

**SINGER**  
271K

# Service Manual

# SINGER

291K

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## Description

### Class 271K Machines

Top quality lockstitch buttonholers in light and medium weight materials at speeds up to 3,000 stitches per minute.

### General Characteristics

Single needle Catalogue 1526.

Lockstitch.

Automatically lubricated rotary sewing hook.

Visual gauge gives easy check on amount of oil in reservoir.

Fast, completely automatic sewing cycle.

Link take-up.

The cycle is completed with the take-up just below its highest point.

The buttonhole is automatically cut during the last stitch of the cycle.

At the completion of the cycle the initial pressure on the clamp lifting mechanism triggers off the needle thread cutting and clamping blades so that the needle thread is cut and then retained in the clamp check. As the clamp check is raised the bobbin thread is cut.

Tying stitches made at beginning and end of each buttonhole provide perfect starting stitches and a securely fastened bar at finish.

Needle thread re-trimming device gives uniformly trimmed thread ends.

Positive, gear-driven, continuous feed, spaces stitches evenly around buttonhole giving neat uniform stitch appearance under all conditions.

Stitch gear changes made without use of special tools.

Unique two speed drive automatically slows arm shaft to half, and the stop cam to quarter, operating speed before entering stop position. This action ensures a positive stop with minimum strain on the stop motion.

Shock reducing knife bar stop provides cushion of air enabling knife bar to return quietly and safely after cutting buttonholes.

Safety clamp lock prevents operator raising work clamp until buttonhole cycle is completed.

Hand ratchet device enables operator to restart stitching at any part of buttonhole.

Bobbin winder attached to belt guard.

Double angle buttonhole knife provides maximum clearance above the work clamp when sewing heavy materials and gives an improved cleaner cut.

Needle bar stroke: 1-23/64 inch (34.5mm).

Clearance under clamp: 3/8 inch (9.5mm).

Machines can be tipped to left or rear for servicing.

### Special Features of Machine Varieties

Class	Applications	Stitch	Length of Buttonhole	Style of Ends	Knives	Speed
271K11	Dress and sports shirts, dresses, pyjamas, skirts and other garments	Straight purl or whip-stitch	3/8 inch to 3/4 inch (9.5 to 19mm) Supplied up to 1 inch (25.4mm)	Square or wide bar	3/8 inch to 1 inch (9.5 to 25.4mm) in steps of 1/16 inch (1.6mm)	3,000 stitches per minute
271K12	Dress and sports shirts, dresses, pyjamas, skirts and other garments	Straight purl or whip-stitch	1/2 inch to 1-1/16 inch (12.7 to 17.5mm) Supplied up to 1 inch (25.4mm)	Elongated bar	3/8 inch to 1 inch (9.5 to 25.4mm) in steps of 1/16 inch (1.6mm)	2,700 stitches per minute
271K13	Dress and sports shirts, dresses, pyjamas, skirts and other garments	Straight purl or whip-stitch	3/4 inch to 1-1/2 inch (19 to 38mm)	Square or wide bar	3/4 inch to 1-1/2 inch (19 to 38mm) in steps of 1/16 inch (1.6mm)	3,000 stitches per minute
271K14	Knit goods, linen or cotton garments	Whip-stitch top cord	3/8 inch to 3/4 inch (9.5 to 19mm) Supplied up to 1-1/4 inch (32mm)	Square bar. Taper bar at finish	3/8 inch to 1-1/4 inch (9.5 to 32mm) in steps of 1/16 inch (1.6mm)	2,700 stitches per minute
271K24	Knit goods, linen or cotton garments	Whip-stitch top cord Buttonhole sewn 'twice around'	3/8 inch to 3/4 inch (9.5 to 19mm) Supplied up to 1-1/4 inch (32mm)	Square bar. Taper bar at finish	3/8 inch to 1-1/4 inch (9.5 to 32mm) in steps of 1/16 inch (1.6mm)	2,700 stitches per minute
271K211	For installation on Automatic Sequential Electro-mechanical Device 257464	Straight purl or whip-stitch	3/8 inch to 3/4 inch (9.5 to 19mm) Supplied up to 1 inch (25.4mm)	Square or wide bar	3/8 inch to 1 inch (9.5 to 25.4mm) in steps of 1/16 inch (1.6mm)	2,700 stitches per minute
271KX1	Dress and sports shirts, dresses, pyjamas, skirts and other garments	Straight purl or whip-stitch	1/2 inch to 1 inch (12.7 to 25.4mm)	Eyelet and square bar at finish	3/8 inch to 1 inch (9.5 to 25.4mm) in steps of 1/16 inch (1.6mm)	2,700 stitches per minute

## Installation and Operation

This section of the manual contains general information for installing and operating 271K machines.

