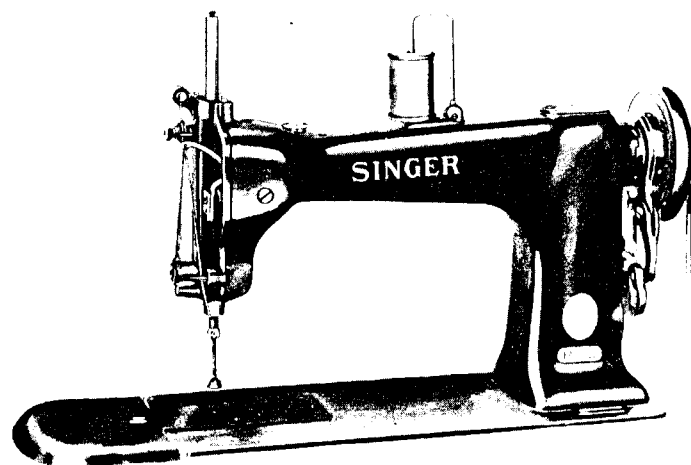


INSTRUCTIONS  
FOR USING AND ADJUSTING  
**SINGER\***  
SEWING MACHINES  
12K221, 12K222, 12K223,  
12K224 and 12K225



Machine 12K221

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THE SINGER COMPANY

## DESCRIPTION

Machine 12 K 221 has a high arm, a flat bed, and a horizontal-axis sewing hook. A stop motion device permits the operator to stop the machine instantly with the needle bar up, having a working space of 1 inch from bottom of needle stripper bar to top of throat plate. The machine has no feeding mechanism and is used for tacking coat pads and shoulder pads, and for basting heavy coats. **Federal Stitch Type No. 301.**

Machine 12 K 222 is the same as Machine 12 K 221 except that it has an auxiliary plunger or pad holder operated by a knee lever, which permits the operator to stretch the pad as it is being stitched, or to pivot around the plunger.

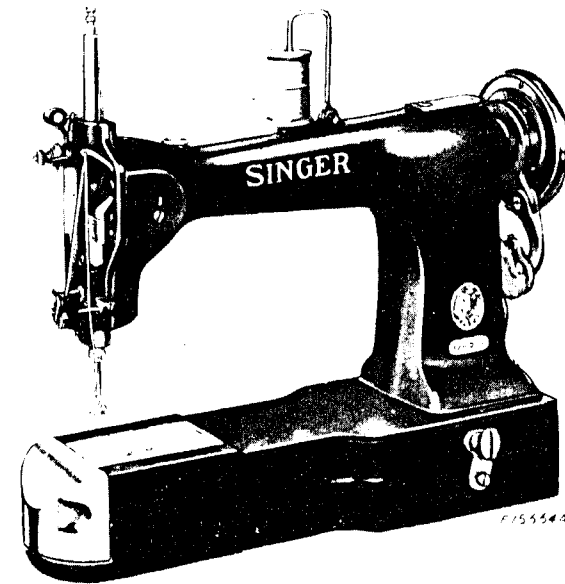


Fig. 1. Machine 12 K 223

Machine 12 K 223, for basting shoulder pads of coats, has a specially shaped narrow bed. The machine is mounted transversely on the table, on an iron base.

Machine 12 K 224 for tacking coat pads, shoulder pads and basting coats. Cylinder bed.

