SINGER
99W120 to 99W123

Form 2449w Revised (1149)
Supplement for Form 2413w Revised (348)

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SPECIAL INSTRUCTIONS

COVERING

SINGER*

MACHINES 99w120 to 99w123

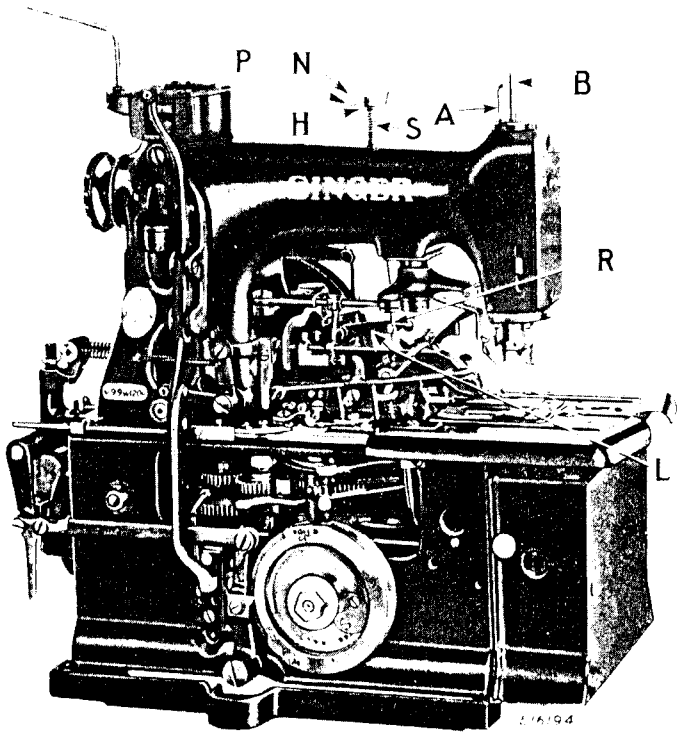

Fig. 38. Machine 99w120

DESCRIPTION

Machine 99w120 (long travel) is intended for making high grade taper bar buttonholes in raincoats, bathrobes, etc. Has a maximum capacity to sew 1½" and cut eyelet-end buttonholes with or without taper bar with large eye and .025" cutting space, in sizes 1⅛" and 1¼", the bar being adjustable from ⅛" to ⅜" for 1⅛" buttonhole and from ⅛" to ¼" for 1¼" buttonhole.

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Unless otherwise ordered, this machine will be fitted to make 1⅛" taper bar buttonhole with large eye and .025" cutting space with bar adjustable from ⅛" to ⅜".

Machine 99w121 (medium travel) is intended for making high grade taper bar buttonholes in sport goods, sweaters and other knit goods. This machine lays an additional reinforcing cord on the side of the buttonhole opposite the purl which permits the making of strong buttonholes in knit goods without interlining or facing. This machine has a maximum capacity to sew 1⅛" and cut eyelet-end buttonholes with or without taper bar with large eye and .025" cutting space or with extra large eye and .050" cutting space, in sizes ¾" and ⅞" with taper bar adjustable from ⅛" to ⅜" for ¾" buttonhole and from ⅛" to ¼" for ⅞" buttonhole.

Unless otherwise ordered, this machine will be fitted to make ¾" taper bar buttonhole with extra large eye and .050" cutting space with bar adjustable from ⅛" to ⅜".

Machine 99w122 (medium travel) is intended for making high grade taper bar buttonholes in overalls, raincoats, uniforms, etc. Has a maximum capacity to sew 1⅛" and cut eyelet-end buttonholes with or without taper bar with large eye and .025" cutting space or no cutting space, in sizes ¾" and ⅞" with bar adjustable from ⅛" to ⅜" for ¾" buttonhole and from ⅛" to ¼" for ⅞" buttonhole.

Unless otherwise ordered, this machine will be fitted to make ⅞" taper bar buttonhole with large eye and .025" cutting space with bar adjustable from ⅛" to ¼".

