

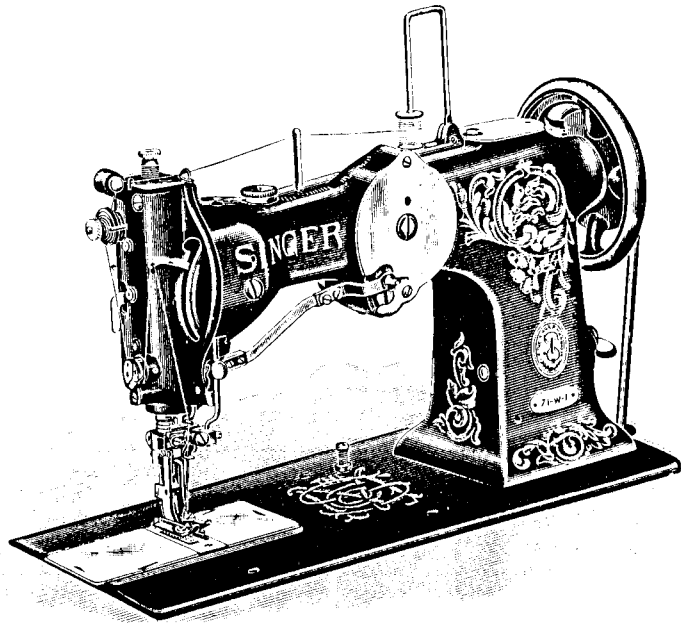
SINGER
71W1,W2,W3

673 w

INSTRUCTIONS

FOR USING

Singer Sewing Machines



Machine No. 71 w 1

OF

CLASS 71 w

HEMSTITCH

The Singer Manufacturing Co.

MACHINES OF CLASS 71 w

DESCRIPTION

Hemstitch Machine No. 71 w 1 has return feed, a single needle actuating device, and a piercer attached to the needle holder bracket, the function of which is to make and clear the openings. Provision is made for a piercer to perforate closely woven material in advance of the needle, which works more freely and with less spring in such material than when not assisted. The machine is adapted for fine hemstitching in silk, cotton and light flannel, and is largely used for both shire stitching, in which threads are drawn, and for imitation hemstitching, in which threads are not drawn. Its range of work covers all articles made of light fabrics in which the hemstitch can be used, such as handkerchiefs, shirt-waists, ruffles, tucks, neckties, underwear, infants' caps, clothing and similar work.

The stitch is known as the overedge hemstitch having one side of the opening overseamed. The piercer divides the cross threads and the stitches collect and hold them in sheaf-shaped groups, leaving the clear openings in hemstitch work for which these machines are famous.

Hemstitch Machine No. 71 w 2 is constructed without a piercer and will produce a finer grade of work and a greater number of openings to the inch than machine No. 71 w 1 is fitted for.

Hemstitch Machine No. 71 w 3 is fitted for a finer grade of work with smaller openings than machine No. 71 w 1 is capable of producing; otherwise the construction is the same.

The specific designation of each Singer Sewing Machine consists of two numbers, separated by a hyphen or letter and stamped upon a number plate, which is attached to the machine, usually upon the arm.

○ 71w1 ○

The number before the hyphen or letter designates the **Class** to which the machine belongs, and the number after, the **Variety** of the machine in its Class.

When supplies for a machine are to be ordered and there is any uncertainty as to the correct numbers of needles or parts, the Class and Variety numbers of the machine, as shown on the number plate, should be given to ensure a correct understanding of the order.

SPEED

The maximum speed recommended for machines of Class 71w is 1800 stitches per minute. Run the machine somewhat 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 these machines are **130x1**.

The size No. of the needle is marked upon its shank.

The Sizes. The sizes of needles for machines of Class 71w are Nos. 12 and 14. 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 seriously interfered with.

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

The following are details of an intelligible order:

"100 No. 14-130x1 Needles."

THREAD

Fine thread should be used **always**. We recommend Nos. 100 to 150 in cotton thread.