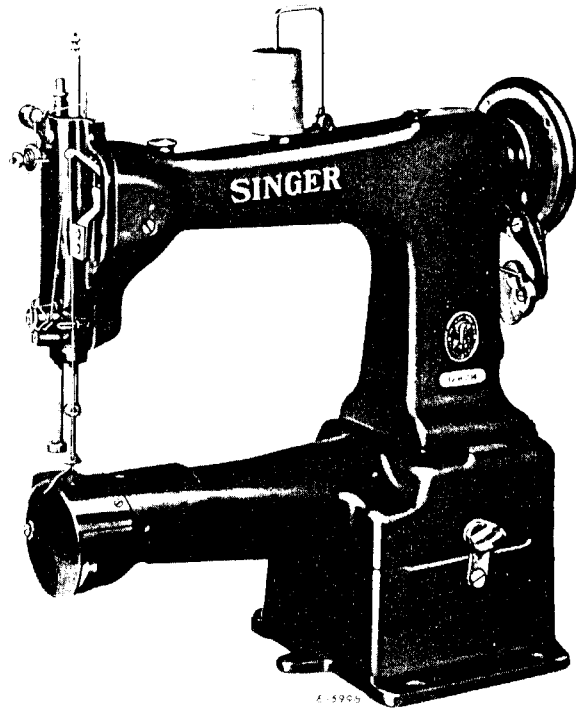


Fig. 2 Machine 12 K 224

Machine 12 K 225 for basting vests, tacking coat pads, stair pads or other light and medium weight materials without compressing the padding. Same as 12 K 221 Machine except the clearance under the needle stripper is  $5/8$ ".

## SPEED

The maximum speed recommended for these machines is 600 R.P.M.

## NEEDLES

Needles for Machines 12 K 221, 12 K 222, 12 K 223 and 12 K 224 are Catalogue No. 4401 (129x1), made in sizes 12, 14, 16, 18, 20, 21, 22, 23, 24 and 25.

Needles for Machine 12 K 225 are Catalogue No. 3303 (126x3), made in sizes 12, 14, 16, 18, 20, 21, 22 and 23.

Orders for needles must specify the Quantity required, the Size number, and the Catalogue number.

The following is an example of an intelligible order:

"100 Size 14, Catalogue No. 4401 (129x1) Needles."

The best stitching results will be obtained by using the needles sold by Singer Sewing Machine Company.

## OILING THE MACHINE

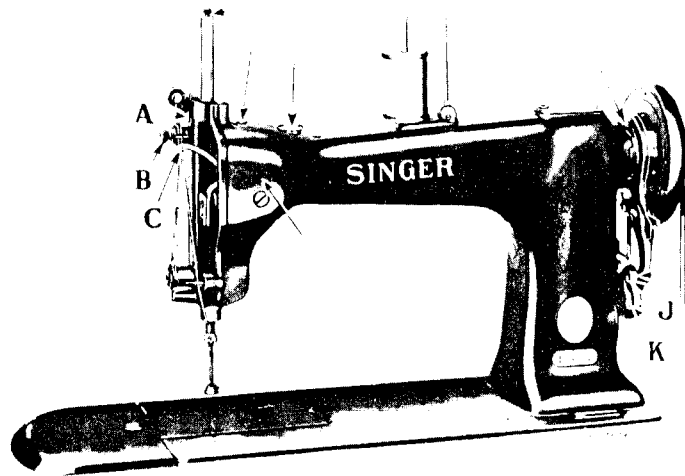


Fig. 3. Oiling Points and Adjustments at Front of Machine

When in continuous use, the machines should be oiled at least twice each day. TYPE B or TYPE D OIL, sold by Singer Sewing Machine Company, should be applied at the places designated by arrows (without letters) in Figs. 3, 4, 5 and 6. Swing back the cover on the top of the machine as shown in Fig. 4, and oil the bearings which are thus uncovered, then replace the cover.

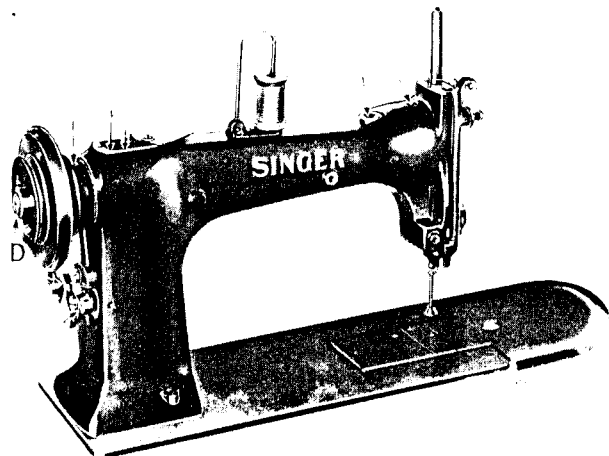


Fig. 4. Oiling Points and Adjustment at Rear of Machine

To remove the face plate, turn the machine pulley until the take-up lever C, Fig. 3 is about horizontal, loosen the large screw A, Fig. 3 at the top of the face plate, then draw its lower end outward and slide it downward until free.