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## Belt

Use only machine driving belt (endless) 271797, as supplied with machine.

Do not overtighten.

With correct pulley for required speed fitted to motor, adjust motor height only to position where driving speed is reached without belt slip.

## Buttonhole Length Fig. A

Gauge ① is marked in numbers corresponding to the lengths of buttonholes which can be made.

To adjust length of buttonhole:

1. Remove oil guard ②.
2. Place gauge ① on slide.
3. Loosen nut on regulator lever ③.
4. Align desired length of buttonhole marked on gauge with line ④ cut in slideway.
5. Move lever ⑤ until sleeve under nut rests against downward projection of gauge.
6. Tighten nut ③.
7. Replace oil guard ②.

## Cleaning

Use only a short bristled brush to remove lint or waste from around the sewing hook, knife, work clamp and moving parts on underside of needle plate.

Wipe off any excess oil on machine surfaces, particularly areas which may contact material to be sewn.

## Completing an Unfinished Buttonhole after Rethreading Figs. B,C.

1. Pull forward, repeatedly, ratchet lever ⑥ until the unfinished buttonhole is in the correct position to resume sewing.
2. Pull out lever ⑦ for half speed operation.
3. Start machine.

## Identification-Feed Wheel Gears Beneath Machine Bed Fig. D

- Feed wheel gear ⑧.
- Feed wheel driving shaft ⑨.
- Intermediate gear ⑩.
- Feed wheel driving shaft gear ⑪.

