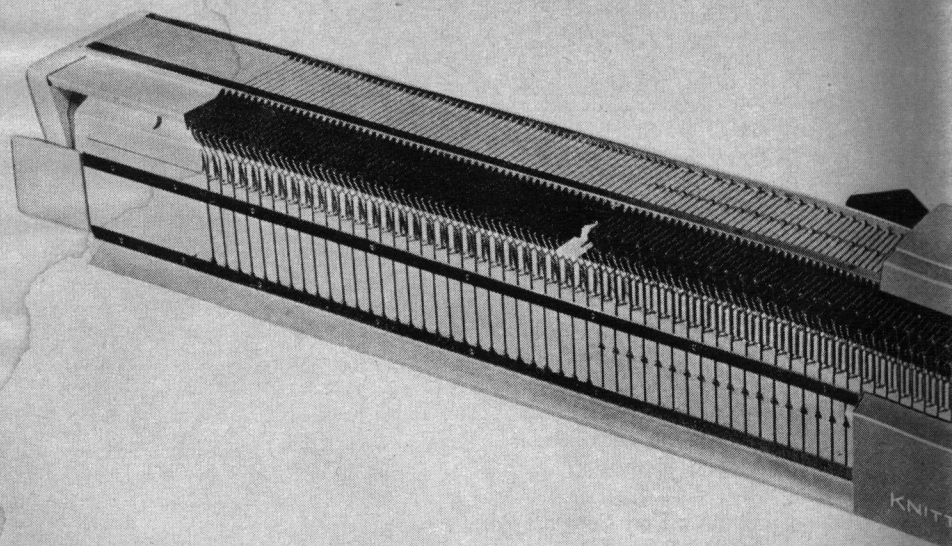
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THE  
COUNCIL



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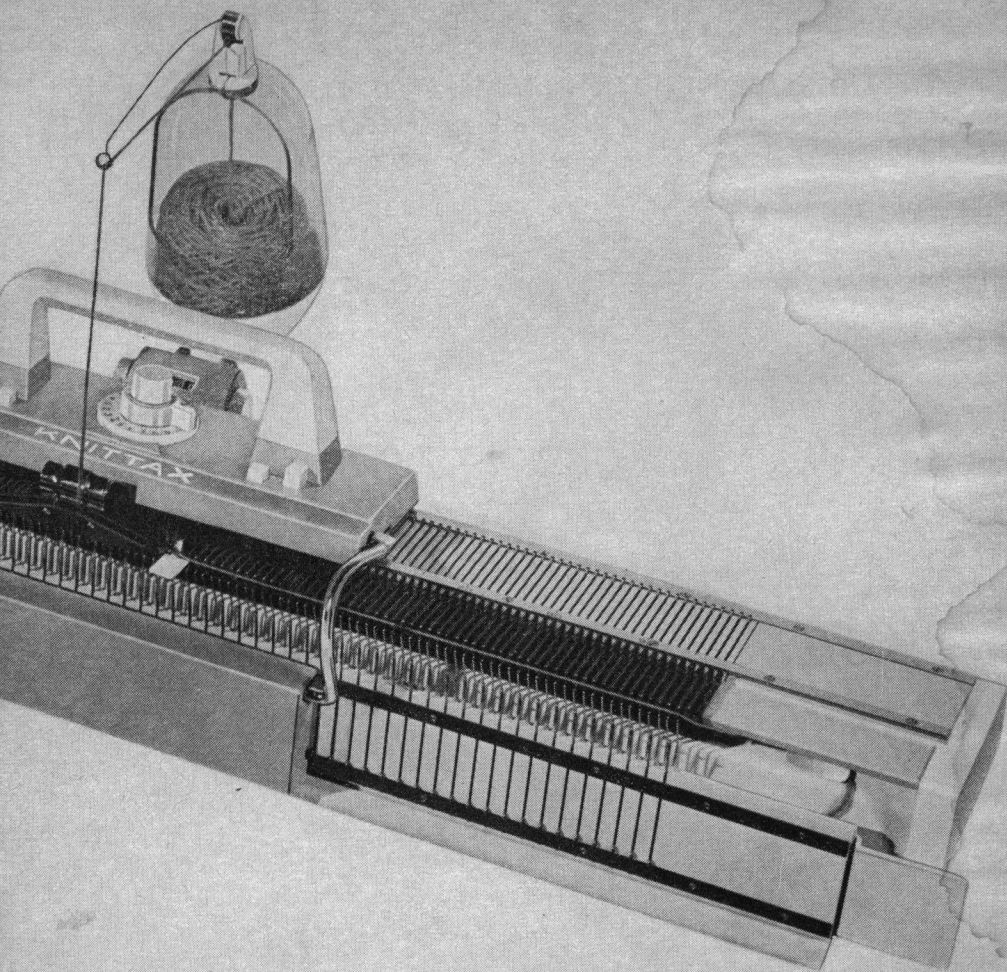
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## INTRODUCTION

KNITKING machines are one of the household appliances of our modern times. More than a million women throughout the world are satisfied KNITKING users and knit stylish, practical, casual and high fashion garments for themselves and their families. A continuing supply of patterns is available in the beautiful bi-monthly KNITKING MAGAZINE. The excellent reputation of the KNITKING machine is based on the experiences of knitters all over the world and the name KNITKING is synonymous with excellence and reliability.

In the KNITKING AM 3 we have a machine which satisfies the most fastidious knitter. Like all KNITKING machines, the AM 3 also has the same type of spring





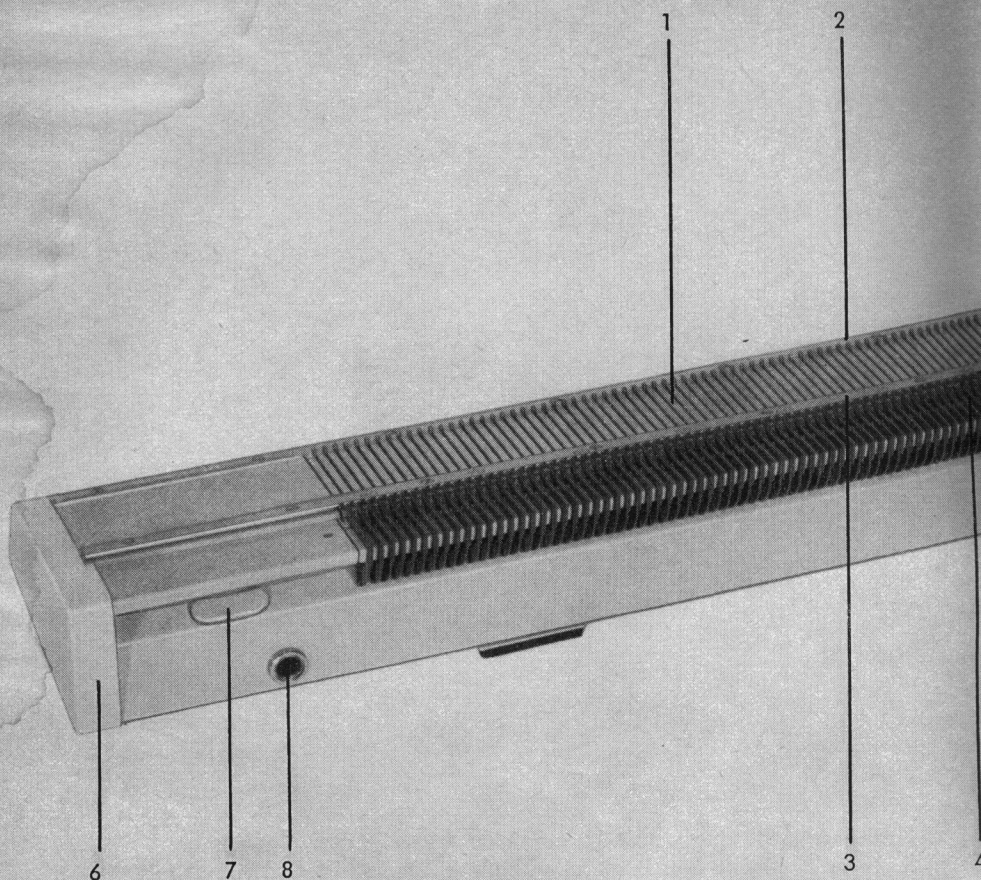
latch needles used in industrial machines. A special advantage of this machine, however, is the exclusive Push-Button Pattern Selector. With it, you can knit fancy stitches and designs faster and easier than ever before possible.

All garments produced on KNITTING machines have the appearance of the best hand-knits. With this new machine, the knitting will be even more perfect and beautiful. Each section of the garment is knitted to shape, and, as with hand knitting, it is possible to unravel the yarn and use it again.

For the successful operation of this top quality knitter it is important that you know and understand it. The following pages will show you just how simple it is to produce the most beautiful knitted garments quickly and easily with your new KNITTING

## DESCRIPTION OF THE MAIN MACHINE AM 3

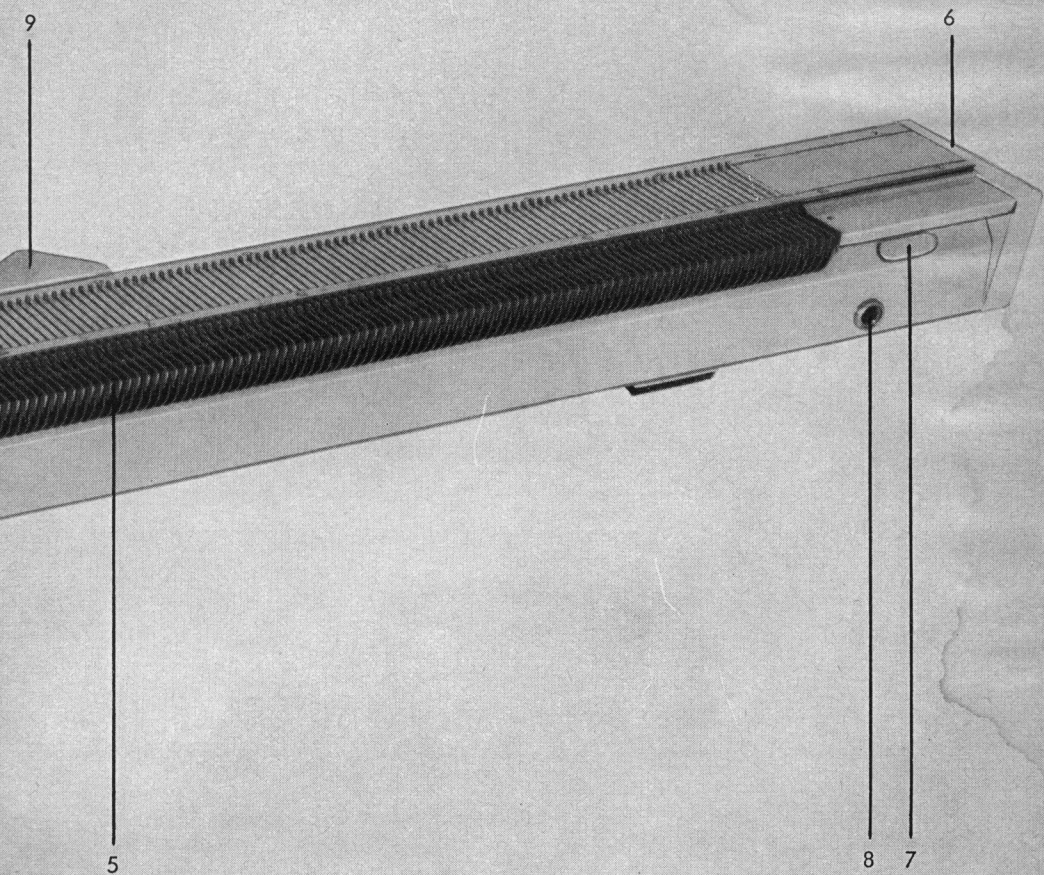
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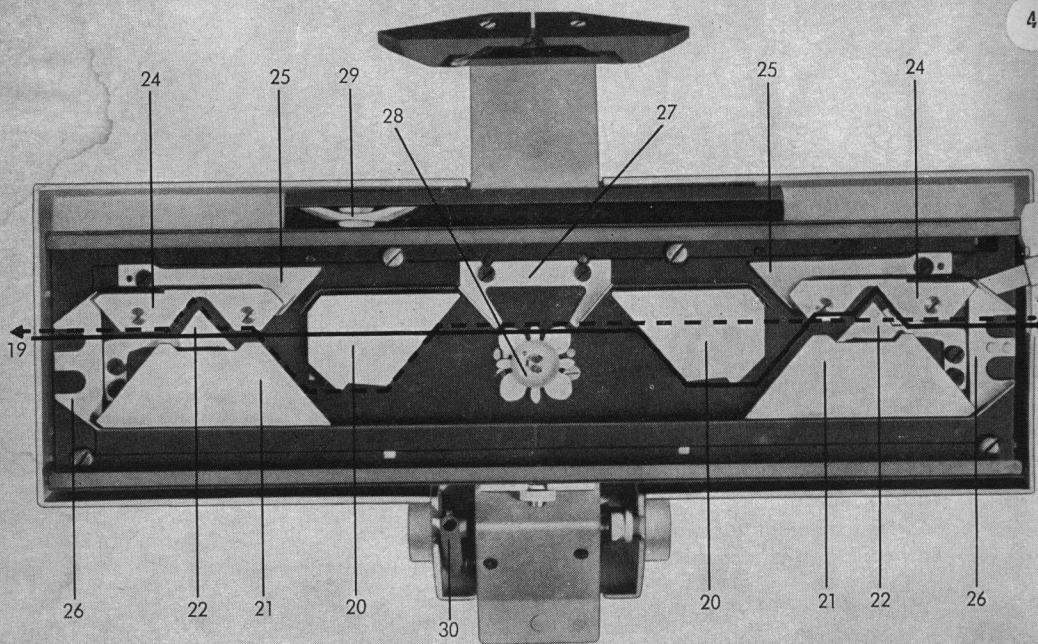
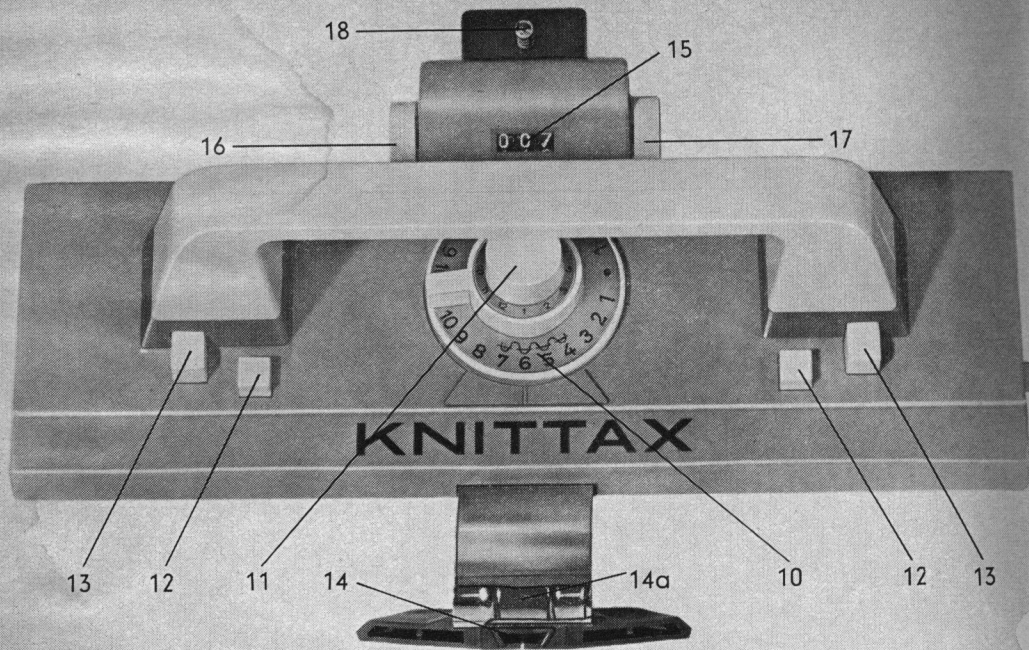
### Basic body of the machine

1. Needle bed (made of several sections joined together)
2. Back rail
3. Front rail (Numbered rail) Underneath this rail is a special type brake spring which prevents the needles from slipping out of position while knitting.







