

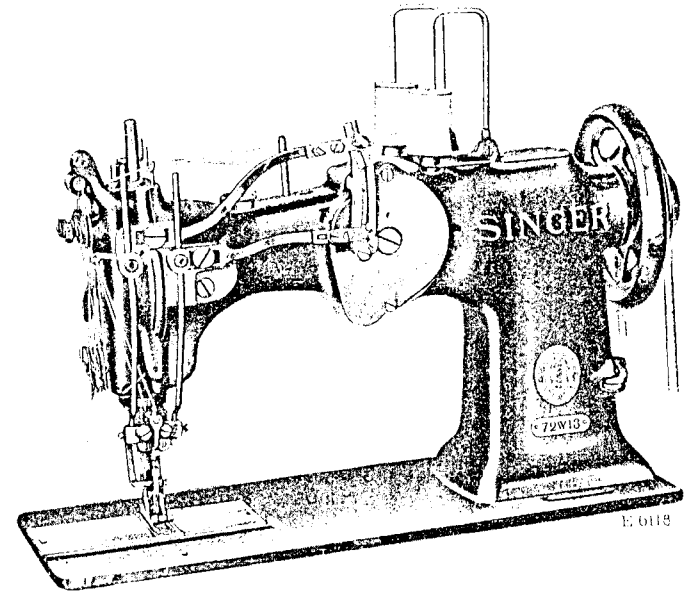
SINGER

72W13,W14,W15,W16,W17,W18,W20

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1012w

INSTRUCTIONS
FOR USING
Singer Sewing Machines



Machine 72w13

OF
CLASS 72w

(Except Machines 72w12 and 72w19)

HEMSTITCH

The Singer Manufacturing Company

DESCRIPTION

Machines of Class 72 w, for hemstitching, have two needles and make the overedge hemstitch on each side of the hemstitch opening. The hemstitch is made in different varieties of fabrics.

Attachments can be furnished for automatically guiding and hemming any desired width of material or hems, also for tucking, hemstitching insertion into the body of material, stitching on lace, plaiting, laying cords under the stitches, etc.

These machines are equipped with an independent piercer driving mechanism and also a detachable auxiliary piercer which acts in advance of the stitching mechanism to perforate closely woven, stiff or heavy material, allowing the needles to act more freely and with less spring than when not assisted. The auxiliary piercer is not required for material which has been previously drawn.

There are two varieties of feed movements. The forward or straightaway feed machines feed the fabric forward every third stitch, as it collects the cross threads into bars or spokes. The return feed machines return the fabric toward the operator for the stitch that collects and holds the cross threads into bars or spokes, and feed forward again.

Machine 72 w 13, for coarse linen table cloths, doilies, vase mats, etc., has forward or straightaway feed and makes $\frac{1}{8}$ inch openings.

Unless otherwise ordered, this machine will be regularly fitted with piercer 213831 and auxiliary piercer 234741, for eight stitches to the inch. Piercer 213830, or auxiliary piercer 234740, for eight stitches to the inch, will be furnished in place of the regular fittings, when so ordered.

Machine 72 w 14, for table cloths, towels, etc., has forward or straightaway feed, and makes $\frac{3}{8}$ inch openings in drawn work and loosely woven fabrics.

This machine is regularly fitted with piercer 213835, for ten stitches to the inch. There is no auxiliary piercer for this machine.

Machine 72 w 15, for table cloths, towels, etc., has forward or straightaway feed, and makes $\frac{1}{2}$ inch openings in drawn work. It is also used where a variety of hand finished patterns are introduced, and wherever a $\frac{1}{2}$ inch opening is desired.

This machine is regularly fitted with piercer 213836, for nine stitches to the inch. There is no auxiliary piercer for this machine.

Note: See illustrations of piercers on page 21.

Purchasing of Parts and Needles

Supplies of parts and needles for Singer machines can be purchased at any Singer shop or ordered by mail. If orders are sent by mail, money or a post office order covering their value, including postage, should be enclosed and the order will then be promptly filled and forwarded by mail or express.

Machine 72 w 16, for table cloths, towels, etc., has forward or straightaway feed and makes $\frac{3}{16}$ inch openings in drawn work.

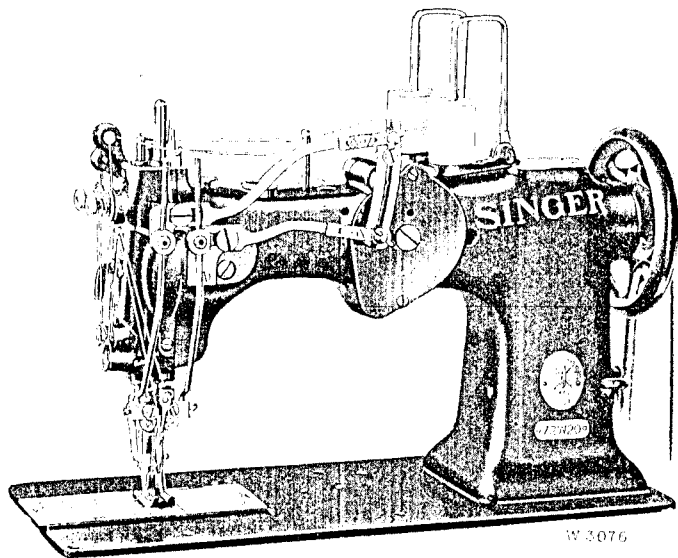
Unless otherwise ordered, this machine will be fitted with piercer 213838 and auxiliary piercer 234742, for eight stitches to the inch. Piercers 213837, 214021 and 214059, or either of auxiliary piercers 234743 or 234744, as desired, for eight stitches to the inch, will be furnished in place of the regular fittings when so ordered. (See illustrations of piercers on page 21).

Machine 72w17, for table cloths, towels, etc., has return feed and makes $\frac{3}{16}$ inch openings in drawn work.