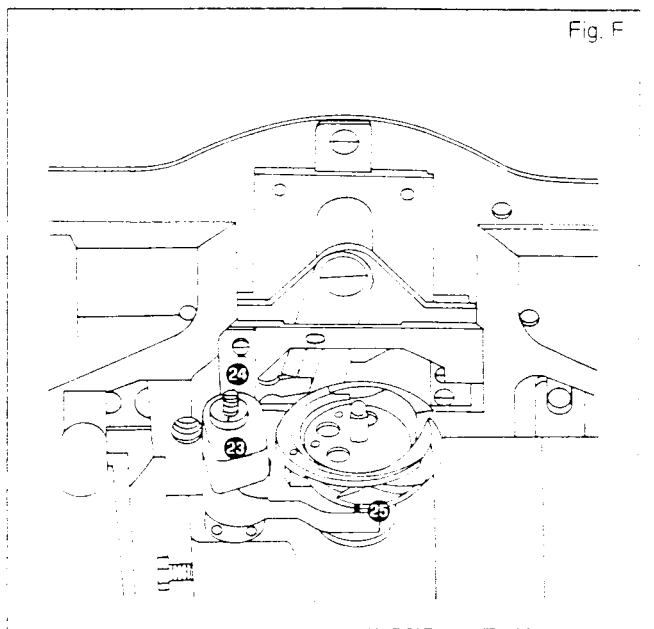
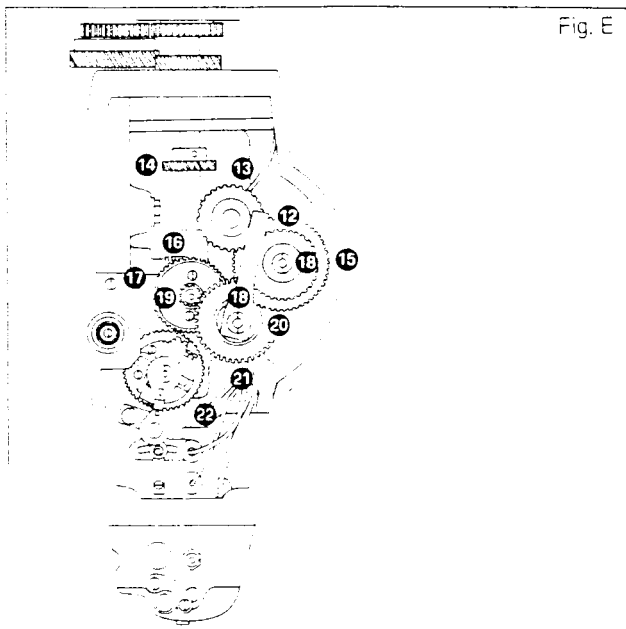
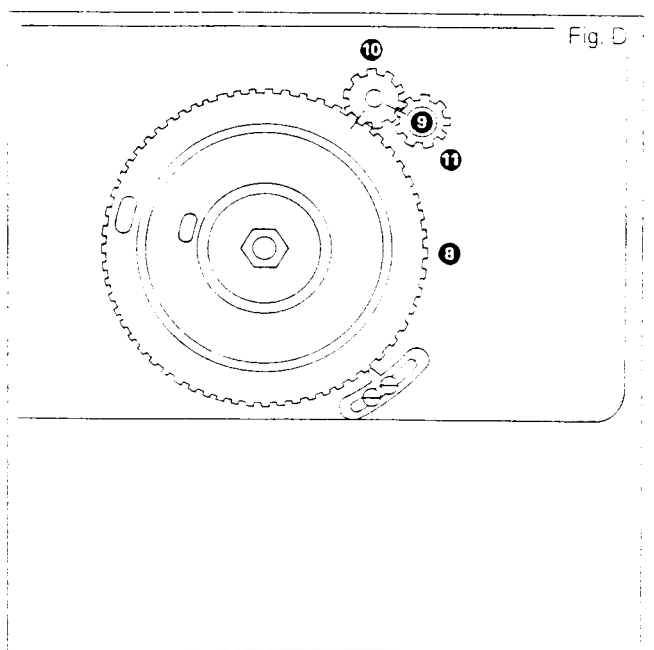
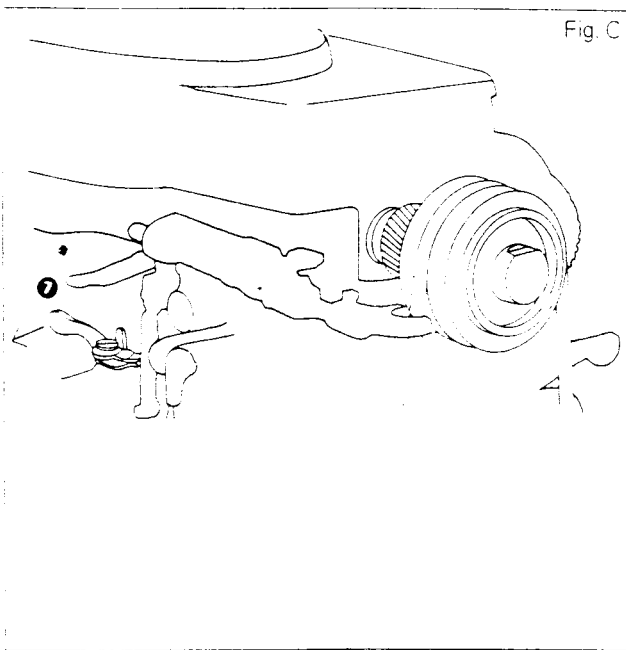
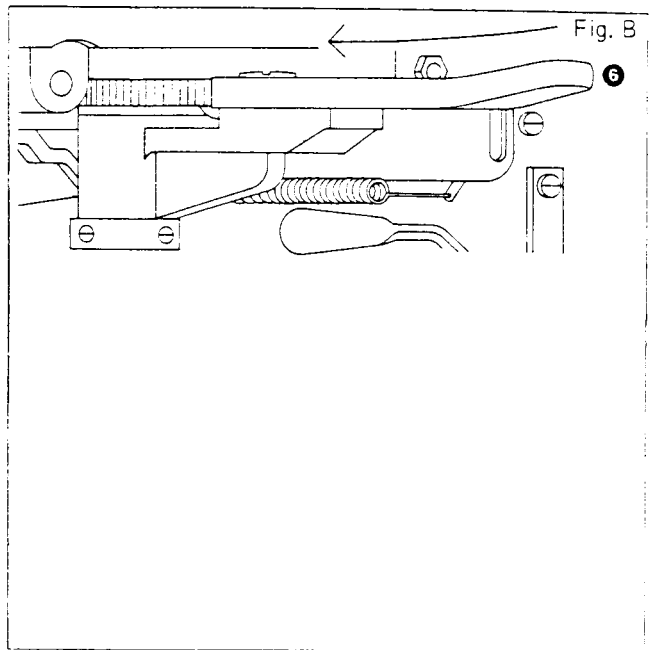
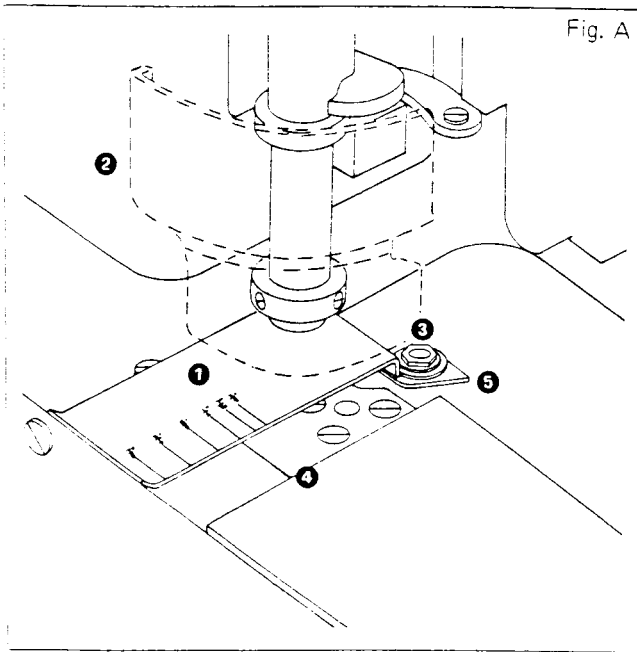
## Identification-Gear Train at 'Stop' Position Fig. E