4. Latch needles
5. Sinkers
6. End piece
7. Yarn fastener
8. Sockets for Ribbing Attachment
9. Row counter trip (moveable)

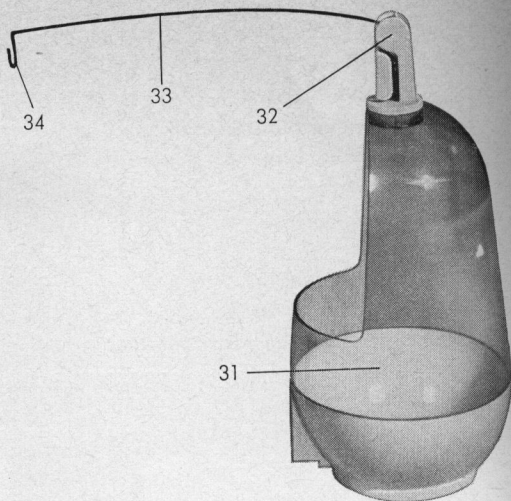




10. Stitch size control knob (1 = small stitch; 10 = large stitch)  
2 scales from 1—10 for Stockinette Knitting   
and knitting with the Ribber 
11. Rotating pattern knob with control scale
12. Needle retractor buttons
13. Cam control buttons
14. Yarn feed finger
- 14a. Yarn feed finger eye
15. Row counter
16. Number setting knob
17. Number correction knob
18. Peg for attaching the yarn container

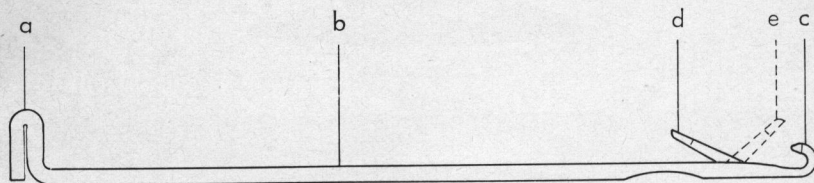
19. Path of the needle heels through the cam box
20. Needle sinker
21. Control cam
22. Spring gate
23. Gate cam release lever
24. Fixed cam
25. Needle retractor spring
26. Needle deflector
27. Radial deflector
28. Pattern wheel (6 interchangeable wheels)
29. Sinker lifting cam
30. Row counter mechanism

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### Yarn Container with Automatic Thread Tension Control

- 31. Yarn container
- 32. Thread tension control
- 33. Thread tension spring (in working position)
- 34. Yarn holding eye



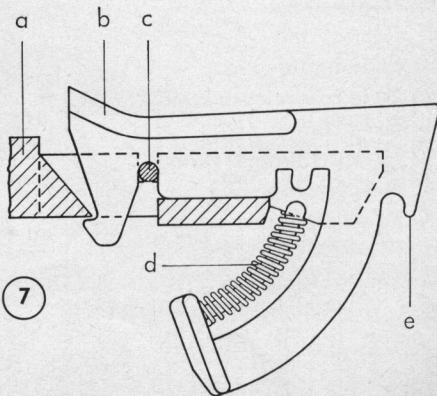
### Latch Needle (4)

- a) Needle heel
- b) Shaft
- c) Hook
- d) Latch fully open
- e) Latch half open

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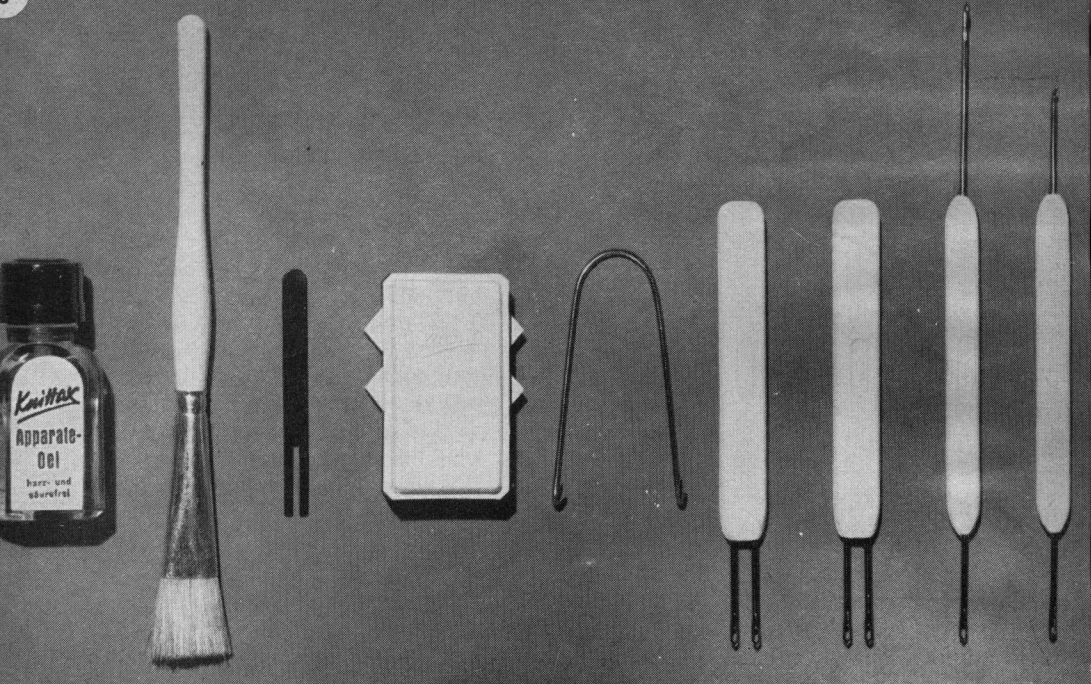
### Sinkers (5)

- a) Needle bed
- b) Sinker head
- c) Sinker supporting shaft
- d) Sinker spring
- e) Sinker hook



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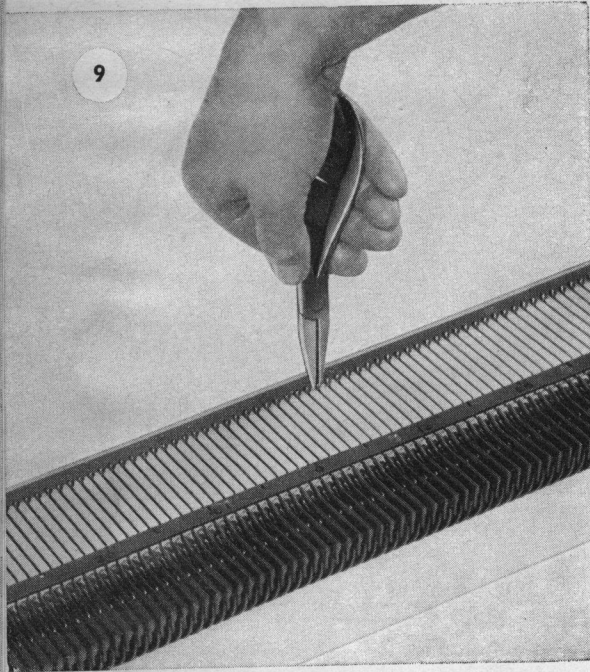
35                    36                    37                    38                    39                    40                    41                    42

**Accessories**

- 35. Machine oil
- 36. Cleaning brush
- 37. Sinker assembling fork

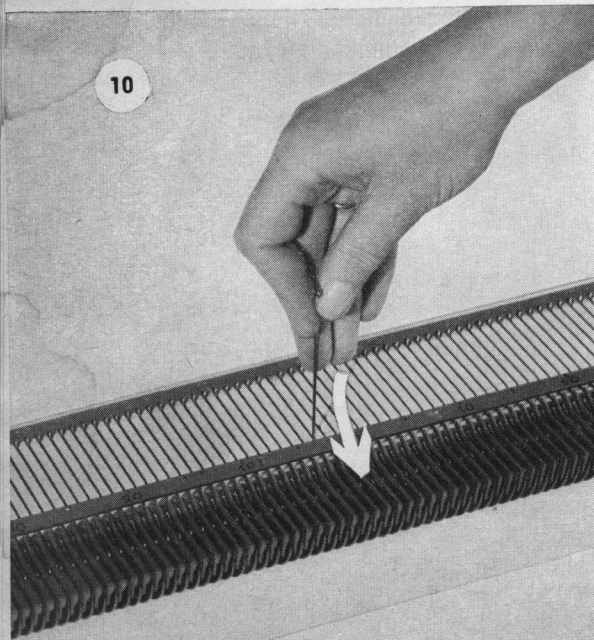
- 38. Needle shifter
- 39. Rib holding tool
- 40. Double transfer tools
- 41. Latch needle tool and single transfer tool
- 42. Work hook and single transfer tool
- 43. Piece of paraffine (without illustration)

## CARE AND MAINTENANCE OF THE MACHINE



Your KNITKING machine should be cleaned after each use. This is best done with a brush. The slide rails, the needle heels and the sinker heads will require a little oil from time to time. Only good quality, thin sewing machine oil should be used. It is the best to oil the machine with a small brush and lightly coat the parts to be oiled. At no time should you lubricate so much that the oil is visible. This will soil the yarn.

If you believe that a general cleaning is necessary, it should be done by a KNITKING Agent. If you do attempt a general cleaning, do not use heavy household tools, and do not use any cleaning agent other than gasoline.

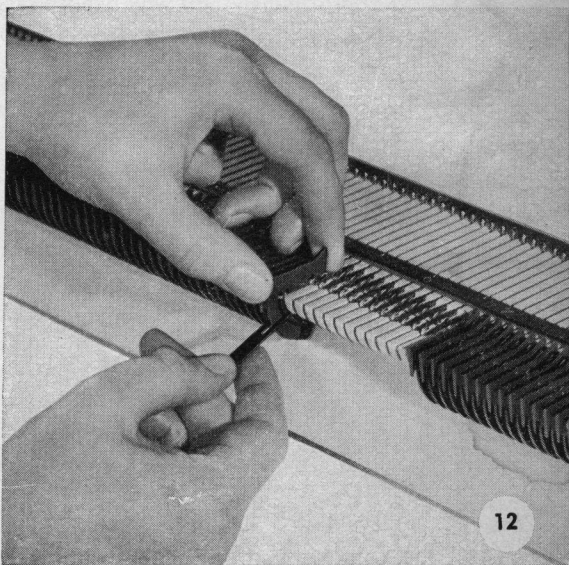
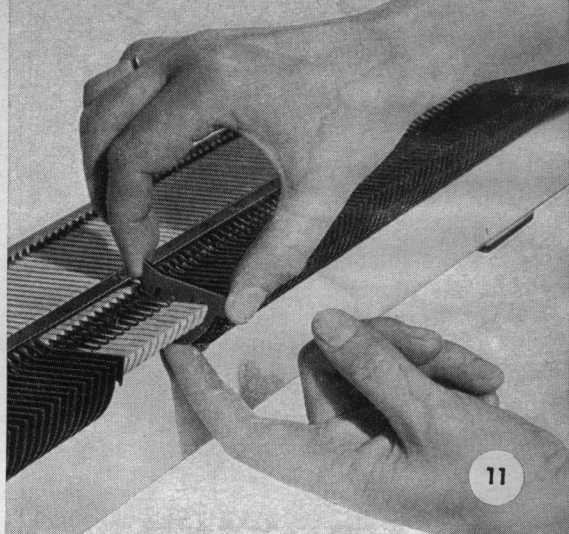


To remove a latch needle, push the needle heel into non-working position, lift the needle heel out of its groove with small, flat-nose pliers, draw the needle over the back guide rail and pull back (Fig. 9). Before replacing a needle the needle latch must be closed. First, locate the needle in the groove, perpendicular to and directly behind the numbered rail. Then push it under the numbered rail to the front. (Fig. 10).





To remove a sinker, raise the front sinker notch to its highest position; then lift it up from the sinker support shaft and remove it from the sinker groove (Fig. 11).

To replace the sinker, use the assembling fork (Accessory 37). With this, press down on the sinker spring assembly, squeezing it together and insert the sinker into the groove from the front. Then, lift it by the notch and let it slide on to the sinker support shaft (Fig. 12).



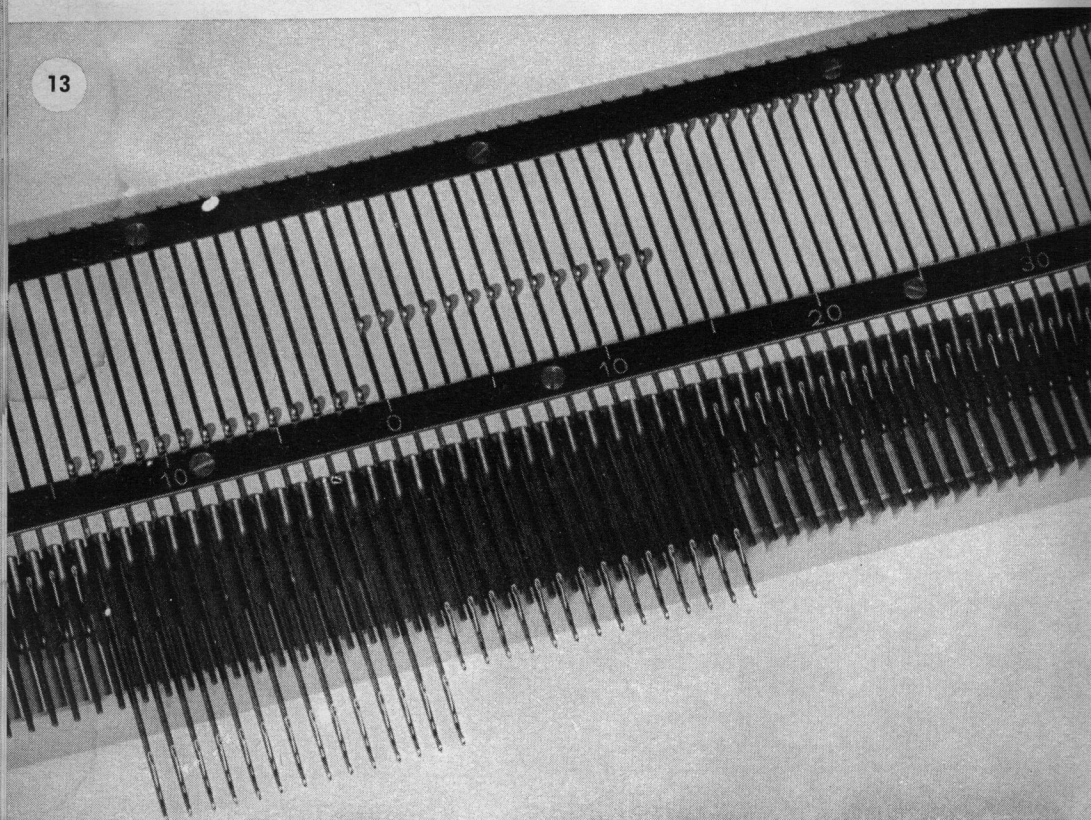
## INTRODUCTION TO KNITTING TECHNIQUES

Place your knitting machine on a table so that the front edge is flush with the edge of the table. Set the stitch size control knob for the desired stitch size, determined by the type of yarn being used. The scale marked with  is to be used for knitting done on the main machine, and the scale marked with  is to be used when knitting with the Ribber. Understandably, you cannot use Tension 1 when knitting with heavy, bulky yarns.

Before you begin knitting your garment, you must prepare a gauge sample (details can be found on page 46).

Now bring as many needles into working position as you will need to obtain the desired width. To do this, push the needles from non-working position up to approximately half way between the two rails. By moving the slide once, the needles will automatically assume the correct working position.

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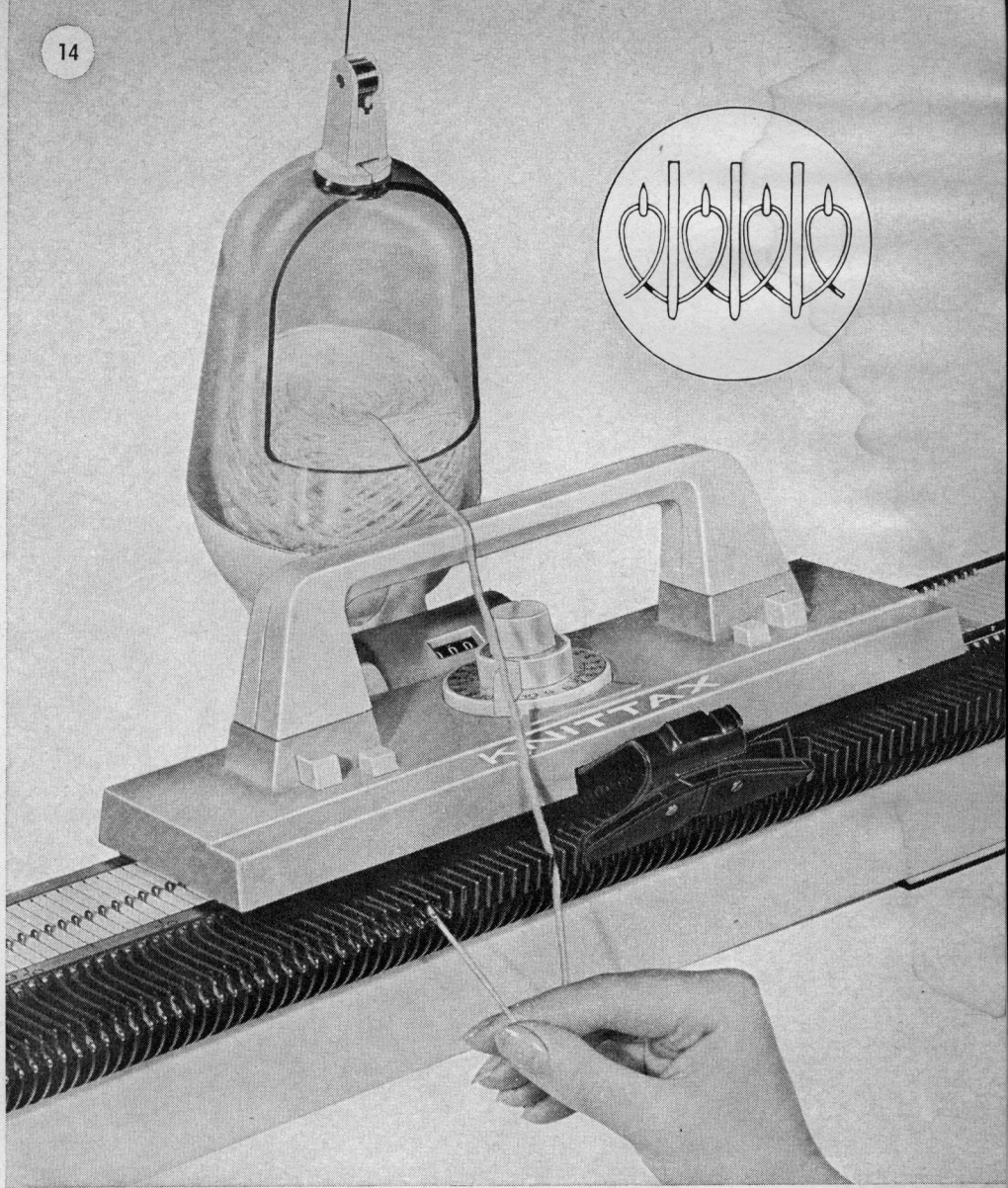


