



Knitmaster

302 Automatic Knitting Machine

INSTRUCTION BOOK

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NOW that you have your new 302 Automatic knitting machine, we want to make sure that you really enjoy using it. This instruction book has been designed as a simple step by step guide to knitting, so that you will be confident in the knowledge of your machine and ready to knit your first garment.

Even if you are familiar with knitting machines, we would ask you to follow the instructions carefully through. This knitting machine is technically the most advanced in the world, but it will only do what you ask it to do, so please give yourself enough time to go through the first steps quietly. You will find that your knitting machine will respond to your mood

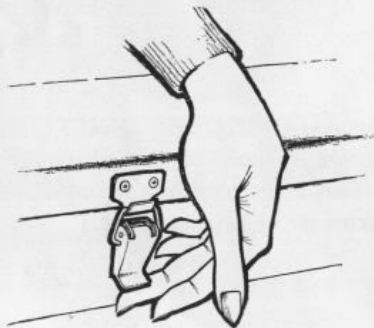
– if you are confident and relaxed when you start, you will find knitting the greatest fun in the world and will be thrilled with the gorgeous results so very easily obtained.

When you open this book you will see that the first part – up to Page 26 – is a step by step guide to setting up your machine and knitting. The rest of the book shows you how to make hems, different necklines etc., and to use the pattern cards. You will be delighted when you see how easy it is to knit all these exciting new patterns completely automatically. We know you will enjoy many happy and profitable hours with your 302 Automatic and, remember, Knitmaster is here to help you make the most of your new knitting machine.

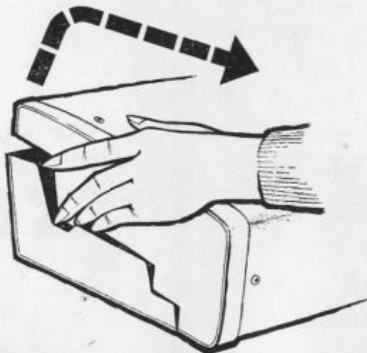
SETTING UP YOUR MACHINE

PLACE THE MACHINE ON THE TABLE WITH HANDLE OF THE CASING FACING AWAY

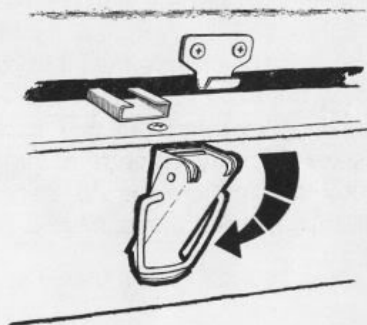
UNDO THE TWO LATCH
LOCKS SITUATED AT
REAR OF THE MACHINE
CASING



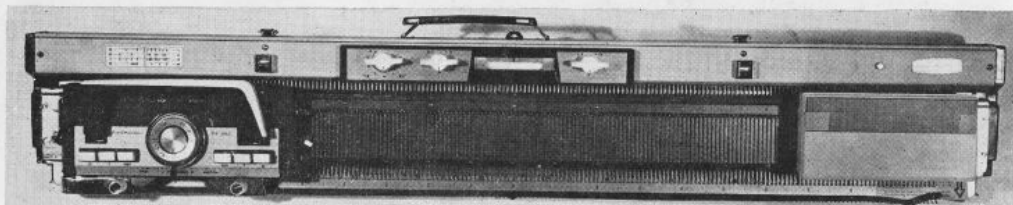
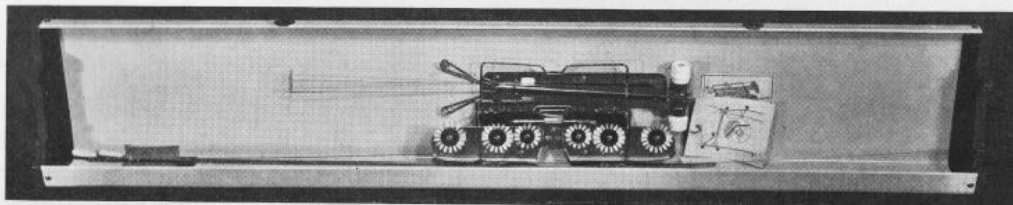
LIFT FAR SIDE OF COVER
UP & THEN PULL COVER
TOWARDS YOU TO
FREE IT



MAKE SURE LATCHES ARE
RETURNED TO CLOSED
POSITION: OUT OF
HARMS WAY



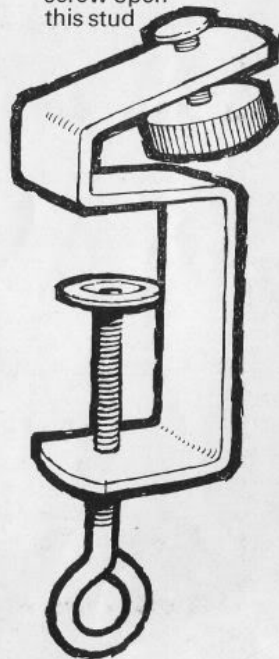
SECURING MACHINE TO TABLE



**PLACE COVER TO REAR OF MACHINE:
REMOVE THE ACCESSORY BOX SHOWN ARROWED
HERE AND THEN TAKE OUT THE TWO CLAMPS SHOWN
ON RIGHT**



screw open
this stud



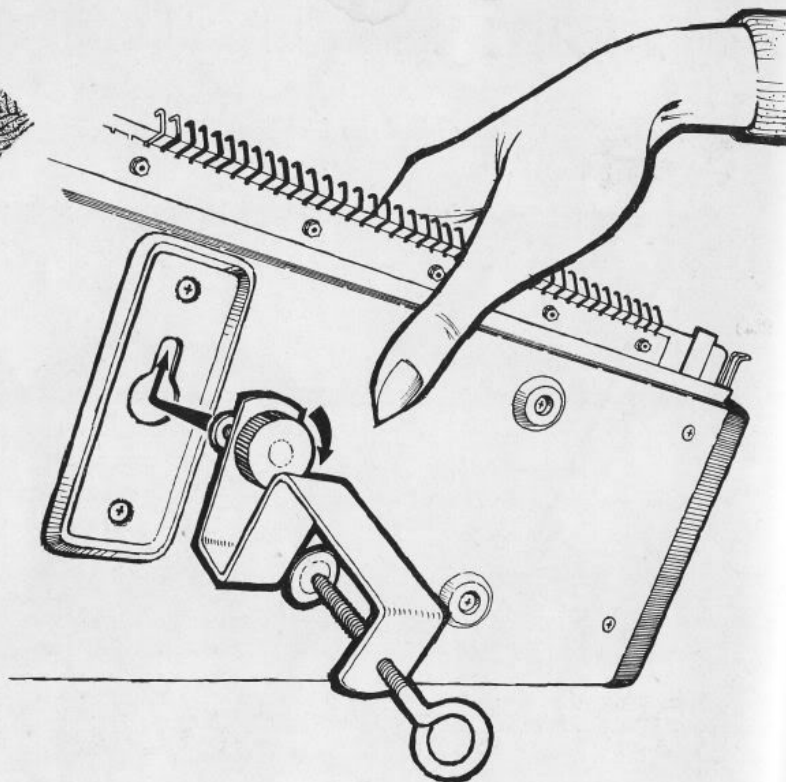
FITTING CLAMPS

Tip the machine away from you and put the head of the clamp into the keyhole shaped hole, on the underside of the knitting machine casing—pulling the clamp upwards into the narrow neck of hole, and turning the knurled nut in a clockwise direction—thus securing the clamp firmly to the underside of machine.

NEXT FIT THE SECOND CLAMP IN THE SAME WAY.

View shown is of the right hand clamp being fitted.

The rubber feet on the bottom of the machine will hold the machine firmly enough, but, of course, it is always safer to use clamps. It is necessary to use clamps when intending to use heavy yarn.



CLAMPING TO TABLE

As shown in the side view illustration – the machine with the two clamps fitted to the underside is taken back to the front edge of the table, and made secure by tightening the loop of the clamp.

NOTE:

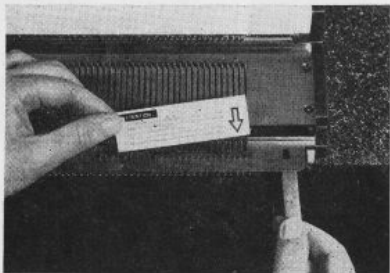
Ensure that **both** clamps are fixed securely to machine before attempting to clamp the machine to table.



NOW MACHINE IS SAFE ON TABLE!

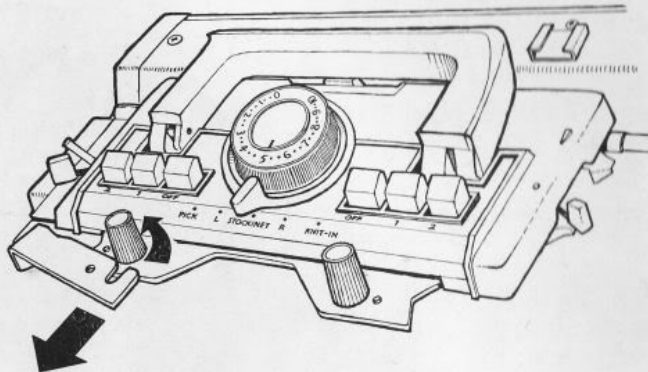
IMPORTANT...

On the right of the machine there is a printed slip which gives information about the copper locking plate. Remove the slip, read it and then remove the copper plate by pulling it towards you.



IF YOU SHOULD WISH TO CARRY THE MACHINE FROM PLACE TO PLACE - THE COPPER PLATE SHOULD BE RE-INSERTED WITH TONGUE TO LEFT AS SHOWN IN DIAGRAM.

Setting up the cam-box...

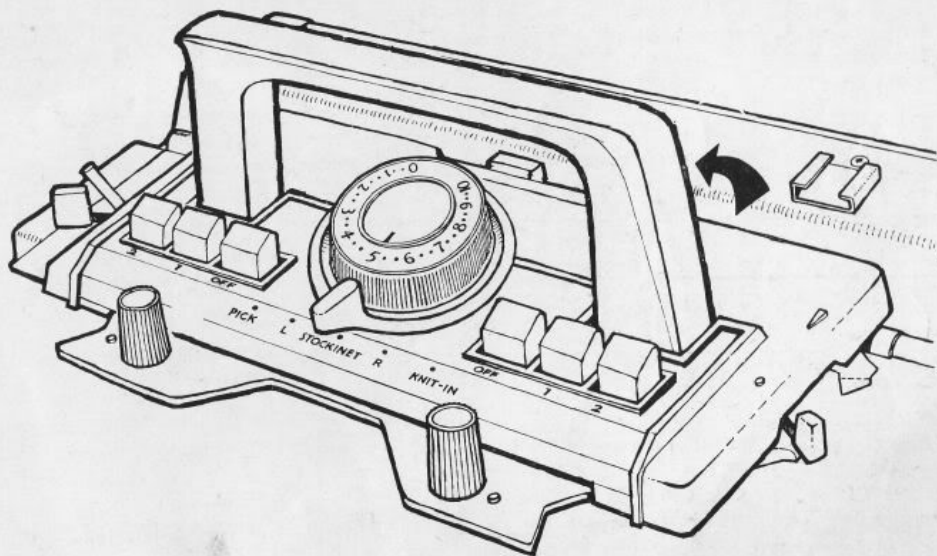


loosen the left hand of the two white plastic knobs of the cam box - which holds the cranked arm securing the cam box. Pull arm away and then cam-box is free to move - **ALWAYS REPLACE ARM WHEN MACHINE IS BEING CARRIED OR STORED AWAY.**

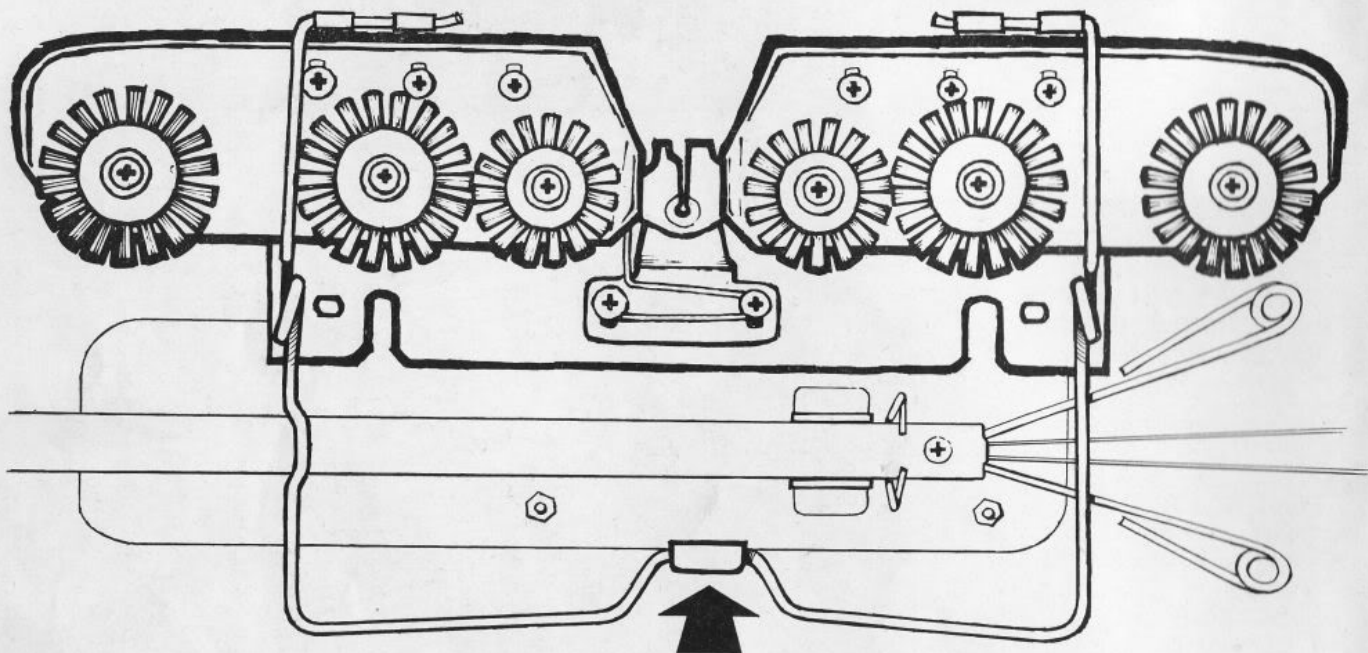
Slide cam box to centre of machine...

LIFT THE HANDLE, AS SHOWN, TO THE WORKING POSITION—WHEN IT WILL THEN SNAP INTO A LOCKED SPRING SETTING

When returning handle to the closed position – please remember to steady the cam box with your free hand, when overcoming the pressure of the spring-lock – this will ensure against any possible damage to cam box.



SHUTTLE BRUSH ASSEMBLY housed inside top of case :



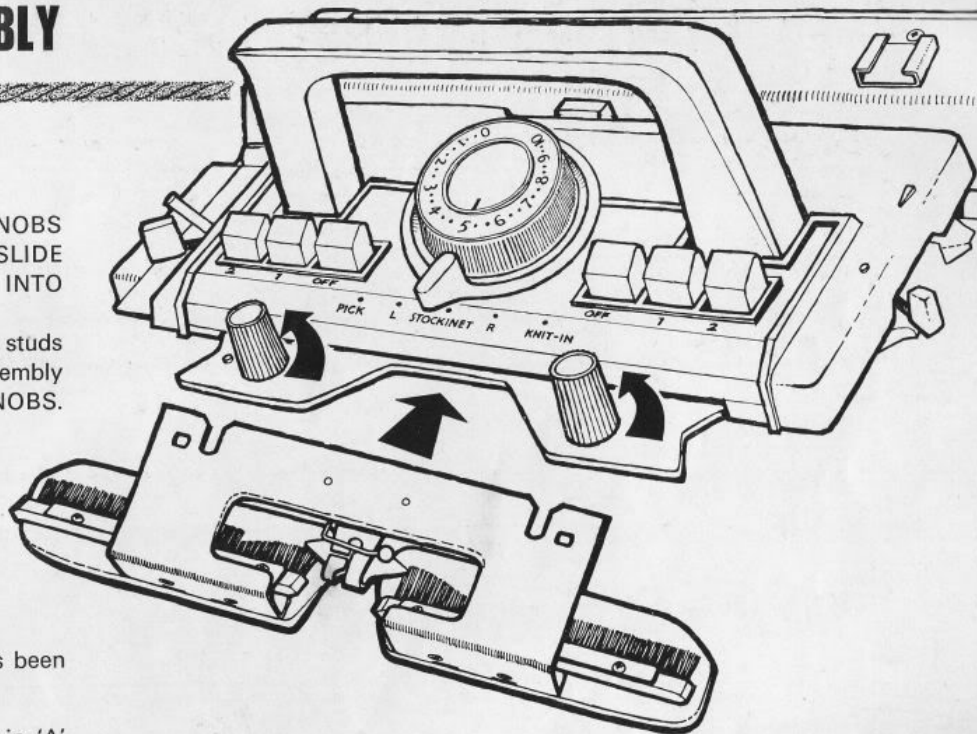
RELEASE BY PUSHING DOWN RETAINING SPRING—EITHER SIDE OF CLIP (ARROWED)—THEN PULL SPRING FORWARD SLIGHTLY UNTIL CLEAR OF CLIP—LIFT UP AND REMOVE BRUSH ASSEMBLY.

