

**CONSEW**®  
CONSOLIDATED SEWING MACHINE CORP.  
*Partners for Profitable Production™*

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SERVICE MANUAL

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**240/241/241-1K**

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This manual explains the adjustment of the button sewing machine during disassembly and repair, and should be used together with the Operator's Instruction furnished with the machine.

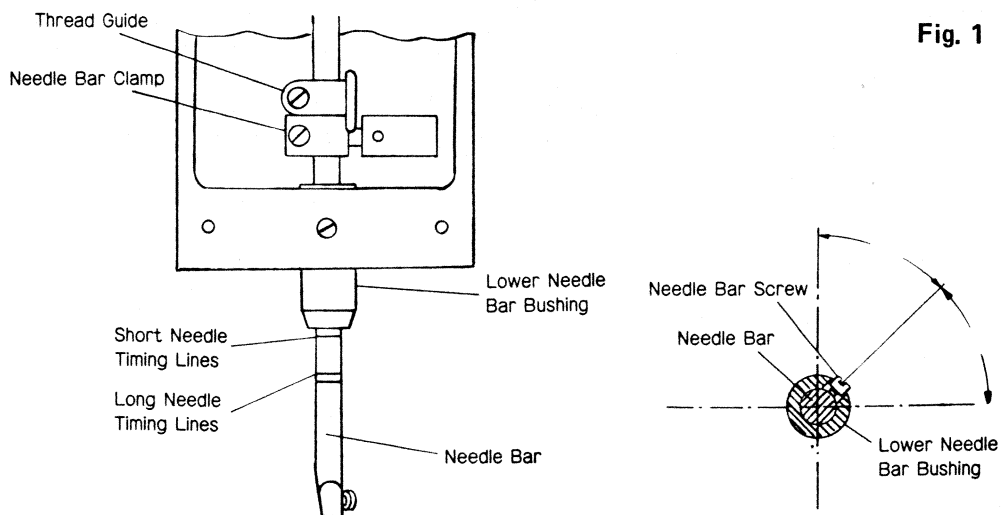
This machine has been assembled based on certain dimensions and when parts replacement and adjustments are done visually or by approximate location, timing may not be proper and satisfactory sewing may not be obtained. For proper and satisfactory sewing operations, please read carefully.

### 1. Needle Bar Height Adjustment

There are two pairs of timing lines on the needle bar and they are used for adjustment of long (TQ x 7) or short needles (TQ x 1) used according to the type of buttons.

This machine is normally adjusted for short needles. When using long needles, with the needle bar in its lowest position, the upper line of the lower pair of timing lines should be even with the lower edge of the lower needle bar bushing. For short needles, the upper line of the upper pair of timing lines should be even with the lower edge of the bushing. (Fig. 1)

The needle bar screw is located to the right rear of the needle bar at a 45° angle and a slot is provided on the needle bar bushing so that the needle bar screw will not hit against it when long needles are used. Correctly position the needle bar so the needle bar screw enters the slot in the needle bar bushing freely.



To move the needle bar, loosen the thread guide screw and the needle bar clamp screw, raise or lower the needle bar to desired height and retighten screws. The thread guide must rest tightly against the needle bar clamp.

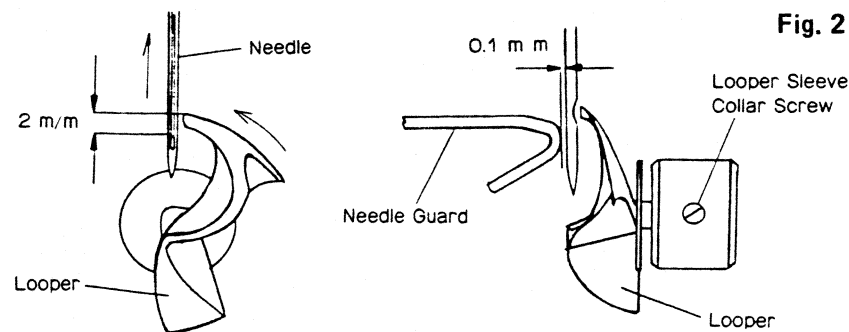
## 2. Needle and Loper Timing

Timing of the needle and looper is most important for proper and satisfactory sewing operations.

Insert the needle in the needle bar as far as it will go, with the long groove facing the front and tighten screw securely.

Loosen the looper sleeve screws and with the point of looper at the center of the needle, rotate the pulley in the proper direction until the distance from the upper edge of the needle eye to the point of the looper is 2mm and tighten both screws. Loosen looper sleeve collar screw and slide looper so that the clearance between its point and needle is as shown in Fig. 2.

Loosen needle guard screw and slide the needle guard so that the clearance between the needle and the needle guard is as shown in Fig. 2.



## 3. Loop Positioning Finger and Finger Cams Timing

The loop positioning finger is moved sidewise by the front loop positioning finger cam and lengthwise by the rear loop positioning finger cam so that the needle may enter completely into the loop made by the looper.