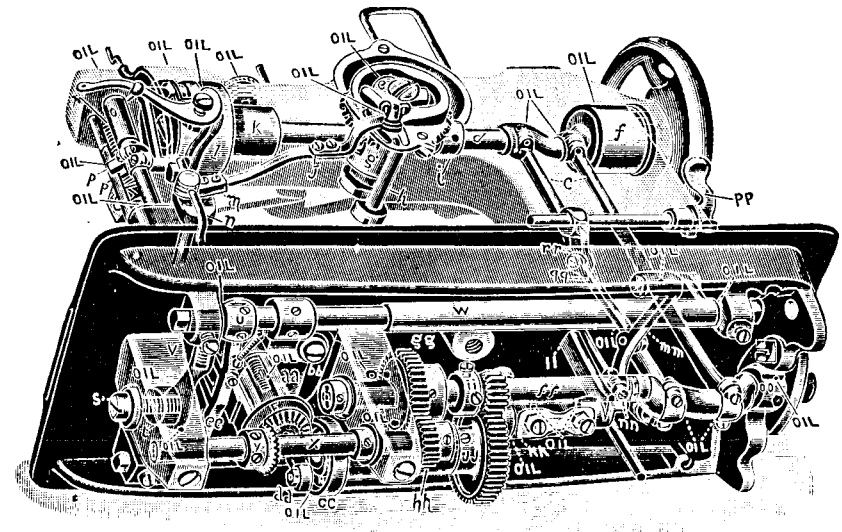


Fig. 2

Phantom view showing places to oil and reference letters
(Parts lettered are listed on page 22.)

TO OIL THE MACHINE

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

Oil at all places indicated by the word "oil" and wherever there is friction or an oil hole.

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 which might interfere with the openings between the stops on the throat plate and bobbin case and cause the upper thread to break.

TO SET THE NEEDLE

Raise the needle bar to its highest point, hold the needle in the left hand with the short groove toward the hook (see Fig. 3), push the needle up in the needle holder as far as it will go and tighten the set screw.