This will also release the Wool Tension Assembly (housed in front of Brush Assembly) but do not remove this yet.

FIT BRUSH ASSEMBLY

LOOSEN TWO WHITE PLASTIC KNOBS TO FRONT OF CAM BOX & SLIDE SHUTTLE BRUSH ASSEMBLY INTO POSITION:

Making sure that raised metal studs line up with holes in brush assembly TIGHTEN UP WHITE PLASTIC KNOBS.



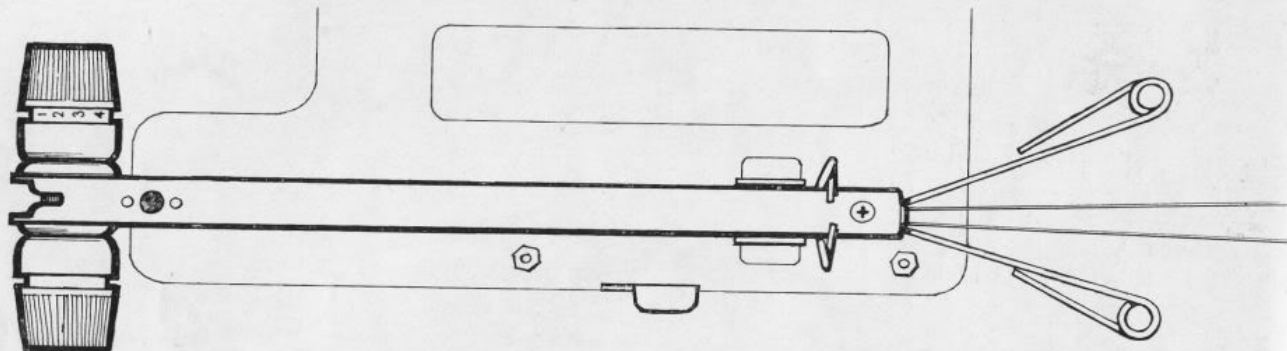
To test that the brush assembly has been correctly fitted:

- (1) Check that all needle butts are in 'A' position (i.e. against the back of the needle bed).
- (2) Move the cambox from side to side – it must move freely and smoothly.

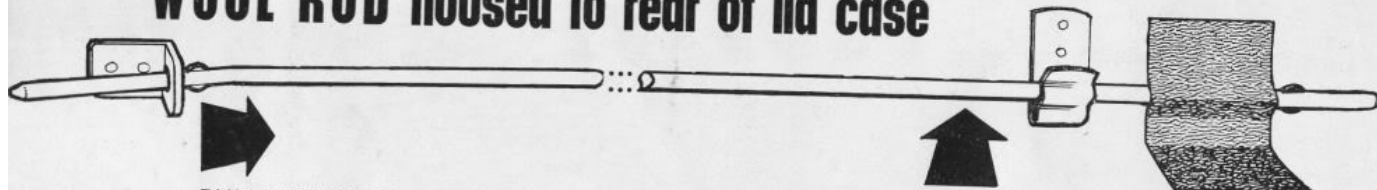
*NOTE—
remove card strip to Front Edge of machine
before attempting to fit Brush assembly !*

WOOL TENSION ASSEMBLY

AS THIS WAS RETAINED BY THE SAME SPRING CLIP AS WAS THE BRUSH ASSEMBLY—ALL YOU HAVE TO DO IS LIFT IT CLEAR & REMOVE ASSEMBLY



WOOL ROD housed to rear of lid case

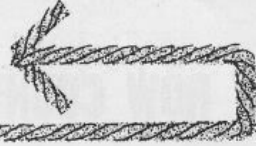


PULL THE WOOL ROD TO THE RIGHT UNTIL CLEAR OF BRACKET AND THEN REMOVE FROM CASE.

LIFT WOOL ROD FROM THE RETAINING CLIP—FIRST REMOVING THE SQUARE OF STICKY TAPE.

FIT WOOL TENSION

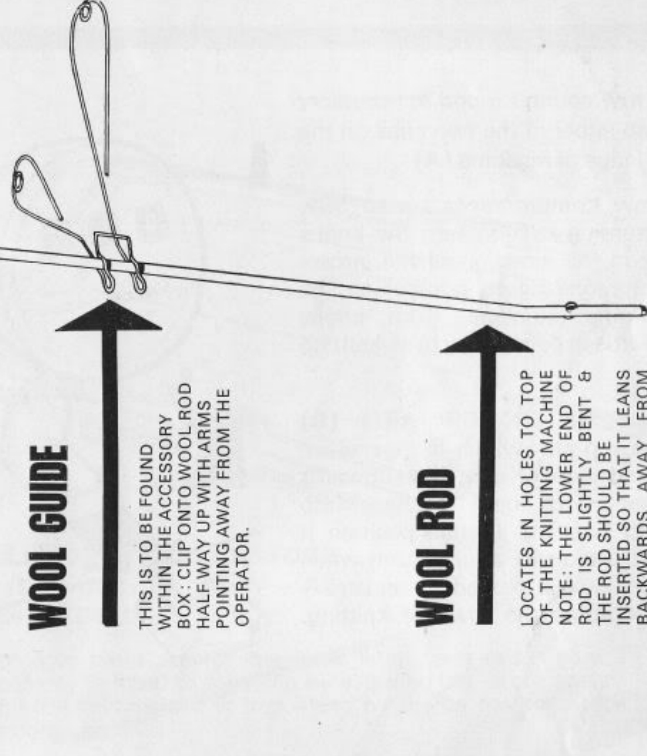
Please turn page this way up



NOTE: THE WIRES WHICH ARE FOLDED LOOSELY UNDER THE TENSION ASSEMBLY SHOULD BE ROTATED UNTIL THEY SNAP INTO THE POSITION SHOWN.

TENSION ASSEMBLY

LOCATING ON TOP OF WOOL ROD WITH THE ARMS POINTING TOWARDS OPERATOR



WOOL GUIDE

THIS IS TO BE FOUND WITHIN THE ACCESSORY BOX: CLIP ONTO WOOL ROD HALF WAY UP WITH ARMS POINTING AWAY FROM THE OPERATOR.

WOOL ROD

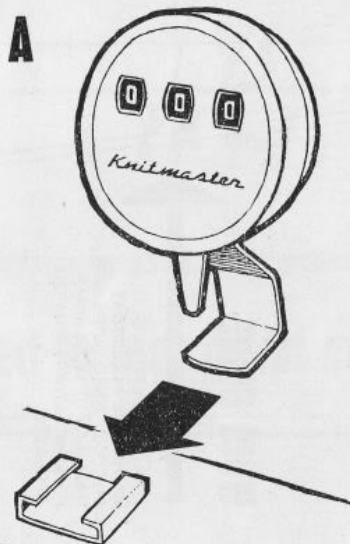
LOCATES IN HOLES TO TOP OF THE KNITTING MACHINE
NOTE: THE LOWER END OF ROD IS SLIGHTLY BENT & THE ROD SHOULD BE INSERTED SO THAT IT LEANS BACKWARDS AWAY FROM THE OPERATOR.

FIT ROW COUNTER...

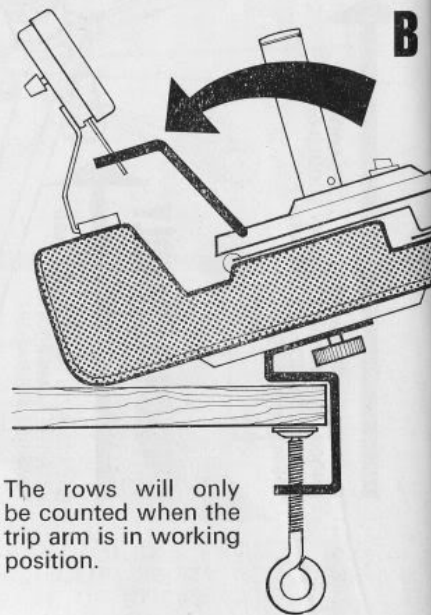
Insert row counter found in accessory box into either of the two clips on the upper ledge of machine **(A)**

The row counter reads up to 999. For returning to zero turn the knobs at rear in the direction of the arrows from the one-figure number to the three-figure numbers. Turn knobs backwards to correct any over-knitting errors.

ROW COUNTER TRIP ARM (B)
Lift the trip arm which is located on left hand side of cam box upwards and backwards until it snaps into working position. In this position it will strike the row counter arm when the cam box is passed to and fro – thus recording the rows of knitting.

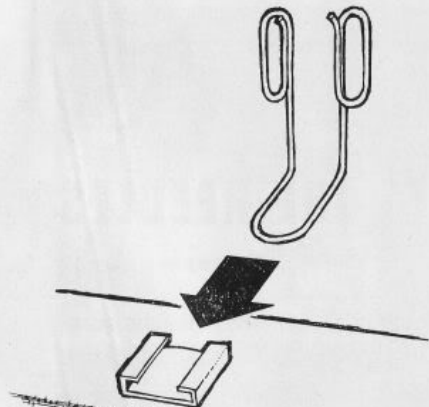


Row counter trip arm



The rows will only be counted when the trip arm is in working position.

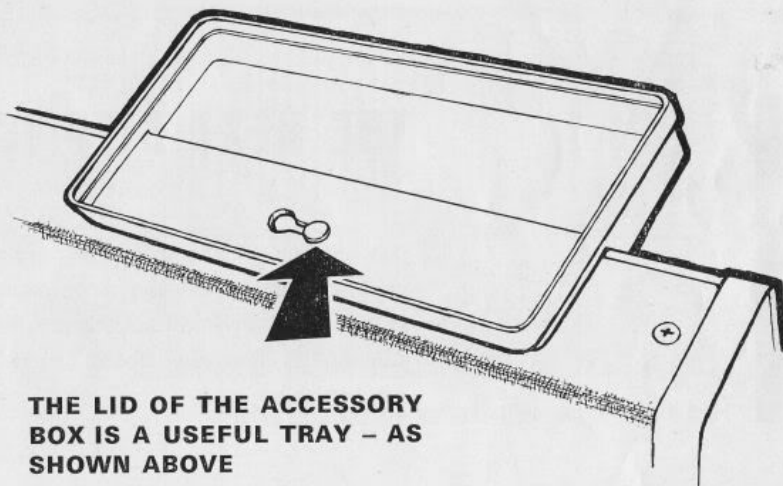
PATTERN CARD HOLDER



INSERT THE PATTERN CARD HOLDER AS SHOWN ABOVE INTO THE REMAINING CLIP NOT IN USE.

Choice of which clip to use is left to operator. Practice will determine which arrangement suits you. (Card holder is found in accessory box).

TOOL TRAY



THE LID OF THE ACCESSORY BOX IS A USEFUL TRAY – AS SHOWN ABOVE

On the right hand side of the back ledge is a raised stud. The tool tray is fitted to machine by allowing the stud to pass through the keyhole slot in tray – and by sliding tray to left it will become secured.

NOW YOUR **KNITMASTER** IS SET UP

and ready for you to start knitting

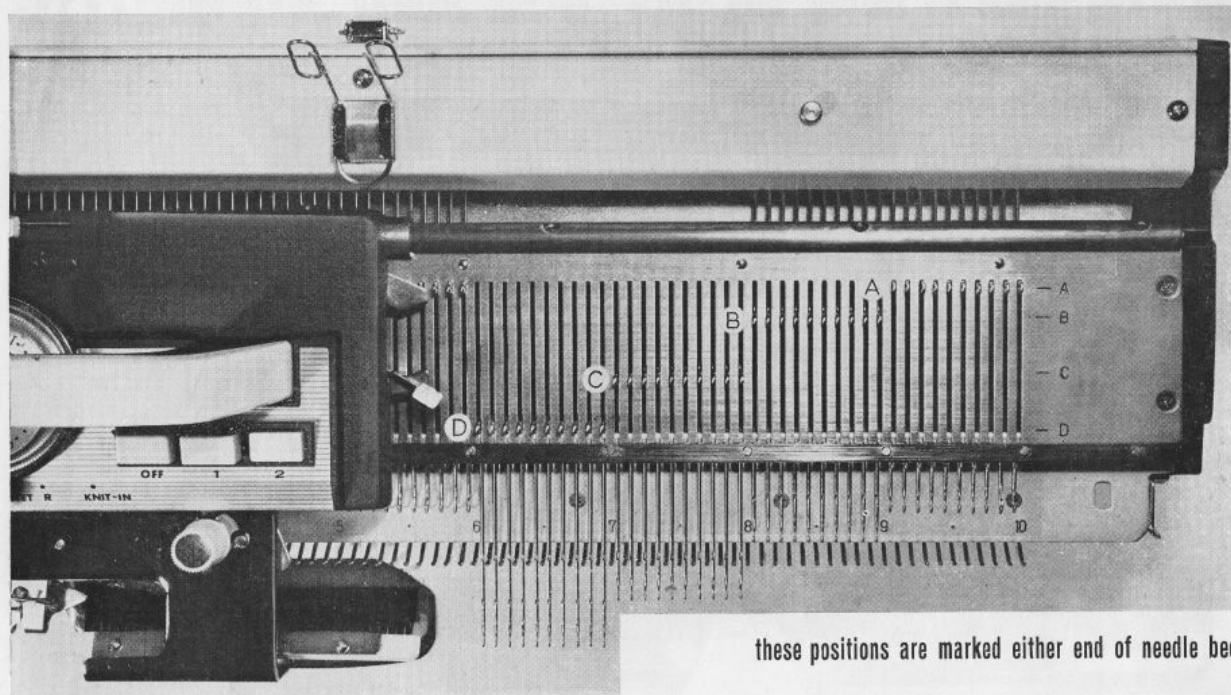
The examples given are all for three ply wool (if you have not done so, please see pages 2 and 3).

THE NEXT STEP IS TO SET THE NEEDLES

It is suggested that sixty needles should be used for the 'trial' run. They must be set to working position 'B'—shown on page opposite. Start in the centre of the needle bed at 0 and pull forward thirty needles at each side until the needle butts are roughly in position 'B'. They need not be exactly in place—the cam box will line them up for you automatically.

You will see that the needles are numbered off in 10's with a central dot to mark the 5's. This is to make your needle counting as simple as possible. It is easiest to always start your knitting in the centre of your machine and to count the needles from either side of 0.