- Stitch regulating gear driving ⑬.
- Stitch regulating gear driven ⑭.
- Hook driving connection belt pulley gear ⑮.
- Feed driving gear ⑯.
- Feed driving bevel pinion ⑰.
- Feed driving bevel gear ⑱.
- Eccentric studs ⑲.
- Feed driving pinion ⑲.
- Feed ratchet gear upper ⑳.
- Feed ratchet gear lower ㉑.
- Needle bar frame driving gear ㉒.

## Internal Oil Passage

### Alignment Fig. F

1. Position stamped mark ㉓ on bobbin case opener bracket hinge stud ㉔, at six o'clock.
2. Position stamped mark ㉕ on front hook shaft bushing, at six o'clock.



# Gear Selection Chart

STITCH REGULATING GEARS				NUMBER OF STITCHES (Needle Dips) OBTAINED IN BUTTONHOLE FOR EACH REVOLUTION OF FEED WHEEL	
USED AS DRIVEN GEAR		USED AS DRIVING GEAR		USING FEED-DRIVING GEAR 271550 (64 teeth) WITH UPPER FEED RATCHET GEAR 271559 (32 teeth)	USING FEED-DRIVING GEAR 271854 (72 teeth) WITH UPPER FEED RATCHET GEAR 271855 (24 teeth)
PART NUMBER	Number of Teeth	PART NUMBER	Number of Teeth	MEDIUM RANGE (Regularly supplied in Machines 271K11, 271KX1, 271K14, 271K24 and 271K211)	FINE RANGE (Regularly supplied in Machines 271K12 and 271K13)
271646	60	271634	30	240	360
271648	60	271637	36	200	300
271645	54	271636	36	180	270
271642	48	271638	36	160	240
†271644	50	*271639	40	150	—
271643 ❶	48	271640 ❶	40	144	216 ❸
*271459	44	*271458	40	132	198
271641 ❶	45	271641 ❶	45	120 ❶	180
271640 ❷	40	271643 ❷	48	100 ❷	150
271639 ❷	40	271644 ❷	50	96	144 ❷
†271638	36	*271642	48	90	—
271636	36	271645	54	80	120
271637	36	271648	60	72	108
*271635	32	*271647	60	64	96
271634	30	271646	60	60	90

\*NOT REVERSIBLE: Reversing this set of gears may cause needle to stop at odd intervals.

†These gears can be used in locations listed, only when machine is fitted with medium range Feed Driving Gear 271550 and Feed Ratchet Gear 271559.

- ❶ Regular for machines 271K11, 271KX1 and 271K211 giving six barring stitches.
- ❷ Regular for machine 271K12 (NOT REVERSIBLE), giving eight barring stitches.
- ❸ Regular for machine 271K13, giving five barring stitches.
- ❹ Regular for machines 271K14 and 271K24, giving four barring stitches.

See instructions on page 10 for method of changing these gears.



## Buttonhole—Number of Stitches

The number of stitches in a buttonhole is controlled by the set of stitch regulating gears selected for use.

## Instruction for Marking Stitch Regulating Gears Figs. A,B.

**Caution:** It is very important that the machine be properly timed for correct cycling before being used for marking the stitch regulating gears.