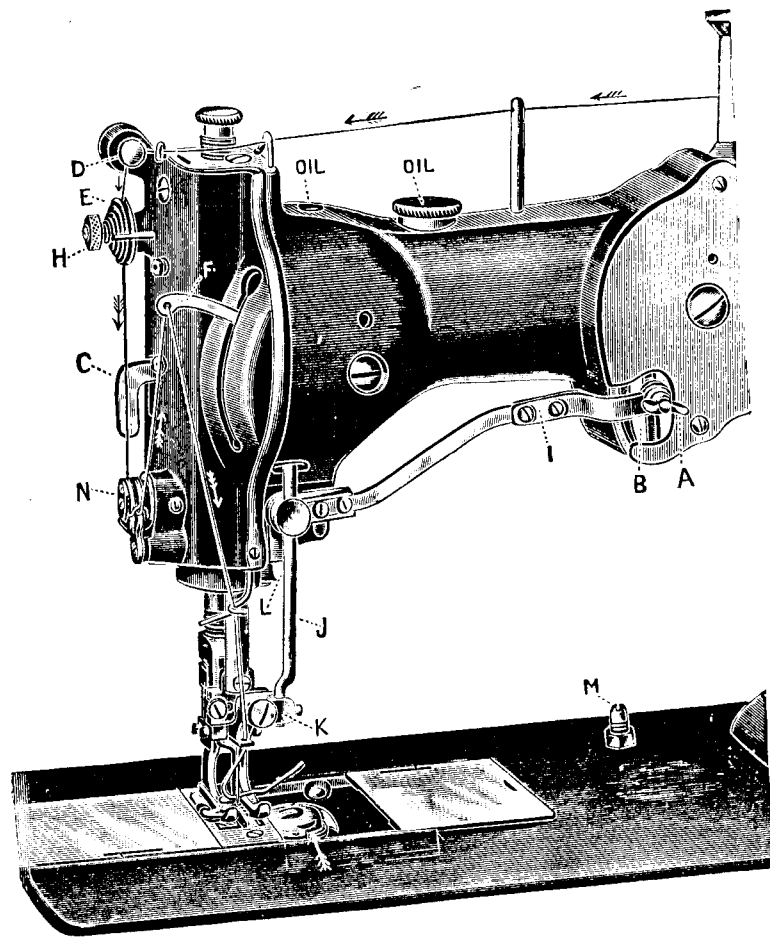


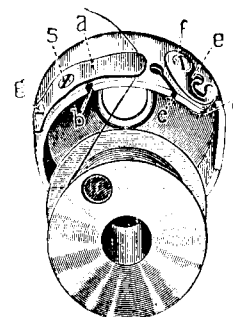
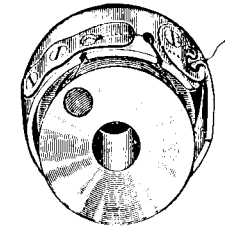
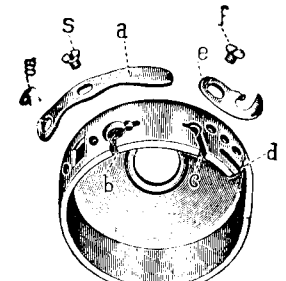
Fig. 3

(Parts lettered are listed on page 23.)

TO THREAD THE NEEDLE

Guide the thread as indicated by the arrows and pass it through the needle from the left toward the hook as shown in the cut.

To Remove the Bobbin Case Cap From the Machine. Push the slide off to uncover the hook and turn the machine until the hook points toward you, as shown in Fig. 3, then with the thumb nail in the notch indicated by the arrow, lift out the bobbin case cap.

Fig. 4
Bobbin and Bobbin
Case CapFig. 5
Bobbin Case Cap
ThreadedFig. 6
Bobbin Case Cap Parts
(Parts lettered are listed
on page 24.)

To thread the bobbin case cap draw the thread to the left under the spring and under the guide as shown in Fig. 5.

THE TENSIONS

The bobbin case tension is regulated by screw (S, see Fig. 4) which passes through the center of the tension spring on the bobbin case cap. The upper tension is regulated by thumb nut (H) in front of tension discs (E, see Fig. 3).

To release the tension without disturbing the presser foot or work, push lever (C, see Fig. 3) from you.

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.

TO WIND THE BOBBIN

(See Fig. 7)

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.

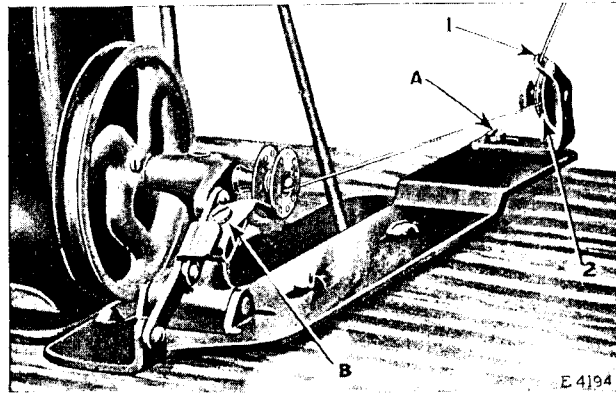


Fig. 7. Winding the Bobbin

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.

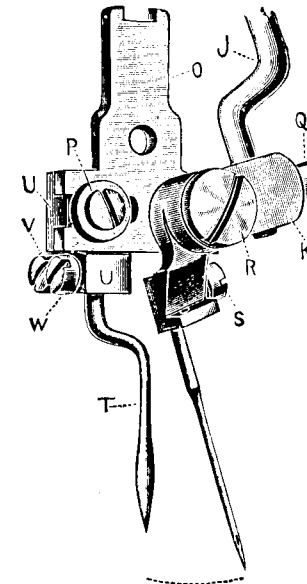


Fig. 8

Bracket with Piercer and Needle Holders Attached
(Parts lettered are listed on page 24.)

The function of the piercer is to open the material so that the stitch may draw up to the hem in imitation of shire or hand drawn hemstitch work.

The piercer holder (U, see Fig. 8) will hold two piercers, one to work behind the needle as shown in the cut, the other to work in front of the needle for material which requires it.

For drawn work remove the piercer.