LATCH NEEDLES ARE USED IN FOUR BASIC POSITIONS: A. B. C. and D.



these positions are marked either end of needle bed

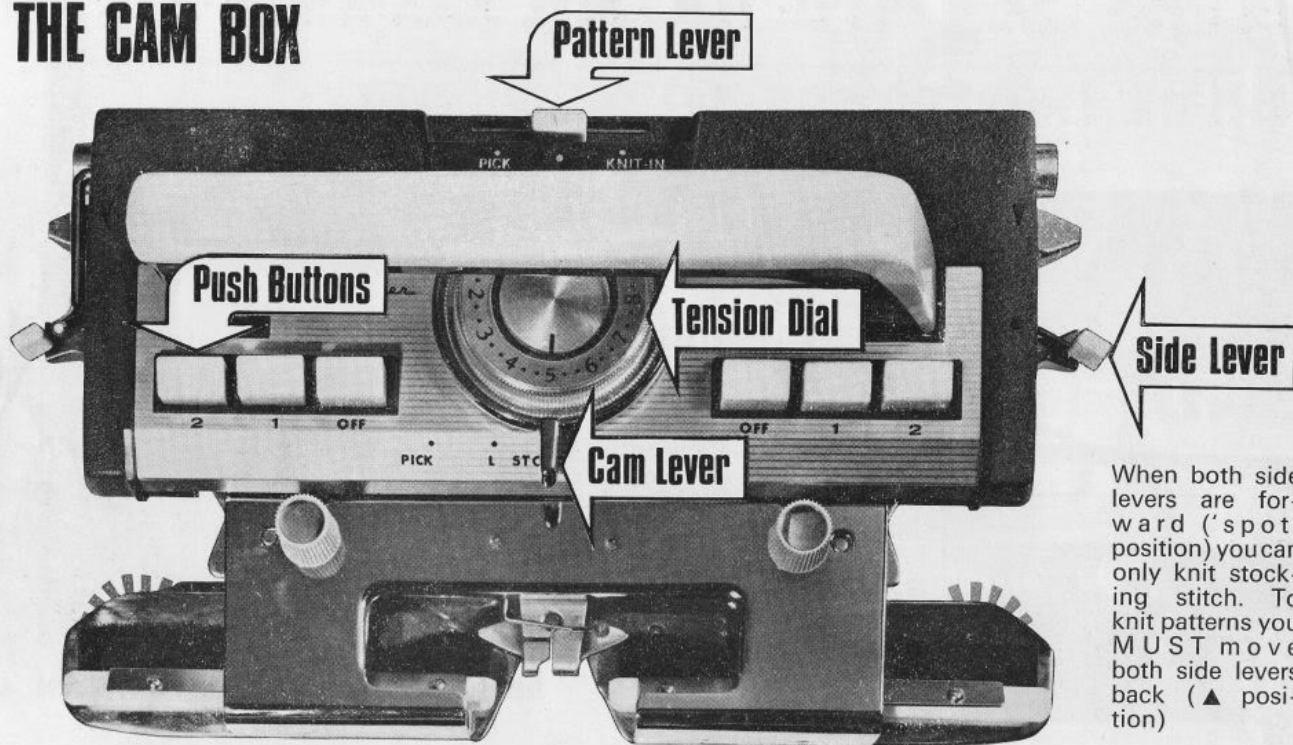
A NON-WORKING POSITION
needles in this position cannot knit.

B THE WORKING POSITION
the needles are now in knitting position for general work.

C UPPER WORKING POSITION
this setting used mainly for fancy patterns.

D THE HOLDING POSITION
used mostly for neck shaping and fancy patterns.

THE CAM BOX

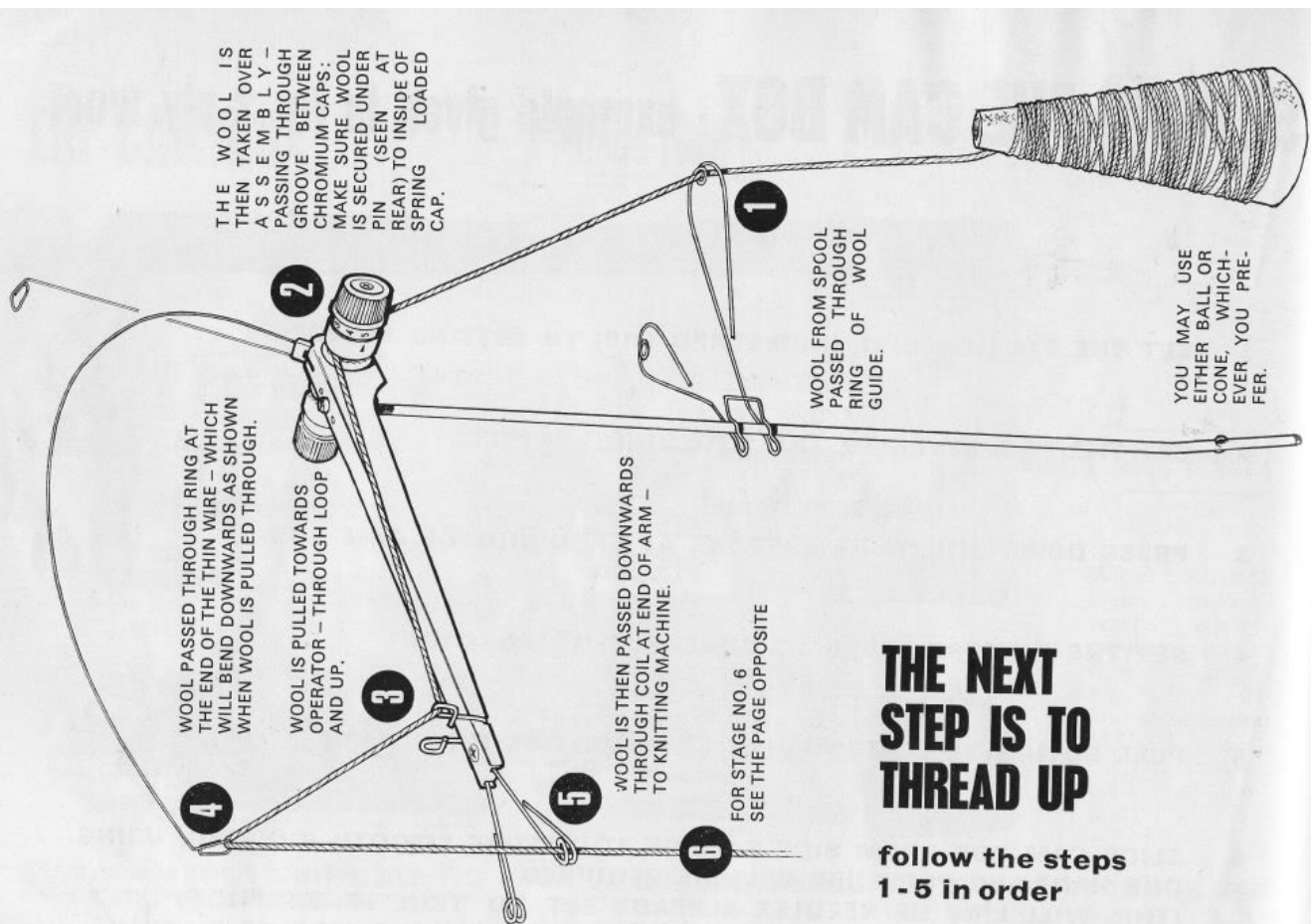


When both side levers are forward ('spot' position) you can only knit stocking stitch. To knit patterns you MUST move both side levers back (▲ position)

DIAGRAM ABOVE SHOWS ALL THE VARIOUS CONTROLS REQUIRED BY OPERATOR FOR USE AS DESCRIBED OPPOSITE.

SETTING THE CAM BOX: example given is for 3-ply wool

- 1 SET THE TENSION DIAL (NUMBERED 1-10) TO SETTING NUMBER 8**
- 2 SET THE CAM LEVER TO THE 'STOCKINET' SETTING**
- 3 PRESS DOWN SIDE No. 2 BUTTONS AT EACH SIDE OF CAM BOX**
- 4 SET THE PATTERN LEVER TO CENTRE 'SPOT' POSITION**
- 5 PULL BOTH SIDE LEVERS FULLY FORWARD 'SPOT' POSITION**
- 6 SLIDE CAM BOX FROM SIDE TO SIDE TO ENSURE SMOOTH RUNNING, USING ONE HAND—NO PRESSURE WILL BE REQUIRED . . .
(THIS WILL LINE UP NEEDLES ALREADY SET, TO 'TRUE' .B. POSITION)
AND FINALLY END WITH CAM BOX TO THE RIGHT HAND SIDE OF MACHINE.**



THE WOOL IS THEN TAKEN OVER ASSEMBLY - PASSING THROUGH GROOVE BETWEEN CHROMIUM CAPS: MAKE SURE WOOL IS SECURED UNDER PIN (SEEN AT REAR) TO INSIDE OF SPRING LOADED CAP.

WOOL PASSED THROUGH RING AT THE END OF THE THIN WIRE - WHICH WILL BEND DOWNWARDS AS SHOWN WHEN WOOL IS PULLED THROUGH.

WOOL IS PULLED TOWARDS OPERATOR - THROUGH LOOP AND UP.

WOOL IS THEN PASSED DOWNWARDS THROUGH COIL AT END OF ARM - TO KNITTING MACHINE.

FOR STAGE NO. 6 SEE THE PAGE OPPOSITE

WOOL FROM SPOOL PASSED THROUGH RING OF WOOL GUIDE.

YOU MAY USE EITHER BALL OR CONE, WHICH-EVER YOU PREFER.

THE NEXT STEP IS TO THREAD UP

follow the steps 1 - 5 in order

A technical line drawing of a hand machine, possibly a spinning wheel or similar textile device. It features a central horizontal shaft with several cylindrical components (possibly bobbins or spindles) mounted on it. A rope is attached to the machine, passes under a guard wire, and is hooked over a clamp on the right side. A loop is formed at the end of the rope. An arrow points from the text 'STAGE No. 6' towards the machine. Another arrow points from the text 'WOOL IS TAKEN UNDER GUARD WIRE...' towards the rope's path.

STAGE No. 6

WOOL IS TAKEN UNDER
GUARD WIRE & PASSED
DOWNWARDS THROUGH
THE SLOT AS SHOWN.

MAKE A LOOP IN END OF
WOOL & HOOK IT OVER **RIGHT**
HAND MACHINE CLAMP
UNDER TABLE.

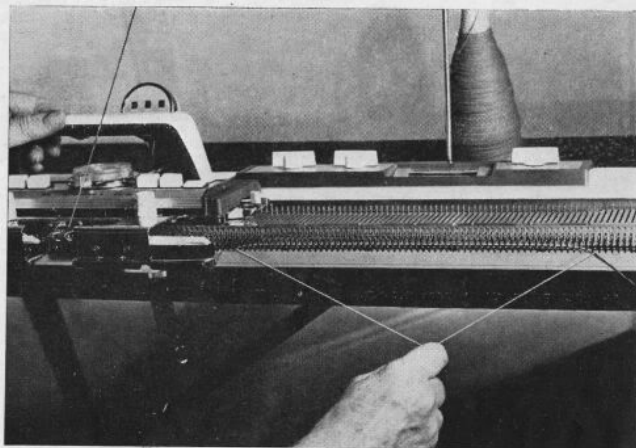
**TAKE ANY SLACK WOOL BACK THROUGH THE WOOL TENSION ASSEMBLY TO THE SPOOL—
WOOL MUST ALWAYS BE IN TENSION BETWEEN CAM BOX AND WOOL TENSION ASSEMBLY.**

**NOW SLIDE THE CAM BOX FROM RIGHT TO LEFT OVER THE NEEDLES YOU
HAVE JUST SET...**

**YOU MUST ALWAYS SLIDE THE CAM BOX FAR ENOUGH TO HEAR A CLICK
THIS WILL ENSURE THAT THE NEEDLES ARE CLEARED AFTER EACH ROW**

**YOU WILL NOW HAVE A LOOP OF WOOL ON EVERY NEEDLE
AND ALL NEEDLE BUTTS SHOULD BE IN 'B' POSITION.**

YOU MAY FIND THE WOOL IS PULLED TIGHT IN THE LAST FEW NEEDLES – IF SO, LOOSEN WOOL, AND PULL THE BUTTS GENTLY BACK TO 'B' POSITION STARTING WITH THE NEEDLE FURTHEST FROM THE CAM BOX (MAKE SURE TO TAKE ANY SLACK WOOL BACK THROUGH THE WOOL TENSION ASSEMBLY).



RESET THE TENSION DIAL TO No. 5

PLACE NYLON CORD (FOUND IN ACCESSORY BOX) OVER WOOL BETWEEN NEEDLE HEADS AND UP-TURNED WIRE GUARD AS SHOWN. ALLOW ENDS OF CORD TO HANG DOWN EACH SIDE.

HOLD ENDS TOGETHER AND PULL FIRMLY IN A DOWNWARDS DIRECTION. RUN THE CAM BOX ACROSS—YOU HAVE NOW CAST ON.

KNIT A FURTHER SIX ROWS, STILL HOLDING DOWN THE NYLON CORD.

WITHDRAW THE NYLON CORD AND CONTINUE TO KNIT.

YOU HAVE NOW 'CAST-ON' AND COMMENCED TO KNIT PLAIN STOCKING STITCH

**IF THE CAM BOX IS STUCK TURN TO PAGE 24 OR, IF YOU FIND OTHER DIFFICULTIES,
TURN TO PAGES 70—71.**

Should knitting get entangled or Cam Box become caught-

NEVER ATTEMPT TO FORCE CAM BOX ACROSS BUT

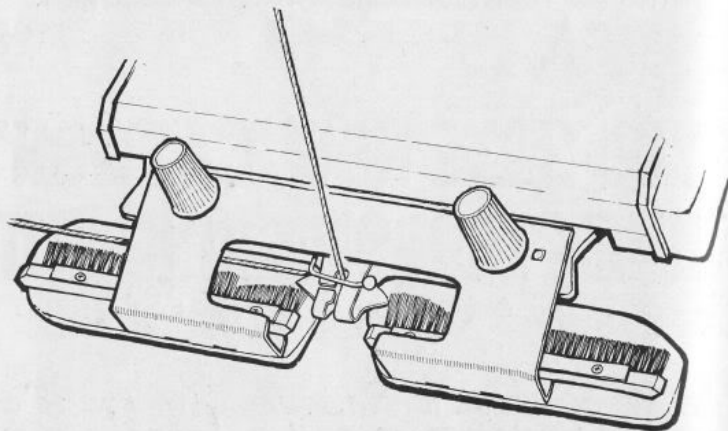
Loosen off the two plastic knobs holding brush assembly and ease up and forward (clearing studs) until it becomes free in your hand: tilt cam box up and back and slide clear of knitting.

REMEMBER

To close row counter trip arm, disentangle any wool caught in the brushes and

REPLACE BRUSH ASSEMBLY MAKING SURE THAT WOOL IS ON TOP!

Should the needle heads get caught into the wool feed of the brush assembly, remove the 2 white plastic knobs on the cam box completely, ease the brush assembly downwards and towards the machine so that the back of the assembly will tilt upwards and free itself. If a needle has "twisted" over the guard rail, lift the needle gently over the intersection into its proper position.

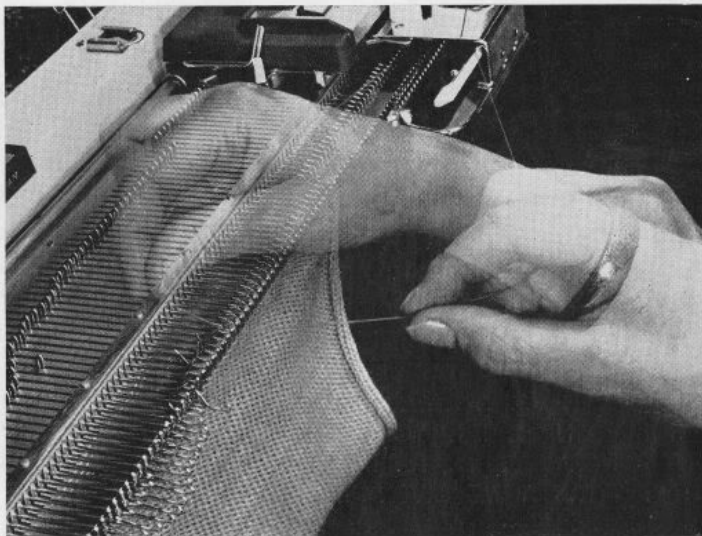


If this is your first attempt at knitting, take your work off the machine and start again or clear partly knitted row off needles by holding work steady with one hand and taking thread of wool in your free hand—pull behind the needle head, then up and away from you which will undo the stitch.

Repeat the above along the remainder of the partly knitted row until the row is cleared.

If yarn has snapped, allow it to hang down at side of knitting and re-thread, making sure you start on same side as snapped yarn.

Take slack wool back through cam box and wool tension assembly.