Holding Position

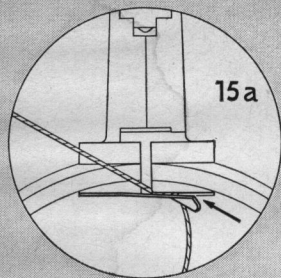
Knitting Position

Non-working position

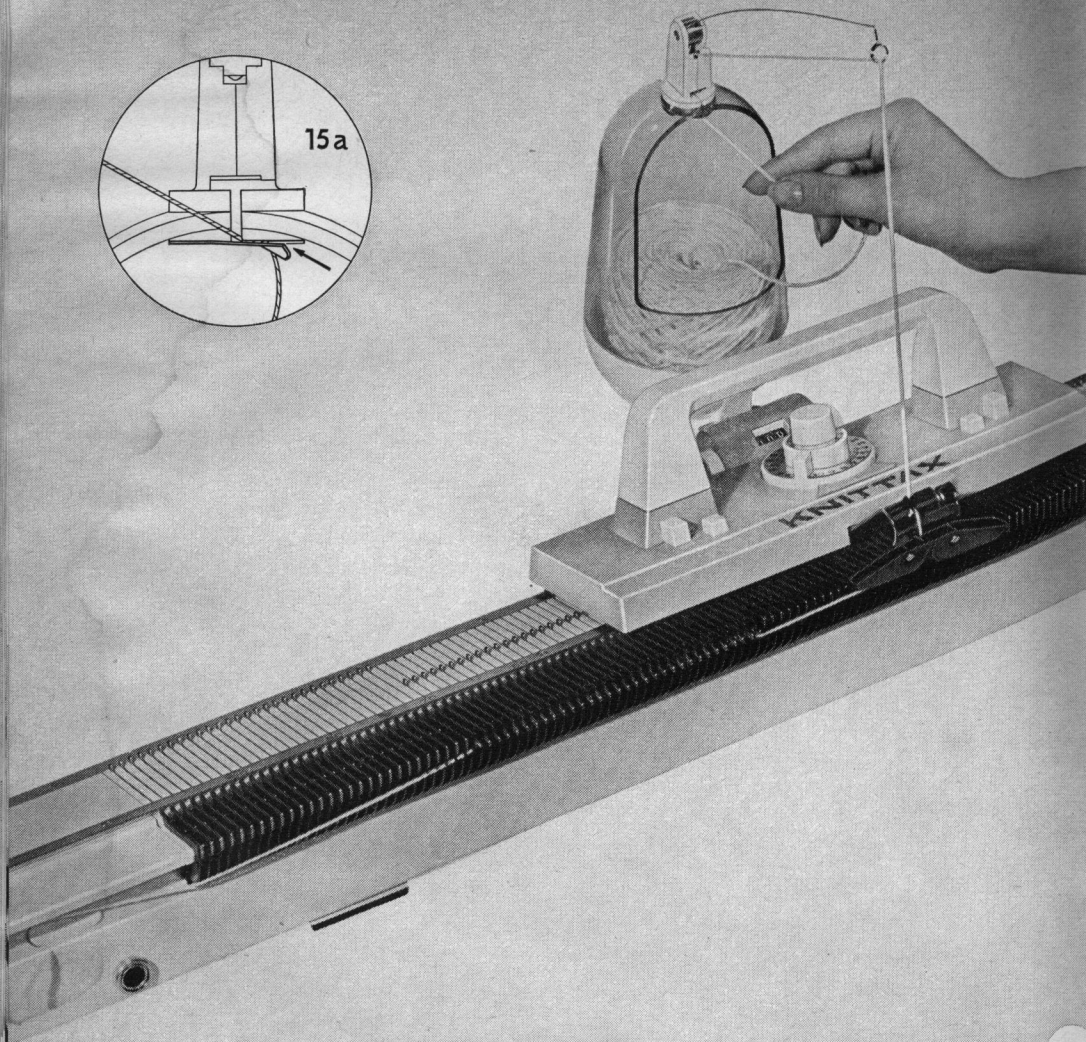




To cast on (fig. 14) place the yarn ball in the container and secure the yarn in one of the two yarn fasteners. If the yarn is too mat, lead it over a piece of paraffine when winding the ball. To simplify the instructions we will always use the fastener on the left side of the machine, as shown in the illustration. Normally, for the closed edge casting on the cam box is on the right side of the machine and the needle latches are half open. The yarn is wound around the



15 a



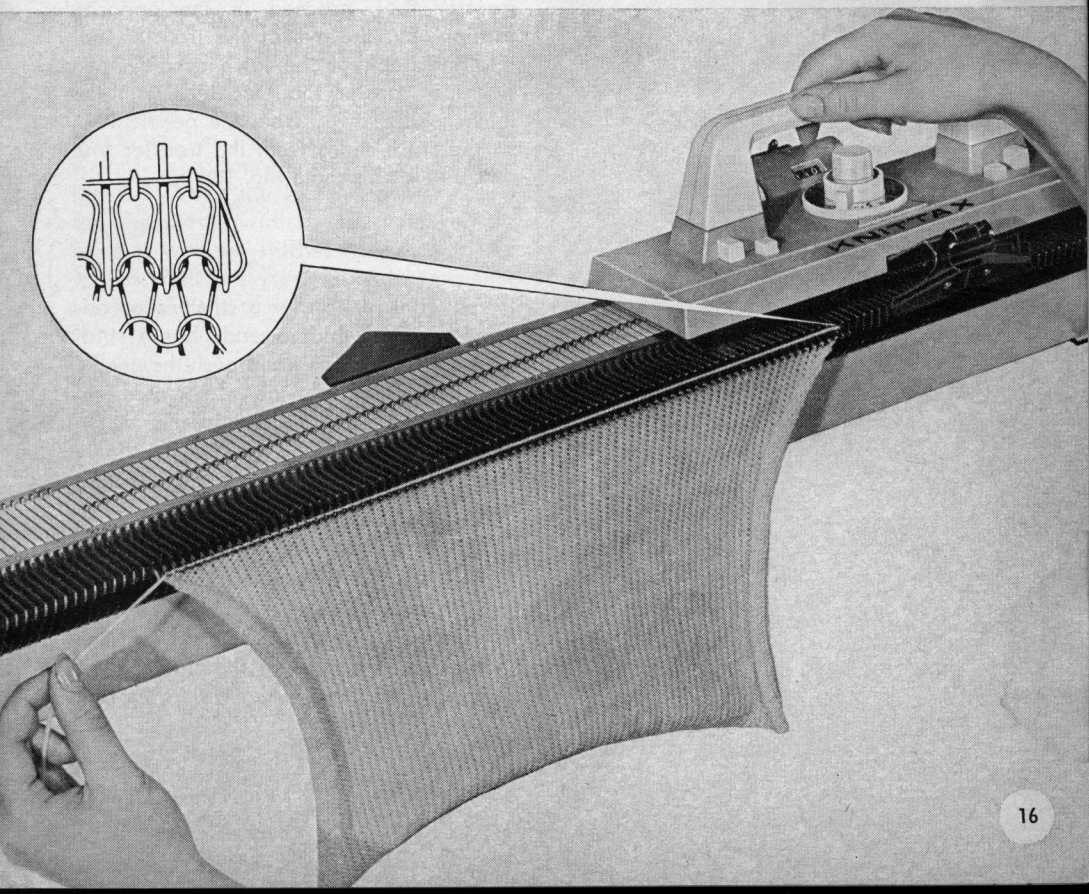
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individual needles, behind the latches and under the sinker hooks in counter clockwise direction, starting with the first sinker hook on the extreme left, around the first needle, under the second sinker hook, around the second needle, etc. When the yarn has been wound around the last needle in working position, push the slide up to the needles until the outer left corner of the wool feeder finger is flush with the first needle. The yarn will now be fed through the yarn feed finger, the yarn feed finger eye and the yarn holding eye of the thread tension spring to the thread tension control. Pull the yarn through the safety disc underneath the

thread tension control according to fig. 15 a. By pulling the thread tension spring down in the direction of the wool feeder, the clamp inside the thread tension control will open and the yarn can easily be put in from the front and from the right side. Before you begin knitting, the yarn must be tightened, this means that you must pull down the yarn holder until the thread tension spring is bent forward as far as possible (fig. 15).

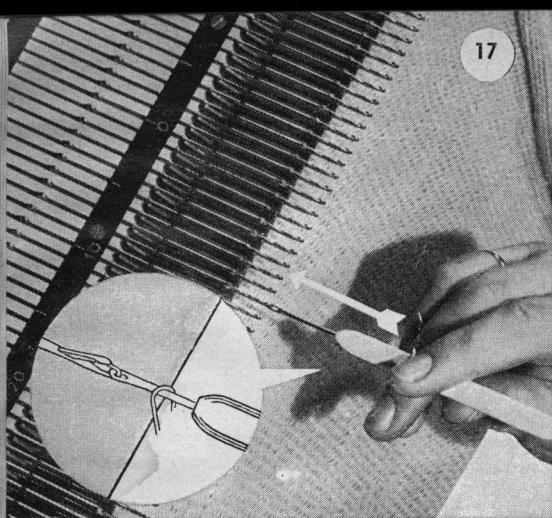
To make the gauge sample and similar items, it will be easier if you use the so-called **Automatic Cast-on**. To do this, put only every other needle into working position and put the cam box on the left side of the machine. Feed your yarn through the feed finger and place it in the container, threading the machine and tightening the yarn. When you move the cam box to the right, a looped row is formed. You then bring the remaining needles into working position and begin knitting. When knitting without the **Yarn Feed Finger** (fig. 16) lay the yarn over the needles with one hand and move the cam box with the other hand. It is important that the yarn is held loosely between the fingers so that it slides easily and evenly. In addition, you must make certain that the yarn passes under the sinker hook outside the first needle in working position.

For this type of knitting, it is advisable to put the ball of yarn in some type of smooth container on the floor.





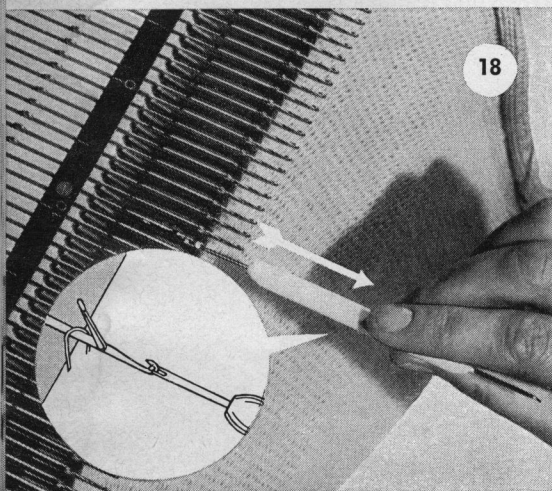
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For **Increasing and Decreasing** we will first describe the use of the transfer tools (42). The transfer tools are used to lift stitches off the latch needles and transfer them onto other needles.

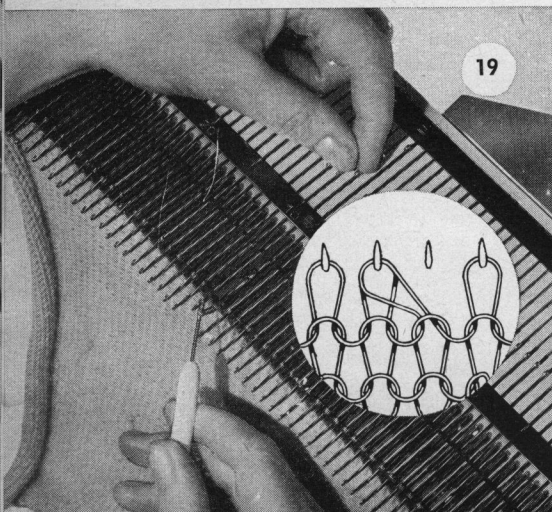
In order to take a stitch off a needle, the transfer tool is inserted with its eye in the hook of the latch needle so that the needle and transfer tool are in a straight line (fig. 17). Then the transfer tool, together with the latch needle, is pushed back in the needle bed. This makes the latch close and the stitch slides onto the transfer tool.

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To put a stitch onto the machine from the transfer tool, proceed in the opposite fashion: put the eye of the transfer tool into the hook of the latch needle. Then pull the transfer tool, together with the latch needle, away from the needle bed, so the stitch slides from the transfer tool onto the latch needle (fig. 18).

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If you want to transfer a stitch to an adjacent needle which already has a stitch on it, with your free hand push the needle back slightly so that the latch closes and then let the stitch slide onto the needle over the closed latch (fig. 19). The needle must then be brought back into working position.

For **increasing of single stitches**, you can increase at the ends of the rows or you can increase at any point within the row.

18

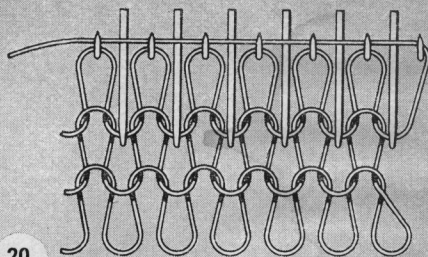
To increase along the edge of a garment, an additional needle is brought into working position at the beginning of each row (fig. 20).

To increase stitches within a garment\* lift the stitch at the end of the row onto an additional needle with a transfer tool. Then, using the work hook (42) place the adjacent stitch of the previous row on the empty needle (fig. 21). In the same way it is possible to transfer a number of stitches one needle outward. In which case, the adjacent stitch of the previous row should always be placed on the empty needle.

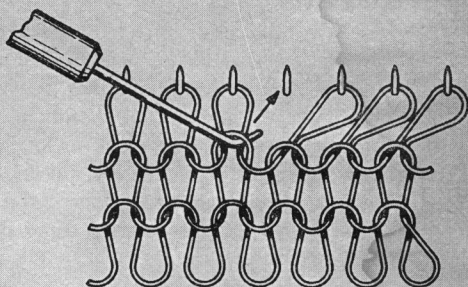
**Increasing several stitches** is done in basically the same way as the closed edge cast on (See Page 15). You can only increase on the side where the ball of yarn is located. If the yarn is on the left side, it is looped in a clockwise direction around the required number of additional needles and sinker hooks. If the increasing is to be done on the right side, the loops are wound in a counter clockwise direction (fig. 22). When the increasing is completed, the needles are brought into knitting position with the stitches lying behind the latches, and the yarn around the sinker hook at the end of the row.

**Decreasing** can be done at the beginning and end of the same row. Using the transfer tool, lift the last stitch, transfer it to the needle next to it, and continue knitting (fig. 23). If the stitch to be decreased is not directly on the edge, it is possible to move several stitches at the same time, transferring each stitch to the needle next to it.

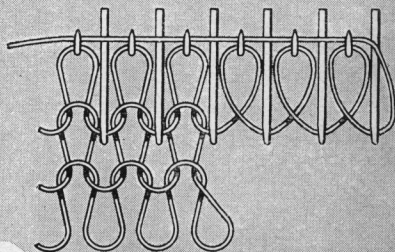
\* To make increases and decreases in the middle of a garment, it is easier if you use a multi-transfer tool. (See Special Accessories Leaflet).



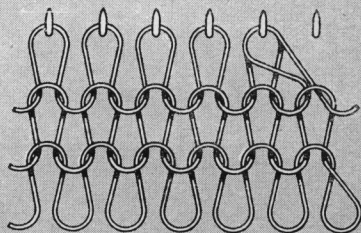
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22



23

To **decrease several stitches at the same time**, lay the yarn over the first needle and make a new stitch by hand (crochet stitch). Now transfer the stitch to the next needle, placing it behind the latch. Lay the yarn over this needle and knit the two stitches together by hand, making another crochet stitch.

Transfer this stitch to the 3rd needle and repeat the procedure.

After decreasing the desired number of stitches, continue knitting in the usual way.

If the entire piece of knitting is to be **bound off**, the procedure is the same. When you come to the last stitch, cut the yarn from the ball and thread it through the stitch. There is another method of binding off which produces a nice, smooth edge. For this method, the stitch regulating knob should be advanced 5 settings higher, toward 10. Then knit one row. If you have been knitting with a tension higher than 5, you should pull the needles down by hand one at a time in order to form larger stitches. Then push all the needles into holding position and pull the knitting out from underneath the sinkers. With the latch needle tool and starting at the opposite side of your knitter from where your yarn ends, pull the second stitch through the first stitch, the third stitch through the second stitch, etc.

It is very easy to drop off the stitches automatically, but this method should be used only if you intend grafting certain knitted parts. In which case, it is advisable to knit a few additional rows with a different color yarn which will be unravelled later. The garment is removed from the machine by passing the slide across the needles without inserting the yarn.

If you knit with the wool feeder, do not forget to release the yarn from the eye of the yarn feeder before you automatically drop the knitting from the machine.



## SPEZIAL KNITTING PROCEDURES

A hem is frequently the preferred finished edge for socks, panties, sleeves, jackets, and other garments. **Hems can be turned easily**, with no sewing, in the following way.

Cast on with a closed edge and knit a piece twice as long as the depth of the hem required. Then, starting from the right hand side, with the work hook, lift the stitches from the first row separately on to the latch needles, placing the loops behind the latches, and bringing the needles back into working position. Knit the first row carefully, and with a Tension 1 or 2 settings higher. Then continue in the usual way.

The basic stitch of the KNITKING machine is knit and purl, respectively. To obtain an alternate effect of **Knit and Purl stitches** without using the Automatic Ribbing Attachment, you must convert the purl stitches into knit stitches. To do this, latch up as knit stitches those stitches on the purl side of the work, which is the side of the knitting facing the operator. Hold the lower edge of the knitting with the rib holding device (fig. 24). Then push the appropriate latch needle into non-working position so that the stitch will drop down to the casting on row. Insert the latch needle tool above the lowest running thread with the hook pointing down. By turning the latch needle tool to the right you will make the first loop which will have to be slipped behind the latch. The hook of the latch needle tool now points up. Place the latch needle tool under the next running thread and hook a new stitch. Continue this process until the last running thread has been hooked. Then place the stitch on the latch needle again. The tightness of the stitch can be controlled by the strength of your pull on the rib holding tool.

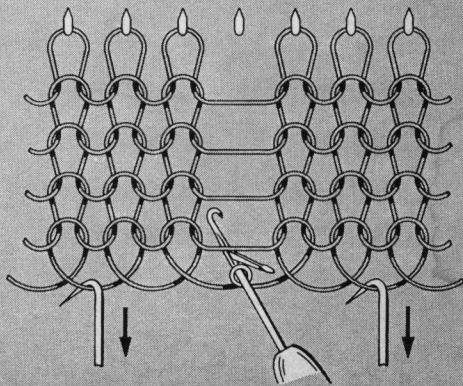
When reversing stitches within a knitted section, it is advisable to mark the row to which the stitches are to be dropped. This is best done by knitting in a thin sewing thread, laying it over the needles together with the yarn, and knitting it in as the marker. When the knitting is completed, this thread can be easily removed. In this case, you do not need the rib holding device because it is quite easy to hold the knitting with your hand.