The machine is regularly fitted with the same style piercers and auxiliary piercers as those used in Machine 72 w 16.

Machine 72 w 18, for coarse linen table cloths, doilies, vase mats, etc., has return feed and makes $\frac{1}{4}$ inch openings.

This machine is regularly fitted with the same style piercers and auxiliary piercers as those used in Machine 72 w 13.



MACHINE 72w20

Machine 72 w 20, is designed for wide hemstitching on soft and light fabrics, such as georgette, crepe de chine, voile, messaline, etc., which are used in the manufacture of fine dresses, blouses, neckwear, undergarments, etc.

The wide perforations are obtained without drawing the threads, and the machine is successfully used by many manufacturers on all of the sheer materials.

This machine has forward or straightaway feed and is equipped with piercer 234773 and auxiliary piercer 234744 which act in advance of the stitching mechanism. Perforations or openings of $\frac{5}{32}$ inch are made. (See illustrations of piercers on page 21).

Thread

Fine thread should always be used. We recommend Nos. 120 to 150 in cotton thread.

Speed

The maximum speed recommended for Machines of Class 72 w is 1300 stitches per minute. Run the machine slower than this at first and after the parts have become thoroughly glazed by their action, increase the speed to the maximum stated.

Needles

Needles for Machines 72w13 to 72w18 are of Class and Variety 128x1 (usually of size 10, 11 or 12) and for Machine 72w20, Class and Variety 130x3 (size 16).

The needle which is best adapted for the work that the machine is fitted to do is set in the machine at the factory.

The size number of the needle is marked upon its shank.

The Sizes. The size to be used should be determined by the size of the thread which must pass freely through the eye. If rough or uneven thread is used or if it passes with difficulty through the eye of the needle, the successful use of the machine will be interfered with.

Orders for needles must specify the quantity required, the size, also the class and variety numbers separated by the letter x.

The following are details of an intelligible order:

"100 No. 10—128 x 1 Needles."

The best results will be obtained in using the needles furnished by the Singer Sewing Machine Company.

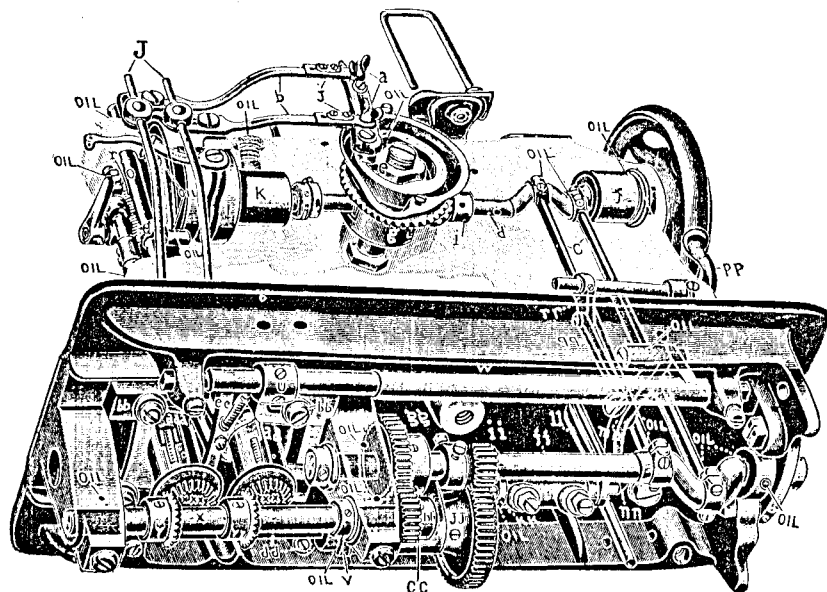


FIG. 3. PHANTOM VIEW OF CLASS 72W MACHINE, SHOWING PLACES TO OIL AND REFERENCE LETTERS

- | | |
|---|--|
| a—Thumb Nuts, adjustable for width of needle vibration. | aa—Hook Saddle (right). |
| b—Needle Vibrating Cam and Gear Segment Lever Connections. | aaa—Hook Saddle (left). |
| c—Arm Shaft Connections. | bb—Hook Saddle Screw. |
| d—Arm Shaft. | cc—Feed Driving Cam and Gear Shaft Bracket. |
| e—Needle Vibrating Cam and Gear 48 teeth. | dd—Feed Lifting Rock Shaft and Crank, adjustable for height of feed dog. |
| f—Arm Shaft Bushing (back). | ee—Feed Bar. |
| g—Needle Vibrating Cam and Gear Stud. | ff—Hook Driving Shaft. |
| h—Arm Plate (not shown). | gg—Hook Counter Shaft Driving Gear, 44 teeth. |
| i—Needle Vibrating Cam and Gear Driving Gear, 16 teeth. | hh—Hook Counter Shaft Gear, 22 teeth. |
| ik—Piercer Driving Eccentric, adjustable for an earlier or later puncture by the piercer. | ii—Feed Driving Cam and Gear Driving Gear, 18 teeth. |
| j—Needle Vibrating Cam and Gear Segment Lever Connection Links. | jj—Feed Driving Cam and Gear, 54 teeth. |
| k—Arm Shaft Bushing (front). | kk—Feed Driving Segment Lever Crank. |
| l—Take-up Cam. | ll—Feed Driving Segment Lever. |
| o—Needle Bar. | mm—Feed Driving Rock Shaft Connection. |
| p—Needle Bar Connecting Stud, adjustable for height of needle bar. | nn—Feed Driving Segment Lever Clamp. |
| r—Presser Bar Spring. | oo—Hook Driving Shaft Bearing. |
| u—Feed Driving Rock Shaft Crank. | pp—Feed Regulating Handle. |
| v—Feed Lifting Cam. | qq—Feed Regulating Handle Shaft Crank Link. |
| w—Feed Driving Rock Shaft. | rr—Feed Regulating Handle Shaft Crank. |
| x—Hook Counter Shaft. | xx—Hook Bevel Gear Socket (right), 24 teeth. |
| y—Hook Bevel Pinion (left), 24 teeth. | xxx—Hook Bevel Gear Socket (left), 24 teeth. |
| yy—Hook Bevel Pinion (right), 24 teeth. | |

To Oil the Machine

Good oil is the life of the machine and should be regularly used on any surface of metal which comes in movable contact with another surface.