To adjust the timing, align the timing lines on the parts in one line. (Fig. 3)

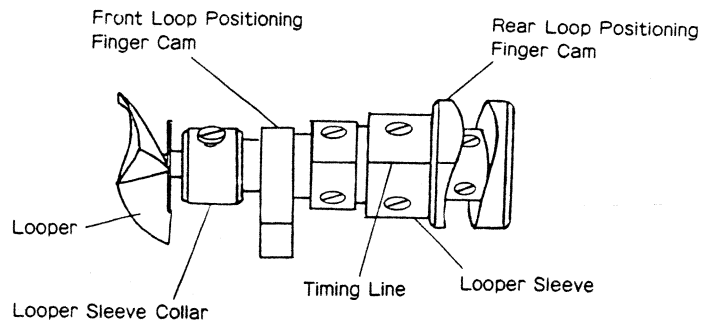


Fig. 3

#### 4. Button Clamp Pressure and Height Adjustment

Button clamp pressure must be adjusted according to the type of material to be used. Adjust the button clamp pressure by tightening or loosening the button clamp pressure adjusting nut. (Fig. 4) The distance between the button clamp lever jaw and the feed plate must be adjusted according to the thickness of the material. The normal distance between the button clamp jaw and the feed plate should be 12 – 16 mm.

With the machine in stop position and with the button clamp raised, open the left side cover, loosen button clamp lifting rod screw and adjust the lifting rod height.

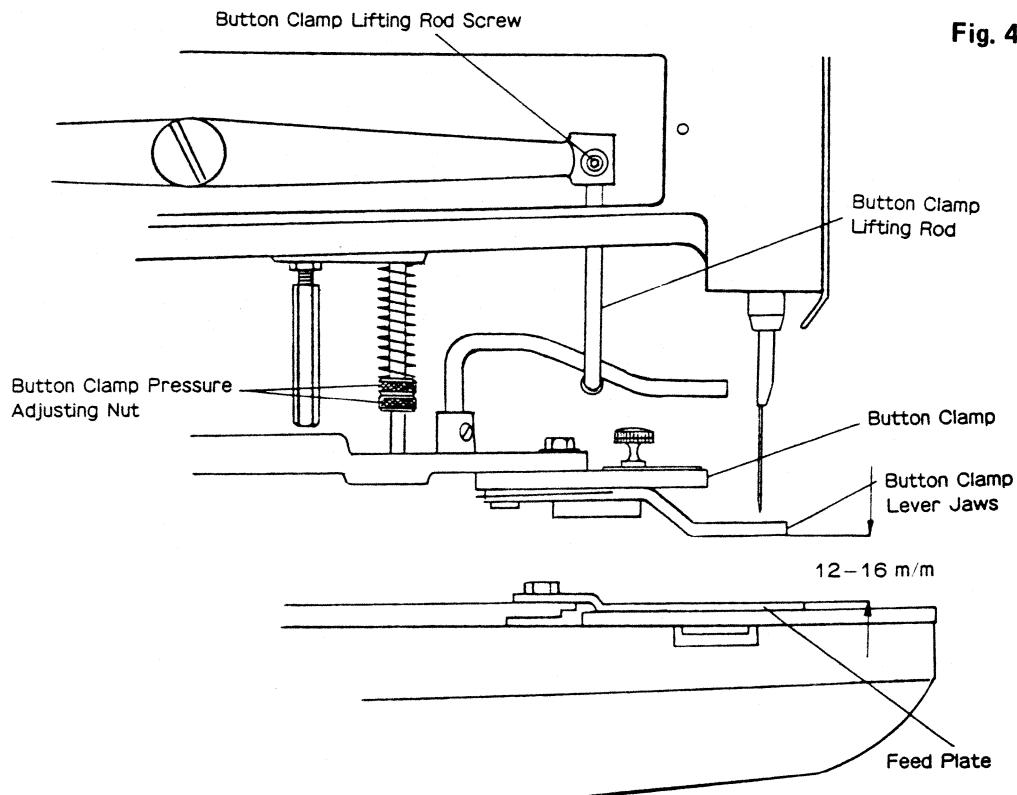


Fig. 4

## 5. Stop Motion Adjustment

Loosen the set screw in arm base on the right side of the machine and open the cover.

With the machine in stop position, stop motion plunger should be set so that there is approximately 9.5mm clearance between the bottom of the plunger and the stop motion plunger lever. Loosen the rear disc spring adjusting nut and adjust the front adjusting nut to obtain this setting. Lock back nut after adjusting.

When the stop motion plunger lever rises and the machine starts to turn, the distance between the stop motion plunger and the highest point of stop motion disc should be 4 mm.

To adjust, open left cover and with the cam roller riding on the outer edge of stop motion cam, loosen clamp screw in the stop motion tripping lever and move the stop motion plunger lever up or down to secure the 4mm clearance and tighten clamp screw.