Machine 99w123 (short travel) is intended for making high grade taper bar buttonholes in pant flies, pocket flaps, overalls, work clothes, etc. Has a maximum capacity to sew 1" and cut eyelet-end buttonholes with or without taper bar with large eye and either .025" cutting space or no cutting space in sizes ⅝" and ¾", also ⅝" buttonhole with medium eye and no cutting space, the bar being adjustable from ⅛" to ⅜" for ⅝" buttonhole and from ⅛" to ¼" for ¾" buttonhole.

Unless otherwise ordered, this machine will be fitted to make ⅝" taper bar buttonhole with medium eye and no cutting space with bar adjustable from ⅛" to ⅜".

By simply substituting a different pattern wheel and cutting block, any of these machines can be instantly changed to make a different length of buttonhole.

Extra pattern wheels and cutting blocks will be furnished, on order, at an additional charge.

These machines are fitted with an improved automatic thread and cord trimmer located below work clamp plates for cutting the needle and looper threads and lower cord at the completion of buttonhole, with means which prohibit damage by trimmer knives to garments being buttonholed regardless of nature of material from which they are made.

The following taper bar pattern wheels, cutting knives and cutting blocks are made for use with these machines:

Machine No.	Length of Buttonhole	Pattern Wheel	Cutting Space	Cutting Knife	Cutting Block
99w120	1⅛"	254164	.025"	254153	254151
	1¼"	254166	.025"	254153	254152
99w121	¾"	254079	.025"	254954	254052
	¾"	‡254085	.050"	254055	254052
	⅞"	254081	.025"	254054	254053
	⅞"	‡254087	.050"	254055	254053
99w122	¾"	†254008	None	254004	254001
	¾"	254024	.025"	254004	254001
	⅞"	†254010	None	254004	254002
	⅞"	254026	.025"	254004	254002
99w123	⅝"	‡253732	None	253516	253697
	⅝"	†253644	None	253699	253697
	⅝"	253707	.025"	253699	253697
	¾"	†253687	None	253699	253698
	¾"	253709	.025"	253699	253698

‡**NOTE:**—The pattern wheels listed above make buttonholes with a large size eye except Pattern Wheel 253732, which makes buttonholes with a medium size eye and Pattern Wheels 254085 and 254087, which make buttonholes with extra large eye.

†**NOTE:**—Straight buttonholes with taper bar can be made with Pattern Wheels Nos. 253644, 253687, 254008 and 254010 by removing disengaging Block 253444 and changing cutting block and knife.

SPEED

The maximum speeds recommended for the shafts in Machines 99w120 to 99w123 are as follows:

Buttonhole Cutting Shaft—185 to 200 revolutions per minute.
Stop Motion Shaft—750 to 800 revolutions per minute.
Arm Shaft—1500 to 1600 revolutions per minute.

STITCH REGULATING GEARS AND FEED WHEEL FOR MACHINE 99w120

Gear No.	Feed Wheel	Stitches per Inch	Stitches in Eye
250210	256099	36	17
250211	256099	30	14
250212	256099	28	13
250598	256099	26	12
250213	256099	24	11
250214	256099	23	11
250415	256099	21	10
250478	256099	19	9

STITCH REGULATING GEARS AND FEED WHEEL FOR MACHINE 99w121

Gear No.	Feed Wheel	Stitches per Inch	Stitches in Eye
250210	256576	28	14
250211	256576	24	12
250212	256576	23	11
250598	256576	21	10
250213	256576	19	9
250214	256576	18	9
250415	256576	17	8
250478	256576	15	7

STITCH REGULATING GEARS AND FEED WHEEL FOR MACHINE 99w122

Gear No.	Feed Wheel	Stitches per Inch	Stitches in Eye
250210	256601	31	15
250211	256601	26	13
250212	256601	24	12
250598	256601	22	11
250213	256601	20	10
250214	256601	20	10
250415	256601	18	9
250478	256601	16	8

STITCH REGULATING GEARS AND FEED WHEEL FOR MACHINE 99w123

Gear No.	Feed Wheel	Stitches per Inch	Stitches in Eye
250210	256501	34	15
250211	256501	28	13
250212	256501	26	12
250598	256501	25	11
250213	256501	22	10
250214	256501	22	10
250415	256501	19	9
250478	256501	17	8