It is necessary for the easy running of the machine, that all bearings be oiled. The hook especially should have the attention of the operator, as a drop of oil occasionally on the bobbin case base flange prevents excessive friction in the hook race and assists in making the openings between the stop on the bobbin case and that on the throat plate, thus preventing the upper thread from breaking.

To Set the Needles

Turn the balance wheel toward you, to raise the needle bar to its highest position; hold the needle with the flat side of the shank toward the other needle (or centre), push it up in the needle holder as far as it can go and tighten the pinch screw.

Care must be taken to set the needles so that they will swing freely, with their points completely housed, into the grooves of the piercer on the inside vibration, to assure clear openings.

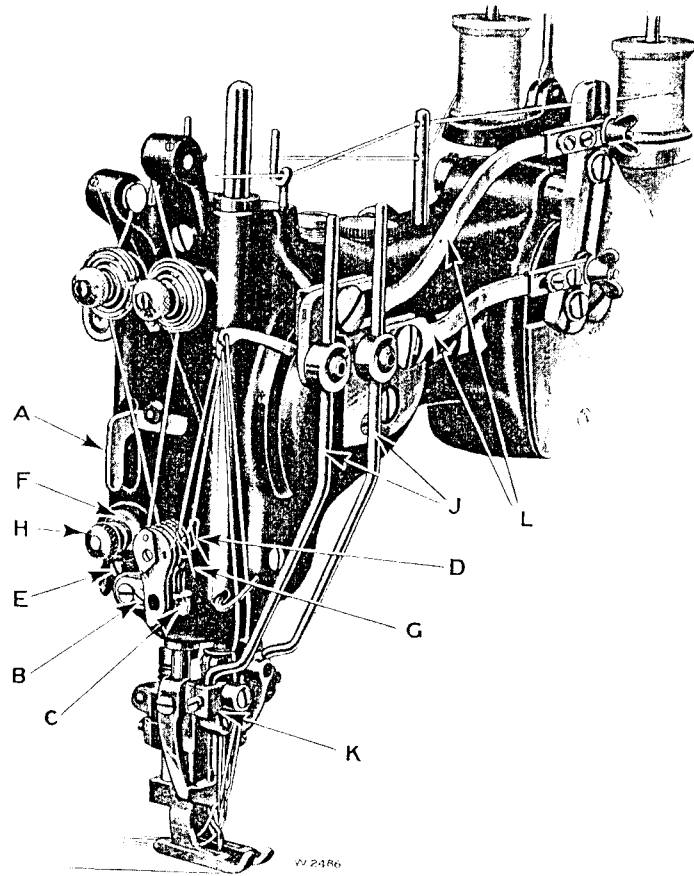


FIG. 4. MACHINE 72w13

To Thread the Needles

Lead the thread from the back spool through the lower hole in the post thread guide, through the eye of the thread guide (back), under the thread retainer guide wire, between the thread retainer and tension discs (back), down under inside thread controller, up through the upper hole in the take-up lever, down through the inside guides to the inside needle, and thread the inside needle from left to right.

Lead the thread from the front spool through the upper hole in the post thread guide, through the eye of the thread guide (front), under the thread retainer guide wire, between the thread retainer and tension discs (front), down under outside thread controller, up through the lower hole in the take-up lever, down through the outside guides to the outside needle, and thread the outside needle from right to left.

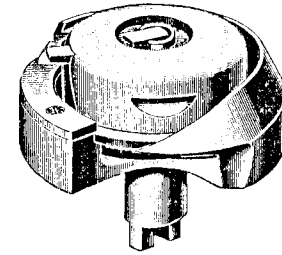
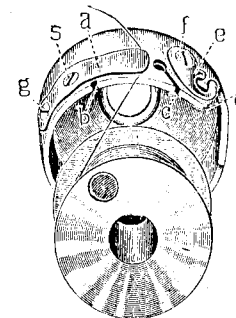
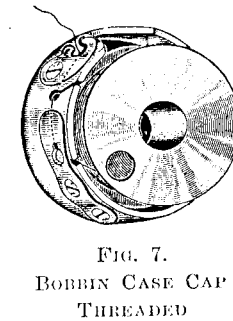
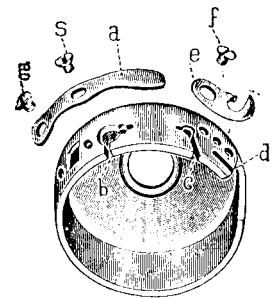


FIG. 5. HOOK AND BOBBIN CASE

To Remove the Bobbin

Draw back the slides on the bed to uncover the hooks; turn the balance wheel toward you until the notch in the side of the bobbin case cap is accessible; lift out the bobbin case cap by placing your thumb nail in the notch and remove the bobbin.

FIG. 6.
BOBBIN—BOBBIN CASE CAPFIG. 7.
BOBBIN CASE CAP
THREADEDFIG. 8.
BOBBIN CASE CAP PARTS

To Thread the Bobbin Case Cap

Hold the cap in the left hand, place the bobbin with the thread drawing from the direction shown (see Figs. 6 and 7); then draw the thread under tension spring (a) and through slot (b) back under tension spring (a), through slot (c) and out under thread guide (e) thus threading the cap. After threading, place the cap on the bobbin case base in the machine and push down the latch.

The bobbin case tension is regulated by the screw which passes through the centre of the tension spring on the bobbin case.