MAKE SURE THAT BOTH No. 2 PUSH-BUTTONS ARE DOWN-AND SLIDE CAM BOX OVER THE KNITTING

FOR HOW TO UNDO PATTERNED KNITTING SEE PAGE 69

CLEARING THE MACHINE

TO CLEAR THE MACHINE QUICKLY IN ORDER TO TRY OUT A NEW SAMPLE, FOLLOW THE INSTRUCTIONS GIVEN ON THIS PAGE.

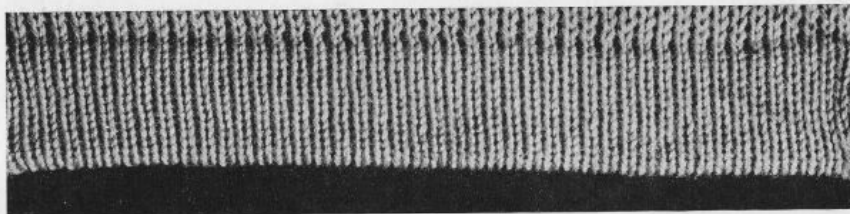
FOR CORRECT CASTING-OFF METHOD SEE PAGE 43

BREAK THE WOOL JUST ABOVE THE CAM-BOX. PULL OUT AT BRUSH ASSEMBLY AND HOLD DOWN.

PRESS DOWN THE TWO PUSH BUTTONS MARKED "OFF"—WHICH WILL CLEAR ALL THE BUTTONS ON THE CAM-BOX.

SLIDE THE CAM-BOX OVER THE KNITTING AND AS THE WOOL IS NOT NOW BEING 'FED' INTO THE WORK—THE KNITTING WILL FALL FROM YOUR MACHINE. IT MAY BE NECESSARY TO DO THIS MORE THAN ONCE.

NOW LETS KNIT A PLAIN HEM

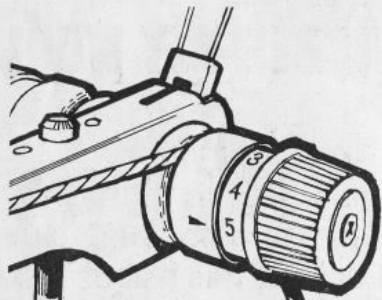


THE EXAMPLES GIVEN ARE ALL KNITTED WITH THREE-PLY WOOL

**SET TENSION DIAL TO No. 8
CAM LEVER TO 'STOCKINET'
PATTERN LEVER AT SPOT
SIDE LEVERS BOTH FOR-
WARD. PRESS BOTH NUMBER
TWO PUSH BUTTONS DOWN.**

BRING UP THE REQUIRED NUMBER OF NEEDLES (EACH NEEDLE COUNTS AS ONE STITCH) TO THE WORKING POSITION . B .
RUN CAM BOX OVER NEEDLES TO BRING THEM TO TRUE ALIGNMENT—LEAVING CAM BOX ON THE RIGHT HAND SIDE. THREAD UP THE MACHINE AS PREVIOUSLY EXPLAINED BUT THIS TIME USING A DIFFERENT COLOURED WASTE WOOL. CAST ON BY SLIDING CAM BOX OVER NEEDLES TO THE LEFT. PLACE NYLON CORD IN POSITION AS PREVIOUSLY EXPLAINED. CHANGE TO TENSION 5. KNIT SIX ROWS & REMOVE CORD, THEN CONTINUE TO KNIT APPROXIMATELY 7-9 FURTHER ROWS ENDING AS BEFORE WITH THE CAM BOX TO THE RIGHT.

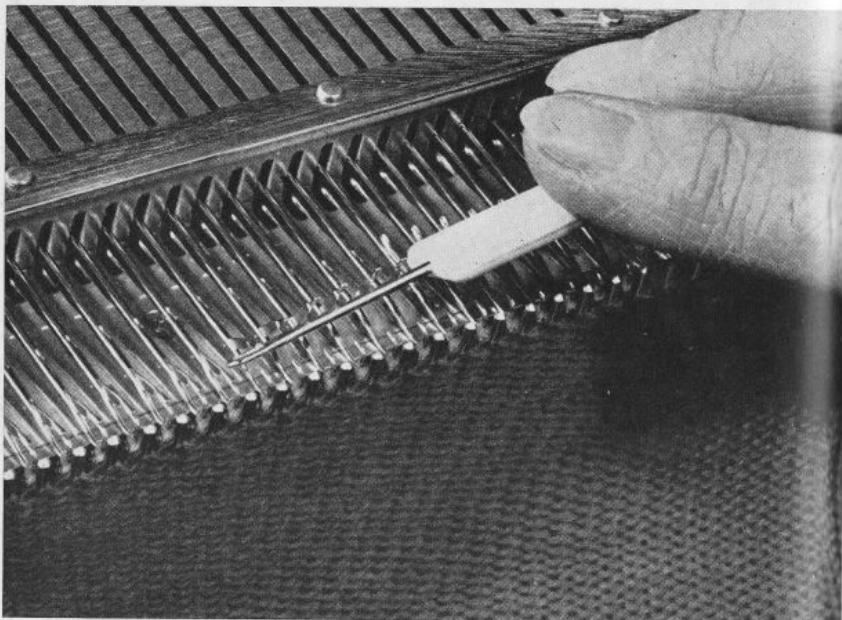
BREAK THE WASTE WOOL APPROXIMATELY SIX INCHES ABOVE THE BRUSH ASSEMBLY AND PULL OUT OF BRUSH ASSEMBLY. THREAD UP THE ACTUAL WOOL TO BE KNITTED. ATTACH TO RIGHT HAND CLAMP AS BEFORE.
RESET TENSION DIAL TO 3 OR 4.



SET KNURLED PLASTIC KNOB OF WOOL TENSION ASSEMBLY TO 3 OR 4 ON SAME SIDE WHICH IS FEEDING WOOL TO THE MACHINE.

NOTE: THE HIGHER THE NUMBER THE TIGHTER THE WOOL TENSION.

KNIT 20-30 ROWS TO SUIT DEPTH OF THE HEM REQUIRED, THEN 'OPEN' NEEDLES BY PUSHING BACK LATCHES OF NEEDLES WITH A TRANSFER TOOL AS ILLUSTRATED BELOW—PRIOR TO TURNING HEM.



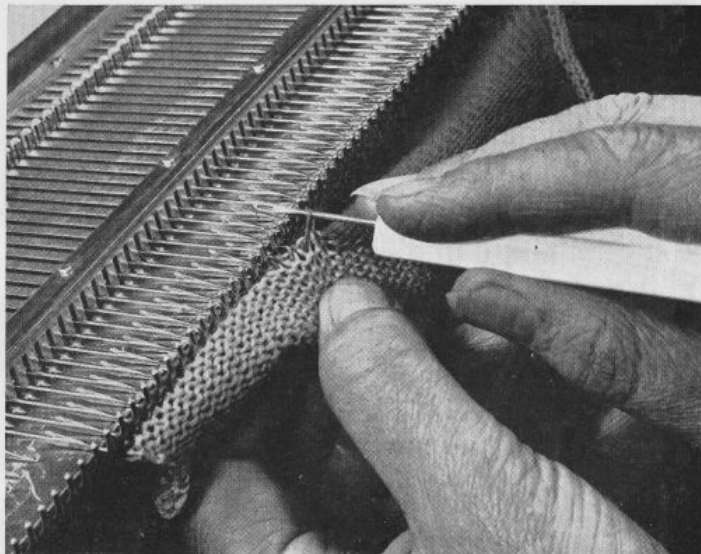
TURNING HEM

USING A SINGLE HEADED TRANSFER TOOL: PICK UP THE FIRST STITCH OF THE FIRST ROW OF THE ACTUAL WORK— BY PASSING TOOL UNDER THE STITCH AND THEN LAYING EYE OF TRANSFER TOOL OVER THE NEEDLE HEAD IMMEDIATELY BEHIND.

BRING HANDLE OF TRANSFER TOOL UP & OVER THE WORK WHICH WILL RELEASE TOOL AND AT THE SAME TIME SAFELY SECURE THE TRANSFERRED STITCH IN THE NEEDLE HEAD. CONTINUE TRANSFERRING STITCHES IN THE MANNER EXPLAINED UNTIL THE WHOLE ROW IS COMPLETE.



← using a single-headed transfer tool



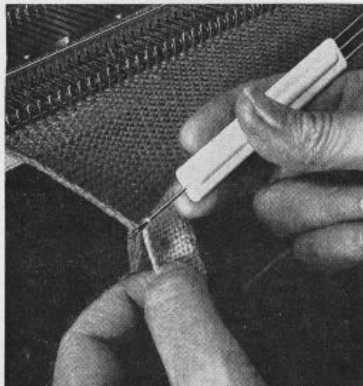
THE PLAIN HEM YOU ARE NOW KNITTING HAS TWO-STITCHES TO EACH NEEDLE

RESET TENSION DIAL TO No. 5

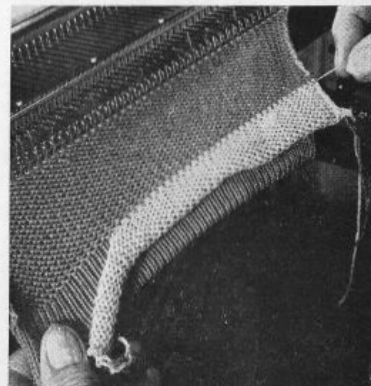
AND AS CAM BOX HAS BEEN STANDING IDLE DURING THE PREVIOUS OPERATION, MAKE SURE THE WOOL TO THE MACHINE IS 'TIGHT' BY PULLING ANY SLACK WOOL BACK DOWNWARDS TO THE WOOL SPOOL.

NOW RECOMMENCE TO KNIT YOUR CHOSEN GARMENT

IT IS NOT RECOMMENDED THAT WASTE WOOL BE REMOVED UNTIL THE GARMENT HAS PROGRESSED, BUT AN EXPLANATION OF HOW TO ACHIEVE THIS IS GIVEN BELOW, NOW . . .

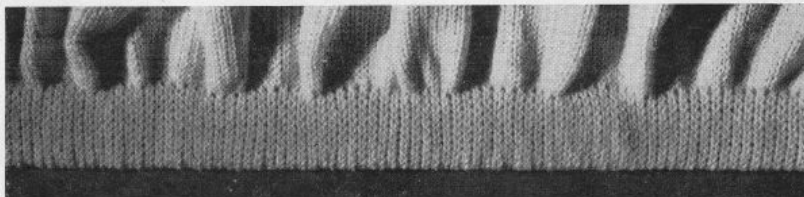


PLACE A SINGLE HEADED TRANSFER TOOL UNDER 1st STITCH TO LEFT HAND SIDE OF WASTE WOOL AND SNAP THIS STITCH



TAKE THE HANGING WOOL OF WASTE KNITTING ON THE RIGHT HAND SIDE AND PULL TO THE RIGHT WHICH WILL FREE WASTE WOOL FROM HEM.

NOW LETS KNIT AN ELASTIC WELT



TO GET A PERFECT FINISH LIKE THIS SEE PAGE NO. 69

BRING UP REQUIRED NEEDLES TO POSITION 'B'. MOVE RIGHT - HAND PATTERN DIAL TO NO. 1, (SEE PAGE 34).

CAM LEVER AT 'STOCKINET' PATTERN LEVER AT 'SPOT' PUSH DOWN BUTTON 1 NEAREST NEEDLES.

PUSH DOWN BUTTON 2 FARTHEST FROM NEEDLES.

DROP SIDE LEVERS (SEE PAGE 18) BACK TO ▲.

TAKE CAM BOX ACROSS.

PUSH NEEDLES IN 'B' POSITION BACK TO 'A'.

TAKE CAM BOX BACK TO RIGHT-HANDSIDE.

PRESS DOWN BOTH NO. 2 BUTTONS.

SET TENSION DIAL TO 5.

THREAD UP, CAST ON AS EXPLAINED BEFORE (Page 27) WITH WASTE WOOL – KNIT AND BREAK OFF WASTE WOOL.

SET TENSION DIAL TO NO. 1 OR 2 & ROW COUNTER TO ZERO.

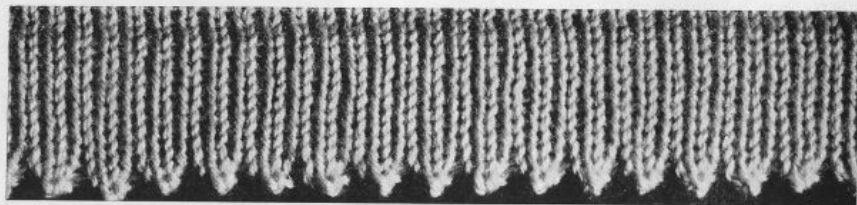
WITH GARMENT WOOL KNIT 30 (OR REQUIRED NUMBER) OF ROWS TO SUIT THE DEPTH OF HEM TO BE KNITTED.

TURN UP HEM WITH TRANSFER TOOL AS BEFORE, BUT THIS TIME TRANSFER THE STITCHES ONTO THE ALTERNATE EMPTY NEEDLES WE PREVIOUSLY PUSHED BACK TO POSITION 'A', (BRINGING NEEDLES UP TO 'B' POSITION AS YOU WORK).



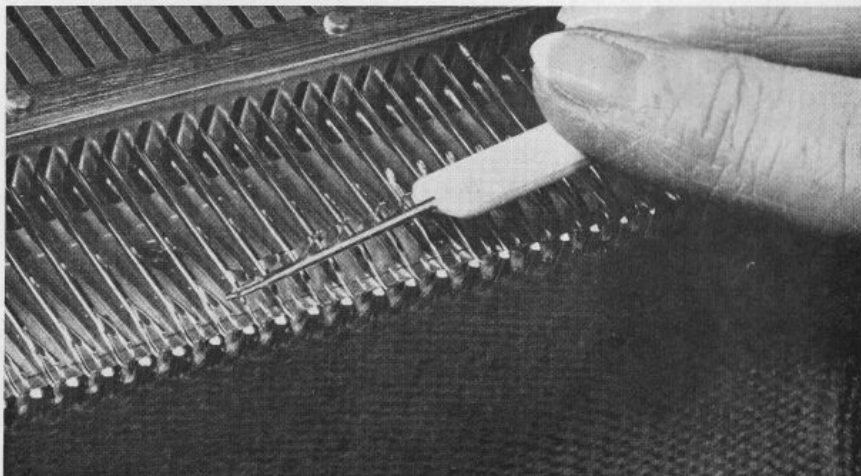
RESET TENSION DIAL TO NO. 5, RIGHT HAND PATTERN LEVER TO ZERO, AND THEN CONTINUE TO KNIT. THE WASTE WOOL IS REMOVED FROM THE HEM AS EXPLAINED FOR THE PLAIN HEM.

NOW LETS KNIT A PICOT HEM



SET MACHINE AS FOR PLAIN HEM AND CAST ON WITH WASTE WOOL. BREAK & THREAD UP WITH ACTUAL WOOL AS PREVIOUSLY EXPLAINED REMEMBERING TO SET THE ROW COUNTER BACK TO ZERO. RESET TENSION DIAL TO No. 4 & KNIT 13 ROWS ONLY.

THEN 'OPEN' NEEDLE LATCHES USING SINGLE-HEADED TRANSFER AS ILLUSTRATED ON RIGHT.



USING A SINGLE-HEADED TRANSFER TOOL PLACE THE EYE OVER THE SECOND NEEDLE HEAD FROM THE RIGHT AND PULL THE TOOL AND THE NEEDLE TOWARDS YOU AS FAR AS IS POSSIBLE—THEN PUSH FULLY BACKWARDS WHICH WILL TRANSFER THE STITCH FROM THE NEEDLE ONTO THE TRANSFER TOOL.

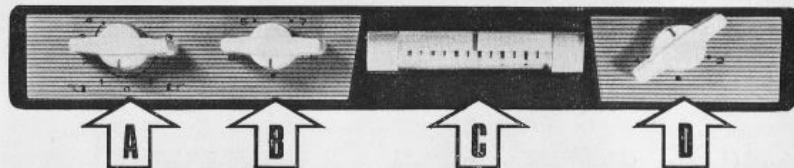
NOW TRANSFER THE STITCH TO THE ADJACENT NEEDLE TO THE LEFT BY PLACING 'EYE' OVER NEEDLE HEAD & LIFTING HANDLE OF TOOL UP AND BACK AS PREVIOUSLY DESCRIBED. CONTINUE THIS PROCESS UNTIL END OF ROW. CHECK TO SEE IF ALL EMPTIED NEEDLES ARE IN POSITION 'B'—THEN KNIT 13 ROWS. TURN HEM AS FOR PLAIN HEM & REMOVE WASTE WOOL.