NEEDLES

For Machine 99w120 use needles 142x5, sizes 15 to 19
" " 99w121 " " 142x5, " 13 to 17
" " 99w122 " " 142x5, " 17 to 19
" " 99w123 " " 142x5, " 15 to 19

TO THREAD THE CORD

The work clamp plates having been swung outwardly and the bed end cover removed, pass the cord from the unwinder through the upper brass tube which is attached to the right side of the machine (using the

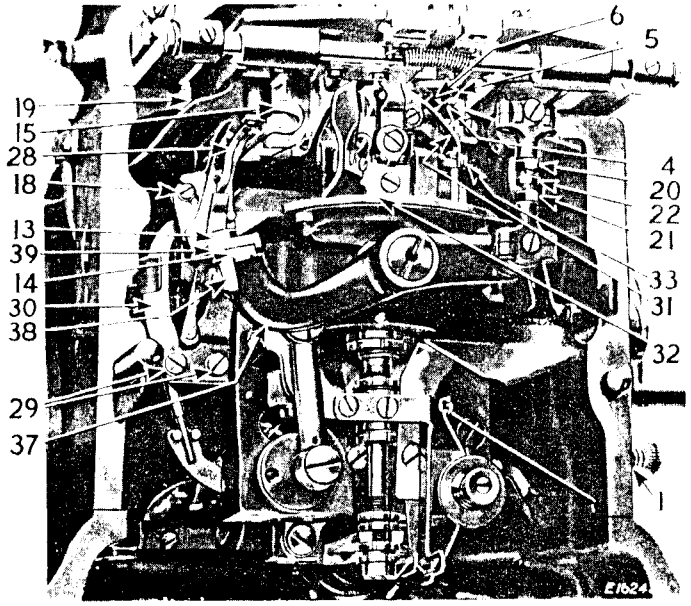

Fig. 39. Threading the Cord
Also Adjustments on Under Thread and
Cord Trimming Mechanism

threading wire furnished for the purpose), then pass the cord under and between the tension discs **1, Fig. 39,** through short vertical cord tube **2, Fig. 40** fastened to side of bed (using looper threading wire for this purpose), through hole in bed **3, Fig. 40,** push between cord nipper lever **4, Fig. 39** and cord leader **5, Figs. 39 and 40,** lift and pull forward in

the slot to the thread hole **6, Figs. 39 and 40** in cord leader **5**, lead over projection of cord nipper arm **7, Fig. 40** and, threading toward you, through cord hole in throat plate **8, Fig. 40.** Then swing work clamp

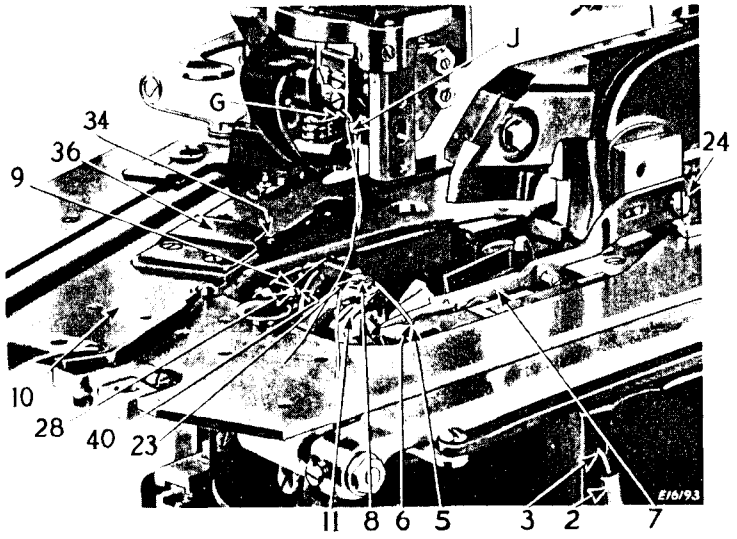

Fig. 40. Threading the Cord

plates back into place and hook springs in rear of the plates to hold the plates in position.