To Wind the Bobbin

(SEE FIG. 9)

On machines fitted with loose pulley, turn the thumb screw (C, Fig. 9), at the right of the balance wheel, over toward you to release the balance wheel. It will be necessary to hold the balance wheel while loosening the thumb screw.

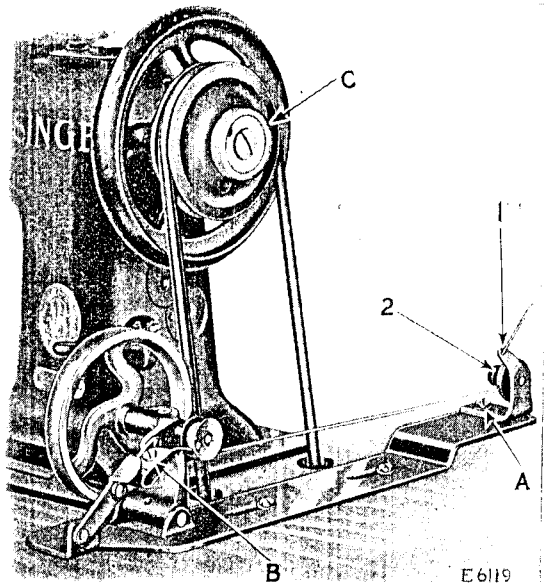


FIG. 9. WINDING THE BOBBIN

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.

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.

After the bobbin has been wound, turn the thumb screw (C, Fig. 9) over from you to tighten the balance wheel.

Knee Lifter

The knee lifter is used for raising the presser foot by knee pressure against the knee plate, leaving both hands free to manipulate the work. If the knee lifter does not raise the presser foot satisfactorily, adjust the rod in the rock lever which connects with the rod in the arm of the machine to lift the presser foot.

Stitch Formation and Piercer Action How Straightaway Hemstitch Opening is Made

One double stitch is made on the inside vibration, another on the outside vibration and the third on the inside vibration of the needles. The piercer rises out of the material at every stitch.

First Stitch. On the inside vibration, the piercer, followed by the needles with their points housed in its grooves, enters to its widest part and spreads the material just after the feed dog has dropped below the surface of the throat plate; as the needles rise they spread a little for the hooks to catch the thread loops.

Second Stitch. On the outside vibration the needles descend spread apart, each needle entering the material outside of and the piercer within the opening, to make the stitches which draw and hold the bar (or spoke) stitches up to the material in imitation of hand work.

Third Stitch. On the inside vibration, the piercer, followed by the needles with their points housed in its grooves, descends again into the opening for the third stitch. After the piercer and needles rise sufficiently clear of the material the feed dog rises and moves the material forward for the needles to work the first stitch in the next opening, binding the intervening threads of the material into a bar (or spoke). Each set of three stitches for each opening is formed in the same manner.

To Commence Sewing

With the left hand take hold of the needle threads, leaving them slack between the hand and the needles, turn the balance wheel toward you until the needles move down and up again to their highest position, thus catching the under threads, draw up the needle threads and the under threads with them through the slot in the throat plate and lay the four threads back underneath the presser foot; then place the material beneath the needles, lower the presser foot upon it, turn the balance wheel toward you, and commence to sew.

The Tensions

Both upper tensions are regulated by the thumb nuts in front of the tension discs.

Both upper and bobbin case tensions should be as light as possible consistent with a perfect stitch.

To release the tension without disturbing the presser foot or work, push lever (A, see Fig. 4) from you.

Caution. Do not try to adjust the tensions when the presser foot is up. For convenience in removing the work, the tension of the upper threads is released whenever the presser foot is raised by the lifter, but is not released by the rising of the presser foot as goods or seams pass under it.

Length of Stitch

The length of stitch should be governed by the kind of material to be hemstitched; a stitch that is too short will not leave a sufficient number of threads between the openings in fine material to insure against their breaking.

Correctly formed stitches require careful adjustment of the needle vibration in relation to the length of stitch and width of bight; much however depends upon the texture of the fabric to be hemstitched, and necessary adjustments should be made at each change of fabric.

To Turn a Square Corner

After the piercer has entered the material for what is to be the last opening in a straight line, and before the needles are down, turn the material at right angles to the last line of openings and proceed to stitch as before. There will be no extra hole punctured at the corner by the auxiliary piercer.

To Remove the Work

Have the take-up lever at its highest point; raise the presser foot, draw the work back to the left and cut the threads close to the goods.

INSTRUCTIONS FOR ADJUSTERS AND MACHINISTS

Thread Controller

SEE FIG. 4

The function of the thread controller springs are to hold back the slack of the upper threads until the eyes of the needles reach the goods in their descent.

For a longer action of the double thread controllers, loosen screw (B) and set stop (C) lower. For less action of the thread controllers, reverse the operation.

To strengthen the action of the inside thread controller (D), loosen screw (E) and turn nut (F) to the right and tighten the screw.

To strengthen the action of the outside thread controller (G), loosen the set screw in thumb nut (H) and turn thumb nut (H) to the right, then tighten the set screw. For lighter action reverse the operations.

To Change the Length of Stitch

The clamp screw (nn, see Fig. 3) is tightened so that an operator cannot change the number of stitches to the inch for which the machine is set; but if a change of stitch is desired, loosen screw (nn) and tighten it after moving handle (pp) for the desired length of stitch. If handle (pp) moves too easily, tighten the screw at the left of and close to the handle.

To Adjust the Feed Dog

The feed dog should rise and show a full tooth above the throat plate as the eyes of the needles come up level with the plate after forming the third stitch in the opening. The feed dog should not begin to move forward for the next opening until the needle points are clear of the goods.

The feed dog must be kept level so as to afford the best condition for handling the material. To level the feed dog, use adjusting screw at (cc, see Fig. 3) and secure by check nut.