**THE THREE HEMS WE HAVE JUST KNITTED ARE
EXAMPLES OF SOME OF THE MOST WIDELY USED**

NOW DIFFERENT CAST-ON METHODS

SET TENSION DIAL TO No. 5,
CAM LEVER TO 'STOCKINET',
PATTERN LEVER AT SPOT,
SIDE LEVERS TO REAR.
PRESS BOTH NUMBER TWO
PUSH BUTTONS DOWN.

WE ARE NOW KNITTING A CLOSED EDGE. CAST-ON,
AND FOR THIS WE USE THE PATTERN DIALS ILLUSTRATED
BELOW.



- A** **SHIFT KEY: Set at 0**
To give automatic zig-zag effects.
- B** **LEFT HAND PATTERN DIAL: Set at spot**
To set patterns—often used in conjunction with right pattern dial.
- C** **PATTERN INDICATOR PANEL**
To show needle settings.
- D** **RIGHT HAND PATTERN DIAL: Set to No. 1.**
To set patterns—in particular ribbing effects.

IMPORTANT

BRING UP THE REQUIRED NUMBER OF NEEDLES TO POSITION 'B'. RUN CAM BOX ACROSS TO LEFT (YOU WILL HAVE A LOOP OF WOOL ON EACH NEEDLE). PLACE NYLON CORD AND HOLD DOWN.

RESET CAM LEVER TO 'KNIT-IN' POSITION AND KNIT ONE ROW. MOVE SHIFT KEY TO No. 1 TO THE LEFT AND KNIT A FURTHER ROW. MOVE SHIFT KEY BACK TO 0, RESET CAM LEVER TO 'STOCKINET' AND ONCE AGAIN KNIT ONE ROW. NOW KNIT THREE ROWS. REMOVE NYLON CORD AND CONTINUE TO KNIT.

THE FIRST ROW OF KNITTING DONE IN THIS MANNER WILL UNDO BUT THEN A CLOSED EDGE IS ACHIEVED.

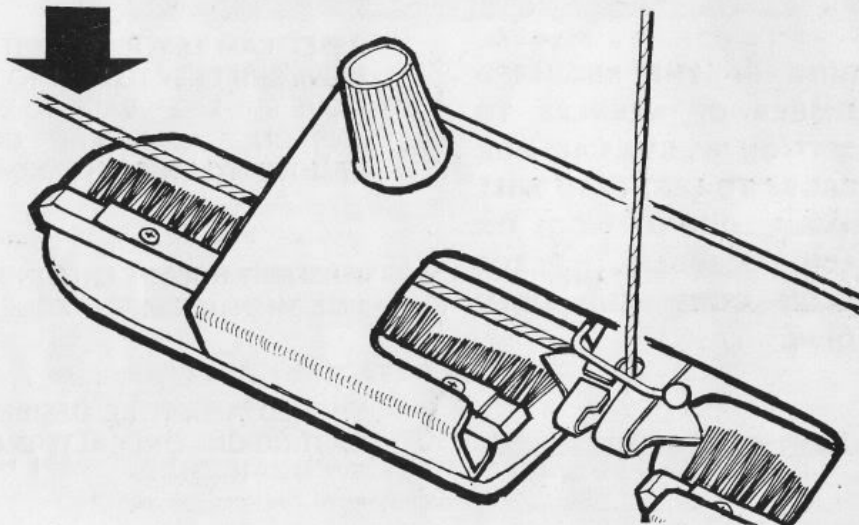
SHOULD A HEM BE DESIRED—USING THE ABOVE METHOD OF CASTING ON—ONLY ALTERNATE NEEDLES ARE PICKED-UP.

HAND METHOD CLOSED EDGE

SET TENSION DIAL TO No. 5,
CAM LEVER TO 'STOCKINET',
PATTERN LEVER AT SPOT,
SIDE LEVERS BOTH FOR-
WARD. PRESS BOTH NUMBER
TWO PUSH BUTTONS DOWN.
PATTERN INDICATOR PANEL
BLANK.

BRING UP THE REQUIRED NUMBER OF NEEDLES TO POSITION 'B' AND RUN CAM BOX OVER AS BEFORE TO BRING NEEDLES TO 'TRUE' POSITION. THIS OPERATION WILL ALSO AUTOMATICALLY OPEN THE LATCHES OF THE NEEDLES. AGAIN FINISH UP WITH THE CAM BOX TO THE RIGHT HAND SIDE. THREAD UP AS PREVIOUSLY BUT AS ILLUSTRATED BELOW:

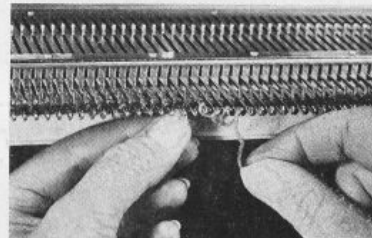
KEEP THE WOOL OVER THE TOP OF BRUSH ASSEMBLY.



AS THE WOOL IS PASSED OVER THE TOP OF BRUSH ASSEMBLY PASSING RIGHT TO LEFT, WE SHALL NOW HAVE TO ANCHOR WOOL TO THE LEFT HAND MACHINE CLAMP.

NOW BRING ALL THE CHOSEN NEEDLES FORWARD SO THAT THE HEADS ARE APPROX. $\frac{1}{4}$ " CLEAR OF THE MACHINE.

Now starting with the first left hand needle—wind the wool in an anti-clockwise manner so that a twist of wool is wound into the needle head which is protruding clear of the machine. With your left hand hold each loop of wool against the guard rail as you go along. This will ensure that the wool is not too tight and that it stays in the needle head.



Make sure not to pull wool too tightly and at the same time check to see that wool is in needle head only and not behind the needle latch. Continue this operation until all the needles have been dealt with as explained. Holding end loop against guard rail tighten up any slack wool back to spool as before.

Push the needles back to position 'B' and lay nylon cord to work as before : set row counter to zero.

Knit six rows and then remove nylon cord : continue to knit and you have achieved another closed edge cast on.

INCREASING METHODS

automatic method

THE CAM BOX MUST FIRST BE TAKEN TO SIDE OF KNITTING WHICH IS TO BE INCREASED. DO THIS AND BRING UP THE ADJACENT EMPTY NEEDLE TO POSITION ·B·

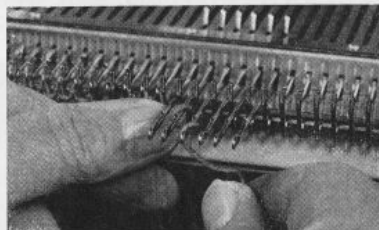
TIGHTEN UP ANY SLACK WOOL BACK TO SPOOL & THEN KNIT ACROSS—WHICH WILL INCREASE WORK BY ONE STITCH.

BULK INCREASING

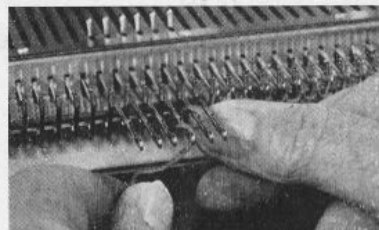
AGAIN THE CAM BOX MUST BE TAKEN TO THE SIDE ON WHICH THE INCREASING IS DESIRED: DO THIS AND BRING UP TO POSITION ·C· AS MANY NEEDLES AS REQUIRED ADJACENT TO THE KNITTING.

MAKE SURE THAT BOTH
No. 2 PUSH BUTTONS ARE
PRESSED DOWN.

IMPORTANT:
FOR INCREASING WHEN
USING PATTERN CARDS—
LEAVE PUSH BUTTONS IN
PATTERN SETTING.



WHEN INCREASING TO THE
RIGHT THE WOOL IS WOUND
AROUND EACH NEEDLE IN TURN
TO THE RIGHT: WINDING IN AN
ANTI-CLOCKWISE MANNER.



IF INCREASING TO THE LEFT
THE WOOL IS WOUND AROUND
EACH NEEDLE IN TURN TO
THE LEFT: WINDING IN A
CLOCK-WISE MANNER.

**WOOL MUST BE UP AGAINST GUARD RAIL AND BEHIND
LATCH (YOU MAY HAVE TO BRING NEEDLE FORWARD AND
BACK TO DO THIS). TAKE UP SLACK WOOL AS BEFORE.**

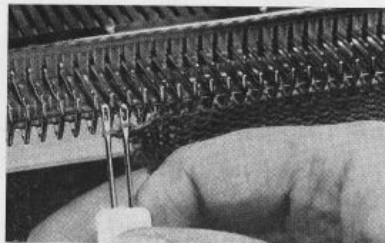
CONTINUE KNITTING AND INCREASING AS ABOVE - AS REQUIRED

Fully Fashioned INCREASING

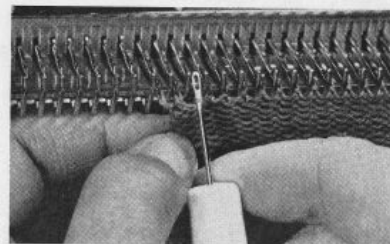
USING THIS METHOD—
WORK CAN BE INCREASED
AT BOTH SIDES, IF DE-
SIRED SIMULTANEOUSLY.

BRING UP THE TWO END NEEDLES (WITH STITCHES ON) ON THE SIDE TO BE INCREASED. OPEN THEIR LATCHES.

NOW BRING UP AN EMPTY NEEDLE AND OPEN ITS LATCH. A DOUBLE HEADED TRANSFER TOOL IS PLACED OVER THE FIRST TWO NEEDLES MENTIONED AND PULLED TOWARDS OPERATOR AS FAR AS POSSIBLE—THEN PUSHED AWAY FROM YOU SO THAT BOTH STITCHES ARE TRANSFERRED ONTO THE TOOL.



MOVE STITCHES OVER TO INCLUDE THE EMPTY NEEDLE BROUGHT UP (WHICH MOVES 2 STITCHES OVER ONE POSITION) LIFT TOOL UP & BACK AS BEFORE TO TRANSFER STITCHES.



TO REFILL THE EMPTIED NEEDLE, PICK UP LOOP OF STITCH UNDER THAT ON FOURTH NEEDLE (FROM THE PREVIOUS ROW). TRANSFER TO EMPTY NEEDLE NEXT DOOR.

CONTINUE KNITTING AND INCREASING AS ABOVE - AS REQUIRED

PLAIN DECREASING METHOD

THE CAM BOX CAN BE AT EITHER SIDE OF KNITTING DURING THIS OPERATION AND DECREASING CAN BE WORKED AT BOTH SIDES SIMULTANEOUSLY IF DESIRED.

OPEN THE LATCHES ON THE LAST TWO STITCHES ON THE SIDE(S) TO BE DECREASED.
TRANSFER THE END STITCH AS BEFORE TO THE NEXT NEEDLE IN AND **PUSH BACK THE NOW EMPTY END NEEDLE TO POSITION 'A'**.

TAKE UP ANY SLACK WOOL BACK TO SPOOL AS BEFORE AND CONTINUE KNITTING & DECREASING AS DESIRED.

FULLY FASHIONED DECREASING

THE CAM BOX CAN BE AT EITHER SIDE OF KNITTING DURING THIS OPERATION AND DECREASING CAN BE WORKED AT BOTH SIDES SIMULTANEOUSLY IF DESIRED.

OPEN THE LATCHES OF THE END FOUR NEEDLES ON THE SIDE(S) TO BE DECREASED.

THIS TIME WE USE A TREBLE-HEADED TRANSFER TOOL AND WE TRANSFER THE FIRST THREE STITCHES INWARDS ONE POSITION. THE NOW EMPTY OUTER NEEDLE IS **PUSHED BACK TO POSITION 'A'**. (THE THIRD NEEDLE WILL NOW HAVE TWO STITCHES ON).

TAKE UP ANY SLACK WOOL BACK TO SPOOL AS BEFORE AND CONTINUE KNITTING & DECREASING AS DESIRED.

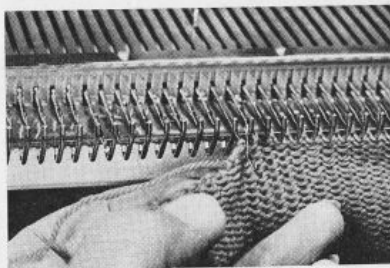
CASTING-OFF

**the cam box should
be to side of work
being cast-off**

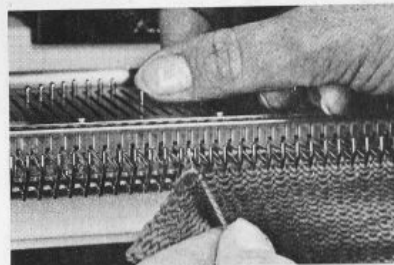
**open the latches of
the required number
of needles**

TRANSFER THE END STITCH (NEAREST THE CAM BOX) INWARDS ONTO THE ADJACENT NEEDLE.

HAVING TRANSFERRED STITCH—NOW PULL THE NEEDLE WITH TWO STITCHES BY HAND UNTIL BOTH STITCHES FALL BEHIND THE LATCH—AS SHOWN BELOW.



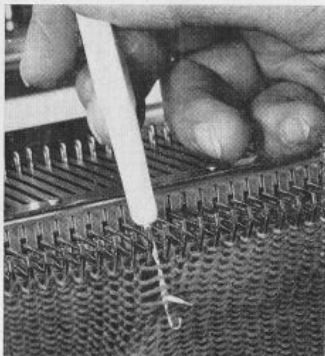
NEXT WE LAY THE WOOL OVER THE NEEDLE BY HAND INTO THE NEEDLE HEAD AND PUSH BACK UNTIL THE TWO STITCHES ARE KNITTED INTO ONE.



CONTINUE UNTIL DESIRED NUMBER OF STITCHES ARE CAST-OFF. MAKE SURE TO PUSH EMPTIED NEEDLES BACK TO 'A' POSITION. NOTE: DO NOT PULL THE CAST-OFF EDGE TOO TIGHTLY DURING THE OPERATION—OR THE WORK WILL BECOME 'PUCKERED'.

PICKING - UP DROPPED STITCHES

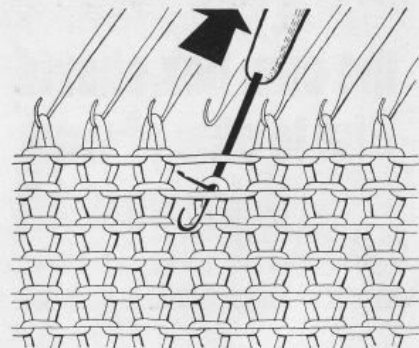
HOLD THE LATCH TOOL TO THE REAR OF KNITTING & PASS THROUGH THE DROPPED STITCH.



← using this time your latch tool

PUSH THE TOOL THROUGH UNTIL STITCH FALLS BEHIND LATCH.

BRING LOWEST BAR OF LADDER INTO LATCH HEAD & PULL UP.



THIS WILL RE-KNIT ONE DROPPED STITCH—CONTINUE TO PICK UP EACH DROPPED STITCH IN TURN, WORKING UPWARDS UNTIL YOU HAVE REPAIRED THE WORK AND REPLACED FINAL STITCH ONTO THE ORIGINAL EMPTY NEEDLE.

NOTE: WHEN YOU HAVE PICKED-UP STITCH, TURN LATCH TOOL TO SIDE TO PICK UP LOOP—TURN BACK TO CENTRE TO KNIT. THIS WAY YOUR PICKED-UP STITCHES WILL BE STRAIGHT WITH KNITTING.

BUTTON HOLES

small

**open the latches of
the two needles
where the button
hole is desired**

USING A SINGLE-HEADED TRANSFER TOOL, TRANSFER THE RIGHT HAND STITCH TO THE OTHER OPEN NEEDLE.

BRING UP THE NOW EMPTY NEEDLE TO POSITION ·B· AND CONTINUE TO KNIT.