With the machine in stop position, the clearance between the cam roller and the back of the slot in stop motion cam should be 0.8mm. Loosen the two set screws in the stop motion cam and turn the cam to secure this clearance. (Fig. 5-2)

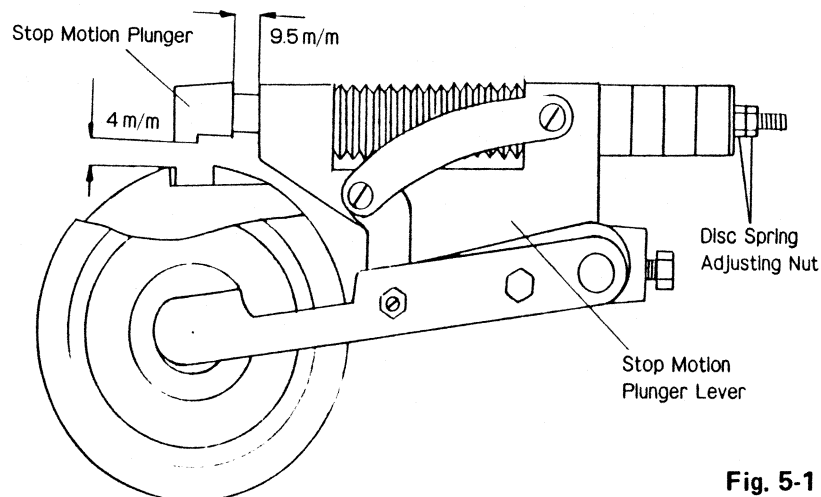
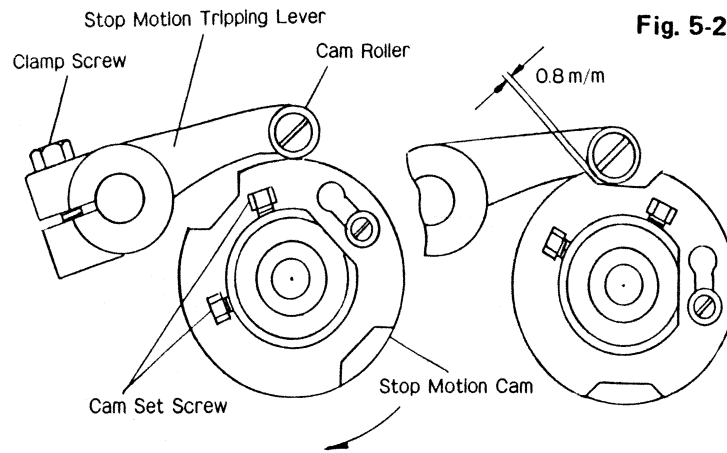


Fig. 5-1

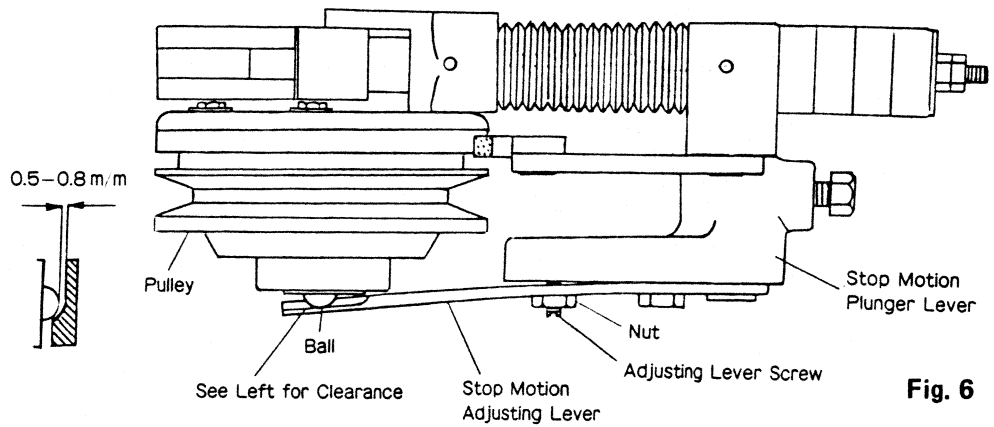


### 6. Stop Motion Adjusting Lever Adjustment

The clearance between stop motion adjusting lever on the outside of the stop motion plunger lever and ball in the center of the pulley is essential for the operation of the pulley.

Adjust screw in the stop motion adjusting lever so that there is a clearance of 0.5 – 0.8mm between the ball and thin section of the adjusting lever. (Fig. 6)

Make sure to lock screw with the nut.



## 7. Auxiliary Brake Adjustment

An auxiliary brake is provided to ease the impact of the stop motion disc and plunger at stop position. Adjust the brake pressure by spring screw nut so that when the stop motion plunger starts to lower and the clutch releases the pulley, the brake lining presses against the outer rim of the stop motion clutch disc and just prevents the stop motion disc from the shock of striking the stop motion plunger.

The brake pivots on the brake supporting lever screw and so when the brake is released, the upper and lower clearance between outer rim of the clutch disc and the brake lining is different. In stop position, the brake lining should fit evenly against the clutch disc. To adjust, loosen the brake lining set screws and locate the brake lining as above.