To Raise or Lower the Feed Dog

SEE FIG. 3

Clean the lint and dirt from it; tip back the machine and turn the balance wheel toward you until the feed is at its highest position; loosen the screw of crank (dd) and move it up or down until the feed is at the desired height and tighten the screw in crank (dd).

The feed dog does not require adjusting except for some unusual kind of work or if badly worn.

Feed Adjustments

SEE FIG. 3

The feed adjustments which follow are seldom required, but, if an adjustment becomes necessary, take care that the position of the other parts is not changed.

To cause the feed to start earlier after the feed dog is up and the needles are clear of the goods, carefully loosen the screws in feed driving gear (ii) and slightly turn the top of the feed driving gear toward you, which sets cam and gear (jj) forward, be careful not to make too great a change, then tighten the screws firmly. If the feed does not start as early as required, repeat the operation. To make the feed start later move the top of feed driving gear (ii) slightly from you. Any change made in the time of cam and gear (jj) may necessitate a change of the position of feed lifting cam (V).

For an earlier drop of the feed dog, move or set the top of cam (V) from you, and for a later drop of the feed dog, move or set it toward you.

Needles—Adjustment of Bight or Vibration

SEE FIGS. 3 AND 4

The spreading and drawing in or vibratory action of the needles is caused by needle vibrating cam and gear (e) driven by driving gear (i), connected by lever connections (L) and levers (J) to the needle holders (k).

On the outside vibration, the lever connections (L) draw levers (J) toward each other and spread them on the inside vibration, by their connection with needle holders (K).

On the descending inside vibration of the needles, their eyes should be on a level with the material before they commence to move outward toward the hooks, which will bring the strain of the expanding needles upon their shanks when they have reached the lowest portion of the stroke of the needle bar.

To Change the Vibration of Either Needle. For a narrow vibration, adjust thumb nut (a) toward the center and for a wider vibration, adjust it from the center of the vibrator lever.

Should the points of the needles as they descend upon the inside vibration appear outside of the grooves of the piercer, a very fine adjustment may be made by turning needle vibrating lever (J, see Figs. 16 and 17, screws Q) slightly to the left or right to swing needle holder (K) in the direction required; thus keeping the needles properly housed during their descent.

As the needle lever pitmans are independently mounted, they must be separately adjusted.

Lengthening the lower pitman makes the inside needle vibrate farther over the edge of the material, to the right, and shortening the upper pitman makes the outside needle vibrate farther over the edge of the material, to the left.

To obtain the best results and a uniform action of the needles, great care must be taken to set thumb nut (a, see Fig. 3) of each pitman an equal distance from the center of the needle vibrator lever. Should the pitman require lengthening or shortening to obtain a correct position of the needle, loosen screws (j) and move the pitman to the desired position, then retighten the screws. If these adjustments do not suffice, the time of cam and gear (e), on the arm shaft may be changed by loosening the set screws in pinion (i) and turning it slightly for an earlier or later vibration of the needles.

Either needle can be set closer to or farther from the other (see Figs. 16 and 17) by loosening nuts (OO) and adjusting hinge screws (R).

Great care must be taken when making any change of time, not to make the change too great or carelessly. See that all of the screws are tightened firmly before starting the machine.

Needle Bar

To Set the Needle Bar. Two lines $\frac{3}{32}$ inch apart are marked across the bar about $1\frac{3}{4}$ inch from its lower end; when the needle bar is at its lowest position set it so that the highest mark is even with the underside of the arm head.

To Set a Needle Bar Which Has no Mark. Set the needle bar so that when it rises $\frac{3}{32}$ inch from its lowest position, the point of the hook will be at the center of the needle and about $\frac{1}{16}$ inch above the eye; by looking across the top of the bobbin case down to the eye, the full length of the eye should be seen below and close up to the point of the hook.

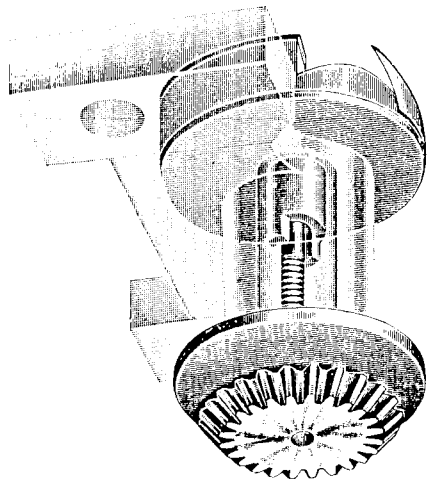


FIG. 10

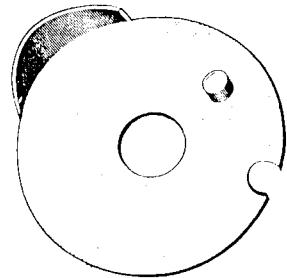


FIG. 11

HOOK WASHER
TRANSPARENT VIEW OF SADDLE, WITH HOOK, GEAR SOCKET, AND SCREW (200555), PASSING DOWN THROUGH THE HOLE INTO THE GEAR SOCKET, BINDING THEM TOGETHER

Hook (Sewing) Adjustments

To See if the Hooks are in Correct Time. Remove the slides and throat plate and turn the balance wheel toward you until the needle bar has passed its lowest position and risen so that the lower mark on it is even with the underside of the arm head. If in correct time, the point of each hook will be at the center of each needle and $\frac{1}{16}$ inch above the eye; if not, loosen the screws in the bevel gear on the shaft under the hook and turn the gear forward or backward slightly until the hook is in time as instructed above, then retighten the screws.

Be sure that the needle guard on the hook washer (see Fig. 11) does not deflect the needle. If the hook is too far from or too near the needle, loosen hook saddle screws (bb, see Fig. 3) just enough to permit the saddle to be driven with light blows to the position desired, then retighten the screws.

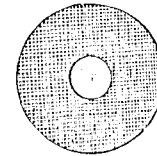


FIG. 12.