Turn the machine back on its hinges and apply oil at the places designated by arrows in Fig. 6, then bring the machine forward into place.

After oiling, take the bobbin out and run the machine rapidly for a minute, then wipe off all superfluous oil. Be careful to use no more oil than is needed, one drop at each point being sufficient.

If the machine runs hard after standing idle for some time, use a little paraffin or benzine in the oiling places, run the machine rapidly, then wipe clean and oil. If the machine still runs hard, it is certain that some bearing has been overlooked.

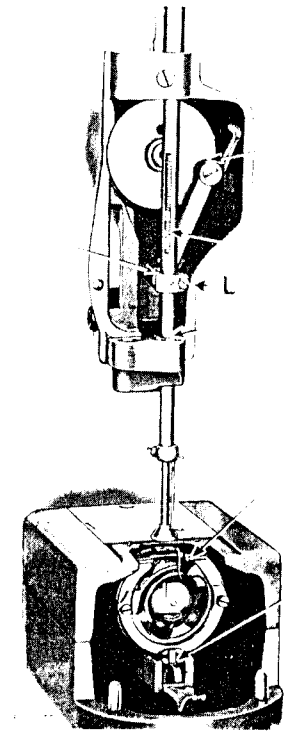


Fig. 5. Oiling Points at End of Machine

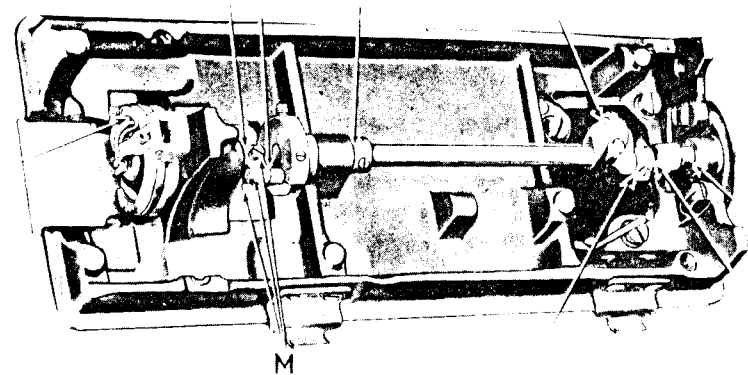


Fig. 6. Oiling Points and Adjustment Underneath the Machine

## THREAD

Best results are obtained with left twist thread in the needle. Either left or right twist thread may be used on the bobbin.

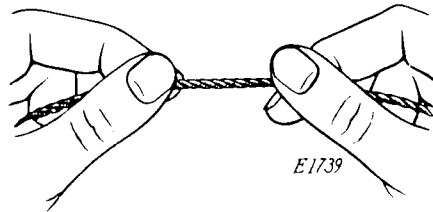


Fig. 7. How to Determine the Twist

Hold the thread as shown above. Turn the thread over toward you between the thumb and forefinger of the right hand; if left twist, the strands will wind tighter; if right twist, the strands will unwind.

## RELATIVE SIZES OF NEEDLES AND THREAD

The size of the needle to be used should be determined by the size of the thread, which must pass freely through the eye of the needle. If rough or uneven thread is used, or if it passes with difficulty through the eye of the needle, the machine cannot stitch successfully. Use smooth finished thread of the same size for the needle and the bobbin.

## SETTING THE NEEDLE

Turn the machine pulley until the needle bar is at its highest point, insert the needle in the needle bar with the short groove toward the upright part of the arm, being sure to push the needle up as far as it will go, then tighten the set screw. It may be necessary to turn the needle to the right or left slightly if stitches are missed.

## THREADING THE NEEDLE

Place the spool of thread on the spool holder 1, Fig. 8; pass the thread to the left through the thread guide 2 and under the retainer wire 3, over the retainer 4, down between the tension discs 5, around under the thread controller 6, over the guide 7 and into the controller spring 8, up and from back to front through the eyelet in the take-up lever 9, down through thread guides 10 and 11 and away from you (toward the base of the arm) through the eye of the needle 12.