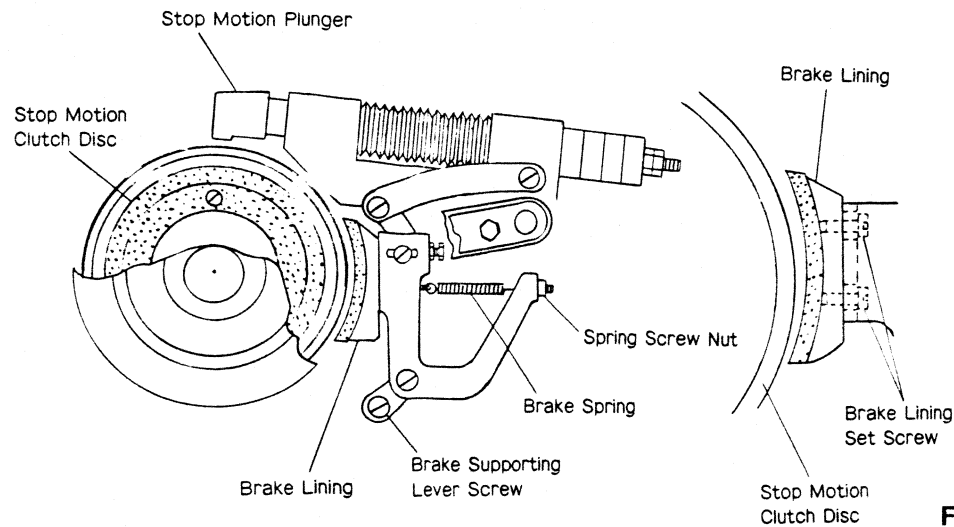


Fig. 7

## 8. Take-Up and Needle Bar Stroke Adjustment

In assembling the ball joint eccentric to the shaft, first align and tighten ball joint eccentric screw with cone end to the setting groove in the shaft, then tighten the auxiliary screw.

Note that the lower nut on the connecting rod joining ball joint eccentric and top ball joint has a left-hand thread.

There are two holes at the rear end of the needle bar lever where the top ball joint is connected. Depending on the length of the needle, when the top ball joint is connected to the rear hole, the needle bar stroke becomes shorter and with the front hole, the stroke becomes longer but the front hole is normally used.



The length of the connecting rod does not effect the length of the needle bar stroke but it should be adjusted so that the take-up does not hit against the upper and lower ends of the slot in the arm front cover.