BOBBIN CASE WASHER (CLOTH)

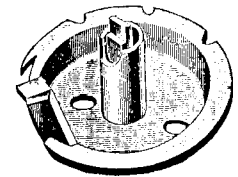


FIG. 14.

BOBBIN CASE BASE

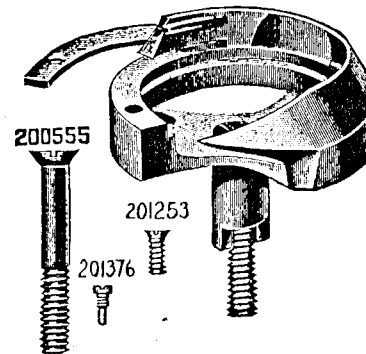


FIG. 13.

HOOK GIB, HOOK GIB SCREW, HOOK GIB HINGE SCREW AND HOOK SOCKET SCREW

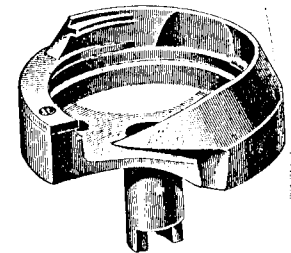


FIG. 15.

HOOK (SEWING) WITH GIB AND SCREWS

Sewing Hooks

SEE FIGS. 13 TO 15

To Remove Either Hook from the Machine. Remove the gib screw at the heel of the hook and move the gib aside to allow the base of the bobbin case to be taken out, after which remove the screw from the center of the hook, as shown in the cut. Tapping the hook lightly from below on the bottom of its rim will force it from its socket. Do not pry it out, as prying may bend the shank of the hook. In replacing the hook be sure that the prongs of the shank properly enter the slot at the bottom of the socket, otherwise the hook will be out of time.

To Remove Arm Shaft (d, see Fig. 3). Through the oil hole near the needle bar loosen the set screw and remove the check and position screws from the take-up cam; loosen the position screw at the back of the arm which holds bushing (f), detach connections (c) from the upper cranks, insert a light flexible rod through the large hole in the arm over the cranks, drive out bushing (f) and draw out the shaft.

To Remove Front Bushing (k). Loosen its position screw at the back of the arm and after removing the needle bar, take-up cam, etc., insert a rod through shaft bushing hole (back) and drive out the front bushing.

When Replacing the Bushing see that the groove in the bushing is in line for the position screw to enter, then drive the bushing as far as it will go and tighten the screw. When setting the take-up cam be sure to replace its position screw in the hole nearest to the presser bar, when the screw holes are uppermost, and turn it down firmly into the shaft, and replace the check screw over it. The end play of the upper shaft is taken up by means of the screw in the end of the shaft at the balance wheel.

In Attaching the Balance Wheel to the shaft, the screw farthest from the operator should enter the groove in the shaft, when both screws are uppermost, otherwise the wheel will be out of balance and cause the machine to shake.

Auxiliary Piercer T

To Set the Auxiliary Piercer. Loosen screw (P, see Fig. 16) and set bracket (U) forward or backward as required. As the

function of the auxiliary piercer is to open the material in advance of the piercer, it must be set in correct relation to the length of stitch, so that the advance perforations made by it may be correctly entered by the piercer and needles.

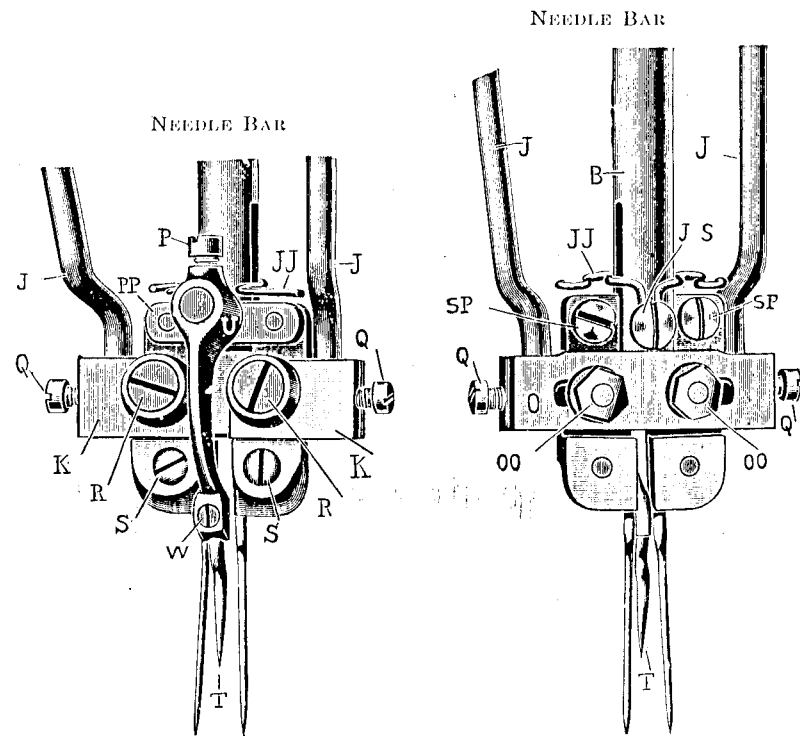


FIG. 16. FRONT VIEW

FIG. 17. BACK VIEW

For Machines of Class 72w. Showing the needle bar with the hinged needle holders, auxiliary piercer and needle vibrating levers, front and back views.