RETURN FEED STITCH FORMATION AND PIERCER ACTION

Two stitches are made on the inside vibrations and one on the outside vibration of the needle. 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 needle descends through the material, makes a stitch, and the piercer makes and clears the opening back of the needle. After the piercer and

needle 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 entered by the needle.

Second stitch. On the second inside vibration, the piercer and needle descend again to make the stitch that binds the intervening threads between the openings into a sheaf-shaped group. After the piercer and the needle rise clear of the material the feed moves the material forward, placing the first opening in a position for the piercer to again enter it.

Third Stitch. On the outside vibration, the needle enters the material outside of the opening, to make the stitch which imitates hand work. This completes the "three figure" or regular hemstitch form.

TO COMMENCE SEWING

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

Form the habit of stopping the machine when the needle reaches the presser foot held up by the lifter, as the take-up lever is then at its highest position, the tension is released, the work draws out easily and the needle will not become unthreaded when starting to sew, even if only a short end is left through the needle.

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 breaking.

TO CHANGE THE LENGTH OF STITCH

The clamp screw (nn, see Fig. 2) 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.

Adjustment of Piercers. Set the stitch regulator (pp, see Fig. 2) for the desired number of stitches to the inch, adjust the piercer so that it will enter correctly the puncture made by the needle on the shire side, or single thickness of the goods, and at each change of the length of stitch, adjust the piercer for proper relation to the stitch.

Needle Vibration. The width of "bight" or needle vibration is regulated by the position of thumb nut (A, see Fig. 3) near the center of the arm. Moving nut (A) up makes the vibration and the openings wider; moving it down makes them narrower.

Correctly formed stitches require a 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.

Clear Openings. If the openings appear "feathery" or show "left threads" a finer adjustment of the screw at (M, see Fig. 3) is necessary; turning screw (M) outward lengthens the stitch toward the operator and removes the cause of "left threads."

THE PRESSURE ON THE MATERIAL

See Page 12.

The pressure of the presser foot should be only heavy enough to assure an even length of stitch and to prevent the work from rising with the needle; if too heavy it will make the machine run harder and be of no benefit.

The pressure is regulated by turning the thumb screw at the top of the arm head through which the presser bar passes (see Fig. 3).

TO REMOVE THE WORK

Raise the presser foot, see that the point of the needle is

down to the presser foot, draw the work back and to the left about three inches, then cut the thread near the work, unless ends long enough to tie are desired.

For convenience in taking out the work, the tension of the upper thread is released by raising the presser foot with the lifter, but is not released by thick goods or seams passing under the presser foot. Do not try to adjust the upper tension when the presser lifter is up as the tension is then loose.

HEMSTITCH ADJUSTABLE PRESSER FOOT

For maintaining an even pressure on either foot plate although the thickness of the material to be hemstitched may vary or be changed.

Flat work requires an even pressure on the foot plates when they are on a level surface. Usually there is but one thickness of goods under the shire side foot plate, while there are several under the hem side foot plate.

To Adjust the Pressure on the Foot Plates. To lower the shire or left side foot plate to the desired distance below the hem side foot plate, loosen screw (2, see Fig. 9), turn outward screw (3), then tighten screw (2); for flat work reverse the operations. When properly adjusted the pressure automatically regulates itself to varying thicknesses of material.

The pressure on the left foot plate may be increased by loosening screw (5) and pushing down collar (4) making the pressure on spring (6) heavier. The pressure on the right foot

plate may be regulated by turning the thumb screw on top of the arm head inward for more pressure and outward for less pressure.