TO THREAD THE NEEDLE

The threading of the needle is the same as for Machine 99w110 with the addition that the needle thread nipper lever **N, Fig. 38** is turned to force the nipper out of the path of the thread hole in guide stud **S, Fig. 38** then pass the thread from back to front under the needle thread pull-off **P, Fig. 38** through the guide stud thread hole, under the needle thread pull-off (adjustable) **A, Fig. 38** and down through the hollow needle bar **B, Fig. 38** (inserting the threading wire furnished with the machine up into the needle bar from below to pull the thread through), pass the thread downward between the thread retainer spring **G, Fig. 40** and the face of the needle holder slide **J, Fig. 40** and then pass the thread from back to front or toward you through the eye of the needle (as shown in Fig. 40).

INSTRUCTIONS FOR ADJUSTERS AND MACHINISTS

The under thread and cord trimmer is of identical construction on the various thread trimmer machines and is for the purpose of making a clean trim without the danger of injuring the fabric being buttonholed. The device consists of three elements; namely, the thread and cord cutting, the needle thread end removing and the work guard. These elements operate in conjunction with each other and have their individual limits of adjustment which must be maintained according to the following paragraphs:

LOWER TRIMMER ADJUSTMENT

The proper clearance ($\frac{1}{64}$ inch) of the nipper and trimmer carrier brackets with respect to the stitch forming mechanism is the fundamental adjustment of the looper trimming device. If for any reason this factory setting is disturbed, it is essential that the original setting be restored to insure proper operation of the trimmer device and looper mechanism and thus eliminate possible damage. Since the proper setting of the trimmer is based upon the height of the left hand or non-threaded looper and the right hand loop retainer, it is strongly advised that new parts be used before making adjustments. The knife carrier bracket **14, Fig. 39** along with the nipper carrier bracket **39, Fig. 39** should be tipped as a unit on its seat on the offset end of the trimmer operating lever **37, Fig. 39** by adjusting the wedged shape portion **38, Fig. 39** until the top edge of the stationary nipper **40, Fig. 40** is slightly above but not to exceed $\frac{1}{64}$ inch from the top edge of the right hand loop retainer **11, Fig. 40** which should be set for height above the loopers as instructed under the caption "To Replace and Adjust Right Hand Loop Retainer" 99w110 Instructions, Form 2413w.

TO ADJUST THE UNDER THREAD AND CORD TRIMMER

The movable trimmer blade **12A, Fig. 41** and the stationary blade **17, Fig. 41** should be set longitudinally to trim close to the end of sewing. The trimmer blades **12, Fig. 41** are mounted on the carrier bracket **14, Fig. 39**

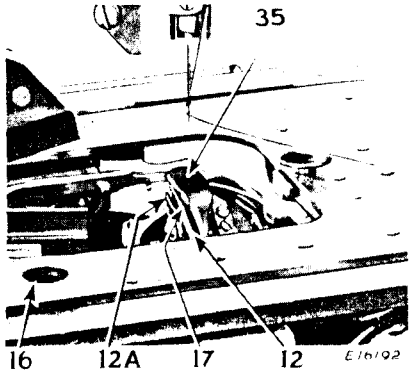

Fig. 41. View of Machine, Showing Under Thread and Cord Trimmer

and are adjustable longitudinally to the extent that the rear edge of the guard **35, Fig. 41** does not lie beyond the rear edge of the opening in the clamping plate **34, Fig. 40** and in its adjustment to the front of the machine, the stationary blade **17** does not strike the throat plate **8, Fig. 40.** This adjustment is made as follows:

Place machine with cutting blades **12, Fig. 41** in cutting position and slide bracket **14, Fig. 39** in or out, as required, and securely tighten screw **13, Fig. 39.** This foregoing adjustment may be made at will if knife operating cam **15, Fig. 39** remains at its basic setting as made at the factory. Should this setting be disturbed, adjust the trimmer knives to longest trimming position and then ascertain that the stud in the heel of the movable knife projects no more nor less than the full depth through the slot of the movable knife operating cam **15, Fig. 39.**