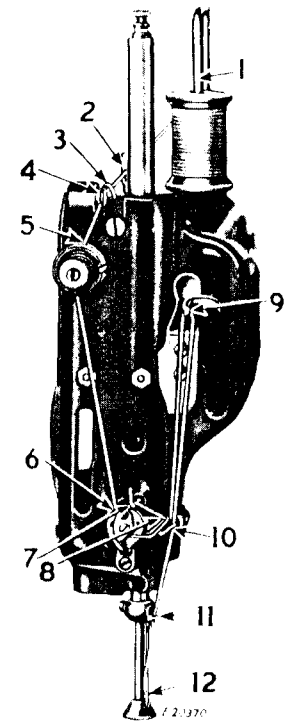


Fig. 8.  
Upper Threading

## TO COMMENCE SEWING

With the right hand, lift up the knurled nut at the top of the needle bar and at the same time with the left hand hold the end of the needle thread, leaving it slack from the hand to the needle while tripping the stop motion device to make one stitch, thus catching the bobbin thread. Draw up the needle thread and the bobbin thread will come up with it through the hole in the throat plate. Lay both threads toward the back of the machine, place the material beneath the needle stripper bar and commence to sew, moving the work for the desired length of each stitch.

## STOP MOTION

The stop motion is operated by pressure on the foot treadle and is designed to bring the machine to a stop at the will of the operator.

Pressure on the foot treadle will cause the machine stop cam slide lever roller to move into position **K**, Fig. 3 and the machine will continue to run as long as the pressure is maintained. When pressure is released the roller will automatically return to position **J**, Fig. 3 and the machine will come to a stop instantly, with the needle and thread take-up lever raised.

## TO REMOVE THE BOBBIN CASE

Remove the front bed slide, press latch **Q**, Fig. 9 down, dropping bobbin case holder **R**, then place a fingernail in the slot of the bobbin case and draw the bobbin case out.

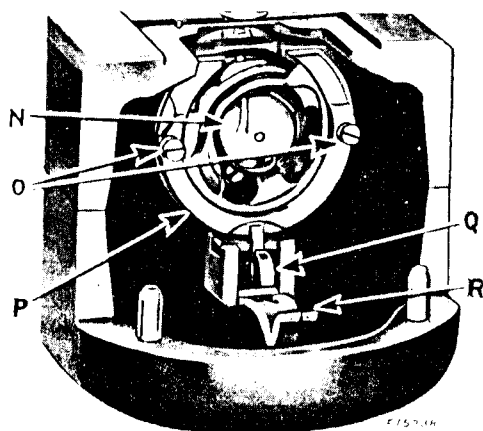


Fig. 9.

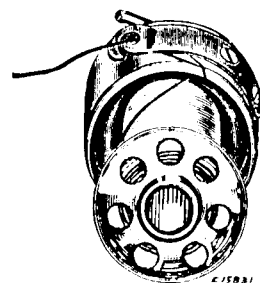


Fig. 10.

## TO THREAD THE BOBBIN CASE

Have the thread unwind from the bobbin in the direction shown in Fig. 10, and draw it into the slot and under the tension spring as shown.

## TO REPLACE THE BOBBIN CASE

Put the bobbin case on the stud in the centre of the hook in such a position that the stop finger **N**, Fig. 9 will be in the fork of the holder **R** when the holder is raised. See that the joint of holder **R** is free from dirt and lint, and that the holder is held firmly by latch **Q**.

## TO WIND THE BOBBIN

(See Fig. 11).

Fasten the bobbin winder to the table with its driving pulley in front of the machine belt, so that the pulley will drop away from the belt when sufficient thread has been wound upon the bobbin.