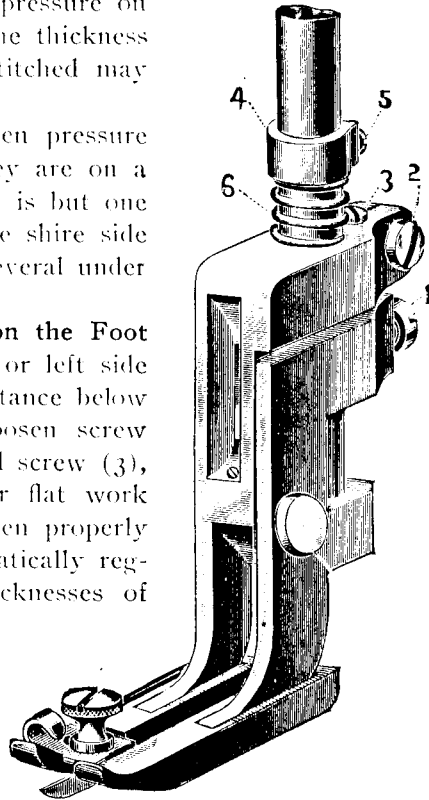


Fig. 9

INSTRUCTIONS FOR ADJUSTERS AND MACHINISTS

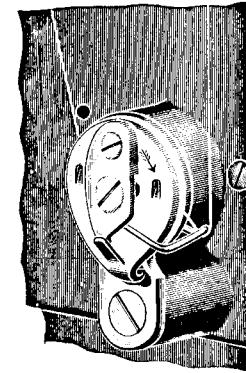


Fig. 10

THREAD CONTROLLER

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

It may be found advantageous to vary the position of the thread controller spring stop.

The thread controller stop is in the form of a crescent; push on the upper end of the stop to move it for less controller action and on the lower end for more controller action on the thread.

It may be found necessary to vary the tension of the spring for special requirements.

To vary the tension of the controller spring, loosen the set screw at the right of the spring (see Fig. 10), remove the face plate, then from the inside turn the stud forward or backward as required and tighten the set screw. In any case where an unusually light tension is used, the tension on the controller spring should be correspondingly light. The coils of the controller spring should be oiled occasionally.

To Place a New Thread Controller in Position. Remove the entire thread controller by taking out the largest screw (see Fig. 10) and release the spring by removing the middle screw. (Be careful not to lose the small roller.) Place the new spring, the 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.

Oil the small roller occasionally.

FEED ADJUSTMENTS

The feed adjustments which follow seldom have to be made, but if necessary, great care should be exercised to make the least possible change in the position of any part.

To Raise or Lower the Feed Dog. Clean the lint and dirt from it; tip the machine back and turn the balance wheel toward you until the feed is at its highest position; loosen the screw of crank (dd, see Fig. 2) 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 unless badly worn.

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 (ee, see Fig. 2) and secure by check nut.

Feed driving cam gear (jj) driven by pinion (ii) moves the feed forward by its connections (kk, mm, nn) with rock shaft (w), and feed driving crank (u) driving the feed bar (ec).

To cause the feed to start quicker after the feed dog is up and the needle is clear of the goods, carefully loosen the screws in pinion (ii) and slightly turn the top of the pinion toward you, which sets cam gear (jj) forward, being 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 pinion (ii) slightly from you. Any change made in the time of cam gear (jj) may necessitate a change in the position of feed lifting cam (cc).

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

RETURN FEED

To increase the force of the return feed, loosen the screws in crank (u, see Fig. 2) and push it forward against the spring (concealed) in crank (v) and retighten the screws.

To remove return feed crank (v), remove screw (t).

FEED DROP AND NEEDLE VIBRATION

The point of the needle should enter the hem while lever (J, see Fig. 3) is at the left of its vibration, and the feed dog should start to drop as the eye of the needle enters the goods. After the next forward movement of the goods, the needle descends on the inside vibration through the shire side of the goods to form the stitch. The feed then returns the goods for the next descent of the needle through the opening previously made by the piercer.

THREAD LOOP

To Maintain Uniform Thread Loops. The loop guide under the bed slide (front) should set centrally in relation to the needle and at a sufficient distance from the point of the hook to give the needle ample clearance.

CRAWLING

The needle should rise vertically without "crawling" or disturbing the line of stitching, as it rises out of the goods.

To Overcome Crawling. Lever (J, see Fig. 3) should be set more to the right at the elbow if the needle "crawls" to the left, and set more to the left if the needle "crawls" to the right. Provided all of the "crawl" cannot be overcome by adjusting lever (J) the connection may be lengthened or shortened by adjusting the screws at (I, see Fig. 3); but these should not be disturbed except as a last resort.