Before you drop a stitch, the latch needle tool must always be inserted into the appropriate marked stitch.

To **Turn The Knitting** the stitches must be taken off the needles, and after the

21

24



garment is reversed, the stitches must be re-hung. If you do not have a tool for this operation\* you should follow this procedure:

From the row where the knitting has to be turned, make several extra rows with a contrast color yarn and automatically drop the knitting off the machine. Then bring the needles back into working position by pushing the slide over the needles once. Using the palm of your hand, push the needle hooks down into the needle bed so they do not protrude beyond the sinkers. After the knitting has been turned and the knit side is facing you, start from the right hand side, and, one after another, insert the transfer tool into the stitches of the last row in the original color. After the stitch is on the transfer tool place the eye of the transfer tool over and into the hook of the appropriate latch needle and pull the needle toward you so that the stitch slides from the transfer tool on to the latch needle which is then pulled through the stitches (fig. 25). After all the stitches are on the needles, the rows in the contrasting color are unravelled, the needles are then brought into knitting position, and the knitting is continued. Usually, after the stitches are re-hung, they are not yet under the sinker hooks. Therefore, the first row should be knitted very carefully. It is advisable to pull the knitting down lightly, using your free hand.

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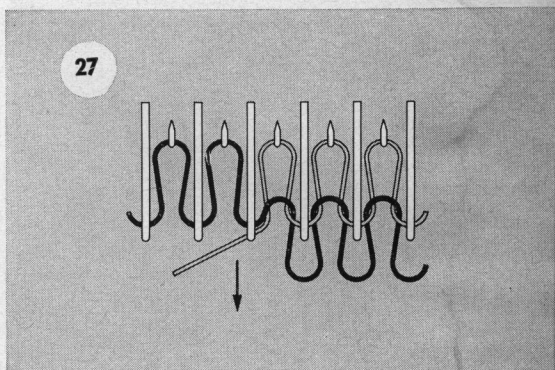
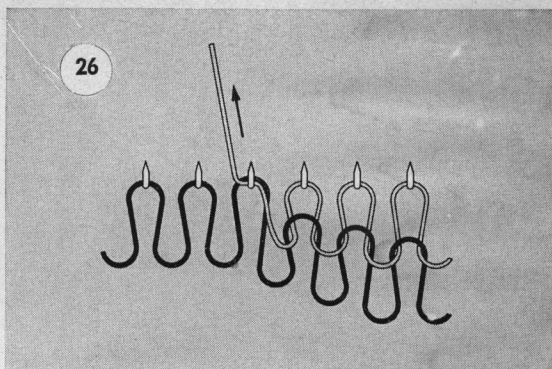
\* By using our Reversing Bar, this operation will be much easier and faster. (See Special Accessories Leaflet.)



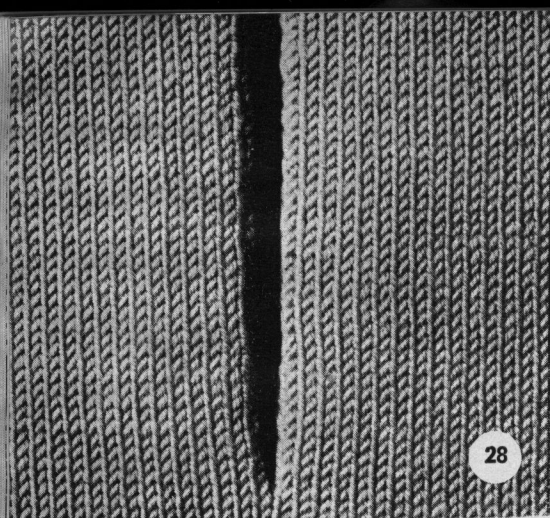
It is not necessary to take the work off the needles in order to **Unravel** a few rows of knitting.

To unravel on the machine, you must first of all bring the needles into the safe position. Push in both cam control knobs and knit one row. The needle heads will disappear between the sinkers. Now pull the end of the yarn alternately up and down. By pulling up, the next to the last knitted stitch will be lifted up to the adjacent needle and pulled over the needle hook, while the last stitch working is released (fig. 26). Pull down (fig. 27) and the yarn will be released from the sinker.

The up and down movement of the yarn can be repeated in rapid succession, so that in a few minutes several rows can be unravelled. Before starting again, be sure that the cam box is at the opposite side of the machine to where your yarn ends then, push out both cam control knobs and bring the needles into knitting position by pushing your cam box to the side where the yarn is.

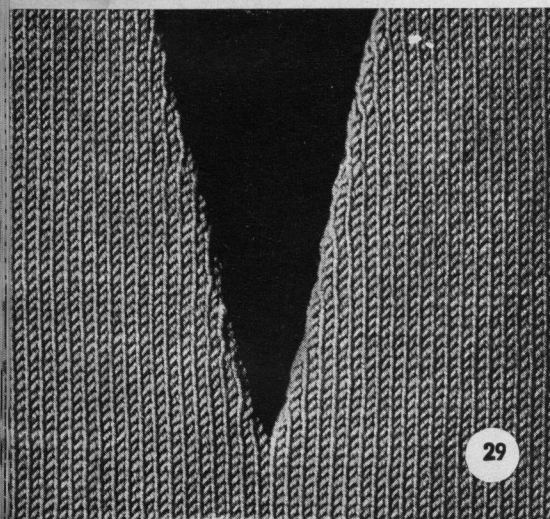






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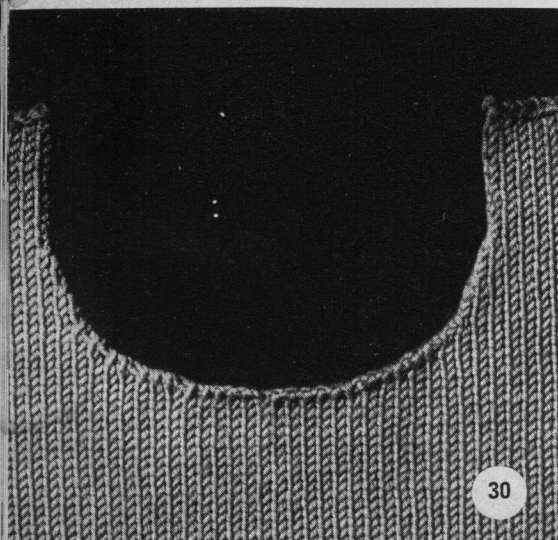
If it is necessary to make a **Vertical Opening** in a piece of knitting (fig. 28) the work must be divided at the point where the opening begins, and the knitting must then be continued in **Two Parts**. To do this, first of all push the cam box with yarn to the left. Now put all the needles to the right of the division in holding position and work the left section first. When this section is completed and bound off, bring the needles of the right section from holding position into working position and work the right section the same as the left section.



29

To make a **Neck Opening Slit** the work is divided in the manner described above, and the decreases should be made according to the shape required.

To make a **V-Neck** (fig. 29) on each side of the division decrease 1 stitch every 4 to 8 rows. For a narrow, pointed opening, leave more rows between the single decreases; for wider openings leave fewer rows between the decreases.



30

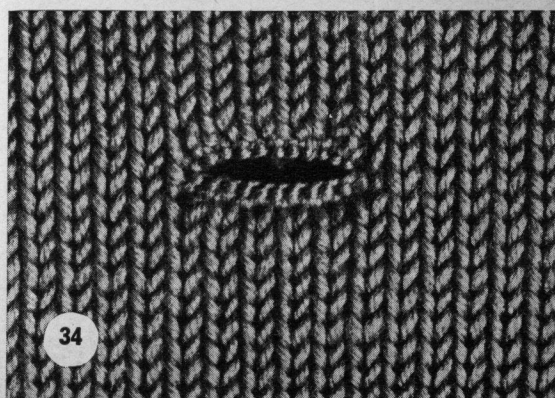
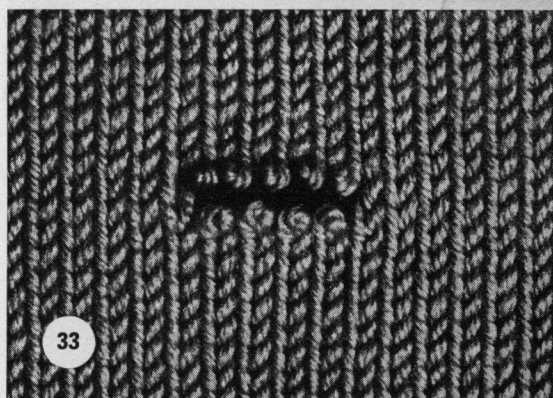
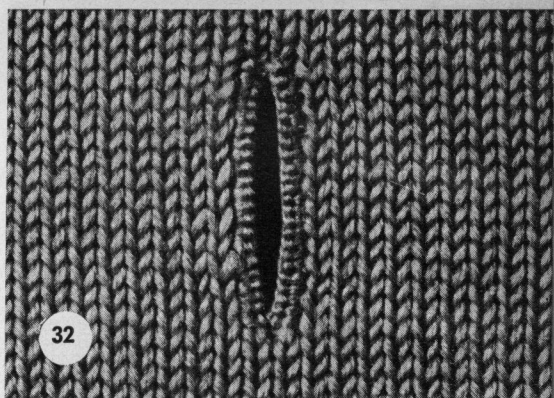
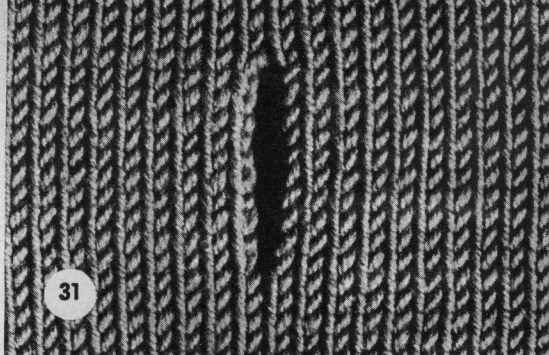
For **round openings**, (fig. 30) the work is also divided in the center, and the right section of the garment is put into holding position first. After the first divided row is worked, the yarn is in the center of the garment. It is from this point out to the left that you will bind off half the number of stitches that are to be bound off for the neck opening in the first decrease. After this, stitches will be decreased on each side, according to the shape desired. For a deeper opening, there will be fewer stitches decreased and more rows between; for shallower openings, there will be more stitches decreased and fewer rows between. When the left section of the garment is completed and removed from the machine the needles of the right section will be put from holding position into working position and this section of the neck opening will be worked. Then the

decreases will be reversed — from the center out to the right.

When making a **square opening**, the knitting will be divided at the right corner and the horizontal bottom edge of the opening bound off with yarn from a second ball. Then the needles on the right side will be put into holding position and the left section worked to the shoulder without decreases on the inside edge. Then work the right section.

**Vertical Buttonholes** (fig. 31/32) are made the same way as vertical slits. First of all, the knitting has to be divided and then continued in two sections. For this, the cam box is on the right side. The needles to the left of the opening are put into holding position, and the right section is worked first. When several buttonholes lie side by side, they are worked in this way:

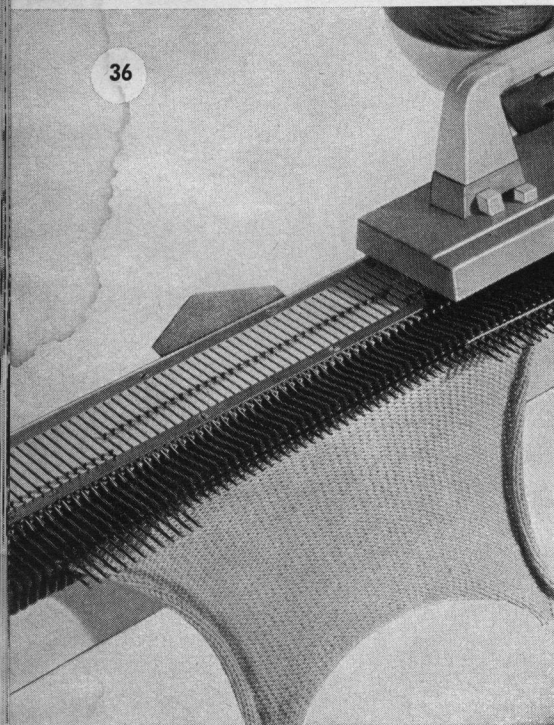
Begin at the right edge and work the first section from the edge to the first buttonhole. (All the needles to the left of this buttonhole are in holding position). Work the number of rows required for the desired length of the buttonhole — for example, 7. (This must always be an uneven number). The cam box is on the left. Now put the needles you have just worked into holding position and put the cam box on the right. Now put the needles between the first and second buttonholes into working position and work 7 rows. During the knitting of the first row, with the help of the work hook make a small loop in the yarn in order to give the necessary play to the buttonhole. This loop will be fastened in and covered later when the buttonhole is sewed. The remaining buttonholes will be worked in the same way. When the 7th row of the last section is worked, the cam box is again on the left side. Put all the needles back into working position and continue working over the entire width.





35

**Horizontal Buttonholes** (fig. 33) are worked with yarn of a contrasting color. Lay yarn of a contrasting color over 3 to 7 needles, depending on the size of the buttonhole. Now pull these needles back by hand so that stitches are formed, and put these needles back in working position. Work on over all the needles to the next buttonholes. Later, after the knitting has been steamed, remove the contrasting yarn and secure the open stitches.

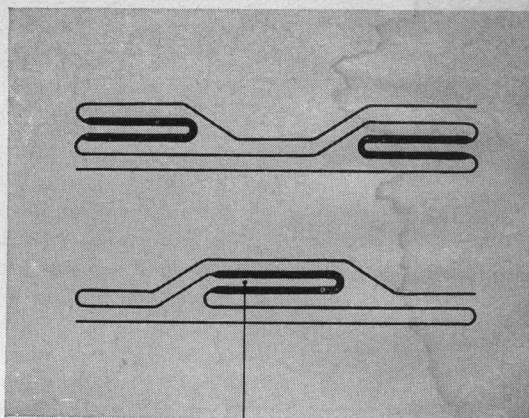


36

To make a **Horizontal Slit** for pockets with a pocket lining (fig. 35/36) follow this procedure: The cam box is on the right side. The needles to the left of the pocket are in holding position. Work one row and put the needles to the right of the pocket in holding position. Now only the needles for the pocket are in working position. Over these needles, work the number of rows required for the pocket lining. For example, if the pocket is to be 4 inches deep, the rows worked must be 8 inches long. When the desired number of rows has been worked, the cam box should be on the right side. Put the needles to the left of the pocket into working position and work one row. Then bring the needles to the right of the pocket into working position and work one row. The cam box will be on the right side again, and you can continue working over all the needles. The side seams of the lined pocket are sewn when the garment is completed.



**Knitting Short Rows** means that, in order to obtain special shapes you will manipulate your needles so that concentration is placed on certain sections of the piece being knitted (fig. 37). This type of knitting is used for shoulder shapings, flat openings, flat tops of sleeves, round collars and curved yokes, heels of socks and stockings, toes of stockings and tips of gloves, double collars, full flared skirts, etc.

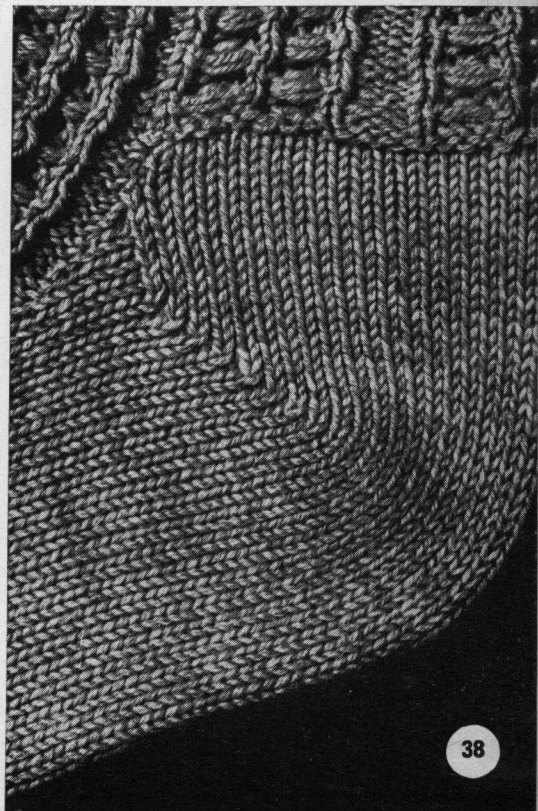


Additional or short rows

37

When you knit with short rows on the edge of a garment you will obtain a slope or curvature on one side, as, for example, in shoulder shapings or full flared skirts. When you knit with short rows within the garment, you will form a curvature or bulge as in flat tops of sleeves, flat neck openings, or heels of socks and stockings. Depending on the number and length of the short rows, the slopes, curvatures or bulges vary. When many short rows are worked, the bulge is greater and deeper. On the other hand, when fewer and longer rows are worked, the bulge is smaller and shallower.

When knitting with **short rows on the edge of a garment**, the cam box is on the side opposite the needles in holding position. Knit one row. Then, when you return the cam box, pass the yarn around the nearest needle in holding position in order to avoid



38

a hole in the knitting. Now you can either bring all the needles back into working position and knit a few rows over the entire width or you can alter the length of the short rows by pushing more needles on the same side into holding position or into working position.