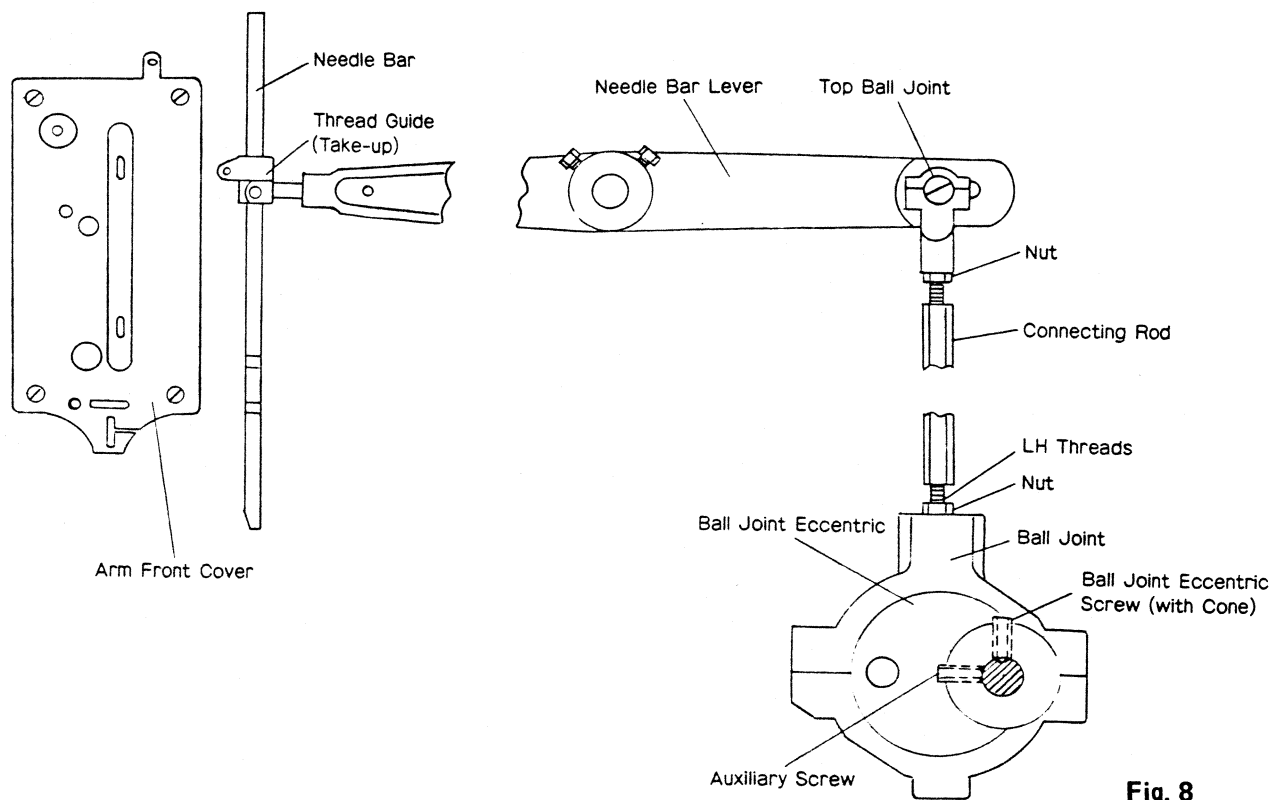


Fig. 8

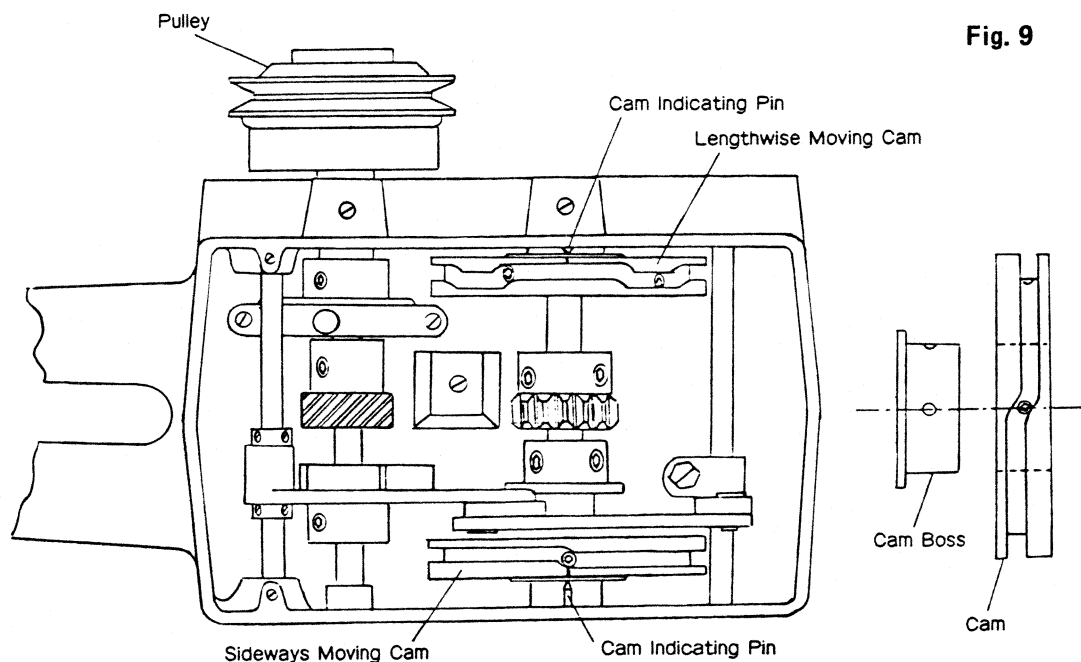
## 9. Lengthwise and Sidewise Moving Cams Adjustment

Loosen the set screw for arm base on the right side of the machine and lay the machine on its left side.

With the machine in stop position, the timing mark on the moving cam should align with the cam indicating pin. To adjust, loosen the two screws on the cam and turn the cam to align with the cam indicating pin.

The moving cam is fixed to the cam boss which in turn is fixed to the cam shaft. To disassemble the cam boss, remove the two screws in the moving cam, hold the cam by hand and turn the pulley until the screws for the cam boss comes into view in the moving cam screw hole. Insert a screwdriver into the moving cam screw hole and loosen the cam boss screw. There are matchmarks at the screw position on the inner side of the cam boss for convenience of alignment.

When setting the cam boss to the cam shaft, locate the screws on the slots of the shaft and tighten the screws securely.



## 10. Thread Pull-Off Lever and Thread Nipper Adjustment

When the machine moves into stop position at the end of the sewing cycle, button clamp lifting link engaging lever is rocked backwards by the rotation of the stop motion trip lever shaft.

Thru the link motions of the button clamp lifting link connecting link and button clamp lifting link, the back end of the button clamp lifting lever is pulled down, lifting the button clamp.

At the same time, nipper bar moving lever pushes the nipper bar forward. By this motion, the thread tension releasing lever releases the thread tension discs, rotates the thread pull-off lever to the left and the thread nipper pinches the thread against the nipper block by spring tension.

The button clamp eccentric fork lever is also rocked downward by the button clamp lifting lever driving eccentric and the hook on the fork lever engages in the slot on the button clamp lifting link which has been moved downward and locks the link.

For proper adjustment, the timing of the button clamp lifting lever driving eccentric is important. Locate the two screws on the lifting lever driving eccentric in the groove provided on the shaft and align the rear screw in one line with the screws of the stop motion disc, ball joint eccentric and pulley shaft spiral gear as shown in Fig. 10.

The button clamp lifting link and eccentric fork lever can be adjusted by loosening the screw on the button clamp lifting link engaging lever and rotating it forward or backward.

The thread nipper and thread pull-off lever can be adjusted by loosening the screws on the side of the front and rear nipper bar block and moving the blocks forward or backward.