ADJUSTMENT OF BIGHT OR VIBRATION OF THE NEEDLE

See Figs. 2 and 3

The vibratory action of the needle is caused by needle vibrating cam gear (e) driven by pinion (i, see Fig. 2) connected by connection and lever (J, see Fig. 3) to needle holder (k).

Lengthening connection (L, see Fig. 3) makes the needle vibrate farther over the edge of the material, to the right.

On the descending inside vibration of the needle, its eye should be on a level with the material before it commences to move outward toward the hook, which will bring the strain of the needle upon its shank when it has reached the lowest portion of the needle bar stroke.

To Change the Vibration of the Needle. For a narrow vibration adjust thumb nut (A, see Fig. 3) toward the center and for a wider vibration adjust it from the center of the vibrating lever (B).

Should the point of the needle as it descends upon the inside vibration appear out of line with the piercer, a very fine adjustment may be made by turning needle vibrating lever (J, see Fig. 3) slightly to the left or right to swing needle holder (K) in the direction required, thus keeping the needle in proper alignment during its descent.

Should the connection require lengthening or shortening to obtain a correct position for the needle, loosen screws (I, see Fig. 3) and move the connection to the desired position, then retighten the screws. If these adjustments do not suffice, the time of cam gear (e, see Fig. 2) 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 needle.

TO SET THE NEEDLE BAR

The needle bar which is in the machine when shipped from the factory has upon it (about $1\frac{1}{2}$ inches from the bottom) two lines $\frac{3}{32}$ inch apart. When the needle bar is at its lowest point, set it so that its highest mark is even with the underside of the arm head and retighten the set screw.

To Set a New 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.

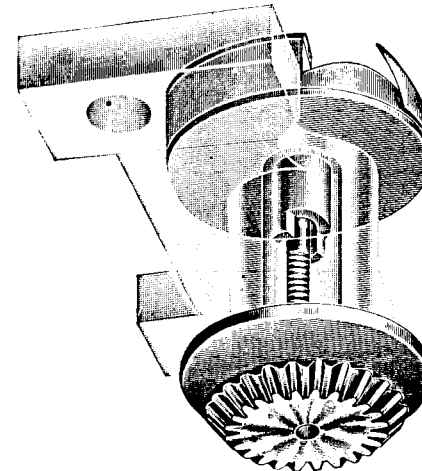


Fig. 11

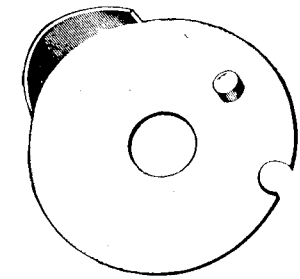


Fig. 12
Hook Washer

Transparent view of saddle, with hook, gear-socket and screw (200555), passing down through the hook into the gear-socket, binding them together.

HOOK (SEWING) ADJUSTMENTS

To see if the Hook is in Correct Time. Remove the slide 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 the hook will be at the center of the 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. 12) does not deflect the needle. If the hook is too far from or too near the needle loosen hook saddle screws (bb, see Fig. 2) just enough to permit the saddle to be driven with light blows to the position desired, then retighten the screws.

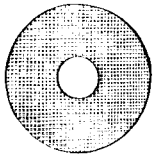


Fig. 13
Bobbin Case Washer (cloth)

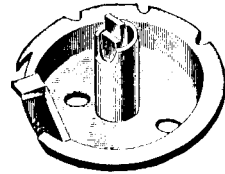


Fig. 14
Bobbin Case Base

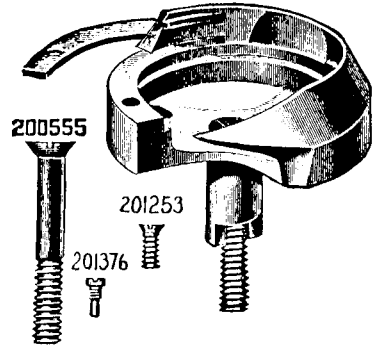


Fig. 15
Hook Gib, Hook Gib Screw, Hook
Gib Hinge Screw, Hook Socket Screw

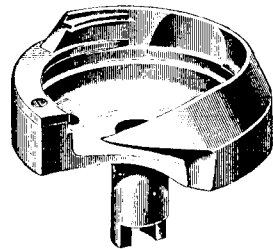


Fig. 16
Hook (sewing) with Gib and Screws

To Remove the Hook From the Machine (see Figs. 14 to 16.) 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, shown in the cut, from the center of the hook. 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. 2). Remove the balance wheel. Through the oil hole near the needle bar loosen the set screw and remove the check and position screws from the take-up cam (l); 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 bushing (f) out and draw the shaft out.