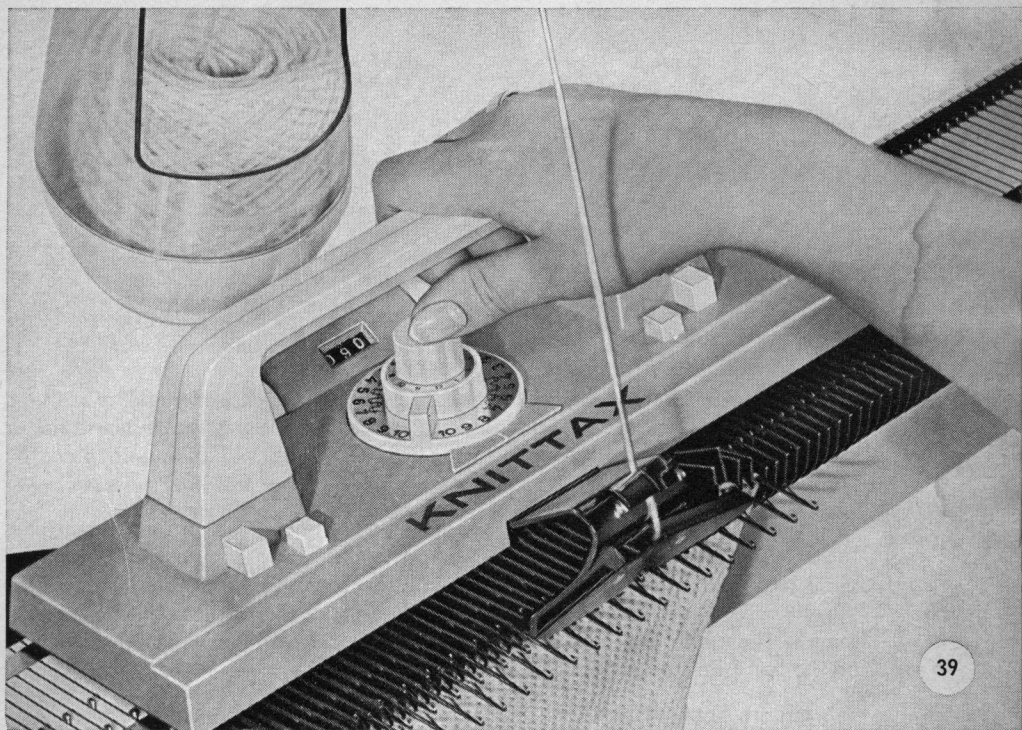
When knitting **short rows within a garment**, the needles are pushed into holding position and brought back into working position alternately on the right and left sides, on the side opposite the cam box. Before knitting a new row pass the yarn around the nearest needle in holding position in order to avoid holes in the knitting. When knitting heels of socks or bulges this operation is much easier by pushing the needles on the side towards the cam box into holding position. By this procedure you avoid to wind the yarn around the needles in holding position but the stitches on the seam will be somewhat looser. The number of needles in holding position at a given time will determine the shape of the knitted section. When making heels and toes of stockings, brassieres, etc., first put the needles into holding position one after another and bring them back into working position in the same way, i. e., first the shortened rows become shorter, and then longer, until the original number of stitches is obtained (Fig. 38).

## PATTERN STITCHES

When knitting with the main machine, you can make pattern stitches in the following ways:

1. Push individual needles in holding position (Holding position design)
2. Omit needles
3. Re-hang or reverse stitches
4. Adjust the stitch size
5. Use different yarn (color, type)

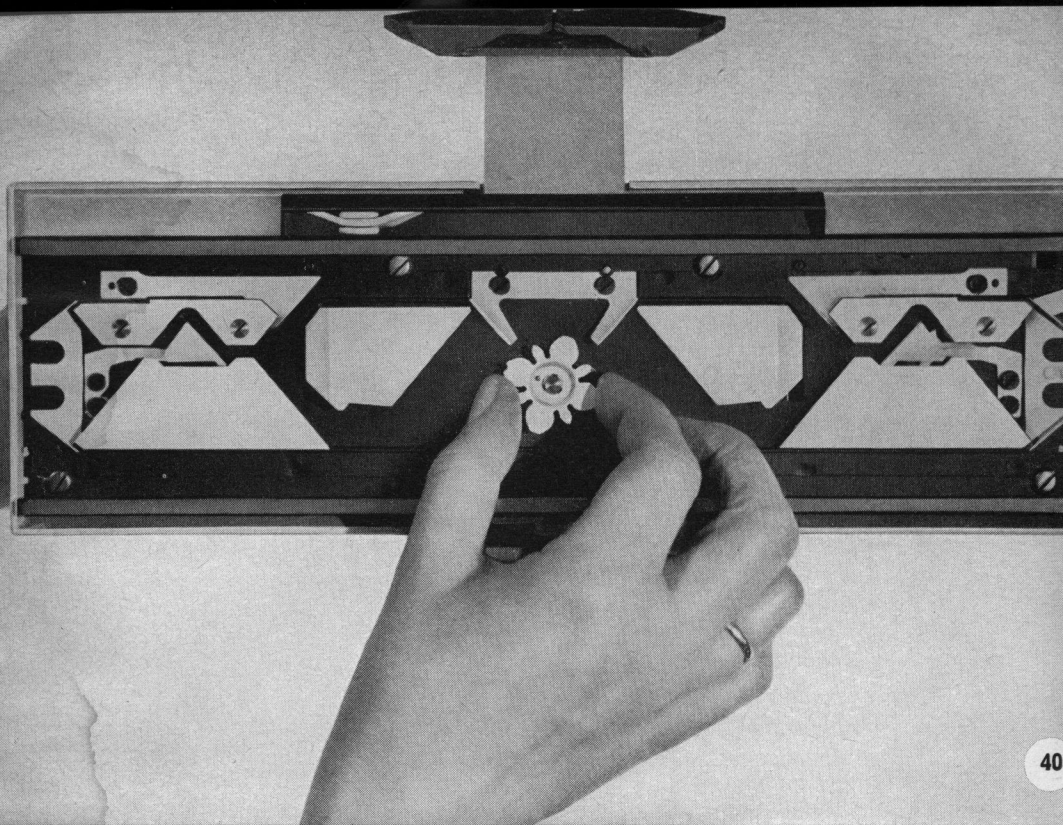
By combining these methods, you can obtain an almost endless number of variations. (See KNITTING Stitchbooks 1 to 4.)



39

With the help of the "Push Button Pattern Selector" you can, by pushing the pattern knob, (fig.39) while the cam box is moving from right to left bring certain needles into holding position, depending on the pattern wheel used. The yarn lays over the shafts of these needles and forms a loop which we call the "held stitch". Depending on the number of rows worked, there will be a corresponding number of loops lying one on top of the other; they will be worked





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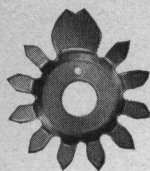
together for the first time after the needle is brought back into working position. You can bring the needles back into operation by pushing the outer retractor knob during the movement of the cam box. The knob will snap into place by pushing it to the front.

To insert or exchange the pattern wheel, remove the cam box from the machine. The selected wheel can then be pressed on to the spring-equipped peg, and the small axle pin on the side must mesh with the corresponding hole in the wheel (fig. 40). The wheel is properly in place when it lies like a plate on the peg. To remove the pattern wheel press down on one side of the wheel and pull up on the opposite side at the same time.

The pattern knob rotates. The number which appears in the scale in front indicates which needle will be the first in the row to be pushed into holding position.

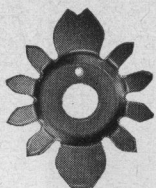
With Wheel 1 (1 large tooth) every **12th Needle** will be pushed into holding position, and any number from 1 to 12 can be set on the dial.

With Wheel 6 (6 large teeth) **Every Other Needle** will be pushed into holding position, and only number 1 or number 2 may be set on the dial. This applies correspondingly to the other wheels.

**Wheel 1**

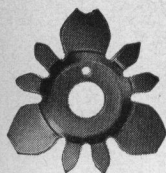
(1 large tooth)

every 12 th needle

**Wheel 2**

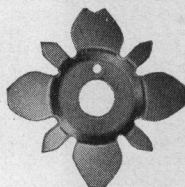
(2 large teeth)

every 6th needle

**Wheel 3**

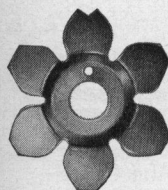
(3 large teeth)

every 4th needle

**Wheel 4**

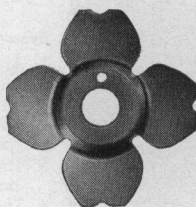
(4 large teeth)

every 3rd needle

**Wheel 6**

(6 large teeth)

every other needle

**Special Wheel 4 A is**

used only when knitting on every other needle (as with heavier yarns). This wheel will push into holding position every other needle that is in working position.

**When increasing and decreasing, you must note that a corresponding change in the setting of the numbers in the scale must be made.**

For the following examples, we will use different charts which are also used in the directions given in the KNITTING magazine.

The chart must be read the same way as the work facing you, i. e., if you have purl stitches in front of you, they show purl stitches, and if you have knit stitches in front of you, they show knit stitches. The row numbers are shown at the right of the chart. If a row number is not listed, it means that the un-numbered row is worked even.

Definition of knitting symbols used in the charts:

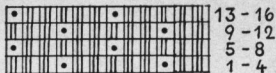
- knit stitch
- ▤ purl stitch
- empty needle (still in working position)
- ▣ needle out of operation
- ◐ needle in hold position
- ▧ stitch put on neighboring needle — to the right
- ▨ stitch put on neighboring needle — to the left
- ▲ 3 stitches hung together



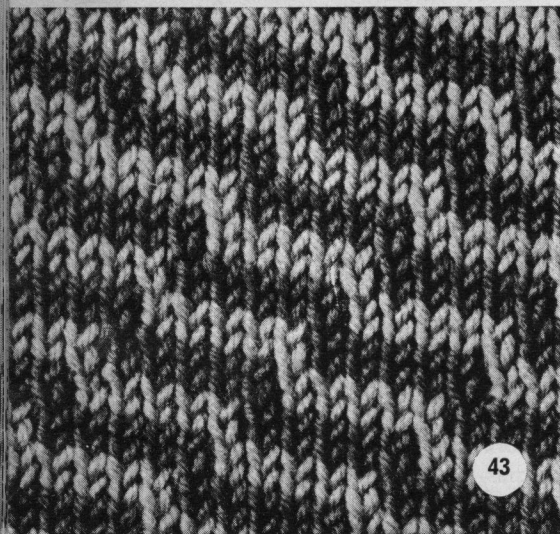
42

**Example 1 Wheel 2 Fig. 42**

1. All the needles are in working position. The cam box is on the right. Set figure 3, press pattern knob and knit 1 row.
2. Knit 2 rows.
3. The cam box is on the left, press the left retractor button and knit 1 row. Release retractor button
4. The cam box is on the right. Set figure 6, press pattern knob and knit 1 row.
5. Repeat steps 2 and 3, then start again at 1.



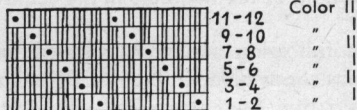
13-16  
9-12  
5-8  
1-4



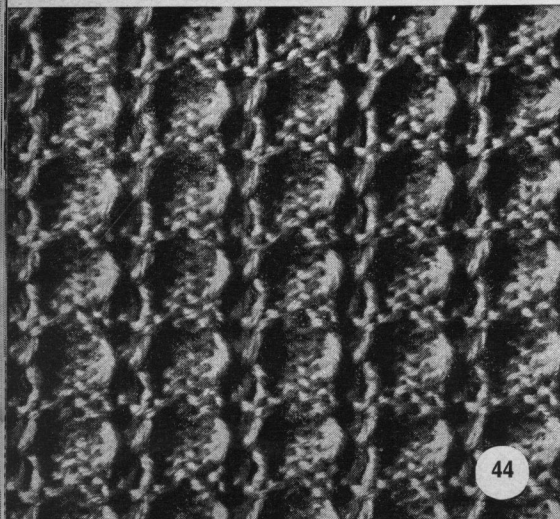
43

**Example 2 Wheel 2 Fig. 43**

1. All the needles are in working position. The cam box, with the left retractor button snapped down into position, is on the right. Set figure 1, press pattern knob, and knit 1 row with color 1.
2. The cam box is on the left. Knit 1 row.
3. The cam box is on the right. Set figure 2. Press pattern knob and knit 1 row with color 2.
4. The cam box is on the left. Knit 1 row.
5. Repeat steps 3 and 4, advancing by one number up to 6, then starting again at 1. Change color after every other row.



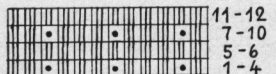
Color II  
11-12 |  
9-10 " / |  
7-8 " |  
5-6 " ||  
3-4 " ||  
1-2 " |



44

**Example 3 Wheel 3 Fig. 44**

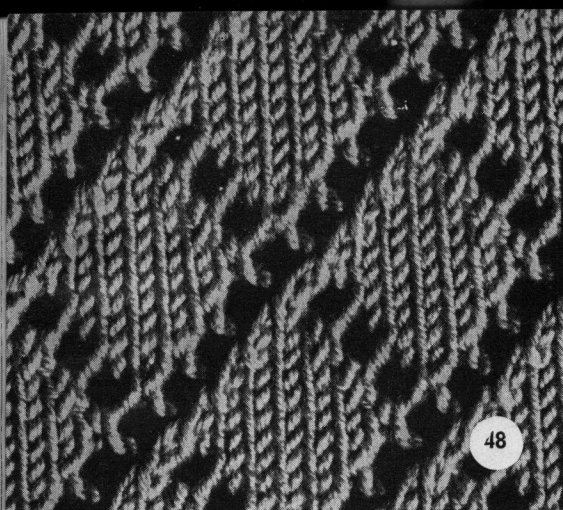
1. All the needles are in working position. The cam box is on the right. Set figure 2, press pattern knob and knit 1 row.
2. Knit 2 rows.
3. The cam box is on the left, press the left retractor button and knit 1 row. Release retractor button.
4. All needles are in working position. Knit 2 rows
5. Repeat steps 1 to 4.



11-12  
7-10  
5-6  
1-4







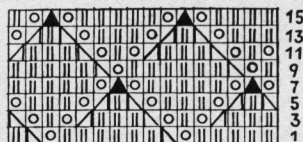
48

at the point where the stitch was transferred.

**Example 1**

**Fig. 48**

1. Counting from the left, put every 8th stitch on the adjacent needle to the left. Knit 2 rows.
2. Counting from the left, put the 9th, 17th, 25th, 33rd, etc., sts. on the adjacent needle to the right, and put the 7th, 15th, 23rd, 31st, etc., sts. on the adjacent needle to the left. Knit 2 rows.
3. Put the 10th, 18th, 26th, 34th, etc., sts. on the adjacent needle to the right, and the 6th, 14th, 22nd, 30th, etc., sts. on the adjacent needle to the left. Knit 2 rows.
4. Put the 11th, 19th, 27th, 35th, etc., sts. on the adjacent needle to the right; put the 5th, 13th, 21st, 29th, etc., sts. on the adjacent needle to the left. Knit 2 rows.
5. Repeat steps 1—4, alternating pattern.



**Patterns using several Colors**

When knitting horizontal stripes and laying the yarn over the needles by hand it is sometimes necessary to return the cam box to the opposite end of the knitter (without it knitting) in order to continue with an alternate color. This is done by using the cam control buttons.

**Example 1**

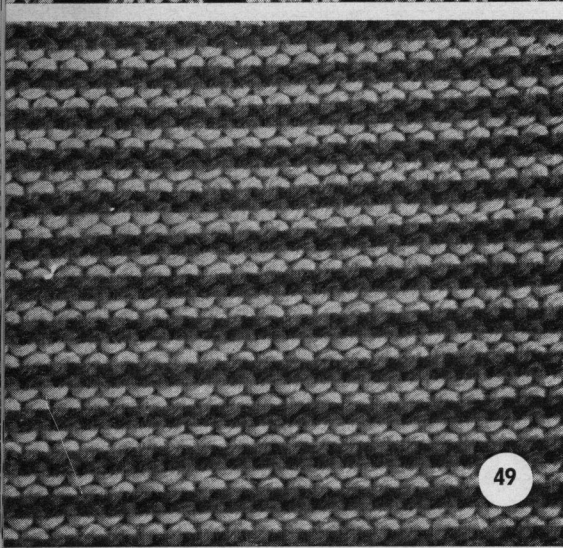
**Fig. 49**

1. Knit 1 row with the light shade.
2. Push back the outer cam control button, knit 1 row with dark yarn. Return the cam box to the other side. Push the control button to the front.
3. Knit 1 row with the light shade.
4. Push back the outer cam control button, knit 1 row with the dark yarn. Return the cam box to the other side. Push the control button to the front.
5. Repeat steps 1—4 throughout.

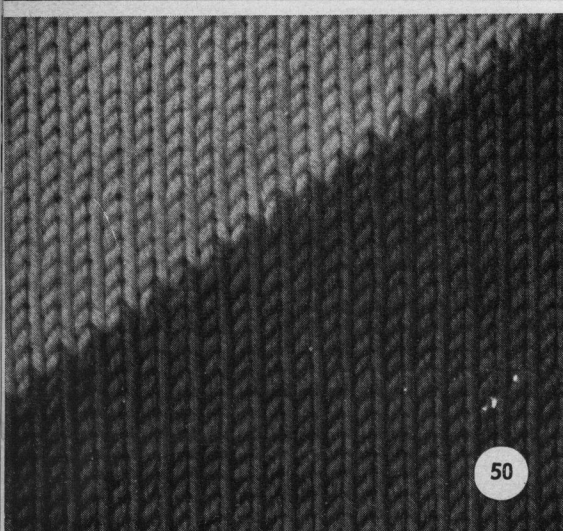
**Example 2**

**Fig. 50**

1. Knit 2 rows with the light shade.
2. Lay the light shade over the needles, but bring the yarn down between the last and the next to the last needle.
3. From below, put the dark shade between the last and next to the last needle, and lay it over the last needle.
4. Knit 1 row.
5. Lay the dark yarn over the last 2 needles and down between the second and third needles. Lay the light yarn over the remaining needles.
6. Knit 1 row.
7. Repeat steps 2—6, moving the colors over one needle in each row.



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**Norwegian patterns** are always knitted according to chart. Two or more colors of yarn are required for any Norwegian Pattern. Each yarn must be knitted in separately, so that for each individual row several movements of the cam box are required. This means that the row counter will register every movement of the cam box, rather than the individual rows.