1. Select set of stitch regulating gears (2 gears) for desired number of stitches using gear selection chart. (see page 8).
2. Set starting lever in running position.
3. Turn arm shaft in normal direction of rotation to position point of needle approximately even with top of the clamp check with needle bar rising on the right hand side (maintain this position).
4. Remove the two stitch regulating gears from the machine.
5. Select the stitch regulating gear to be (driven) from the new set and position on to the feed wheel driving shaft, making sure that the lug on the feed wheel driving shaft is seated into the slot of the stitch regulating gear.
6. Using the (driven) stitch regulating gear ③, turn the feed wheel driving shaft ④, clockwise until the back barring plate is past the barring point, then reverse the rotation of the feed wheel driving shaft counterclockwise to position back edge of barring plate flush against barring point (trip barring trip lever before reversing direction of the feed wheel driving shaft).
7. While maintaining the position of the barring plate flush against the barring point by holding the tripping point disc located on the feed wheel shaft, position the (driving) stitch regulating gear ① on to the feed driving gear stud ⑤ meshing the teeth of the (driving) stitch regulating gear ① with teeth of the (driven) stitch regulating gear ③ and seat slot of (driving) stitch regulating gear on to lug of feed driving gear if alignment of slot and lug permits.
8. If the slot in the (driving) stitch regulating gear does not line up with lug of feed driving gear when teeth of both stitch regulating gears are meshed, select the gear tooth mesh that will position the slot in the (driving) stitch regulating gear as close to meshing as possible past the lug on feed driving gear in the direction of rotation (counterclockwise) never to exceed one full tooth. (See fig. A).

**Caution:** Never change the pre-set position of the (driven) stitch regulating gear ③ to facilitate the meshing of the slot and lug.

9. Rotate arm shaft in normal direction of rotation until lug on feed driving gear ② engages and seats into slot in (driving) stitch regulating gear.

10. Ratchet machine close to stop position and rotate arm shaft to set machine into stop position and mark the two stitch regulating gears as shown in fig. B.

(Note: The related markings on any set of stitch regulating gears are good only in the machine in which the gears were originally marked).

Note: It is absolutely necessary to use some type of code when marking the stitch regulating gears to insure proper location and tooth mesh when re-assembling a marked set of gears into a machine (see fig. B). It should also be noted that changing the ratio of stitch gears may cause machine to stop on either left or right side. This condition is not objectionable or detrimental to sewing.

## Installing Pre-marked Stitch Regulating Gears Figs. A,B.

1. Run machine into stop position.
2. Remove previously used stitch regulating gears from machines.
3. Position (driven) stitch regulating gear ③ from new set on to feed wheel driving shaft "B" ④ (fig. B), aligning and seating slot in (driven) gear on to lug of shaft.
4. Position (driving) stitch regulating gear ① from new set on to feed driving gear stud "A" ⑤ (fig. B) meshing teeth of (driving) gear with teeth of (driven) gear with "A" mark on (driving) gear aligned with "B" mark on (driven) gear.
5. Turn (driving) stitch regulating gear counterclockwise until slot in (driving) gear aligns and seats on to lug of feed driving gear making sure that the (driven) stitch regulating gear remains seated and engaged on lug of feed wheel driving shaft and teeth of both stitch regulating gears stay meshed.

Note that for a finer range of stitching, upper feed ratchet gear and feed driving gear may also require changing.