To set the height of trimmer. The trimming blades **12** and guard **35, Fig. 41** are so arranged that they swing on the same hinge screw. The proper setting for this unit is, when the trimmer is advanced to sever the threads and cord, the forward end of the guard **35** must have an equal clearance over the top of the throat plate **8, Fig. 40,** and under the lower surface of the cover plates **36, Fig. 40** that are mounted on the clamping plates **10, Fig. 40.** This setting can be obtained by adjusting the screw **18, Fig. 39,** raise or lower point of stationary blade and guard **35** as required and securely refasten screw **18, Fig. 39.** This same adjustment must be followed when replacing the stationary blade **17, Fig. 41.**

The thread and cord trimmer blades should be adjusted so that when they close, the cutting edges fully pass each other to ensure severing the threads and cord. To make this adjustment, loosen the two screws **19, Fig. 39** which fasten the cam **15, Fig. 39** and swing cam downwardly to cause the trimmer blades to close more, or upwardly to close less, then securely tighten the two screws **19.**

To adjust the trimmer to move further forward across the path of the threads and cord, loosen the two nuts **20 and 21, Fig. 39** and turn the adjusting screw **22, Fig. 39** to the right. To adjust the trimmer to move further backward away from the path of the threads and cord, turn the adjusting screw **22** to the left. Care must be taken to see that the thread trimmer blades are not thrown so far forward as to cause the stud in the heel of the movable knife to strike the end of the slot in the knife operating cam **15, Fig. 39.** Then securely tighten the two nuts **20 and 21.**

CAUTION: Special attention must be given to the closing of the movable blade, which must be adjusted so that the point crosses the cutting edge of the stationary knife far enough to just contact the underside of the trimmer guard. The extreme point of the stationary blade **17, Fig. 41** must always fit tightly against the underside of the trimmer guard **35, Fig. 41** to ensure that the threads and cords lead into the opening between the cutting blades **12, Fig. 41.**

TO ADJUST THE NEEDLE THREAD END NIPPER

The nipper **28, Fig. 40** is non-adjustable longitudinally and the opening **9. Fig. 40** lies within the range of the needle thread loop held upon the horn of the right hand loop retainer **11, Fig. 40.**

The purpose of the needle thread nipper **28, Fig. 40** is to pull out the loose end of the needle thread remaining around the horn of the right hand loop retainer at the completion of each buttonhole. This nipper is mounted on its own carrier **36, Fig. 39** immediately above the knife carrier **14, Fig. 39** and should be timed to nip the end of the needle thread as near the end of the stroke of the knife as is possible. To time the nipper **28,** loosen the two screws **29, Fig. 39** and lower the cam plate **30, Fig. 39** to make the nipper operate earlier. To make the nipper operate later, raise the cam plate **30** noting clearance for the free passage of the stud in the end of the nipper operating lever **41, Fig. 39,** then securely tighten the two screws **29.** The timing of the nipper **28, Fig. 40** may also be slightly varied by loosening one of the screws **29, Fig. 39** and swinging the upper end of the cam plate **30** to the right or left, as required. The needle thread nipper operating cam plate **42, Fig. 39** which is reached through the hole **43, Fig. 39** is adjusted inwardly to its extreme position and the two screws **44, Fig. 42** are then securely fastened.