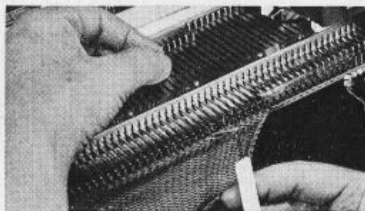
YOU WILL NOW HAVE ACHIEVED A SMALL BUTTON HOLE.

BUTTON HOLES

medium

open the latches of a
GROUP OF FOUR
needles where the
button hole is desired

USING A SINGLE-HEADED TRANSFER TOOL, TRANSFER THE TWO INSIDE STITCHES TO THEIR RESPECTIVE OUTER NEEDLES—THEN BRING THE INNER TWO EMPTIED NEEDLES TO POSITION ·B· & KNIT TWO ROWS.

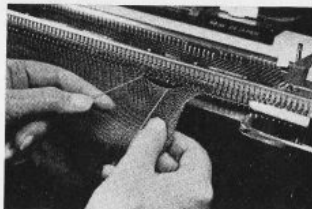


THE TWO CENTRE NEEDLES WILL NOW HAVE ONLY LOOPS. PLACE TRANSFER TOOL UNDER BAR OF WOOL LEFT AND LIFT GENTLY UP AND PLACE **BEHIND** LATCH OF RIGHT HAND NEEDLE, (LATCH CLOSED) WHILE LEAVING LOOP IN NEEDLE HEAD. LEAVE THE NEEDLE SLIGHTLY FORWARD. CONTINUE TO KNIT.

BUTTON HOLES

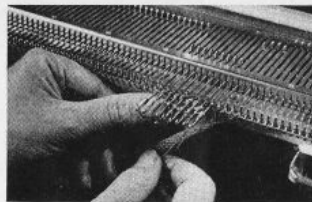
large

method used for any
button hole requiring
5 or more needles



CAST-OFF THE REQUIRED NUMBER OF STITCHES (TO SUIT WIDTH OF BUTTON HOLE) USING A SPARE LENGTH OF WOOL—THE SAME COLOUR AS BEING KNITTED—FROM RIGHT TO LEFT.

WHEN THE REQUIRED NUMBER OF STITCHES HAVE BEEN CAST-OFF PULL THE SPARE WOOL RIGHT THROUGH THE LAST CAST-OFF LOOP.



NOW BRING-UP ALL THE EMPTIED NEEDLES TO POSITION 'D' AND ALSO ONE NEEDLE TO EACH SIDE WITH A STITCH ON.

STILL USING THE SPARE LENGTH OF WOOL, CAST-ON BY HAND METHOD PREVIOUSLY EXPLAINED (INCLUDING TWO END NEEDLES WITH STITCHES ON) FROM LEFT TO RIGHT (IN AN ANTI-CLOCKWISE MANNER).

WOOL MUST BE BEHIND LATCH NEEDLES AND HELD UP AGAINST GUARD RAIL.

**CHECK THAT
NUMBER 2
PUSH BUTTONS
ARE DOWN**

**ANOTHER WAY
TO MAKE
LARGE
BUTTON HOLES**

**CONTINUE TO KNIT & YOU WILL COMPLETE YOUR LARGE
BUTTON HOLE.
NEATEN-OFF THE BUTTON HOLE BY USING SPARE WOOL.**

**TAKE A DIFFERENT COLOURED WOOL AND WITH THIS CAST
OFF BY HAND THE NUMBER OF STITCHES NEEDED. CON-
TINUE KNITTING NORMALLY. WHEN THE GARMENT IS
FINISHED NEATEN OFF THE BUTTON HOLES BY BUTTON
HOLE STITCHING—REMOVING SPARE WOOL AS YOU SEW.**

HOW TO KNIT A POCKET

PUSH THE TWO PUSH BUTTONS MARKED 'OFF' WHICH WILL CLEAR ALL BUTTONS ON THE CAM BOX.

CAM LEVER SET TO 'STOCKINET'.

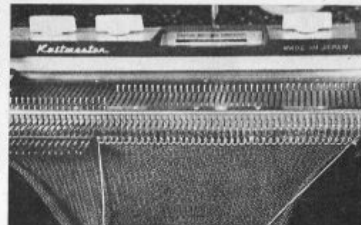
PATTERN LEVER AT THE SPOT.

PATTERN PANEL IS SET CLEAR AT NEUTRAL.

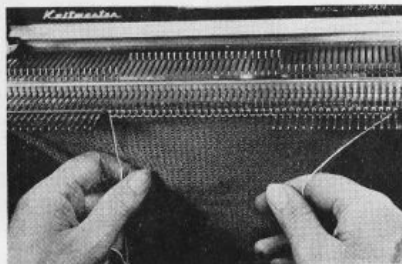
HAVING DECIDED THE POSITION OF THE POCKET WE MUST BRING UP ALL THE NEEDLES ON EITHER SIDE OF POCKET POSITION IN THE FOLLOWING ORDER:

START BY BRINGING UP ALL THE NEEDLES NOT REQUIRED TO POSITION ON THE SIDE OPPOSITE TO THE CAM BOX. NOW USING A LENGTH OF CONTRASTING COLOURED COTTON—THREAD THIS INTO THE BRUSH ASSEMBLY WITH THE WOOL AND—WHILE HOLDING ABOVE—ANCHOR COTTON BELOW TO A MACHINE CLAMP. KNIT ONE ROW WITH WOOL AND COTTON—ALLOWING THE COTTON TO RUN THROUGH YOUR FINGERS.

THE FREE END OF COTTON IS NOW PULLED CLEAR OF BRUSH ASSEMBLY & ALLOWED TO HANG DOWN TO FRONT OF KNITTING. NOW BREAK THE ANCHORED END OF COTTON SO THAT THIS ALSO HANGS DOWN IN FRONT OF KNITTING.



AGAIN ON THE OPPOSITE SIDE OF CAM BOX NOW BRING-UP THE REMAINDER OF THE NEEDLES NOT REQUIRED FOR POCKET—TO POSITION ·D· THIS WILL LEAVE A CENTRAL NUMBER OF NEEDLES IN POSITION ·B· CORRESPONDING TO WIDTH & DESIRED POSITION OF POCKET.



TIGHTEN THE TENSION DIAL ONE FULL POINT (3 CLICKS) AND KNIT THE REQUIRED NUMBER OF ROWS TO ENABLE YOU TO TURN IT INTO A POCKET TOP.

OPEN THE LATCHES OF THE CENTRAL NEEDLES IN USE AND USING A SINGLE-HEADED TOOL—TRANSFER THE LEFT-HAND STITCH OF THE ROW WHICH HAS COTTON KNITTED-IN—INTO THE NEEDLE HEAD IMMEDIATELY BEHIND (AS PER A PLAIN-HEM).

USING THE CONTRASTING COTTON AS A GUIDE. TRANSFER EACH STITCH UNTIL THE ROW IS COMPLETE.

YOU HAVE NOW TURNED THE POCKET TOP

MAKE SURE THAT ALL THE NEEDLES JUST USED ARE PUSHED BACK BY HAND— TO POSITION ·B· & RESET THE TENSION DIAL TO ORIGINAL TENSION (ONE FULL POINT LOOSER).

KNIT DOUBLE THE AMOUNT OF ROWS REQUIRED FOR DEPTH OF POCKET—HOLDING THE KNITTING DOWNWARDS AGAINST THE MACHINE WITH FREE HAND—OUT OF HARM.

NOW ON THE SIDE OPPOSITE TO THE CAM BOX PUSH THE UNUSED NEEDLES IN ·D· POSITION BACK TO POSITION ·C· AND OPEN NEEDLE LATCHES. KNIT A FURTHER ROW.

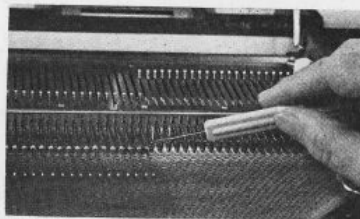
PRESS DOWN BOTH NUMBER 2 PUSH BUTTONS.

CONTINUE TO KNIT AND YOU HAVE ACHIEVED YOUR POCKET: PULL CLEAR THE CONTRASTING COTTON FROM YOUR KNITTING— AND ON COMPLETION OF YOUR GARMENT STITCH UP THE SIDES OF YOUR POCKET(S).

HOW TO KNIT A 'V' NECK

**PUSH THE TWO PUSH BUT-
TONS MARKED 'OFF' WHICH
WILL CLEAR ALL BUTTONS
ON THE CAM BOX.**

ON THE OPPOSITE SIDE TO THE CAM BOX—BRING UP HALF THE NEEDLES BEING USED TO POSITION ·D· & THEN KNIT TWO ROWS OVER THE REMAINING NEEDLES.



NOW OPEN THE LATCHES OF THE FIRST THREE NEEDLES OF KNITTING BEING USED—ON OPPOSITE SIDE TO CAM BOX (NECK EDGE).

NOW—USING A DOUBLE-HEADED TRANSFER TOOL—TRANSFER THE 1st & 2nd STITCHES OVER TO THE 2nd & 3rd NEEDLES—AND PUSH BACK THE EMPTIED NEEDLE TO POSITION ·A·. KNIT THE REQUIRED NUMBER OF ROWS—DECREASING IN THE MANNER DESCRIBED (FULLY FASHIONED)—NECESSARY TO COMPLETE THIS SIDE OF THE 'V' NECK & THEN CAST-OFF. PUSH BACK EMPTY NEEDLES TO ·A· POSITION.

PRESS DOWN BOTH NUMBER TWO PUSH BUTTONS—AND RE-THREAD UP THE MACHINE. THEN WE CAN TACKLE THE OTHER SIDE OF THE 'V' NECK.

KNIT TWO ROWS & THEN OPEN THE LATCHES OF THE THREE END NEEDLES AT THE CENTRE OF THE WORK (NECK EDGE). THE OUTER TWO SIDES ARE KNOWN AS SLEEVE EDGES.

REPEAT DECREASING THE NECK EDGE TO THE REMAINING HALF OF WORK IN CORRESPONDING MANNER TO THE FIRST—AND YOU WILL HAVE KNITTED A 'V' NECK.

ON THESE PAGES SHAPING AND INSTRUCTIONS FOR THE NECK EDGES ONLY, ARE GIVEN. WHEN KNITTING A GARMENT CARE MUST BE TAKEN TO SHAPE AT BOTH SLEEVE AND NECK EDGES.

TO FINISH-OFF A 'V' NECK

STITCH UP THE SHOULDER SEAMS FIRST BY BRINGING TOGETHER TWO HALVES OF KNITTING (FRONT AND BACK) WITH THE WRONG SIDES FACING OUT—MARRY UP THE HALVES AND PIN TO POSITION. THEN SEW TOGETHER WITH GARMENT WOOL USING BACK STITCH.

WHEN THIS IS COMPLETED WE HAVE TO TRANSFER THE GARMENT BACK ONTO THE MACHINE TO FINISH-OFF THE 'V' NECK.

SLIDE THE CAM BOX TO RIGHT HAND SIDE OF MACHINE AND BRING FORWARD TO POSITION ·B· THE REQUIRED NUMBER OF NEEDLES TO KNIT HALF THE NECK.

NOW SLIDE CAM BOX OVER NEEDLES AND BACK AGAIN WHICH WILL BRING THEM TO 'TRUE' POSITION ·B·

SET BOTH THE NUMBER TWO PUSH BUTTONS DOWN.

SET TENSION DIAL ONE FULL POINT TIGHTER THAN GARMENT SETTING.

THE CAM LEVER SHOULD BE SET AT 'STOCKINET'.

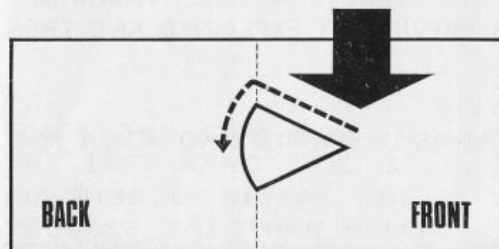
THE PATTERN LEVER IS SET CENTRALLY TO 'SPOT'.

WE ARE NOW READY TO TRANSFER THE GARMENT TO MACHINE!

TO TRANSFER GARMENT TO MACHINE.

START HERE

WORKING AS SHOWN



WRONG SIDES OF GARMENT SHOWING

NOW USING A SINGLE-HEADED TOOL TRANSFER THE STITCH NEAREST TO THE 'V' ON THE SIDE WE ARE FINISHING TO THE FIRST NEEDLE ON SIDE NEAREST TO THE CAMBOX.

PLEASE NOTE THAT WHEN TRANSFERRING THIS STITCH WE MUST BE CAREFUL TO PICK UP THE INNER LOOP OF THE STITCH.

BEAR IN MIND THAT THERE IS NO NEED TO TURN GARMENT TO FACE SIDE IN ORDER TO SEE THE STITCHES—AS THE NECK EDGE CURLS OVER NATURALLY—THUS SHOWING ALL STITCHES TO EDGE.

TO COMPLETE TRANSFERRING THE FIRST HALF OF NECK TO MACHINE—PROCEED AS FOLLOWS:—

TRANSFER THE NEXT TWO STITCHES IN THE MANNER DESCRIBED ABOVE:—MAKING THREE IN ALL.

PICK UP THE FIFTH STITCH (PASSING OVER THE FOURTH) & TRANSFER TO THE FOURTH NEEDLE. REPEAT IN THIS MANNER BUT PASSING OVER EVERY FOURTH NEEDLE USING EVERY NEEDLE IN TURN—UNTIL FIRST HALF OF NECK IS TRANSFERRED TO THE MACHINE.

THREAD UP MACHINE WITH GARMENT WOOL AND KNIT ONE ROW ACROSS TO THE LEFT.

**YOU ARE NOW READY TO
KNIT THE HEM TO THE
NECK:
WHICH WILL BE MITRED
AT THE 'V' POINT.**

TO MITRE THE 'V' POINT OF THE NECK WE OPEN THE LATCHES OF THE FIRST THREE NEEDLES CLOSEST TO THE 'V' & WITH A DOUBLE-HEADED TRANSFER TOOL WE EXECUTE A FULLY-FASHIONED DECREASE IN THE MANNER PREVIOUSLY EXPLAINED AND THEN KNIT ACROSS.

DECREASE AGAIN AT THE 'V' AS DESCRIBED AND AGAIN KNIT ACROSS.

CONTINUE THIS PROCESS UNTIL THE DEPTH REQUIRED FOR MITRE IS ACHIEVED & THEN KNIT TWO PLAIN ROWS.

NOW INCREASE IN FULLY FASHIONED MANNER EVERY ROW UNTIL ORIGINAL NUMBER OF STITCHES ARE BACK ON THE MACHINE.

KNIT A FURTHER PLAIN ROW & THEN CAST-OFF.

**SLIDE THE CAM BOX TO
THE LEFT HAND SIDE OF
MACHINE & REPEAT THE
PROCESS ON OTHER HALF
OF THE NECK:
AGAIN STARTING AT 'V'.**

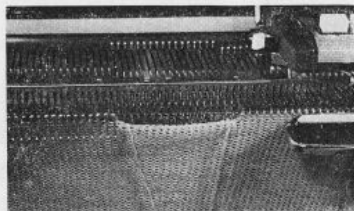
FOLD BACK THE NECK HEM JUST KNITTED TO WRONG SIDE OF
GARMENT AND SEW DOWN USING BACK STITCH—TAKING CARE
NOT TO PIERCE THROUGH TO THE FRONT OF GARMENT.

HOW TO KNIT A ROUND NECK

**PUSH THE TWO PUSH
BUTTONS MARKED 'OFF'
WHICH WILL CLEAR ALL
BUTTONS ON THE CAM BOX.**

CAST-OFF A CENTRAL NUMBER OF STITCHES (MAKING SURE THAT THERE ARE AN EQUAL NUMBER OF STITCHES ON EITHER SIDE).

WHEN CASTING-OFF THE REQUIRED STITCHES—USE A SPARE PIECE OF WOOL THE SAME COLOUR AS IS BEING USED FOR THE GARMENT.



THIS PHOTOGRAPH SHOWS THE POSITION OF NEEDLES WHEN COMMENCING TO KNIT FIRST HALF OF ROUND NECK.