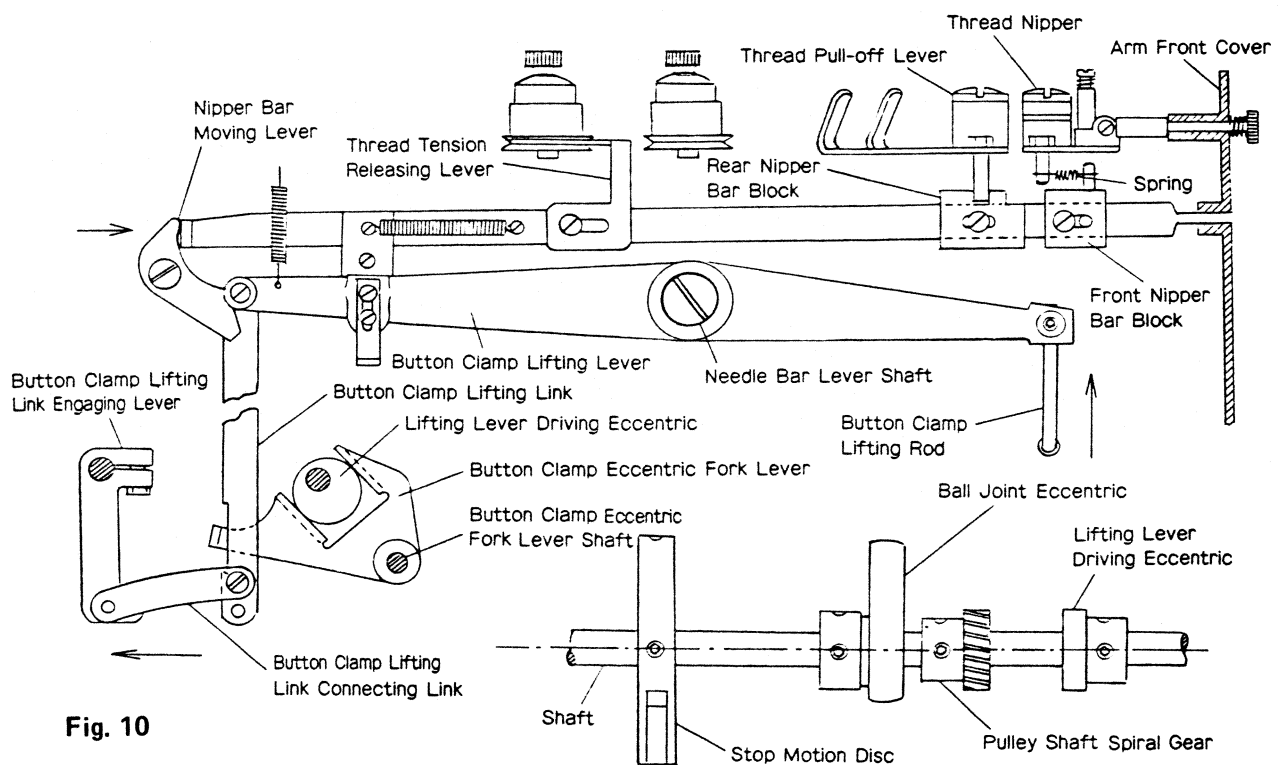


Fig. 10

## 11. Thread Tension Adjustment

Proper thread tension is required for satisfactory button sewing. Thread the machine in accordance with Fig. 11-1 & Fig. 11-2.

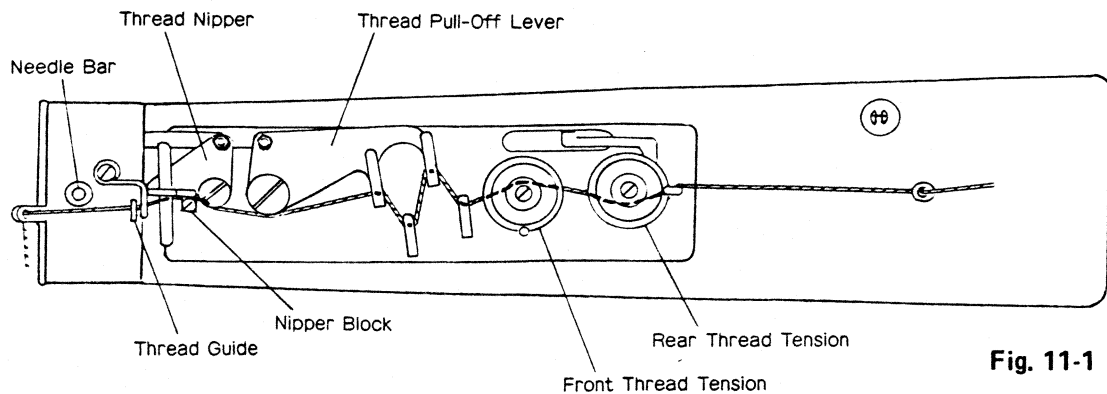


Fig. 11-1

To adjust rear thread tension, loosen or tighten the thread tension cap as required.

The front thread tension is connected with the needle bar lever and discs open and close with each up and down motion of the needle bar.

The thread tension releasing pin should start to push up the front thread tension and release the thread when the needle bar, on its up-stroke, has risen to a point where the top edge is 42 – 43 mm above the top edge of upper needle bar bushing for the short needles. When using long needles (TQ × 7), this distance should be 52 – 53 mm. When the needle bar bushing extrudes 2mm from the top of stem for needle bar guard, its distance is 40 – 41mm for short needles and 50 – 51mm for long ones.

To adjust this, loosen the two screws in the needle bar lever and turn needle bar lever shaft with a screwdriver from the button clamp lifting lever side until the tension releases.

The thread pull-off lever, in its stop position, makes the thread slacken between the thread guides. If its slack is big, the tails of thread are left over the button, and when little, left under the button.

The thread nipper pinches and holds the thread between the nipper block at the end of the sewing cycle just before going into stop position.

The thread nipper should be parallel and fit snugly with the nipper block when closed. The nipper block has a spring between the screw stud and can be turned in both directions for adjustment.

The thread nipper should pinch the thread strong enough so that the thread cannot be pulled thru by finger. Adjust according to Item 10.