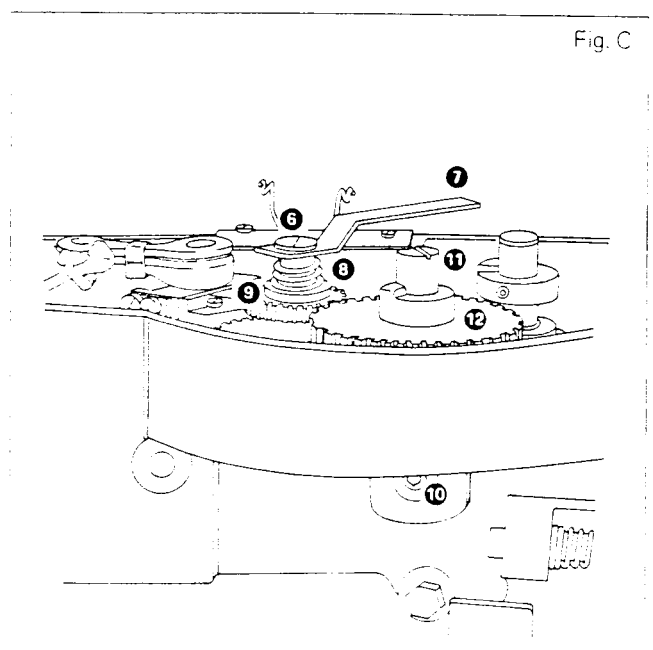
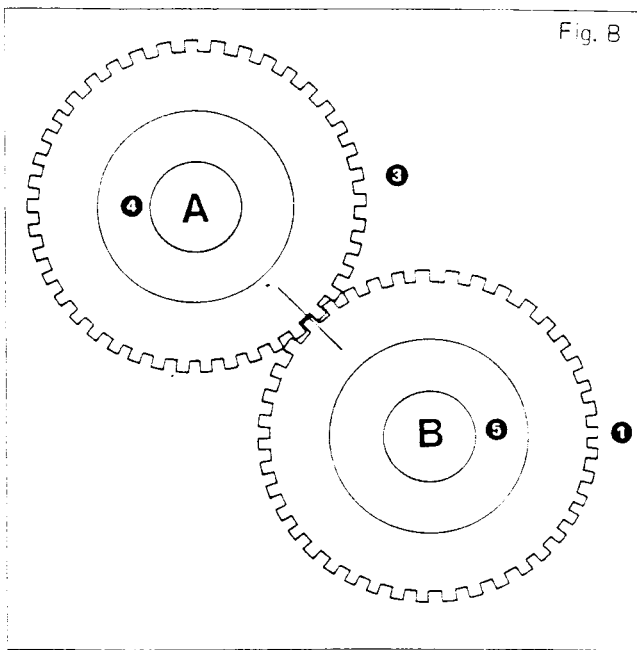
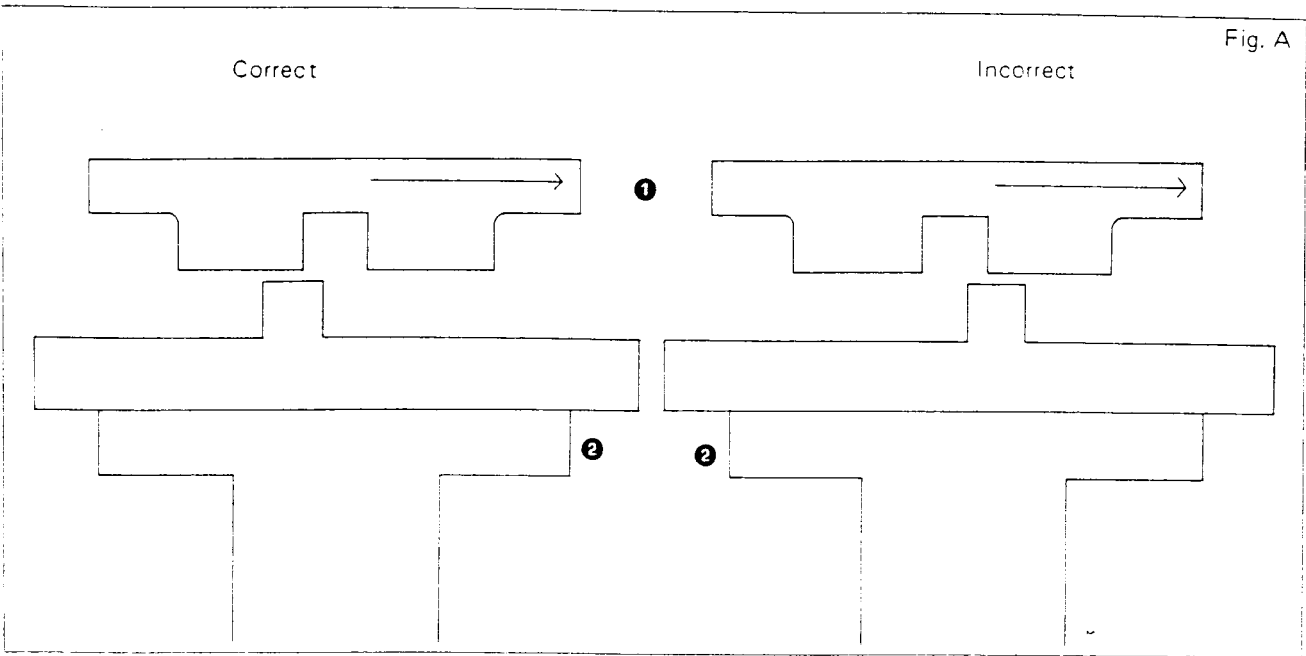
## To Change Upper Feed Ratchet Gear Figs. C,D

1. Remove cap-screw ⑥, retainer ⑦, spring ⑧ and washer ⑨.
2. Lift out gear.
3. Select correct upper feed ratchet gear from chart on page 8 and place on its shaft.
4. Replace washer ⑨, spring ⑧, retainer ⑦ and cap-screw ⑥.

## To Change Feed Driving Gear

1. Loosen eccentric stud socket screw ⑩.
2. Remove eccentric stud ⑪.
3. Slide out feed driving gear ⑫.
4. Replace with selected gear.
5. Replace eccentric stud ⑪.
6. Tighten socket screw ⑩.