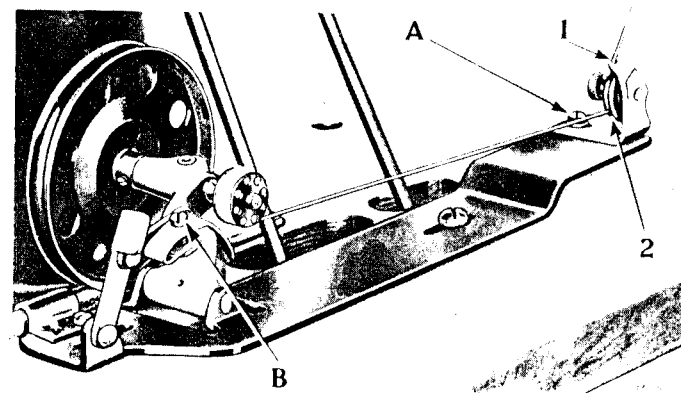


Fig. 11. Winding the Bobbin

Place the bobbin on the bobbin winder spindle and push it on as far as it will go.

Pass the thread down through the thread guide **1** in the tension bracket, around the back and between the tension discs **2**. Then wind the end of the thread around the bobbin a few times, push the bobbin winder pulley over against the machine belt and start the machine.

When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically.

If the thread does not wind evenly on the bobbin, loosen the screw **A** in the tension bracket and move the bracket to the right or left as may be required, then tighten the screw.

The amount of thread wound on the bobbin is regulated by the screw **B**. To wind more thread on the bobbin, turn the screw **B** inwardly. To wind less thread on the bobbin, turn this screw outwardly.

Bobbins can be wound while the machine is stitching.

## TENSIONS

The needle and bobbin threads should be locked in the centre of the thickness of the material, thus:

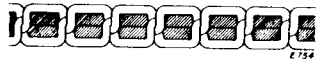


Fig. 12. Perfect Stitch

If the tension on the needle thread is too tight, or if that on the bobbin thread is too loose, the needle thread will lie straight along the upper surface of the material, thus:



Fig. 13. Tight Needle Thread Tension

If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material, thus:



Fig. 14. Loose Needle Thread Tension

## TO REGULATE THE TENSIONS

Turn the thumb nut **B**, Fig. 3 at the front of the tension discs over to the right to increase the tension. To decrease the tension, turn this thumb nut over to the left.

The tension on the bobbin thread is regulated by the screw see Fig. 10 nearest the centre of the tension spring on the outside of the bobbin case. To increase the tension, turn this screw over to the right. To decrease the tension, turn this screw over to the left.

When the tension on the bobbin thread has been once properly adjusted, it is seldom necessary to change it, as a correct stitch can usually be obtained by varying the tension on the needle thread.

## INSTRUCTIONS

for

## ADJUSTERS AND MECHANICS

### THREAD CONTROLLER

The function of the thread controller spring **V**, Fig. 15 is to hold back the slack of the upper thread until the eye of the needle reaches the goods in its descent.

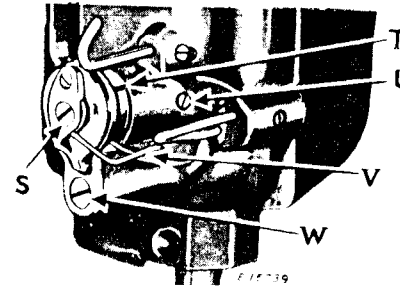


Fig. 15.

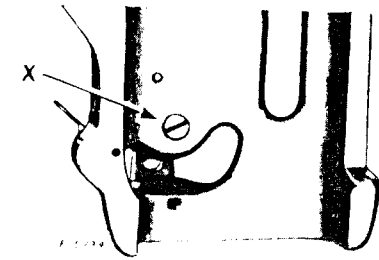


Fig. 16.

The thread controller spring stop **T** is in the form of a split ring which may be rotated on its seat; push on the upper end of the stop at **T** for less controller action, and on the lower end (which the spring rests against) for more controller action on the thread.

It may be found advisable to increase the tension of the spring for coarse thread, or to lessen it for fine thread. To vary the tension of the thread controller spring **V**, remove the face plate and loosen the small set screw **U** at the right of the controller which holds the thread controller stud, then from the inside turn the stud **X**, Fig. 16 forward or backward as required, and retighten the set screw **U**. Whenever an unusually light thread tension is used, the tension on the controller spring should be correspondingly light. The coils of the spring should be oiled occasionally.