To Remove Front Bushing (k, see Fig. 2). Loosen its position screw at the back of the arm and after removing the needle bar, take-up cam, etc., insert a rod through the arm shaft bushing hole (back) and drive the front bushing out.

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 the presser bar when the screw holes are uppermost and turn the screw firmly down into the shaft and its 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.

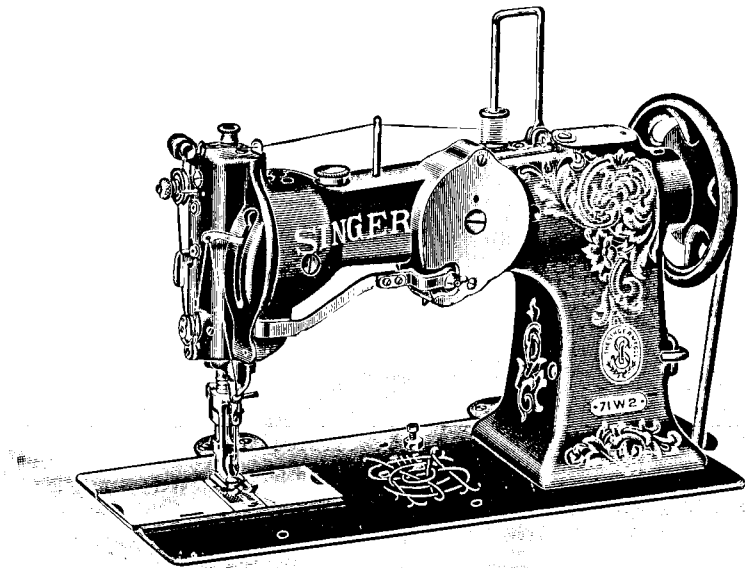


Fig. 17
Machine No. 71 w 2

MACHINE No. 71 w 2

The needle is set in the needle bar with the short groove toward the hook. The width of the bight stitch is regulated by thumb nut (A, see Fig. 3) and the needle vibrating cam and gear lever connection is lengthened or shortened at (I) when necessary.

Needle Action. The needle should rise vertically out of the goods to ensure against "crawling."

To Overcome "Crawling." If the needle "crawls" to the left shorten the connection, and if it "crawls" to the right, lengthen it.

The needle bar is hinged at the top and swings laterally to make the openings and bight stitches. There is no piercer with holder; otherwise the foregoing instructions apply to Machine No. 71 w 2 in complete detail.

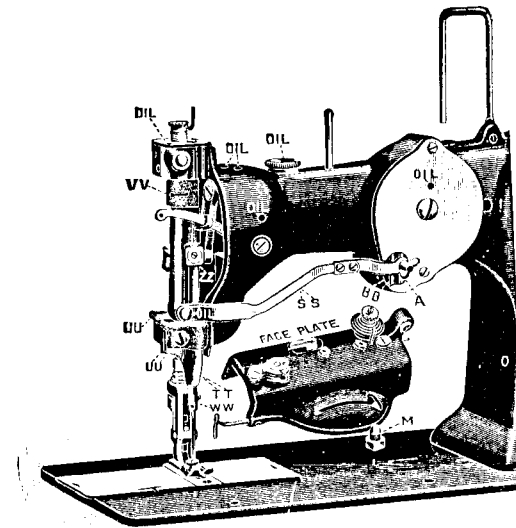


Fig. 18
Machine No. 71 w 2
(Parts lettered are listed below.)

Above cut, with face plate removed from the head of the machine, shows the needle bar and frame (pendulum swing) in operative position.