Note: It may be necessary to adjust feed wheel stop position and back finger latching after a change of stitch regulating gears.



## Lubrication Figs. A,B

Use Singer Oil Type 'A' or 'C'.

Use type 'C' to minimise stain on fabrics.

Do not use additives to machine oil.

1. Fill the oil reservoir through hole ③ to the high mark ① on the gauge ②.
2. Oil level must not be allowed to fall below low mark ④.
3. When machine is new or has been idle for some time apply oil to initial lubricating points ⑤.
4. Apply oil daily to oiling points ⑥.
5. Do not apply more than one drop of oil to ⑦.
6. Saturate felt ⑧ daily.
7. Apply oil freely to holes marked by red dot.

## Machine Pulley

Machine pulley (loose double-shielded bearing) with belt groove diameter 2-3/4 inches (70mm) for machine driving belt (endless) 271707.

Machine pulley (tight) 271617 drives machine at half operating speed.

These pulleys are fitted with permanently lubricated, sealed ball bearings.

Machine pulley (positive drive) drives machine through gear train, at operating speed.

Direction of rotation of pulleys is to the left, anti-clockwise from the operator's position.

## Needles and Needle Setting Fig. C

Use only Singer Needles, Catalogue 1526.

Needle size selection is determined by the particular machine, thread and material in use and the type of buttonhole to be sewn, purl or whipstitch.

Generally, the smallest size of needle which allows the thread in use to pass freely through the needle eye, should be used.

Use the smallest possible needle for the thread in use.

Correct needle selection makes a great difference in the ease and quality of the work.

To set:

1. Loosen screw ⑨ in lower end of needle bar.
2. Insert needle into needle bar as far as possible ⑩. Long groove of needle ⑪ toward rear, facing knife. Needle eye directly in line with machine arm.
3. Tighten screw ⑨.

## Oil Flow to Hook—Regulation Fig. D

1. Run machine for approximately one minute.
2. Stop machine and hold a piece of paper under hook.
3. Run machine for five buttonhole cycles. Correct pattern will show five oil stains on paper.
4. If oil pattern is incorrect: turn screw ⑫ until it is 1/8 inch (3.2mm) out of the bracket face.
5. Run at least fifteen buttonhole cycles and recheck pattern on paper.
6. Re-adjust if necessary turning clockwise to increase flow and anti-clockwise to decrease flow, until pattern is correct.

Do not alter the setting of screw located at back centre of hook base which is an oil metering screw, with a set aperture.

## Speed

Maximum recommended speeds are given in 'Special Features of Machine Varieties' on page 4.

Optimum speed for efficient operation is determined by the material, thread and buttonhole style to be sewn.

New machines should be run at speeds 500 stitches per minute less than the recommended maximum, for the first hundred hours.

## Stitching Over Twice on the same Buttonhole (Machines 271K14) Fig. E

To stitch over a buttonhole twice, for added strength or any other reason:

1. Press down knife bar disengaging lever stud ⑬ until first cycle is complete.
2. Release knife bar disengaging lever stud ⑬ before commencing second cycle.

## Thread

Needle thread: Left or right twist.

Where the application demands maximum or near maximum needle bar throw, (right) right twist thread is recommended.

Bobbin thread: Left or right twist.

For whipstitch, thread sizes should be the same for needle and bobbin, e.g. 50/3.

For purl stitch, the needle thread should be larger than the bobbin thread, e.g. 40/6 needle thread and 90/3 bobbin thread.