**TO PLACE A NEW THREAD CONTROLLER IN POSITION.** Remove the entire thread controller by taking out the largest screw **W** and release the spring by removing the middle screw **S**. (Be careful not to lose the small roller). Place the new spring, roller and screw in their positions. Next put the entire thread controller on the face plate, taking care to slide the little tail, on the coil of the spring, into the notch in the stud over which the coil slides. Replace screw **W**.

Oil the small roller occasionally.

### TO SET THE NEEDLE BAR AND TIME THE HOOK

The needle bar should be set so that when it is all the way down, the upper of its two timing marks will be just visible below the arm casting. Loosen the clamp screw **L**, Fig. 5 and raise or lower the bar if necessary.

Then remove the throat plate and turn the machine pulley until the lower mark on the needle bar comes up to the casting; at this position the point of the hook should be just at the centre of the needle and about  $1/16$  inch above the eye, if the proper needle is in the machine. If the hook is not correctly timed, loosen the three screws at **M**, Fig. 6 in the hook driver crank, and turn the hook to the correct position.

See that the hook does not run close enough to the needle to strike it; if it does, remove the bed slide (back) and loosen the adjusting screw 200334, which is the upper or small screw, and tighten the one just below it, 200564, which holds the bracket to the bed. This will draw the bracket and hook away from the needle. If the hook is too far away from the needle, loosen the screw which holds the bracket to the bed and turn the adjusting screw in until the point of the hook is out to the needle, then tighten the screw which holds the bracket. When the point of the hook is properly adjusted to the needle, the hook driver should be out far enough to guard the needle, so that the point of the hook cannot catch it if it should be deflected while going through the work, but not out far enough to deflect it. If the driver is not out to the needle, one or more hook driver adjusting washers 206634, which are .005 of an inch thick, should be placed on the driver to bring it out to the needle.

### HOOK OPENINGS

The race in which the hook runs, being off centre of the bearing of the driver, causes the heel of the driver to strike the heel of the hook and drive it, thus making an opening between the chin of the hook and the lug on the driver at the time when the upper thread is passing between them. The heel of the driver continues to drive the hook until the thread has passed through the second opening, which is at the end of the driver, then the lug on the driver strikes the chin of the hook and drives the hook, making an opening between the heel of the driver and the heel of the hook. It is only necessary to have enough opening to allow the coarsest thread used to pass through freely. This can be ascertained by holding the hook back to take out all of the lost motion, and seeing that the thread will pass freely through all three of the openings. If there is not enough opening, loosen screw 200562, which holds the bottom of the hook bracket to the bed, and turn in the small screw 200379, at the left of it. This will tilt the hook bracket and throw it a little further off centre; care must be taken not to tilt it too much.

Bobbin case stop 204539 should be only far enough away from the bobbin case to allow No. 8 thread to pass between them. If it is not, it can be bent in the middle to obtain the proper position.

### TO REMOVE THE HOOK FROM THE MACHINE

Remove the hook race cap spring screw and spring **O**, Fig. 9 from each side of the hook bracket **P**, Fig. 9 and remove the hook.

The point of the hook should run as close to the needle on its widest throw, without touching it, as careful adjustment will permit.

## TO ADJUST STOP MOTION

To take up the end play caused by wear of the friction ring, tighten screw D, Fig. 4 in the end of the arm shaft. Adjust the incline lever as

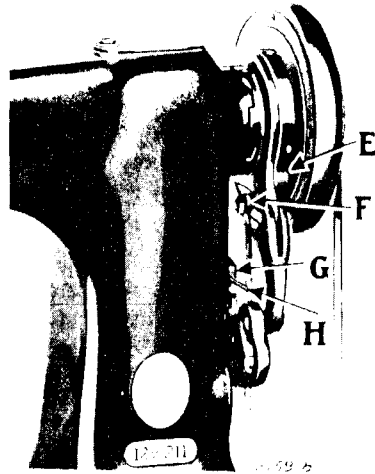


Fig. 17.

follows: Loosen the screw G, Fig. 17, then loosen the nut on adjusting screw H and turn adjusting screw H to the right to take up play between the incline levers (but care must be taken to see that the slide on the end of lever F does not interfere with the cam E when cam is at its lowest position); then tighten screw G, also nut on adjusting screw H.