- | | |
|---|---|
| B—Needle Bar. | Q—Needle Vibrating Lever Screws. |
| S—Needle Set Screw. | JJ—Thread Guide (double). |
| K—Needle Holders. | T—Auxiliary Piercer. |
| O—Needle Holder Bracket. | U—Auxiliary Piercer Holder. |
| JS—Needle Holder Bracket Screw. | P—Auxiliary Piercer Holder Screw. |
| R—Needle Holder Hinge Screws, adjustable, to change the permanent location of the needle holders toward or from each other. | PP—Auxiliary Piercer Holder Bracket |
| OO—Needle Holder Hinge Screw Nuts. | SP—Auxiliary Piercer Holder Bracket Screws. |
| J—Needle Vibrating Levers. For a fine adjustment of needle vibration, turn slightly to the left or right as required. | W—Auxiliary Piercer Set Screw. |

PIERCER BAR

Piercer TT

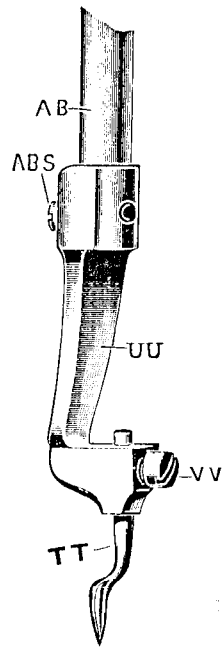


FIG. 18

- AB—Piercer Bar
- ABS—Piercer Holder Screw
- TT—Piercer
- UU—Piercer Holder
- VV—Piercer Screw

The piercer bar is adjustable for a higher or lower position of the piercer.

The piercer should be set to rise to the correct height, clear of the material, and the feed should complete its forward movement before the piercer enters the goods, otherwise clear openings cannot be made.

The piercer should be timed so that it will enter and spread the material to its widest opening as the needles descend with their points housed in the grooves of the piercer.

To change the time of the piercer in relation to the needles, move eccentric (ik, see Fig. 3) on the arm shaft for an earlier or later movement of the piercer.

Should it be necessary to remove piercer (TT, see Fig. 18) it is preferable to detach holder (UU) at screw (ABS).

Piercers and Auxiliary Piercers used in Machines of Class 72w also Diagrams showing Shapes

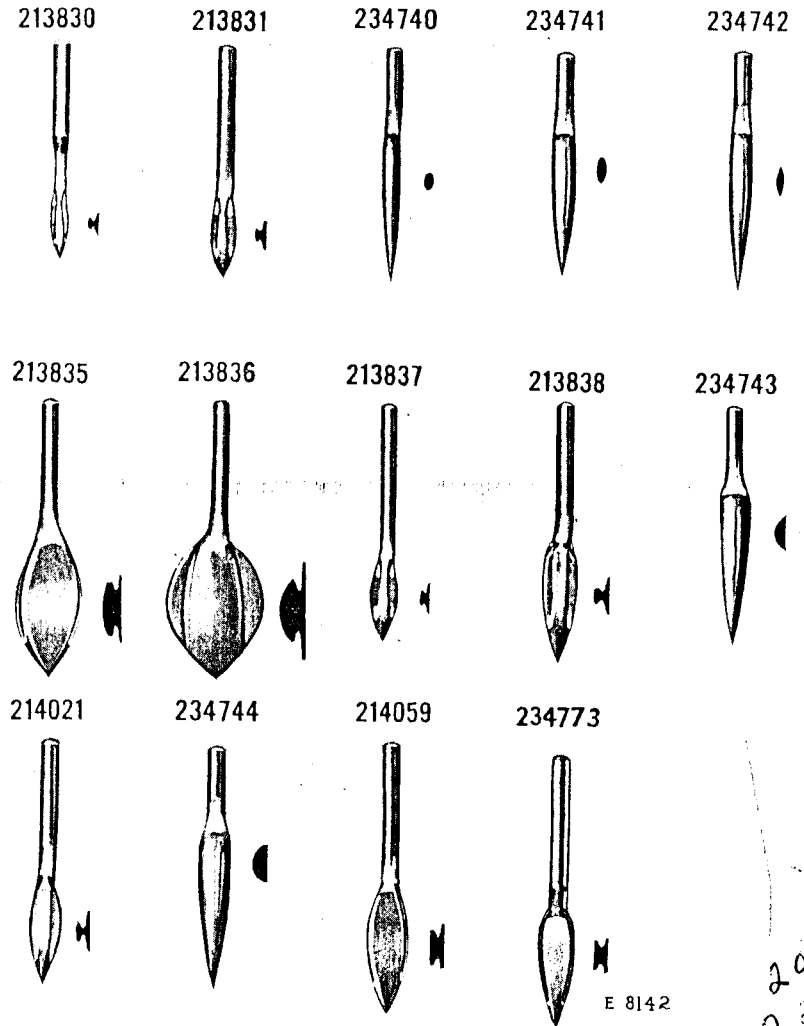


FIG. 19.

The above diagrams show exact sizes and shapes of punctures.

206653
279196
206853

PIERCER BAR

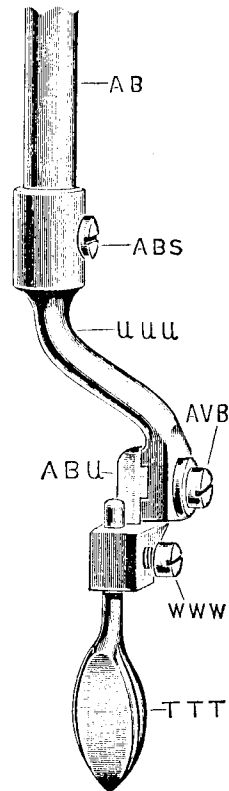


FIG. 20. FOR MACHINE 72W14
WIDE PIERCER HOLDER BRACKET AND SCREW

- AB—Piercer Bar
 ABS—Piercer Holder Bracket Screw.
 ABU—Piercer Holder, adjustable to the left or right.
 AVB—Piercer Holder Adjusting Screw.
 TTT—Piercer.
 UUU—Piercer Holder Bracket.
 WWW—Piercer Set Screw.