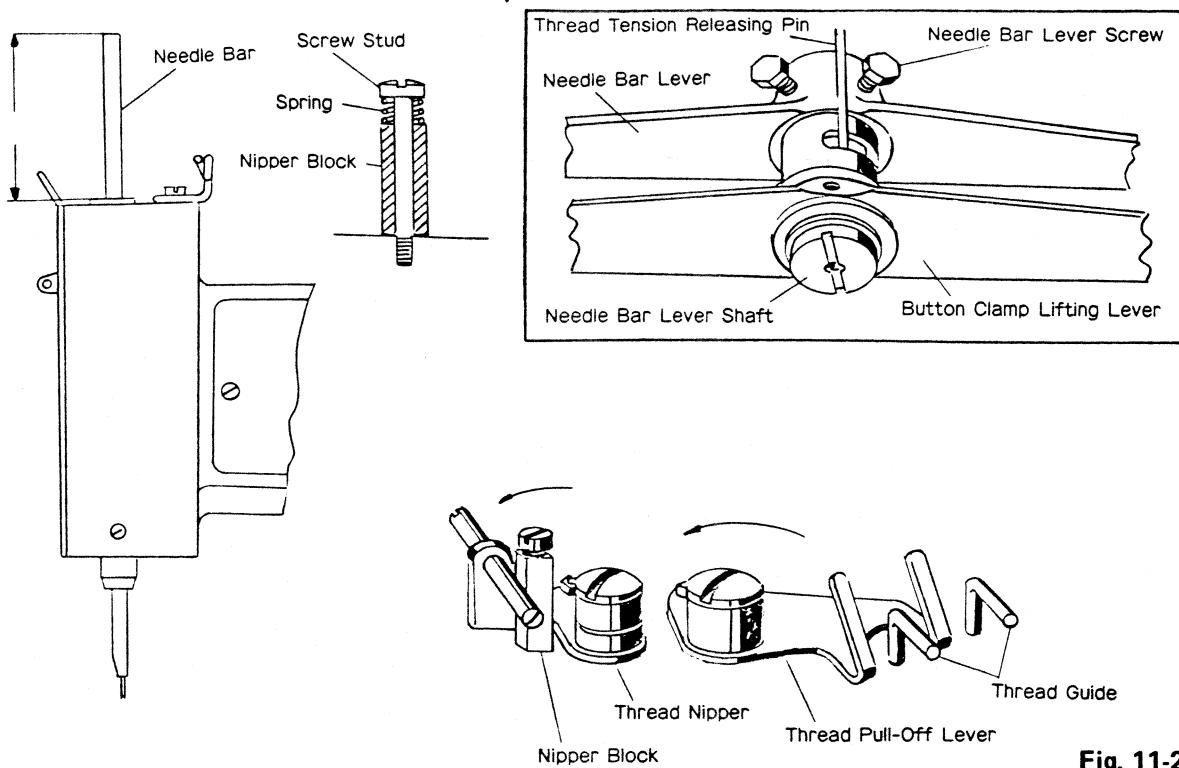


Fig. 11-2

## 12. Looper Shaft Worm Adjustment

The worm assembled to the rear of the looper shaft is tapered and narrower in front. Play in the worm because of wear can be adjusted by loosening the two screws in the worm and moving it forward.

Be sure to tighten one of the two screws on the flat of the looper shaft.

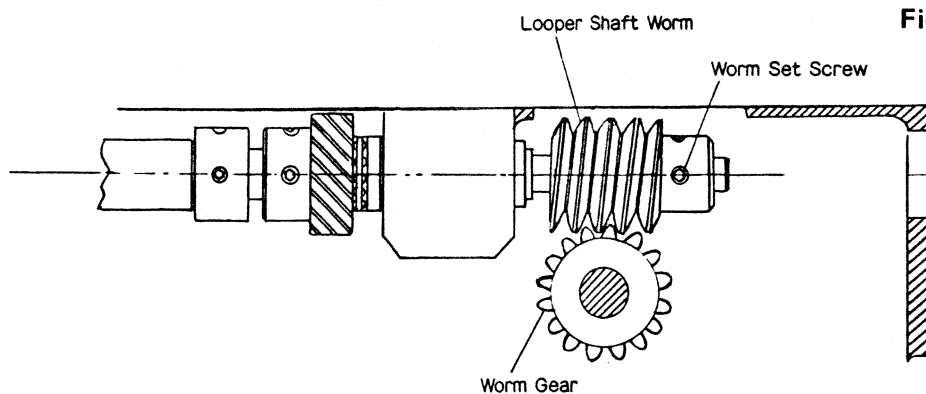


Fig. 12

### 13. Stitch Setting and Adjustment

A combination of 8, 16 or 32 stitches can be obtained for button sewing as follows:

- 1) With one half turn of stop motion cam, 8 stitches per button can be obtained. It cannot be used for four hole buttons.
- 2) With one turn of stop motion cam, 16 stitches per button can be obtained.
- 3) With two turns of stop motion cam, 32 stitches per button can be obtained.

The stop motion cam has two gaps and one gap can be closed by moving stop motion cam knob to raise the stop motion cam shoe.

The cam roller on the stop motion tripping lever rides on the edge of stop motion cam and when the gap comes to the top, the cam roller lowers into the gap and the sewing cycle is concluded.

For two turns of the 32 stitches, the stop motion cam shoe closes one gap and the end of stitch selecting lever supports the cam roller so it does not drop into the second gap on the first turn.