**Example 1**

**Fig. 51**

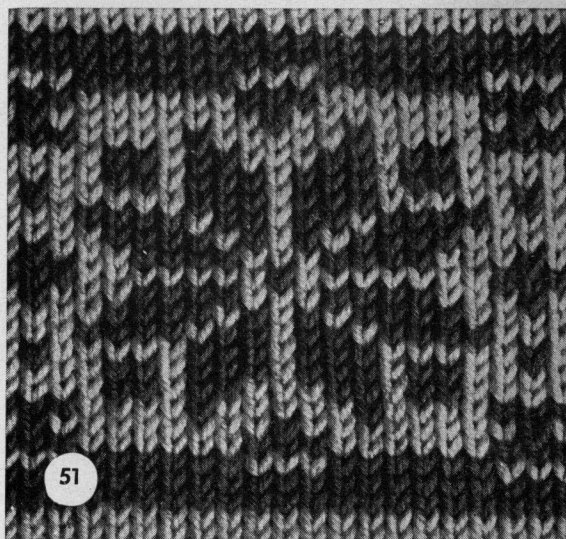
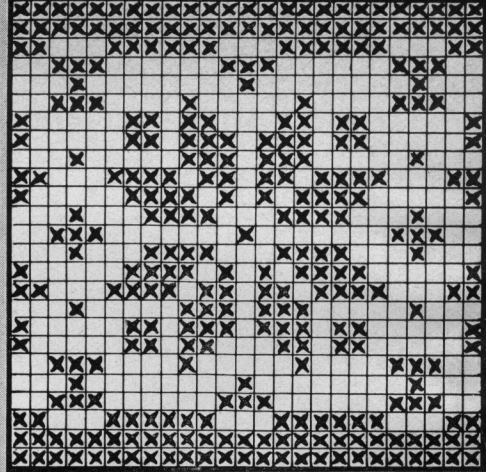
1. Put all needles for the contrasting color into holding position. Push the two cam control buttons back and knit 1 row with the main color. Return the cam box to the other side, pressing the left retractor button.
2. Push the right cam control knob to the front and knit 1 row with the contrasting color.

Now, follow the chart, repeat steps 1 and 2.

For Norwegian patterns with 3 colors, the procedure is as follows:

1. All the needles for the contrasting color (chart) are put into holding position. Both cam control buttons are pushed back. Work 1 row with the basic color and return the cam box to the starting side.
2. Bring the needles for the first contrasting color from holding position into working position and knit 1 row. Return the cam box to the starting side, pressing the left retractor button.
3. Push the outer cam control button to the front and knit 1 row with the 2nd contrasting color. Repeat steps 1—3 throughout.

If you knit with more than 3 colors, proceed with each color exactly as described in step 2. When knitting the last color, follow the procedure described in step 3.



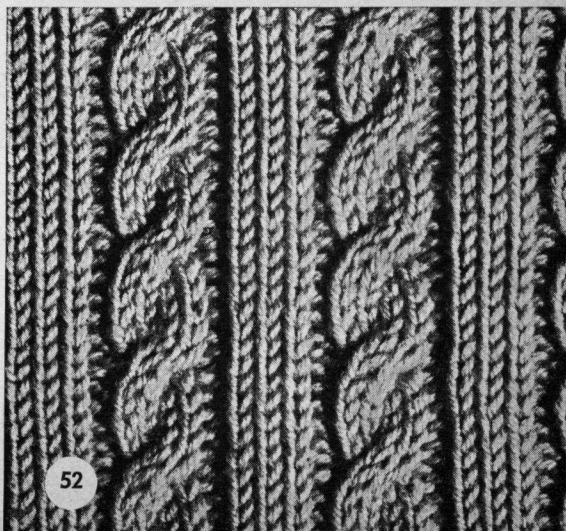
**Cable and Crossed Stitch Patterns**

With a single or double transfer tool, lift certain stitches off the needles, cross them, and hang on the needles again. You should make sure that the stitches are either crossed in the same direction each time, or crossed alternately to the right one time and to the left one time.

**Example 1**

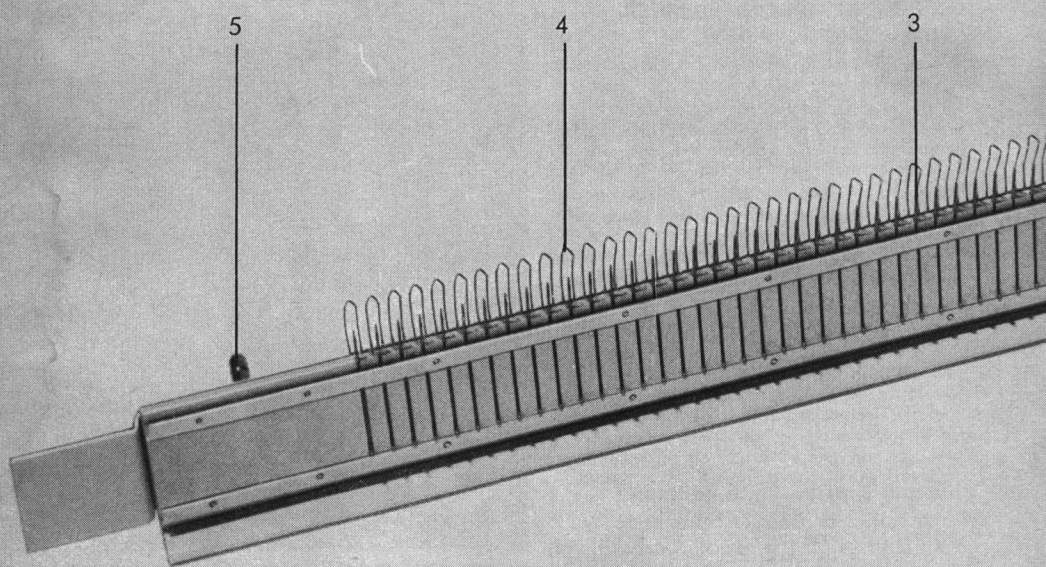
**Fig. 52**

1. Knit 6 rows even.
2. Drop the 9th, 14th, 18th, and 23rd stitches. The empty needles remain in working position.
3. With the double transfer tool, cross the 10th and 11th sts. and the 12th and 13th sts.; the 19th and 20th sts. with the 21st and 22nd sts.
4. Repeat steps 1—3.
5. Latch up the dropped stitches with the latch needle tool.

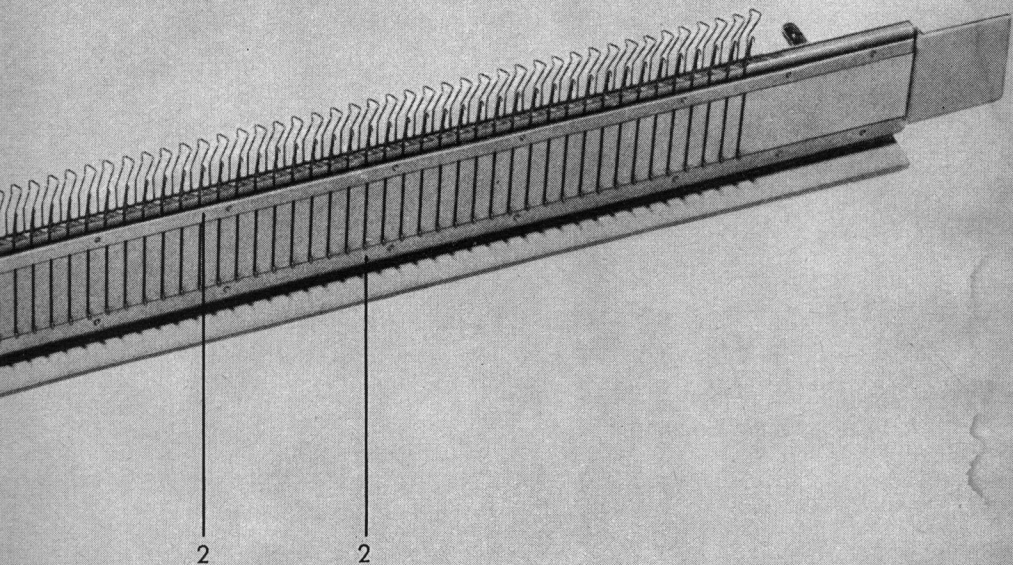




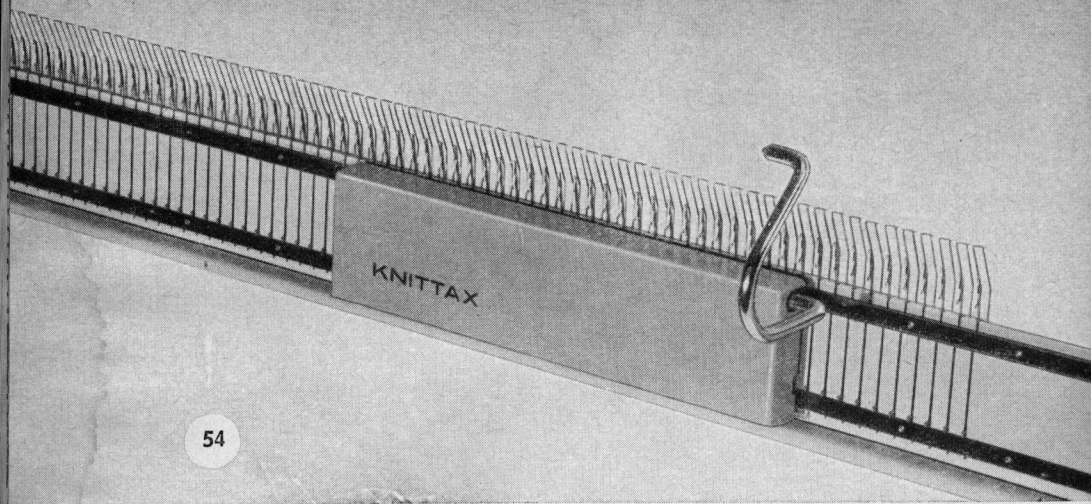
## DESCRIPTION OF THE COORDINATED RIBBER P 3



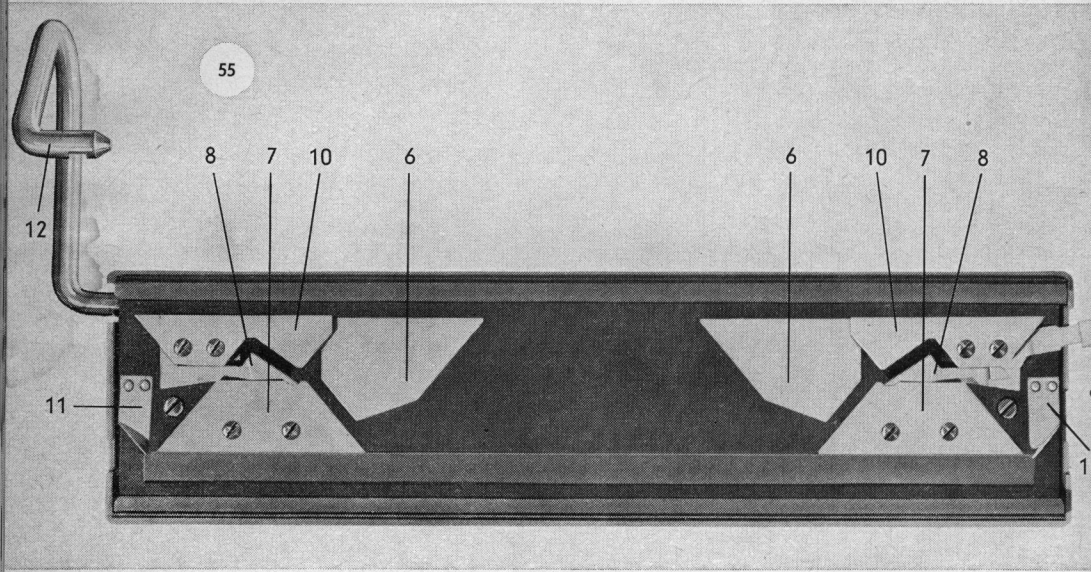
Basic body of the Ribber



1. Needle bed
2. Rails
3. Special latch needles
4. Stitch control hooks
5. Suspension rods



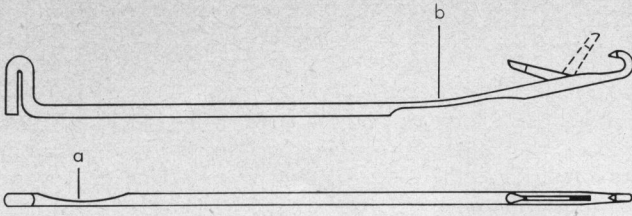
54



**Cam box**

- |                   |                           |
|-------------------|---------------------------|
| 6. Needle sinkers | 9. Gate cam release lever |
| 7. Control cams   | 10. Fixed cam             |
| 8. Spring gates   | 11. Needle deflector      |
|                   | 12. Coupling hook         |





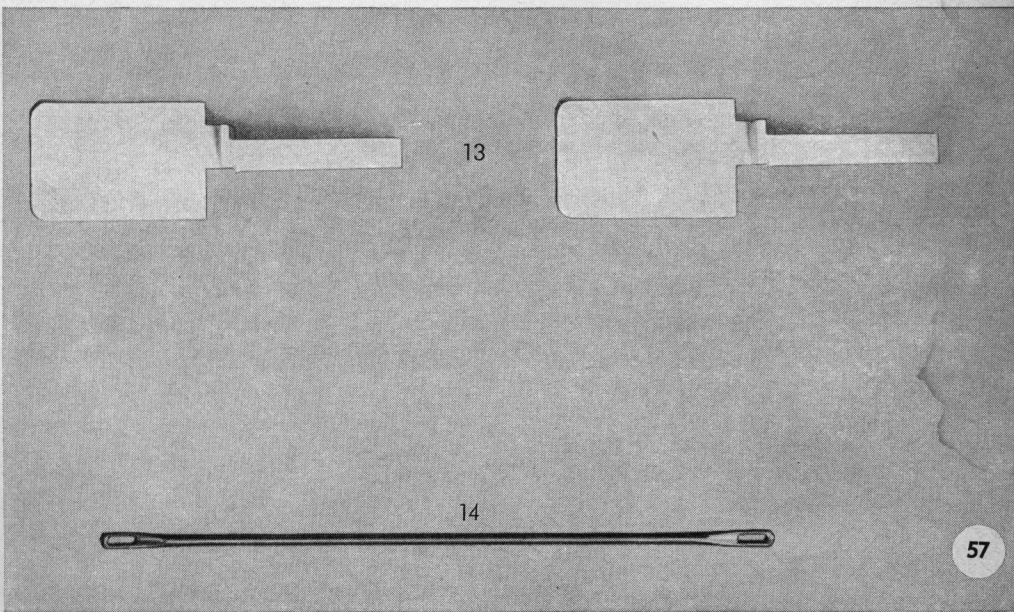
56

**Special Latch Needle (3)**

- a) Rear spring
- b) Front spring

**Accessories**

- 13. Strippers
- 14. Transfer needle




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## INTRODUCTION TO KNITTING TECHNIQUES

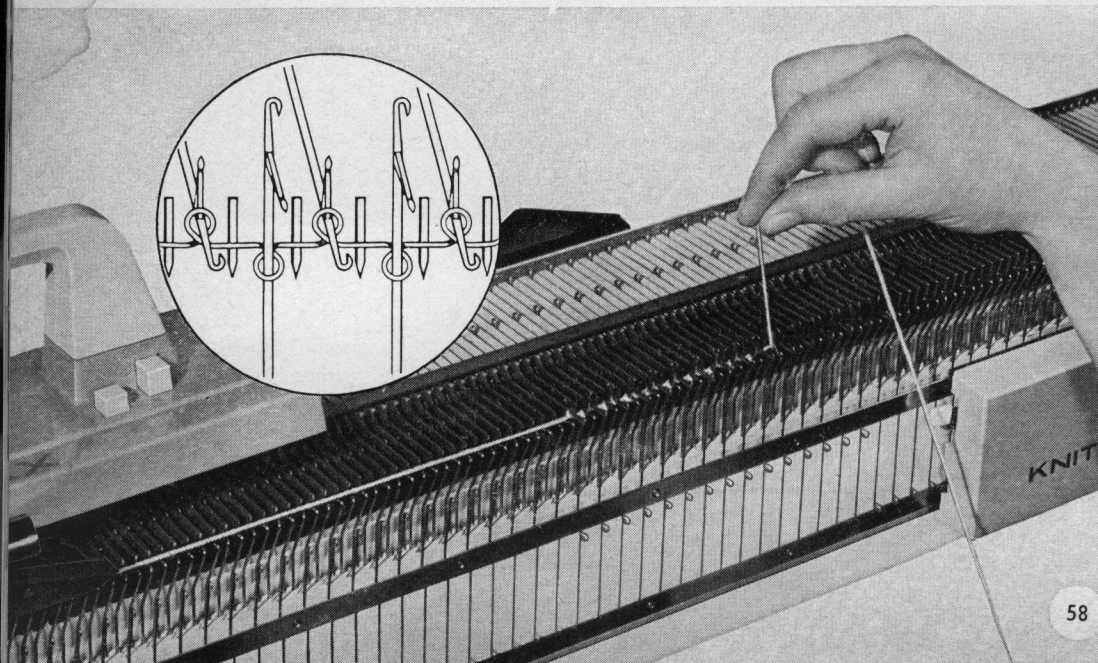
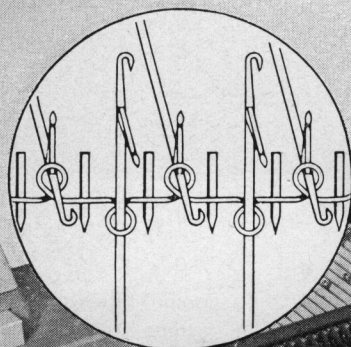
The main machine is placed on a table so that the edge of the machine is flush with the edge of the table, just as it is for straight knitting. The two suspension rods on the Ribber are inserted into the sockets of the main machine. (To remove the Ribber, simply pull it toward you).