SPECIAL PARTS FOR MACHINE No. 71 w 2

See Fig. 18

A	Needle Vibrating Cam and Gear Lever Slide Wing Nut
B B	" " " " Lever
S S	" " Cam and Gear Lever Connection
T T	" Bar Frame
U U	" " " Oiling Felt
V V	" " Oiling Felt
W W	" Bar
Z Z	" " Connecting Stud

PROMINENT PARTS FOR MACHINES OF CLASS 71 W
PIERCERS

(Full size)

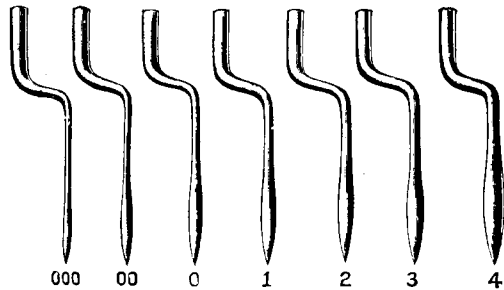


Fig. 19

LIST OF PIERCERS

213819	Piercer (formerly "000")
213820	" (formerly "00")
213821	" (formerly "0")
213822	" (formerly "1")
213823	" (formerly "2")
213824	" (formerly "3")
213845	" (formerly "4")

See Fig. 2

c	Arm Shaft Connection
d	" Shaft
e	Needle Vibrating Cam and Gear, 48 teeth
f	Arm Shaft Bushing (back)
g	Needle Vibrating Cam and Gear Stud
h	" " " " " Lever
i	" " " " " Driving Gear
j	" " " " " Lever Connection Link
k	Arm Shaft Bushing (front)
l	Take-up Cam
m	Needle Vibrating Rock Lever
o	" Bar Bushing (upper)
p	" " Guide Bar
r	Presser Bar Spring
s	Return Feed Auxiliary Lever Spring Socket Screw Washer
t	" " " " " " Screw
u	" " " " " Lever
v	" " " " " Spring Socket
w	Feed Driving Rock Shaft

x	Hook Counter Shaft
y	" Bevel Pinion, 24 teeth
aa	" Saddle
bb	" " Screw
cc	Feed Lifting Cam
dd	" " Rock Shaft Crank
ee	" Bar
ff	Hook Driving Shaft
gg	" Counter Shaft Driving Gear, 44 teeth
hh	" " " Gear, 22 teeth
ii	Feed Driving Cam and Gear Driving Gear
jj	" " Cam and Gear
kk	" " Segment Lever Crank
ll	" " " Lever
mm	" " Rock Shaft Connection
nn	" " Segment Lever Clamp
oo	Hook Driving Shaft Bearing
pp	Feed Regulating Handle
qq	" " " " Shaft Crank Link
rr	" " " " Crank
xx	Hook Bevel Gear-socket, 24 teeth

See Fig. 3

A	Needle Vibrating Cam and Gear Lever Slide Wing Nut
B	" " " " " Lever
C	Tension Release Lever
	Thread Retainer Sleeve
	" " Spring
	" " Stud
D	Thread Retainer
	Tension Disc (back or front)
	" Release Plunger
	" Spring
	" Stud
	" Thumb Nut
	" Washer
E	Tension
F	Take-up Lever
H	Tension Thumb Nut
I	Needle Vibrating Cam and Gear Lever Connection Link

- J** Needle Vibrating Lever
K " Holder
L " Vibrating Rock Lever
M Feed Driving Segment Lever Crank Stop Screw
 Thread Controller Plate
 " " Roller
 " " " Guard
 " " " " Washer
 " " " Screw
 " " Spring
 " " " Guard
 " " " " Screw
N Thread Controller

Bobbin Case

For bobbin case cut see Fig. 6

- d** Bobbin Case Cap
s " " Tension Spring Regulating Screw
a " " " Spring
g " " " " Screw
e " " Thread Guide
f " " " " Screw
 b and c are threading slots

Bracket with Piercer

See Fig. 8

- J** Needle Vibrating Lever
K " Holder
O Piercer Holder and Needle Holder Bracket
P " " Screw
Q Needle Vibrating Lever Set Screw
R " Holder Hinge Screw
S " Set Screw
T Piercer
U " Holder
V " Set Screw
W " " Screw