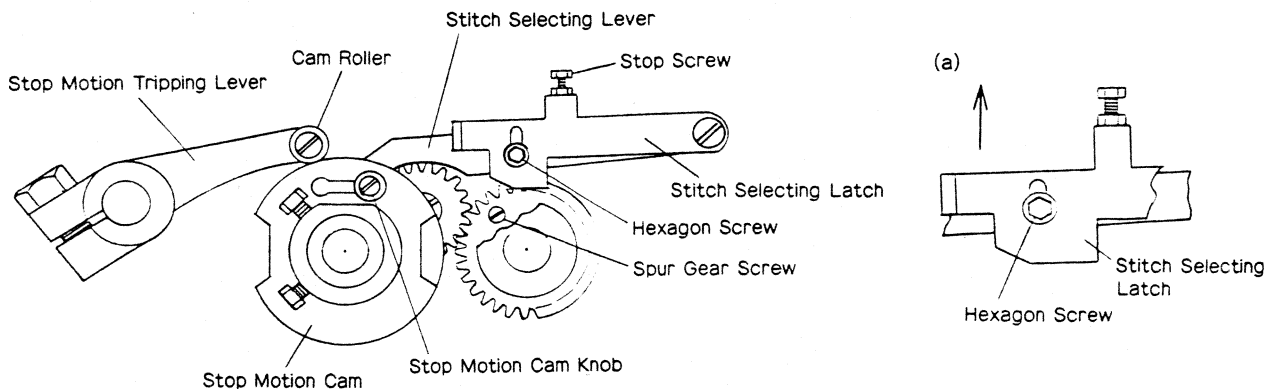


Fig. 13-1

Stitch setting is done as follows:

- a. For 8 stitches, loosen hexagon screw in stitch selecting latch, raise latch as high as it will go and tighten screw.
- b. For 16 stitches, stitch selecting latch is in the same position as 8 stitches but the stop motion cam knob is moved to the front to raise stop motion cam shoe and close the gap.
- c. For 32 stitches, stop motion cam knob is in the same front position as 16 stitches but the hexagon screw in stitch selecting latch is loosened, latch moved down as far as it will go and screw retightened.

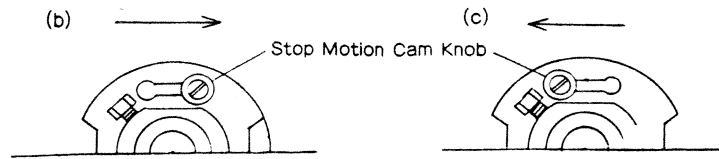


Fig. 13-2

In the case of 32 stitches, but if the 32 stitched are not available as the aforesaid (c), adjust the stitch selecting latch as follows. Loosen hexagon screw in stitch selecting latch, turn pulley in operating direction until the screw in stitch selecting spur gear is at the top and raises stitch selecting latch to its highest point, raise the end of stitch selecting lever against the cam roller so that it will rise evenly over the gap and tighten hexagon screw. Screw down stop screw in stitch selecting latch and lock with nut.

#### 14. Needle and Loop Positioning Finger Adjustment

For proper timing of the needle and loop positioning finger, clearance between needle and straight end part of loop positioning finger should be 0.3 – 0.5mm as shown in Fig. 14.

Loosen the screws in rear loop positioning finger cam and looper sleeve, adjust the clearance and tighten the screws. Front loop positioning finger cam, collar and looper are all assembled to the looper sleeve and the screws need not be loosened. Be sure to align the timing lines on the cam and sleeve after adjustment.

After adjusting loop positioning finger, check the position of the looper and adjust according to Item 2, if required.

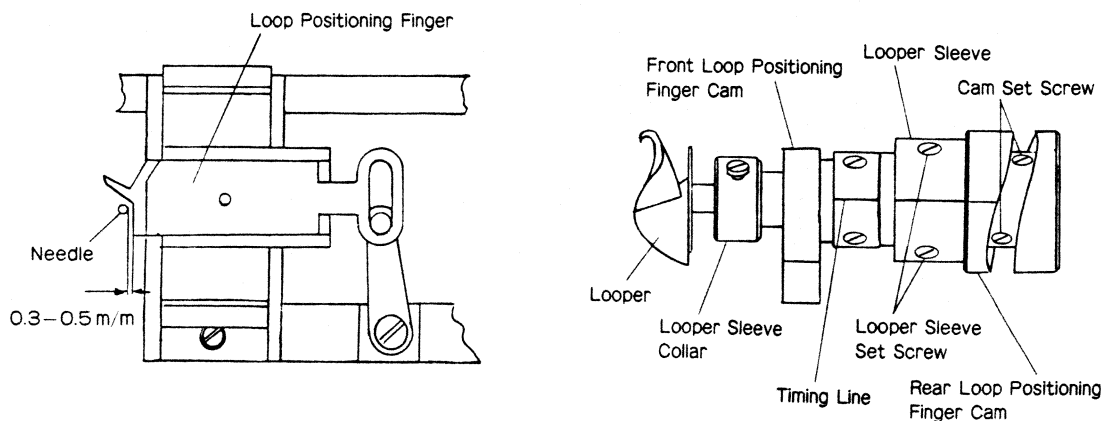


Fig. 14