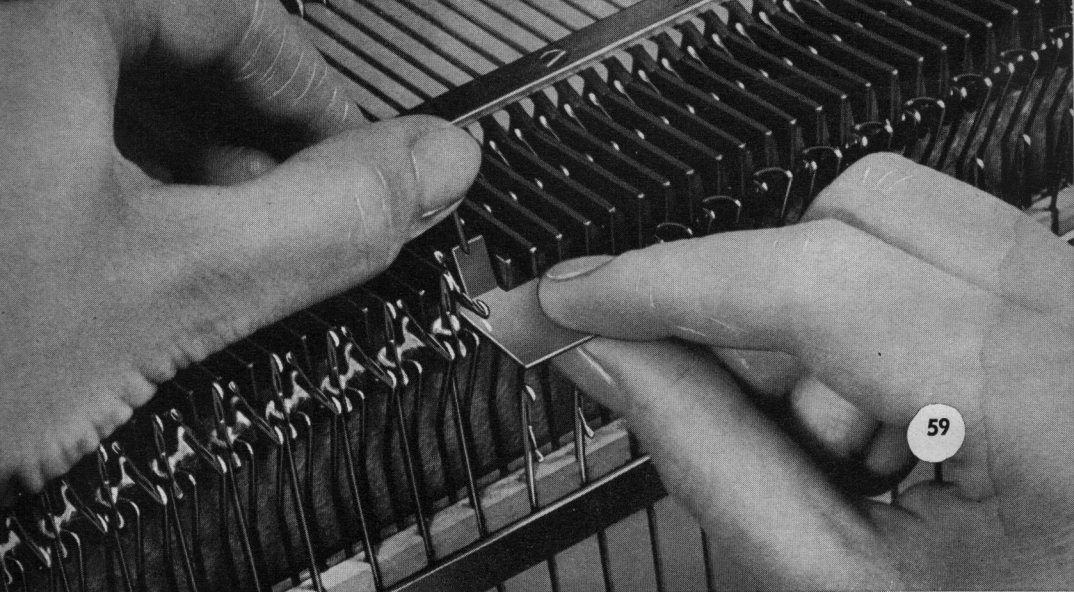
First, insert the long shank of the loose coupling hook into the cam box of the Ribber, from the right. Then turn it toward the cam box of the main machine. In doing so you hook in an axle stay so that the hook cannot be pulled out. Now the short shank of the coupler is placed into the corresponding opening on the cam box of the main machine and latched in place. To uncouple the hook, gently lift the coupling hook from the cam box of the main machine, unlatching it, and pull it out to the right. By turning the hook to the front it will loosen the connection in the cam box of the Ribber, and you will be able to pull it out to the right.

The settings for the stitch follow those for the main machine, but when the Ribber is used, you use the scale marked .

The needles of the Ribber do not have a "Holding Position", so they will either be in working position or out of operation. To bring the needles into working position push the needle heels up to the top rail and slide the cam box across the needles. This will automatically push the needles into the correct position.

**To Cast On**, the cam box of the main machine is on the left, and the cam box of the Ribber is on the right. Push up the required number of needles on the Ribber





and bring the required number of needles on the main machine into working position.

**The Outer Needles must always Be Needles From The Main Machine.**

The strippers are placed next to the extreme left and extreme right needles of the main machine, under the adjoining non-working position needles. The corresponding sinkers will be lifted and supported on the perpendicular bar of the stripper (fig. 59).

After the needle latches on the main machine have been opened by hand, secure the end of the yarn in the yarn fastener at the left of the machine and insert the right Stripper. Then loosely loop the yarn around the needles of the main machine in a counter clockwise direction and around the needles of the Ribber in a clockwise direction (fig. 58). Then open the needles of the Ribber. The thread now lies in the needle heads of the needles of the main machine in front of the latches, and on the shafts of the needles of the Ribber behind the latches. While you hold the yarn to the right with your hand, push the cam box of the main machine with your left hand from left to right. This will bring the loops of yarn behind the latches of the needles of the main machine and under the sinker hooks.

Now couple the two cam boxes together and push the cam boxes up to the needle row. The yarn will now be fed through the yarn feed finger and the yarn holding eye to the thread tension control. Then place the yarn ball in the yarn container. **When knitting with the ribbing attachment P 3 the yarn feed finger eye should not be used.** Set the stitch size and gate cam release lever according to the type of knitting to be done (see pages 44 and 45). Insert the left stripper and pull the yarn back into the yarn container so that the thread tension spring is bent forward. You may now begin knitting.



There is also an **"Automatic Cast on"** for the Ribber. For this, the coupled cam boxes are on the left. The yarn is fastened, fed through the yarn feed finger, yarn holding eye, and tension control. The ball of yarn is placed in the yarn container and the right stripper is inserted. Now move the cam boxes to the right, forming a row of looped stitches. Insert the left stripper and begin knitting.

When **Transferring Stitches** from the Ribber to the knitter or vice versa, you use the transfer needle (14). When transferring stitches from the Ribber to the main machine, the needle of the Ribber will be pushed down with one eye of the transfer needle so that the stitch will slide onto the transfer needle. Then insert the opposite eye of the transfer needle into the corresponding needle of the main machine and pull it forward. With a slight upward turn of the transfer needle the stitch will slide onto the needle of the main machine. When transferring stitches from the main machine to the Ribber, the process is reversed.

**Decreasing And Increasing** is generally done in the same way as on the main machine. However, the following points should be carefully noted.

It is important that the last stitch at each end of the row **Always Be On A Needle Of The Main Machine**. By decreasing 1 stitch at the end of the row in a Knit 1, Purl 1 (1 + 1) Rib, the last stitch would be on a Ribber needle and this must be avoided. It is therefore necessary to first transfer this stitch from the Ribber needle onto the corresponding needle of the main machine. (See above). Only now can you decrease in the usual way by transferring the end stitch on the main machine one needle inward. There will then be two needles of the main machine at the end of the row. After one more decrease you will obtain the original arrangement with one needle of the main machine at the end of the row.

A similar method is used for **Increasing Single Stitches**. For the first increase, a needle of the main machine is brought into knitting position on the side where the yarn is. There will now be two basic machine needles at the end of the row. When you make the next increase, the stitch on the second needle of the main machine is transferred to the corresponding Ribber needle so that there is one needle of the main machine at the end of the row. The strippers will have to be moved in and out as you decrease or increase.

When **Increasing Several Stitches** at a time, additional needles of the main machine and of the Ribber have to be brought into knitting position and the stitches are cast on as described under "Casting On". Care should be taken to insure that all loops are lying behind the latches. When increasing on the left side. The yarn is wound clockwise around the needles of the main machine and counter clockwise around the needles of the Ribber.

When **Decreasing More Than One Stitch At A Time**, all the Ribber stitches to be decreased must first be transferred to the corresponding needles of the main machine. Then you can decrease in the usual way as you have been doing on

the main machine. When the decreasing has been completed, at least one needle of the main machine must remain at the end of the row. Here, too, the strippers must be moved to correspond with each increase and decrease.

In order to knit short rows when using the Ribber, stitches must first be transferred from the Ribber to the main machine.

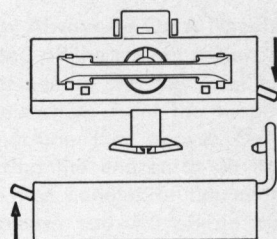
To **Bind Off Ribbing**, you must use a method that will produce a very elastic edge. It is advisable to knit the last row before binding off at the loosest possible tension. If a loose tension is already being used, release the yarn from the wool feeder and pull each needle, individually, down by hand as far as they will go. You will already have noticed that for all special types of knitting the needles of the main machine are used. This also applies to binding off. Therefore, transfer the stitches from the Ribber to the main machine and remove the Ribber from the main machine. A very loose edge is obtained when the stitches are taken off the needles of the main machine by using the latch needle tool, i. e., one stitch is drawn through the other all along the row.

## DIFFERENT TYPES OF RIB KNITTING

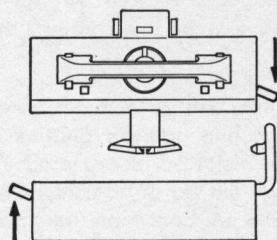
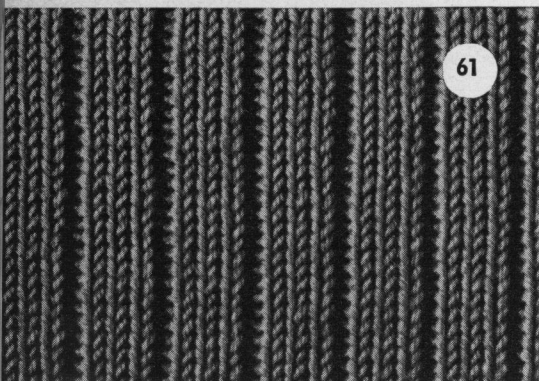
The different types of rib knitting are produced through the positioning of the gate cams.

**Gate cam release lever**  
turned to the needle heads = **Gate Cam in working position**

**Gate cam release lever**  
turned to the needle heels = **Gate Cam out of operation**

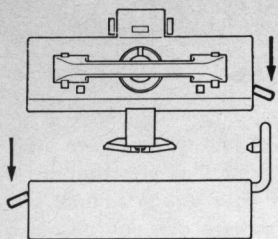


**1 + 1**

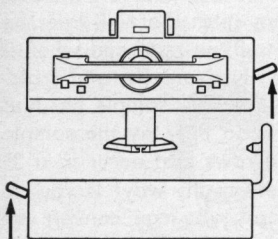
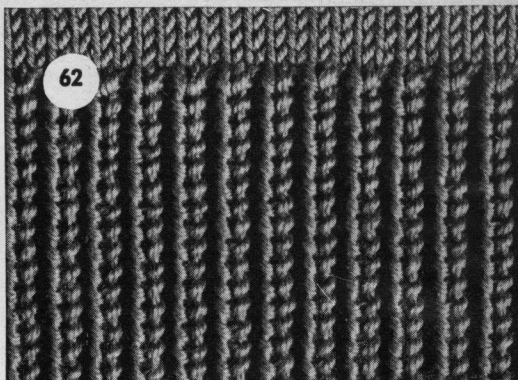


**3 + 1, 5 + 1, etc.**

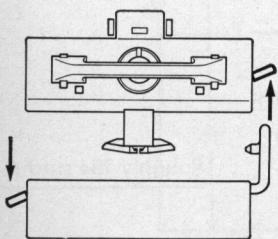
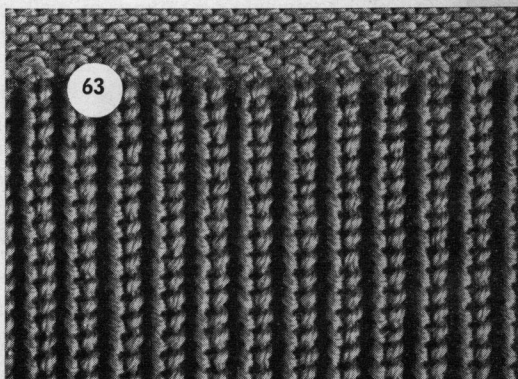




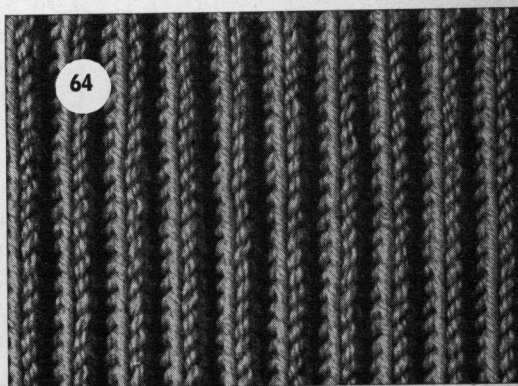
**1 + 1 Fisherman's  
Rib on Knit Side**



**1 + 1 Fisherman's  
Rib on Purl Side**



**1 + 1 Double Sided  
Rib**



## STITCH AND ROW COUNTING

In addition to accurate measurements in inches you will have to determine the correct numbers of stitches and rows. These will vary with the type of yarn used. If you are knitting according to a pattern it is important that you prepare a gauge sample. **Only when the stitch and row count of your gauge sample correspond with the stitch and row count of the knitting pattern can you obtain a correct fit.**

If you are designing your own knitted garments, the gauge sample will serve as the basis from which you calculate the number of stitches and rows you will need.

First you have somebody carefully take your measurements. You then prepare your gauge sample. The gauge sample must be made with the same yarn and the same tension setting, as well as in the same pattern stitch that will later be used for the knitted garment. It should be at least 8"  $\times$  8" in size, and when it is taken from the machine it should be pulled vertically, horizontally, and crosswise from the corners. Then leave it for a few hours. When your sample has had an opportunity to settle, carefully count the gauge. To do this, lay the sample on a flat surface and count the number of stitches and rows that occur in a 2" square. At this point the sample should not be stretched in any way! If you do not have the KNITKING Converta-tape at your disposal, you can convert the inches into stitches and rows in the following manner:

The garment section to be knitted is 12 $\frac{1}{4}$ " wide and 19" high.

Resulting stitch test is:

Width 2 inches = 17 stitches

Height 2 inches = 21 rows

a) How many stitches must be cast on?

2 inches = 17 stitches

1 inch = 8.5 stitches (17 divided by 2)

12 $\frac{1}{4}$  inches = 104.1 stitches (8.5  $\times$  12 $\frac{1}{4}$ )

Roughly 104 stitches

b) How many rows must be knitted?

2 inches = 21 rows

1 inch = 10.5 rows (21 divided by 2)

19 inches = 199.5 rows (10.5  $\times$  19)

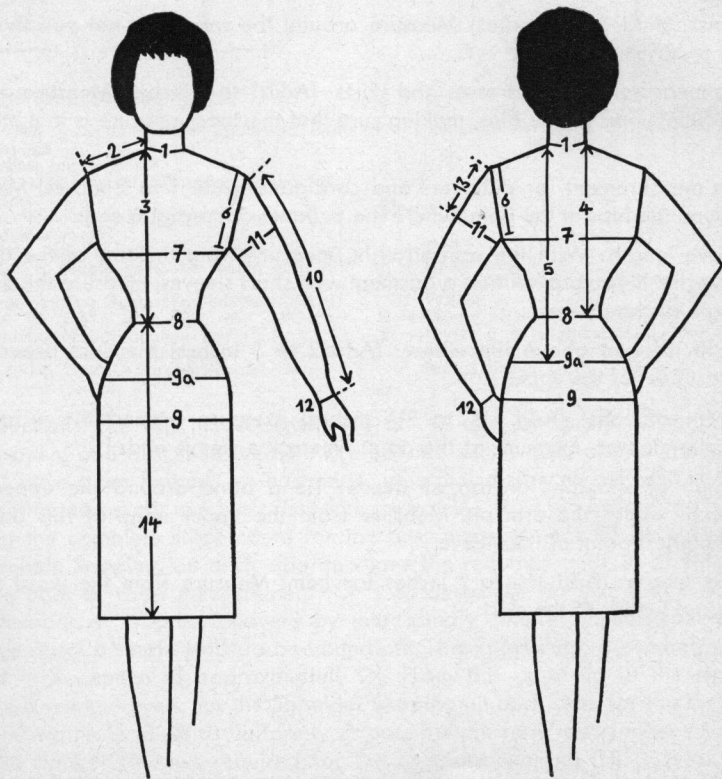
Roughly 200 rows

## PERSONAL MEASUREMENTS

Correct and careful taking of measurements is an essential pre-requisite in the production of well-fitting garments.

On the following pages we will give the measurements which are necessary for the calculation of a knitted section. Measurements should never be made over clothing that will not be worn under the finished knit garment. Measurements for women's dresses should be made over the undergarments. Measurements for men's pullovers and cardigans should be made over the shirt.

In calculating measurements, you should add an inch or so for seams and loose fit. The amount increased will vary according to the size of the figure, the material used, the pattern stitch and personal taste. For a woman's cardigan, this increase will be  $\frac{3}{4}$ " to  $1\frac{1}{2}$ " greater than the increases for a pullover or dress. Where increases are necessary, they will be stated in parentheses, and these increases are intended for the entire measurement; e.g. the total bust and hip measurement. The increases are calculated for adults and will be correspondingly less for children's garments.

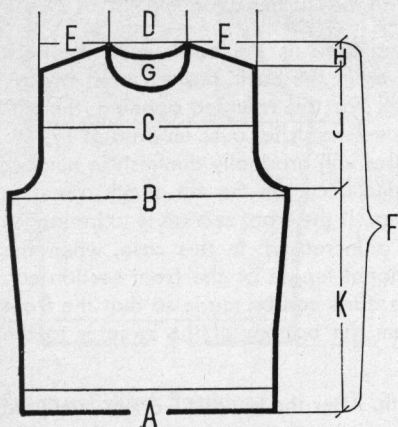




1. Width of neck: Measure around the base of the neck where a round, flat neckline would lie.
2. Width of shoulder: Measure from the base of neck to tip of shoulder.
3. Length of front: Measure from the highest point of shoulder, over the bust, down to the waist.
4. Length of back: Measure from the same point as for the front length, over the shoulder blade, to the waist.
5. Complete length of knitted section: Measure as for back length, down to the desired length for the knitted section.
6. Depth of armhole: Because of a wide variation in garment armhole shapes, it is difficult to establish a hard and fast rule, but the universally accepted method is to measure the circumference at the top of the arm (snugly under the armpit and over the shoulder) and divide it by two. e. g. circumference 14", Depth of armhole 7".
7. Chest or Bust: (Add 2 to 4 inches) Measure around the fullest part of the bust, making sure that the tape measure is in a straight line.
8. Waist: (Add 1 to 2 inches) Measure around the waist. Do not pull the tape too tightly.
9. Hip measurement for dresses and skirts: (Add 1 to 2 inches) Measure around the fullest part of the hips, making sure that the tape measure is in a straight line.
- 9a. Hip measurement for pullovers and cardigans: (Add 1 to 2 inches) Measure around the hips at the point where the pullover or cardigan ends.
10. Sleeve length: With the arm straight, measure from the top of the arm to the wrist. If you are knitting a garment with short sleeves, measure the desired length of the sleeve.
11. Width of arm above the elbow: (Add 2 to 5 inches) Measure around the fullest part of the upper arm.
12. Width of cuffs: (Add 1½ to 2½ inches) Measure around the wrist. (For shorter sleeves, measure at the point where the sleeve ends.)
13. Length of shaping for top of sleeve: Tie a band around the upper arm directly under the arm pit. Measure from the upper edge of this band to the highest point of the sleeve.
14. Skirt length: (Add 1½ to 2 inches for hem) Measure from the waist to the desired length of the skirt.