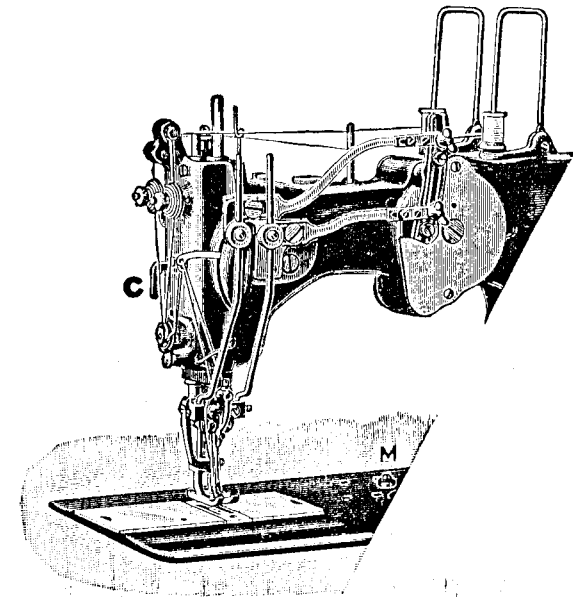


FIG. 21

MACHINES 72W17 AND 72W18 HAVE THE RETURN FEED MECHANISM ADDED TO THEIR CONSTRUCTION. FOR ADJUSTMENTS OTHER THAN THOSE MENTIONED BELOW AND ON THE FOLLOWING PAGES SEE PRECEDING PAGES

Return Feed Stitch Formation and Piercer Action

Two double stitches are made on the inside vibrations and one on the outside vibration of the needles. One opening is finished and another partly worked with these three stitches. The piercer rises out of the material at every stitch.

First Stitch. On the inside vibration, the piercer with the needles housed in its grooves descends and punctures the material, making an opening and double stitch. After the piercer and the needles rise clear of the material, the feed moves or returns the material toward the operator, placing the opening previously made by the piercer in a position to be again entered by the piercer and needles.

Second Stitch. On the second inside vibration, the piercer and needles descend again to make the stitches which bind the intervening threads between the openings into a bar or spoke. After the piercer and the needles rise clear of the material, the feed moves the material forward, placing the first stitch opening in a position for the piercer to again enter it.

Third Stitch. On the outside vibration, the needles spread to enter the material outside of the opening, to make the stitches which draw and hold the bar or spoke stitches up to the material, in imitation of hand work. This completes the "three figure" or regular hemstitch.

Timing of the Needles and Feed

The correct time for the feed dog to drop is while the needles are spread apart on the outside vibration (third stitch) and when their eyes are on a level with the material.

Return Feed—Clear Openings

If the openings appear "feathery" or show "left threads," a finer adjustment of the screw at (M, see Fig. 21) is necessary; turning screw (M) outward lengthens the stitch toward the operator and removes the cause of "left threads." Tighten the check nut after turning the screw.

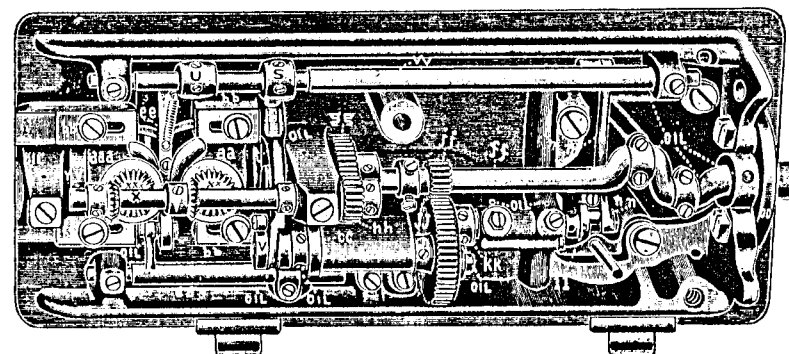


FIG. 22. UNDER VIEW OF MACHINES 72w17 AND 72w18

Showing the return feed bar (t) with its driving cam (v), crank (s) on rock shaft (w) and the spring (transparent) in the end of bar (t, see Fig. 22).

Crank (s), on feed driving rock shaft (w), receives its return pressure from the spring in the end of bar (t) which is driven by cam and roller (v). There may be occasion to adjust cam (v) for an earlier or later movement of the return feed; if so, be careful to change its position but slightly and retighten the screws firmly.

To increase the force of the return feed, loosen screws in crank (s) and push the crank forward against the spring in the end of bar (t) and retighten the screws in crank (s).

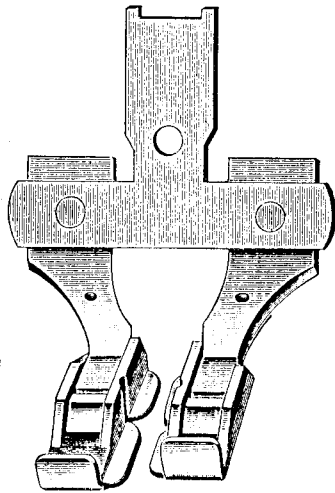


FIG. 23

Fig. 23 shows the style of presser foot commonly used with wide piercers. The presser foot plates are adjustable for piercers of different widths. Each shank has an oblong hole where the screw holds it to the bracket.

Adjustable Hemstitch Presser Foot

Usually there is but one thickness of goods under the outside (shire side) foot plate, while there are several thicknesses under the inside (hem side) foot plate.

To set the outside lower than the inside foot plate, loosen the pinch screw and turn outward the upright screw, then tighten the pinch screw. Adjust the pressure on the foot plates, so as to maintain an even pressure although the thickness of the material to be hemstitched may vary or be changed.

To increase the pressure on the material under the outside foot plate, loosen the collar and push it down to compress the spring.

For more pressure on the inside foot plate, turn down the thumb screw on top of the arm, and for less pressure turn it up.

Flat work requires an even pressure on the foot plates.

The lowest screw holds the presser foot on the presser bar. Careful adjustments will produce the desired effect.