ON THE NEEDLES NEAREST THE CAM BOX—KNIT FOUR ROWS. TRANSFER THE END STITCH ON THE NECK EDGE TO ADJACENT NEEDLES IN USE: CONTINUE TO KNIT & DECREASE ON THIS SIDE UNTIL ONE HALF OF NECK IS FORMED. CAST OFF AND PUT ALL EMPTY NEEDLES TO 'A' POSITION. PRESS DOWN BOTH NUMBER TWO PUSH BUTTONS & RETHREAD MACHINE IN ORDER TO TACKLE THE OTHER SIDE OF ROUND NECK.

REPEAT DECREASING NECK EDGE ON REMAINING HALF OF WORK IN CORRESPONDING MANNER TO THE FIRST HALF AND YOU WILL COMPLETE YOUR ROUND NECK.

TO FINISH-OFF A ROUND NECK

SEW UP ONE SHOULDER SEAM ONLY, AND IF A 'RAGLAN' GARMENT IS BEING KNITTED LEAVE ONE SEAM OPEN: (AT BACK IS SUGGESTED).

TRANSFER THE GARMENT BACK ON TO THE MACHINE USING ALL THE STITCHES AT THE NECK EDGE PICKING UP THREE STITCHES AND PASSING OVER EVERY FOURTH AS DESCRIBED FOR A 'V' NECK.

NOW KNIT SUFFICIENT ROWS TO ENABLE YOU TO TURN BACK A HEM AND THEN CAST-OFF (LOOSELY). TURN AND BACK STITCH HEM TO COMPLETE NECK.

TO KNIT AND FINISH-OFF A POLO NECK

TRANSFER THE GARMENT TO THE MACHINE AS FOR A ROUND NECK.

SET THE TENSION DIAL TWO FULL POINTS LOOSER THAN FOR THE MAIN GARMENT.

KNIT TEN TO FIFTEEN ROWS AND THEN SET THE TENSION DIAL ONE FULL POINT TIGHTER AND AGAIN KNIT TEN TO FIFTEEN ROWS:

AGAIN TIGHTEN THE TENSION DIAL ONE FULL POINT AND KNIT TWENTY TO THIRTY ROWS:

LOOSEN THE TENSION DIAL ONE FULL POINT AND KNIT TEN TO FIFTEEN ROWS:

LOOSEN TENSION DIAL ONE FULL POINT AND KNIT TEN TO FIFTEEN ROWS AND THEN WE CAST-OFF (LOOSELY).

TURN & SEW UP AS PREVIOUSLY EXPLAINED.

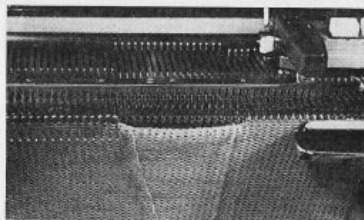
ALL NECK HEMS TO BE PRESSED AS DESCRIBED FOR ELASTIC WELT

HOW TO KNIT A SQUARE NECK

**PUSH THE TWO PUSH
BUTTONS MARKED 'OFF'
WHICH WILL CLEAR ALL
BUTTONS ON THE CAM BOX.**

CAST-OFF A CENTRAL NUMBER OF STITCHES (MAKING SURE THAT THERE ARE AN EQUAL NUMBER OF STITCHES ON EITHER SIDE).

WHEN CASTING-OFF THE REQUIRED STITCHES—USE A SPARE PIECE OF WOOL THE SAME COLOUR AS IS BEING USED FOR THE GARMENT.



ON THE OPPOSITE SIDE TO THE CAM BOX—BRING UP REMAINDER OF NEEDLES BEING USED—TO POSITION 'D'

KNIT THE REQUIRED NUMBER OF ROWS TO COMPLETE THIS SIDE OF SQUARE NECK. CAST OFF AND PUSH EMPTY NEEDLES BACK TO 'A' POSITION.

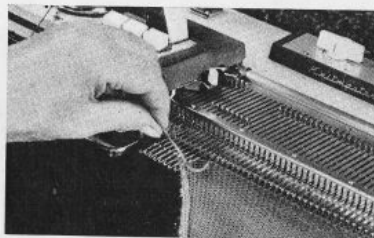
PRESS DOWN BOTH NUMBER TWO PUSH BUTTONS AND RE-THREAD MACHINE AS BEFORE AND THEN KNIT THE OTHER HALF OF SQUARE NECK TO MATCH FIRST HALF.

SHOULDER SHAPING

CAST OFF ON CAM BOX SIDE 6 - 8 STITCHES AS REQUIRED, IN NORMAL WAY. KNIT ONE ROW, CAST OFF AGAIN ON CAM BOX SIDE—CONTINUE IN THIS MANNER UNTIL ALL STITCHES ARE CAST OFF.

OR

PUSH THE TWO PUSH BUTTONS MARKED 'OFF' WHICH WILL CLEAR ALL BUTTONS ON THE CAM BOX. SHOULD THE CAM BOX BE ON THE SLEEVE EDGE SIDE OF WORK, KNIT ACROSS TO THE NECK EDGE. NOW, ON THE SLEEVE EDGE (OPPOSITE TO CAM BOX) BRING FORWARD TO POSITION 'D' A GROUP OF FOUR TO EIGHT NEEDLES—ACCORDING TO THE SIZE OF SHAPING REQUIRED AND KNIT ONE ROW.



BRING THE WOOL WHICH IS NOW LAYING OVER THE GROUP OF NEEDLES—UNDER THE FIRST NEEDLE NEAREST TO KNITTED STITCH—& LAY ON TOP OF THE REMAINDER OF THE GROUP.

KNIT ONE ROW AND BRING FORWARD TO POSITION 'D' A FURTHER ADJACENT GROUP OF NEEDLES (OF THE SAME NUMBER AS PREVIOUSLY CHOSEN) AND AGAIN KNIT ACROSS. NOW AGAIN TAKE WOOL UNDER FIRST NEEDLE AND LAY ON TOP OF THE REMAINING GROUPS AND KNIT ONE ROW. REPEAT THE ABOVE PROCESS AS REQUIRED UNTIL THE FINAL SHAPING IS ACHIEVED—THEN PRESS DOWN BOTH NUMBER TWO PUSH BUTTONS; KNIT ONE ROW & CAST-OFF.

NOW - DART SHAPING

**PUSH THE TWO PUSH
BUTTONS MARKED 'OFF'
WHICH WILL CLEAR ALL
BUTTONS ON THE CAM
BOX.**

ON THE OPPOSITE SIDE TO CAM BOX BRING FORWARD FOUR TO EIGHT NEEDLES TO POSITION ·D· & KNIT ONE ROW. WOOL IS TAKEN UNDER 1st NEEDLE & OVER REMAINDER OF GROUP AS PREVIOUSLY EXPLAINED IN SHOULDER SHAPING, AGAIN KNIT ONE ROW.

REPEAT BY BRINGING FORWARD SIMILAR GROUPS OF NEEDLES UNTIL DESIRED WIDTH OF DART IS ACHIEVED.

NOW STARTING TO SIDE NEAREST THE CAM BOX—PUSH BACK TO POSITION ·C· THE LAST GROUP OF NEEDLES JUST USED. OPEN NEEDLE LATCHES.

KNIT ONE ROW & AGAIN THE WOOL IS TAKEN UNDER 1st NEEDLE AND LAID ON TOP OF REMAINING NEEDLES.

KNIT ONE ROW & REPEAT THIS REVERSE PROCESS UNTIL ALL NEEDLES ARE IN USE IN POSITION 'B'. AS EACH BATCH OF NEEDLES ARE PUSHED BACK TO POSITION 'C' YOU MUST OPEN THE NEEDLE LATCHES.

FAIRISLE KNITTING

using 2 different colours

TO ILLUSTRATE THIS KNITTING WE SHALL GO THROUGH STEP-BY-STEP THE PATTERN AS SHOWN BELOW:

Card No. 10—Pattern 37

ORDER	CON. COLOR	PATTERN PANEL	CAM LEV.	PUSH BUTTONS	PATTERN LEV.	# ROWS DIR.
1	A		1			
2	B	" " "	"		"	"
3	A	1	"		"	"
4	B	" " "	"		"	"

A—MAIN B—2nd COLOUR

(1 pattern consists of
2 stitches and 8 rows)

THIS IS AN EXAMPLE CHART SUCH AS IS GIVEN ON EACH PATTERN CARD.

THREAD UP MACHINE WITH MAIN COLOUR WOOL AND CAST-ON IN THE NORMAL WAY.

KNIT UNTIL TWO-COLOUR PATTERN IS REQUIRED. PUSH SIDE LEVERS BACK TO ▲ POSITION.

SET MACHINE TO THE FIRST LINE OF CHART 'A'—MAIN COLOUR (BEING USED AT PRESENT)—AND AS SHOWN ON CHART KNIT TWO ROWS.

NOW THREAD UP USING SPARE OVERHEAD WOOL FEED WITH 'B'—2ND COLOUR AND LEAVE THIS WOOL HANGING.

REMOVE 'A' COLOUR WOOL FROM BRUSH ASSEMBLY AND ANCHOR TO WOOL HOLDER—FOUND ON RIGHT HAND SIDE OF MACHINE BED . . .

NOTE: Care must be taken when changing the wool that the cam box is not pushed on to any part of the knitting.

To prevent the wool from catching in the nylon brushes when changing the colours, pull the cam box away from the knitting, hold the wool downwards on the side nearest the knitting and slide the cam box towards the knitting, so that the wool will "clear" and be easy to move from the brush assembly.

Make sure there is ALWAYS tension from the needles, through the brush assembly, back through the wool tension assembly to the spool.

FEED 'B' COLOUR (LEFT HANGING) INTO BRUSH ASSEMBLY & ANCHOR TO THE RIGHT HAND MACHINE CLAMP.

THE SECOND LINE OF PATTERN CHART SHOWS A CHANGE OF PUSH BUTTONS SETTING— FOLLOW THIS & KNIT TWO ROWS—ALSO SHOWN ON CHART.

REMOVE 'B' COLOUR FROM BRUSH ASSEMBLY -AND ANCHOR TO THE WOOL HOLDER & FEED IN 'A' COLOUR WOOL TO THE BRUSH ASSEMBLY—MAKING SURE THAT WOOL IS ON TOP.
TAKE UP ANY SLACK WOOL TO THE CONE EVERY TIME A CHANGE OF WOOL IS MADE.

THE CHART NOW SHOWS ON LINE THREE THAT THE SHIFT KEY IS AT NUMBER ONE TO THE LEFT HAND SIDE AND ALSO THAT PUSH BUTTONS ARE TO BE ALTERED ON THE LEFT HAND SIDE.

FOLLOW THESE CHANGES & KNIT TWO ROWS AS SHOWN ON THE CHART.

CHANGE COLOURS OF WOOL TO MACHINE AS PREVIOUSLY DESCRIBED AND AS WE CAN SEE ON LINE FOUR—THE PUSH BUTTONS ARE TO BE RESET—FOLLOW THIS & KNIT TWO ROWS AS ALSO SHOWN.

YOU HAVE NOW KNITTED EIGHT ROWS—WHICH COMPLETES THE PATTERN CYCLE.
REPEAT THIS PATTERN CHART AS MANY FULL TIMES AS DEPTH OF KNITTING REQUIRED.

HAND-FEEDING METHOD

**USING TWO COLOURS OF WOOL:
THIS IS USED WHEN THE PATTERN CHART SHOWS BOTH 'A' & 'B' COLOURS USED IN THE SAME LINE—BOTH COLOURS ARE KNITTED AT THE SAME TIME.**

FEED-UP MAIN COLOUR AND CAST-ON: KNIT UNTIL SECOND COLOUR IS REQUIRED IN THE WORK.

THE PATTERN LEVER IS SET TO 'KNIT-IN' AND BOTH NUMBER TWO PUSH BUTTONS ARE DOWN, SIDE LEVERS PUSHED BACK TO ▲ POSITION—THEN KNIT TWO ROWS—WHICH WILL BRING NEEDLES TO POSITION 'C'.

CAM LEVER IS NOW SET TO 'KNIT-IN' & THE PATTERN PANEL IS SET TO THE FIRST LINE OF THE CHART.

SECURE SECOND COLOUR TO MACHINE CLAMP AND LAY OVER THE 'OPEN' LATCHES OF THE PROTRUDING NEEDLES & HOLD IN HAND AND KNIT ACROSS—ALLOWING WOOL TO RUN THROUGH FINGERS—BUT KEEPING TENSION.

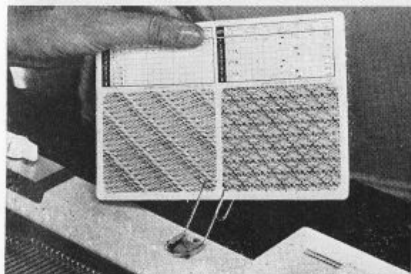
LAY SECOND COLOUR ACROSS NEEDLES AGAIN IN THE OPPOSITE DIRECTION & KNIT ACROSS IN THE MANNER DESCRIBED—MAKING ANY CHANGES CHART MAY SHOW.

REPEAT THIS 'TO-ING AND FRO-ING' UNTIL THE PATTERN CHART CYCLE IS COMPLETE.

PATTERN CARDS

A SET OF PATTERN CARDS IS PROVIDED WITH YOUR MACHINE:

WE ARE NOW GOING TO EXPLAIN THEIR USE



PLACE THE SELECTED CARD IN THE HOLDER ON MACHINE.

REFERS TO PATTERN PANEL SETTINGS.

REFERS TO CAM BOX SETTINGS.

REFERS TO ROWS KNITTED & SHOWS THE DIRECTION.

ORDER	PATTERN PANEL			CAM LEV.	PUSH BUTTONS		PATTERN LEV.	# ROWS DIR.
1	0	•	4	STOCKINET			•	
2	"	"	"	"		"	"	
3	1		1	"			"	
4	"	"	"	"	"		"	
5	2		4	"			"	
6	"	"	"	"		"	"	
7	1		1	"			"	
8	"	"	"	"	"		"	

Card No. 10—Pattern 40

SHOWN ABOVE IS A TYPICAL CHART FROM A PATTERN CARD WHICH GIVES YOU A DESCRIPTION OF THE COLUMNS RELATING TO THE VARIOUS CONTROLS ON YOUR MACHINE.

NOTE: WHEN USING PATTERN CHARTS THE SIDE LEVERS MUST BE PUSHED TO REAR OF MACHINE ▲ POSITION.

PATTERN CHART



IF AT THE TOP OF PATTERN CARD YOU SEE A DIAGRAM SUCH AS SHOWN ABOVE:— THIS REFERS TO THE CORRESPONDING NUMBER OF NEEDLES IN THEIR RESPECTIVE POSITIONS:

THE DOT AT THE BOTTOM OF DIAGRAM REFERS TO THE CENTRE POSITION OF NEEDLE BED AND THE NEEDLES MUST BE SET WORKING FROM THIS POINT.

WHEN USING A PATTERN OF THIS TYPE IT MUST BE RE-SET FOR EACH SECTION OF THE KNITTING. UNLESS PATTERNS OF THIS TYPE ARE SET FROM THE CENTRE THE PATTERN WILL NOT CORRESPOND.

ON THE PATTERN CHART SHOWN ON PREVIOUS PAGE THE KNITTING IS FOR ONE COLOUR ONLY— SHOULD A CARD BE CHOSEN WHICH REQUIRES TWO COLOURS A FURTHER COLUMN IS ADDED TO THE CHART WHICH IS MARKED

CON.
COLOR

IN THESE CASES THE VARIOUS ROWS TO BE KNITTED ARE SHOWN AS 'A' OR 'B' AND THESE REFER TO THE TWO COLOURS BEING KNITTED AND MUST BE THREADED SEPARATELY.

WHERE 'A' AND 'B' OCCUR IN THE SAME ROW — REFER TO METHOD OF KNITTING GIVEN PREVIOUSLY FOR 'HAND FEEDING'.

NECK AND SHOULDER SHAPING WHEN USING PATTERN CARDS

When using the Pick Patterns with both No. 2 Push Buttons down: Release the No. 2 Push Buttons to "Off", needles can then be left in Holding Position.

When Holding Position Patterns are being used, and half the needles have to be taken into Holding Position. Press down both No. 1 Push Buttons, knit required number of rows, push Pattern needles down by hand to the Upper Working Position (Position "C"), release the Push Buttons to "Off" and knit. Repeat throughout. It will only be necessary to do this for the first half of the garment.