# BASIC PATTERNS

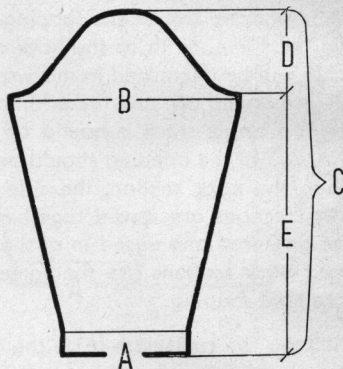
## Basic Pattern with set-in sleeve



### Back and Front section

- A =  $\frac{1}{2}$  Hip measurement for pullover and cardigan
- B =  $\frac{1}{2}$  Bust measurement
- C = Back Measurement: Shoulder to shoulder width
- D = Neck opening width ( $\frac{1}{3}$  neck measurement)
- E = Shoulder width
- F = Entire length including bottom edging (With a double hem, the facing must be added to the length)
- G = Neck opening depth: For adults — front,  $\frac{2\frac{3}{4}}{4}$ " to  $\frac{3\frac{1}{2}}{4}$ "; back,  $\frac{3\frac{1}{4}}{4}$ " to  $\frac{1\frac{1}{4}}{4}$ ". For children, proportionately less
- H = Shoulder Shaping: For adults —  $1\frac{1}{4}$ " to  $1\frac{1}{2}$ "; For children, proportionately less

- J = Armhole depth
- K = Side length: Equal to the complete length minus armhole depth and shoulder shaping.



### Sleeve

- A = Cuff
- B = Upper arm width
- C = Complete sleeve length including bottom edging
- D = Length of shaping for stop of sleeve
- E = Under arm length equal to the complete sleeve length minus length of shaping for top of sleeve

**Back Section:** The hip measurement (A) is the cast on width. When the hip measurement and bust measurement are not the same, after approximately  $4\frac{1}{2}$ " to  $5\frac{1}{2}$ " have been knitted, on each side, at equal distances between the rows, increase the necessary number of stitches so that  $1\frac{1}{4}$ " to  $1\frac{1}{2}$ " before the armhole shaping the complete stitch count for the bust measurement (B) is reached. For the **Armhole Shaping**, on each side decrease the required number of stitches so that the back or chest measurement (C) is obtained. To do this, first bind off a large number of stitches followed by increasingly smaller numbers of stitches until you reach a single stitch to be bound off. Thus a gradual, ascending slope is formed in the space of approximately 2". From this point up to the shoulder, shaping is worked even. For the **Shoulder Shaping** on each side, for the respective shoulder widths, bind off as uniformly as possible the required number of stitches over the number of rows required for the shoulder shaping (H).  $\frac{1}{4}$ " to  $\frac{3}{4}$ ". At

some point after the beginning of the shoulder shaping you will start the neck shaping. At the start of the neck shaping you bind off the center sts. over an area of  $2\frac{1}{4}$ " to  $2\frac{3}{4}$ "; then the additional decreases are divided over the number of rows required for the neck shaping.

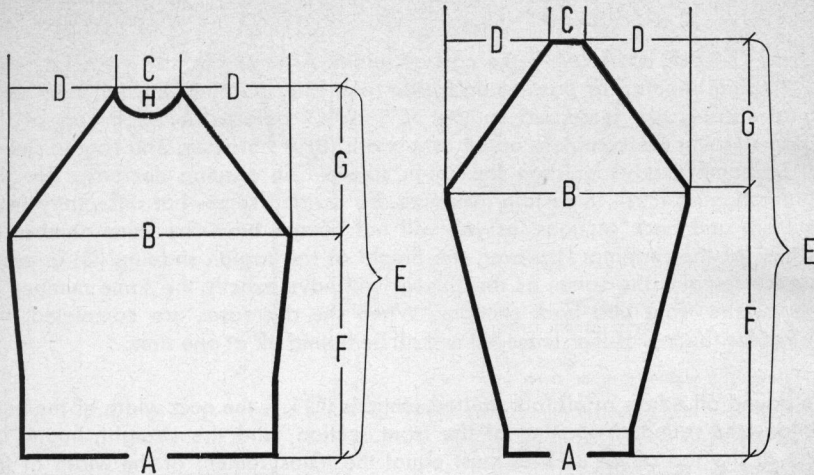
For children's clothing it is not necessary to round out the back neck shaping. At the end of the shoulder shaping, bind off all the stitches at once (D).

**Front Section:** The front can be worked the same as the back up to the neck shaping. The front neck shaping of a pullover in the basic pattern must always be the same width as the back neck shaping. For this rounded opening, the stitches will be decreased in this way: First the center stitches over an area of  $1\frac{1}{2}$ " to 2" are bound off, and the additional decreases will gradually diminish in number until a single stitch is bound off, which should occur on the 4th or 6th row. The last  $\frac{3}{4}$ " of the opening should be worked even. If the front section is to be longer than the back section, the side length (K) is increased. In this case, when the two sections are sewed together, the additional length of the front section can be gathered and eased in at the bustline, or darts can be made so that the front and back sections are the same length from the bottom of the sweater to the armhole shaping.

**Sleeve:** The cuff width (A) is the cast on width. After the band is worked even, the shaping begins. For this, on each side, one after another, the required number of stitches are increased so that  $\frac{1}{4}$ " to  $\frac{3}{4}$ " before the underarm shaping the complete upper arm width (B) is obtained. The decreases for the underarm shaping are so divided that on each side, on the first  $1\frac{1}{4}$ " approximately as many stitches are decreased as for the armhole shaping. (Back and front sections). The remaining decreases — mostly single stitches — are uniformly divided over  $4\frac{3}{4}$ " to  $5\frac{1}{2}$ " (according to size) and terminate  $\frac{3}{4}$ " before the end of the underarm shaping. These stitches are then bound off in gradually increasing numbers, ending with the stitches over an area of  $1\frac{1}{4}$ " to 2" to be bound off at one time.



## Raglan Pattern



### Front and Back Sections

- A =  $\frac{1}{2}$  hip measurement for Pullovers and Cardigans
- B =  $\frac{1}{2}$  bust measurement
- C = Neck opening width ( $\frac{1}{4}$ " to  $\frac{3}{4}$ " less than the basic pattern)
- D = Width of the raglan shaping: equal to the bust width minus the neck opening width.
- E = Total length including bottom edging:  $\frac{3}{4}$ " to  $1\frac{1}{4}$ " shorter than the basic pattern
- F = Side length: Equal to the total length minus the height of the raglan shaping
- G = Height of the raglan shaping: As high as the armhole depth and shoulder shaping of the basic pattern added together
- H = Neck opening depth:  $1\frac{1}{2}$ " to 2"

### Sleeve

- A = Cuff
- B = Upper arm width
- C = Top of sleeve width
- D = Width of raglan shaping: equal to the upper arm width minus the top of sleeve width
- E = Total sleeve length: equal to the shoulder width plus sleeve length
- F = Underarm sleeve length: equal to the total sleeve length minus the height of the raglan shaping
- G = Height of the raglan shaping: Same as of front and back sections

**Back Section:** The hip width is the cast-on width (A). When the hip measurement and bust measurement are not the same, after approximately  $4\frac{3}{4}$ " to  $5\frac{1}{2}$ " have been knitted, on each side, at equal distances between the rows, increase the necessary number of stitches so that  $\frac{3}{4}$ " to  $1\frac{1}{4}$ " before the beginning of the raglan shaping the complete stitch count for the bust measurement (B) is reached. The stitches to be decreased for the Raglan Shaping (D) are divided on each side of the available rows so that the shaping is as uniform as possible, up to the top of the sleeve (C). All the stitches at the top of the sleeve are bound off at one time. Special types of decreases will make an attractive, fashioned seam. (See "Decreases", page 19).

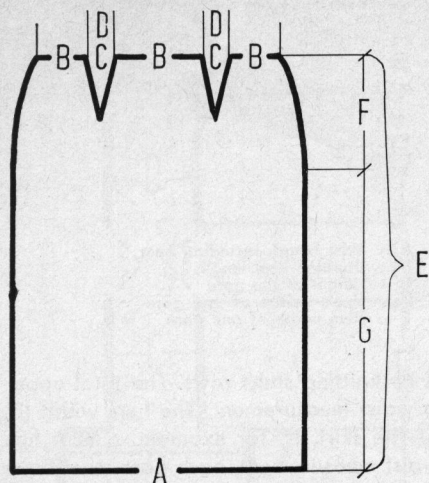
**Front Section:** The front can be worked the same as the back up to the neck shaping. The neck opening will be rounded, as it is in the basic pattern. Only the last decreases of single stitches must succeed one another more closely, so that the opening will have less height; thus there will be fewer rows than there are for the basic pattern. With the raglan shaping, the front section may be

made longer than the back section at the side lengths, exactly as it is for the basic pattern.

**Sleeve:** The cuff width (A) is the cast-on width. After the band is worked even, the shaping begins. For this, on each side, one after another, the required number of stitches are increased so that  $\frac{1}{4}$ " to  $\frac{3}{4}$ " before the beginning of the raglan shaping the complete upper arm width (B) is obtained. The raglan sleeve will be somewhat wider than the set-in sleeve. The ensuing decreases for the raglan shaping must, in certain instances, be divided somewhat differently from the front and back sections, as you will not always have the same number of stitches for the shaping. However, the height of the raglan shaping (G) in every instance remains the same, as the sleeves will have exactly the same number of rows as the front and back sections. When the decreases are completed, the stitches for the top of the sleeve (C) will all be bound off at one time.

The bound off edges of all four knitted sections (C) i. e. the neck width of the back section; the rounded opening of the front section; and the straight, bound off edge at the top of the sleeves must equal the measurement of the width of the neck.

## Straight Skirt



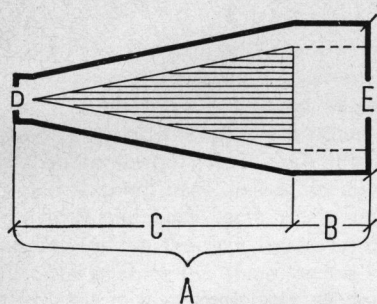
- A =  $\frac{1}{2}$  hip measurement for skirts and dresses
- B =  $\frac{1}{2}$  waist measurement
- C = Back darts, approximately 2" wide and 5" to 5 $\frac{1}{2}$ " long
- D = Front darts, approximately 1 $\frac{1}{4}$ " wide and 2 $\frac{3}{4}$ " to 3 $\frac{1}{4}$ " long
- E = Skirt length including hem
- F = Hip height: 7 $\frac{1}{4}$ " to 8" from the waist down
- G = Side length: equal to the skirt length minus the hip height

**The Back and Front sections** will be worked the same up to the darts. The hip measurement (A) is the same as the skirt width, and therefore is the cast-on width. The skirt will be worked even to the end of the side length (G). Then the decreases will begin: 1. at the two side edges, and 2. within the skirt, for the darts (C and D). The decreases along the edges are the same for the front and back sections and will fit the curve of the hips. For this, single decreases will be made first at greater intervals and then at continually smaller intervals. The darts for the back section (C) begin 5" to 5 $\frac{1}{2}$ " below the waist, and for the front section (D) 2 $\frac{1}{4}$ " to 2 $\frac{3}{4}$ " below the waist. The darts will be 6" to 7" apart. The decreases for the side shaping and for the darts must be divided so that when they are completed the stitches remaining will equal the waist measurement. These remaining stitches will all be bound off at one time.

The darts can be made in two ways: They may be worked in separate sections, as for "Vertical Slits and Openings" (See page 24) and later seamed together; or they may be made with the help of the multi-transfer tool.



## Full-Flared Skirt

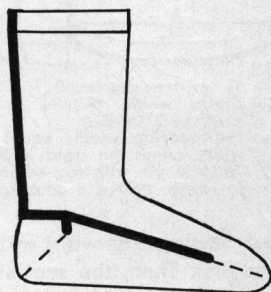
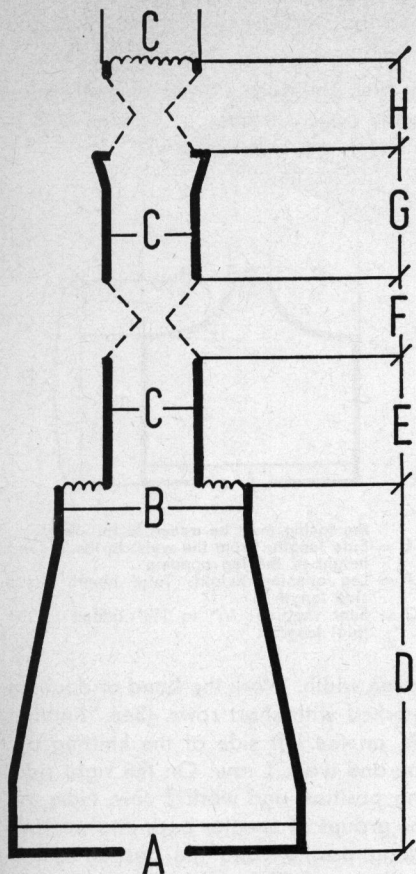





- A = Skirt length including hem
- B = Doubled hem length
- C = Height of the gore
- D = Upper width of one gore
- E = Hem width of one gore

The shape of the flared skirt is obtained by knitting short rows. The total upper width (D) of all the gores must equal the waist measurement. The hem width (E) of all the gores is equal to the width of the skirt. If, for example, a skirt has 10 gores, and you wish to obtain a 30" waist measurement, each gore must have an upper width of 3". The width of the skirt hem can be figured in the same way. The skirt length including the hem (A) is the cast-on width. First of all, half the number of rows for one upper gore width are worked. (If the upper gore width is 3" divide by 2 and you will have 1½".) Then, to knit the short rows, on the left side put all needles except those for the doubled length (B) into holding position. Now, beginning at the hem, one after another bring groups of the same number of needles into working position (See "Knitting with Short Rows", page 27) until only the last needle group at the waist edge remains in holding position. Then, one after another, put these same groups of needles back into holding position until only the needles for the doubled hem length are in working position. Bring all the needles into working position and work even for the same number of rows that were worked even at the beginning. This completes one gore. The additional gores will be worked in the same way. Here again, be certain to work the same number of even rows at the end of the gore that you worked at the beginning of the gore.

## Socks

- A = Upper sock width
- B = Ankle width
- C =  $\frac{1}{2}$  ankle width — width of the instep and/or sole
- D = Sock length: From beginning of sock to the ankle. (When a doubled hem is used the facing must be added to this length.)
- E = Instep
- F = Toe
- G = Sole
- H = Heel



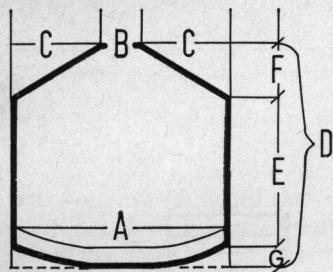
-  Seam
-  Short rows
-  Open stitches

The upper sock width (A) is the cast-on width. While the back length (D) is being knitted, the leg shaping is made by decreasing the required number of stitches on each side, at equal distances apart, until the stitch count for the ankle width (B) is obtained. Then, on each side, one-fourth of the existing stitches will be taken off the machine and put on a contrasting yarn or stitch holder. The instep, toe, sole, and heel (C) are worked on the remaining stitches. The instep is worked even, and the toe is worked with short rows. (See "Knitting with Short Rows", page 27). When the toe is completed, the sole (G) is worked, and on the last  $1\frac{1}{4}$ " to 2", at equal distances apart (approximately every 4th row) 3—5 stitches will be increased on each side. These increased stitches will be bound off when the sole is completed. The instep and sole will have the same length and the same number of rows. After the instep is completed, the heel is worked with short rows. When all the short rows have been worked, work 4—6

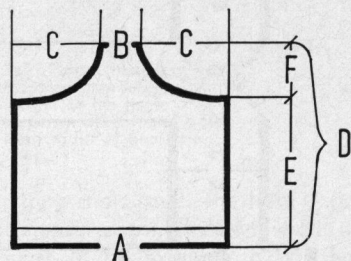
rows even. When these rows are completed the stitches are put onto a double pointed needle.

The back seam of the finished sock is sewn first. The open stitches on both sides of the sock length will then be joined to the open stitches on the heel with a weaving stitch. Then the side seams of the instep and sole are sewn.

### Panties



- A =  $\frac{1}{2}$  waist measurement  
 B = Crotch width. (Adults —  $2\frac{3}{4}$ " to 4"; Children 2" to  $2\frac{1}{4}$ ")  
 C = Leg opening width: equal to the waist width, minus the crotch width  
 D = Total length with top edging: from waist to crotch. (When a doubled hem is used,



- the facing must be added to this length)  
 E = Side length: From the waist to the desired height of the leg opening  
 F = Leg opening height: Total length minus side length  
 G = Seat shaping:  $\frac{3}{4}$ " to  $1\frac{1}{2}$ " added to the total length

**Back Section:** The waist width (A) is the cast-on width. Work the band or doubled hem first. Then, the seat shaping (G) is worked with short rows. (See "Knitting with Short Rows" on page 27). To do this, on the left side of the knitting put one-third of the needles in holding position and work 1 row. On the right side, put the same number of needles in holding position and work 1 row. Now, on each side, one after another bring the same groups of needles back into working position until all the needles are in working position and the desired length for the seat shaping is obtained. Then the side length (E) is worked even. For the decreases on the leg opening edges, the stitch count of the width (C) is divided over the number of rows on each side, so that the shaping is uniform, and at the conclusion, only the stitches for the crotch width (B) remain. Put these stitches on a double pointed needle or contrast color yarn.

**Front Section:** Use the same measurements that were used for the back section. The waist width (A) is the cast-on width. The side length (E) is worked even. The decreases for the leg opening are so divided that, on each side, at first a large group of stitches is decreased, followed by gradually smaller numbers of stitches until only one stitch is bound off. When these decreases are completed, only the stitches of the crotch remain on the needles. These stitches will be put on a double pointed needle or contrast color yarn and joined to the stitches of the crotch on the back section with a weaving stitch.