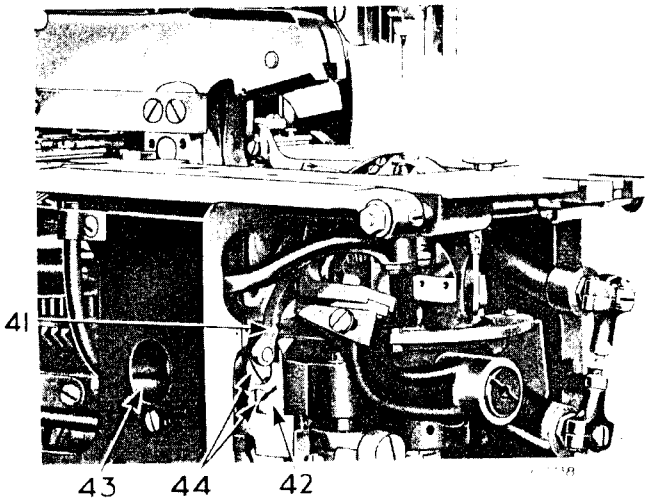

Fig. 42. Showing the Nipper Opening Bracket

TO ADJUST THE CORD PULL-BACK

After the trimming of the cord, the buttonhole cutting mechanism moves forward to a cutting position, and at the same time actuates the cord nipper arm **7, Fig. 40,** causing it to nip and then pull the cord back through the cord hole **8, Fig. 40** in the throat plate.

The cord nipper arm **7** should draw back just enough cord to permit the cut end to extend through the hole **8, Fig. 40** in the throat plate to the opposite side of the needle opening **23, Fig. 40.** This will leave sufficient cord with which to commence the sewing of the next buttonhole, except for the 99w121 Machine, in which case it is advisable to leave slightly more, as this machine is used exclusively on knit goods.

To adjust the cord nipper arm **7, Fig. 40** to pull more or less cord loosen the screw **24, Fig. 40** and move the cord nipper arm **7** forward or backward on the buttonhole cutting lever bracket, as required, then securely tighten the screw **24.**

TO ADJUST THE NEEDLE THREAD PULL-OFF

The lower end of the needle thread pull-off **R, Fig. 38** is adjustable up and down to bring the offset upper end **P, Fig. 38** in position for pulling off slack needle thread on the downward movement of the work clamp closing lever **L, Fig. 38.** When machine is in normal running position, the needle thread pull-off should be adjusted so that the offset end **P** is immediately above the needle thread. This position will produce the maximum amount of pull-off for the needle thread. To reduce the amount of slack in the needle thread, adjust the needle pull-off **R** upwards.

The normal running position of the needle thread nipper post **S, Fig. 38** is with the thread hole **H** located $1\frac{3}{16}$" above the machine arm. The thread nipper may be manually released by lifting the lever **N** upwards. This will facilitate the threading of the needle thread through the needle thread guide hole **H.**

CAUTION: The thread nipper spring should be strong enough to securely nip the needle thread, and the needle thread nipping discs should be wiped to remove all accumulated lint at least once a week.

A light tension on the needle thread retainer spring **G, Fig. 40** will produce a reasonable length of needle thread end on the top side of the work. An increase in this tension will diminish the length of this thread end, therefore, care must be exercised to obtain the desired results.

With the two above adjustments, enough needle thread will be left with which to start the next buttonhole without an excessive thread end showing on the finished buttonhole and sufficient slack will be produced so that the end of needle thread will not pull out of the eye of the needle in starting the sewing of the succeeding buttonhole.

TO ADJUST LOOPER THREAD PULL-OFF

The looper thread pull-off **31, Fig. 39** is operated by cam surface on looper thread pull-off cam plate **32, Fig. 39.** Its action is timed to draw the looper thread as the stitch rotating mechanism is returned to initial position so that sufficient thread will be drawn through eye in looper to begin sewing of the next buttonhole.

To adjust looper thread pull-off **31** to pull more thread, loosen screw **33, Fig. 39** and move adjustable arm of the looper thread pull-off **31** from you. To pull less thread, move arm toward you and securely tighten screw **33.**

CAUTION: In adjusting looper thread pull-off **31, Fig. 39** to pull more thread, note that in recovered position, the notched end of pull-off finger does not come close enough to eye of looper to interfere with the stitching operation.

TO SHARPEN THE THREAD AND CORD CUTTING KNIVES

The thread and cord cutting knives are made with the greatest precision, perfectly shaped and lapped flat to ensure keen cutting. Care must, therefore, be taken when resharpening either of the knives to use a fine emery wheel and grind the knives crosswise to the edge, taking off as little as possible to restore the edge and being careful to retain the original angle and curvature. Never sharpen the knives on an oil stone.