When doing Fair Isle Patterns, it is always advisable to take half the work off the needles, either on a Stitch Holder or by threading a contrast piece of wool into the needles and then slipping it off the machine. Complete first half of the garment, replace work back onto the needles and shape second half to correspond with first half. It is vitally important to replace stitches on correct needles.

TO UNRAVEL KNITTING WHEN USING PATTERN CARDS

It is advisable to replace all the "patterned" stitches into the needle latches using the single transfer tool. Undo necessary number of rows to correct knitting—carefully noting number of rows "pulled back" so that the pattern can be corrected and the row counter re-set. If the yarn has snapped, remove and replace brush assembly as explained on Page 24 and allow broken yarn to hang clear. If after having undone required rows the wool is at opposite side to cam box, proceed in this way:—Bring side levers forward to 'spot' position, press 'off' buttons, move cam lever to 'knit-in' and slide cam box across. Re-set cam box and push buttons for selected pattern, push side levers back to ▲ position. Allowing loose thread to hang clear, re-thread, note number of rows un-done and reset your counter. Continue to knit.

TO JOIN IN A NEW SPOOL OF YARN

Never knot the wool. At the end of a row draw the end of yarn out of brush assembly and wool tension assembly and allow to hang down. Re-thread in the normal way and continue to knit but hold loose thread to back of work for 2 or 3 rows to prevent catching. These loose ends can be stitched in or used for sewing up, when garment is completed.

WHAT COULD HAVE GONE WRONG?

FIRST ROW.

1. Cam Box did not make loops on the needles for the first row of the cast on.

- (a) You forgot to pull up into knitting position 'B' the needles for the cast on.
- (b) You forgot to put wool into the machine.
- (c) The wool was not properly threaded through the feeder mouth of brush assembly.
- (d) You did not set all controls on the Cam Box exactly as explained on Page 19.

2. Cam Box stuck during the very first row when you were making the cast on loops.

- (a) All needles not clearly set in knitting position 'B' by moving Cam Box across needles to clear and check before casting on with wool.
- (b) Cam box control not set exactly as explained.
- (c) Wool not properly wound and flowing freely into the machine or knot in wool causing blockages.
- (d) You did not take slack wool back through cam box and wool tension assembly as explained on Page 22
- (e) You threaded up the wool tension assembly incorrectly, so check carefully the threading diagram.
- (f) Brush assembly not correctly attached to the cam box.

SECOND ROW.

1. Knitting comes off on second or any row.

You returned the cam box before it passed needles completely and clearly heard "click".

2. Cam box stuck on second row.

- (a) You forgot to place nylon cord across the loops, and hold down firmly as shown in picture on Page 22 before commencing second row.
- (b) You incorrectly placed the nylon cord **into** the needle hooks instead of between the needle hooks and the pegs. Illustration on Page 22 shows clearly where the nylon cord must be laid.

3. The first row of loops are too tight and small.

- (a) You did not set **all** controls on cam box correctly.
- (b) You are using an overheavy or unsuitable wool to commence you first lesson.
- (c) You did not remember to push back the needles into RIGHT position as explained on Page 22.

4. Dropped stitches or loops thrown off the needles on left side.

- (a) You have threaded up incorrectly or you did not lay the nylon cord correctly across the loops on all the needles which were placed into knitting position 'B'.
- (b) You did not pass cam box past the needles far enough to hear "click" clearly before commencing the second row.

GENERAL QUERIES

LOOP OF WOOL AT SIDE

- (a) You have threaded up incorrectly, or the tension spring failed to take up the slack yarn when the cam box returned to meet the needles on 2nd row. Check carefully that there is always tension from needles, through cam box and wool tension assembly to spool.
- (b) You have pushed the cam box too far past the last needle in action before returning for the next row.
- (c) The brush assembly has not been attached correctly to the cam box.
- (d) Loose threads on yarn caught in brushes on brush assembly. Very fluffy yarns must be waxed before knitting (see Page 3).

CAM BOX DOES NOT SLIDE FREELY

- (a) Machine requires lubrication (see page 73).
- (b) Yarn not wound correctly—does not unwind freely.
- (c) Yarn not correctly threaded through brush tension assembly or yarn caught in brush tension assembly.
- (d) Tension incorrect particularly through wool tension assembly or yarn of poor quality, or too thick being used for type of pattern.
- (e) Bent or damaged needle.

YARN BREAKS

- (a) Knot in yarn unable to pass through brush tension assembly or cam box feeder mouth.
- (b) Yarn caught in brush assembly.

KNITTING NOT EVEN

- (a) Yarn not feeding freely and evenly—yarn not wound correctly. Use woolwinder (See page 2 and inside back cover).
- (b) Yarn not threaded correctly through brush tension assembly.
- (c) Poor quality uneven yarn being used, causing uneven tension.
- (d) Wrong wool tension on wool tension assembly.

WHAT CAUSES DROPPED STITCHES IN THE MIDDLE OF A ROW ESPECIALLY WHEN DOING PATTERNING?

- (a) Brush assembly incorrectly fitted so that brushes do not act correctly on yarn and needle latches.
- (b) Yarn does not feed evenly and freely.
- (c) Large untidy knots in yarn causing jamming of cam box or knots becoming undone.
- (d) Wrong tension either on tension dial or wool tension on wool tension assembly.
- (e) When using two colour patterning and hand feeding, the hand fed wool must be held in tension.
- (f) When using a pattern with holding position (lacy patterns where several loops are collected on one needle) the cam box must not be moved across too quickly.

HINTS ON MAKING-UP & FINISHING-OFF

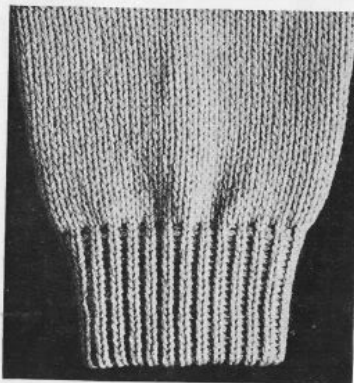
ALL KNITTED PIECES OF ANY GARMENT: e.g. FRONT, BACK AND SLEEVES SHOULD BE PRESSED.

TO PRESS ANY PIECE TURN IT WRONG SIDE UP & PIN IT TO AN IRONING TABLE TO CORRECT SIZE & SHAPE & LIGHTLY PRESS WITH A STEAM IRON OR OVER A DAMP CLOTH. LEAVE PINNED INTO POSITION FOR A FEW HOURS TO ALLOW FOR "SETTING" INTO SHAPE.

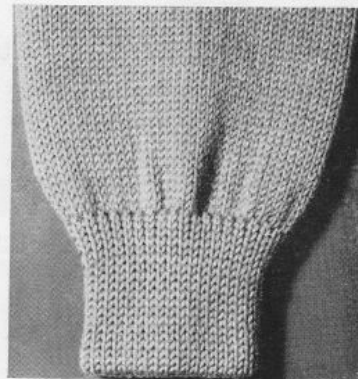
MAKING-UP & STEAMING OF ELASTIC WELTS.

Wool is an animal fibre that needs moisture. Knitting "bends" the yarn and in order to set these bends and shapes permanently you must apply moisture and heat. When the knitting comes off your machine it will be "slack" and lacking in elasticity. To achieve the effect shown below steam the knitting thoroughly—*never* let the iron rest on the welt. While the knitting is still full of steam—stretch downwards very firmly, gathering main material "into" the hem. The "slack" wool will be taken up by the "stitches" when pulled.

Pin the hem into position and allow to dry and cool off completely. This will ensure permanent setting into a perfect elastic hem.



ELASTIC WELT BEFORE 'PRESSING'

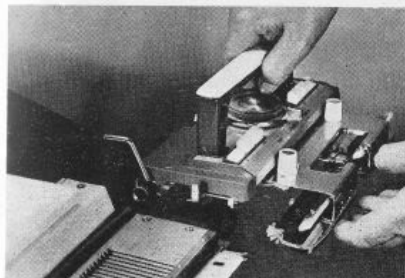


AFTER 'PRESSING'

MAINTENANCE

oiling and cleaning

SLIDE THE CAM BOX RIGHT OFF THE MACHINE AND PLACE SAFELY ON ONE SIDE.



USING A LINT-FREE CLOTH, WIPE OVER THE NEEDLE BED AND THE ROUND RAIL AT BACK (WHICH THE CAM BOX SLIDES ON) TO REMOVE OLD OIL. THEN WITH THE BRUSH FOUND IN THE ACCESSORY BOX—BRUSH OFF ANY WOOL FLUFF FROM NEEDLE BED AND NEEDLE HEADS.

NOW USING THE OIL PROVIDED IN ACCESSORY BOX—SQUEEZE A FEW DROPS ONLY ONTO A CLEAN LINT-FREE CLOTH AND OIL THE ROUND RAIL AT THE BACK AND THE NEEDLE BUTTS ONLY—BY PASSING OILED CLOTH OVER.

A LIGHT SMEAR OF OIL IS ALL THAT IS NECESSARY

NOW FOR THE CAM BOX—WIPE DOWN WITH A CLEAN CLOTH AND BRUSH OFF FLUFF ON UNDERSIDE.

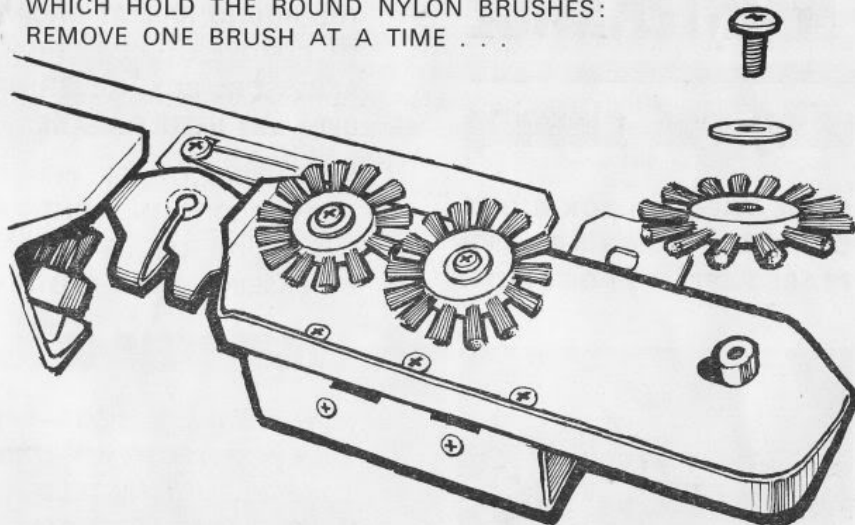
SQUEEZE A LINT-FREE CLOTH INTO A POINT AND OIL THE CHANNEL WHICH LOCATES THE CAM BOX ONTO THE ROUND RAIL—THEN LIGHTLY SMEAR WITH OIL ALL THE SIDES OF THE BLACK METAL CAMS.

ALL THAT REMAINS IS TO REPLACE THE CAM BOX

BRUSH ASSEMBLY

IF THE BRUSH ASSEMBLY SHOULD GRATE OR BECOME STIFF IN USE—REMOVE FROM THE CAM BOX.

UNDO THE 'PHILLIPS' SCREWS TO THE UNDERSIDE WHICH HOLD THE ROUND NYLON BRUSHES: REMOVE ONE BRUSH AT A TIME . . .

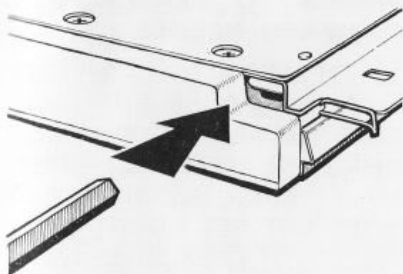


LIGHTLY OIL THE BLACK PLASTIC CENTRE ONLY ON THE SIDE THAT DOES NOT SHOW:
BEFORE REMOVING ANY ROUND PLASTIC BRUSH PLEASE LOOK CAREFULLY & NOTE THAT THE NYLON TUFTS ARE VERY SLIGHTLY RAISED—IT IS MOST IMPORTANT THAT WHEN REPLACING AFTER CLEANING & OILING—THE ROUND BRUSHES ARE NOT UP-SIDE-DOWN.

MAINTENANCE

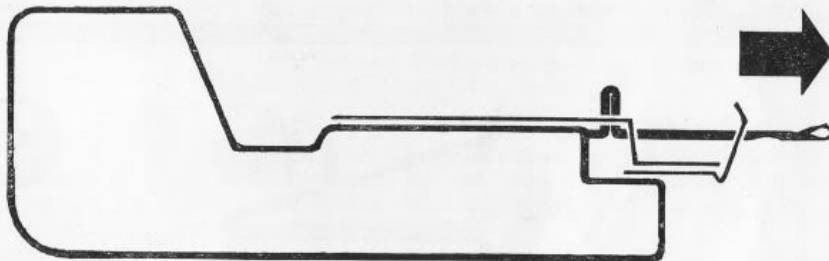
to change a needle

PUSH AGAINST THE PLASTIC END WHICH IS JUST VISIBLE AT EITHER END OF THE NEEDLE BED - USING THE BLUNT END OF A PENCIL.



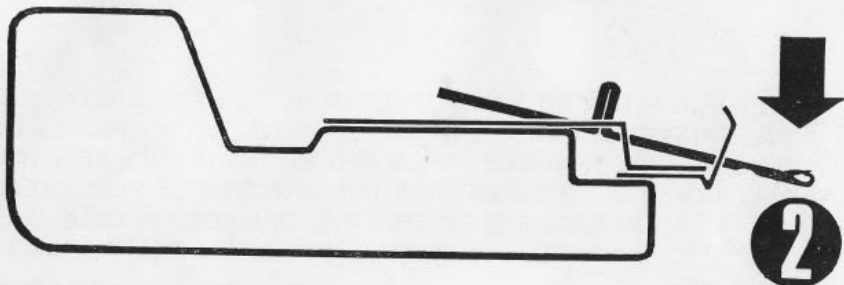
PUSH THE PLASTIC END INTO THE MACHINE ABOUT TWO INCHES...

... THE PLASTIC END JUST PUSHED IN, IS THE NEEDLE RETAINING RAIL, AND THE ACTION WILL CAUSE APPROX. TWO INCHES OF RAIL TO APPEAR AT THE OTHER END OF THE NEEDLE BED. YOU MAY NOW TAKE HOLD OF THIS END AND GENTLY PULL CLEAR AS FAR AS IS REQUIRED TO FREE THE DAMAGED NEEDLE. IT IS NOT NECESSARY TO COMPLETELY WITHDRAW THE RETAINING RAIL.

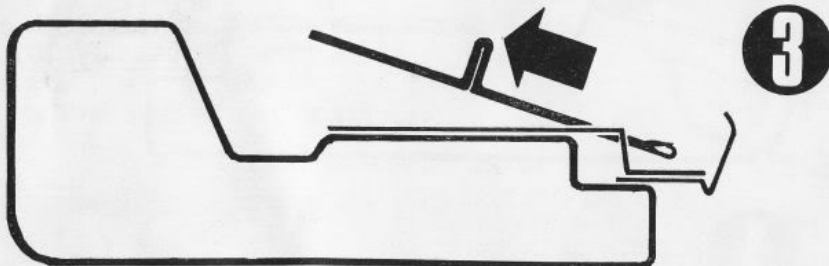


1

PULL THE DAMAGED NEEDLE FORWARD TO POSITION 'D' & MAKE SURE THE LATCH OF THE NEEDLE IS CLOSED.



PRESS DOWN THE NEEDLE HEAD WHICH WILL CAUSE THE REAR OF THE NEEDLE TO RISE CLEAR.



HOLD FIRMLY BY THE BUTT & EASE GENTLY BACKWARDS TO REMOVE THE DAMAGED NEEDLE.

TO REPLACE NEEDLE—REVERSE THIS PROCEDURE BUT MAKE SURE THAT LATCH OF NEEDLE BEING INSERTED IS 'OPEN'. MAKE SURE NEEDLE HEAD DOES NOT GET UNDER PLASTIC COVER OVER NUMBERS.

RETURN NEEDLE RETAINING RAIL TO ORIGINAL POSITION