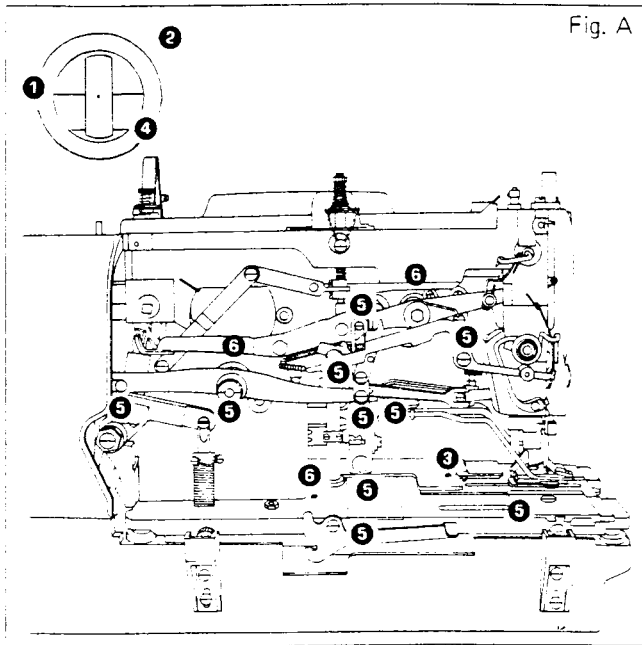


Fig. A

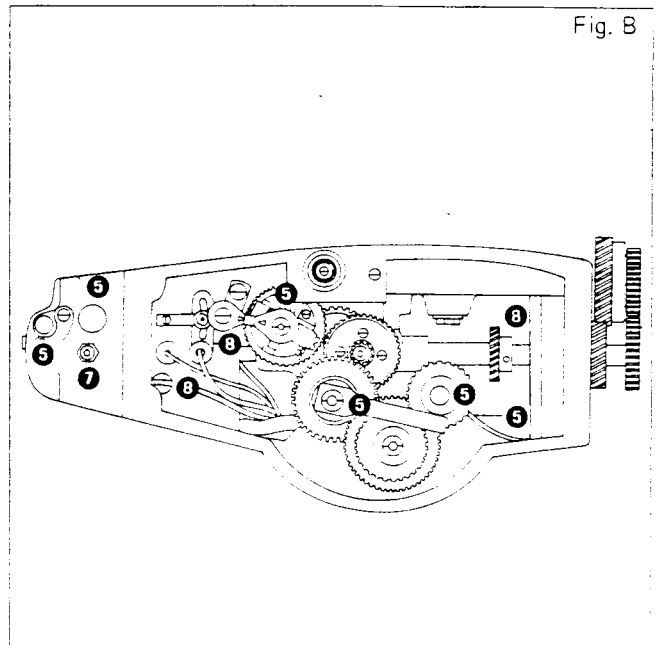


Fig. B

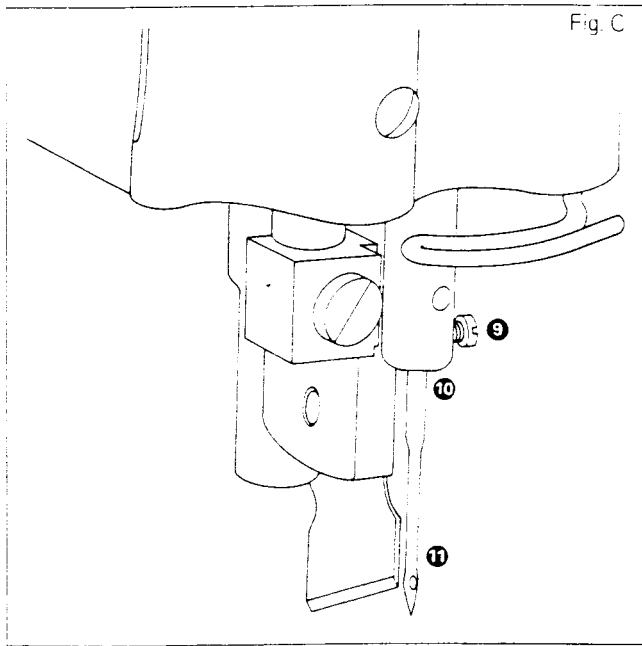


Fig. C

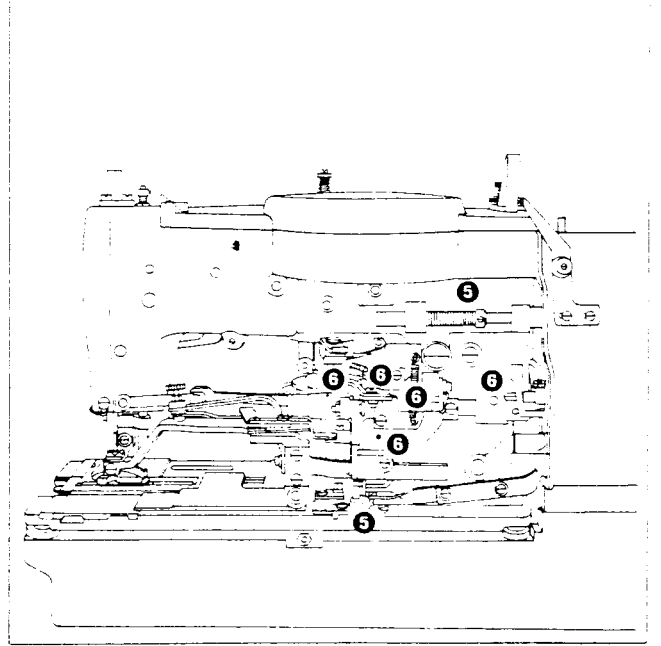


Fig. D

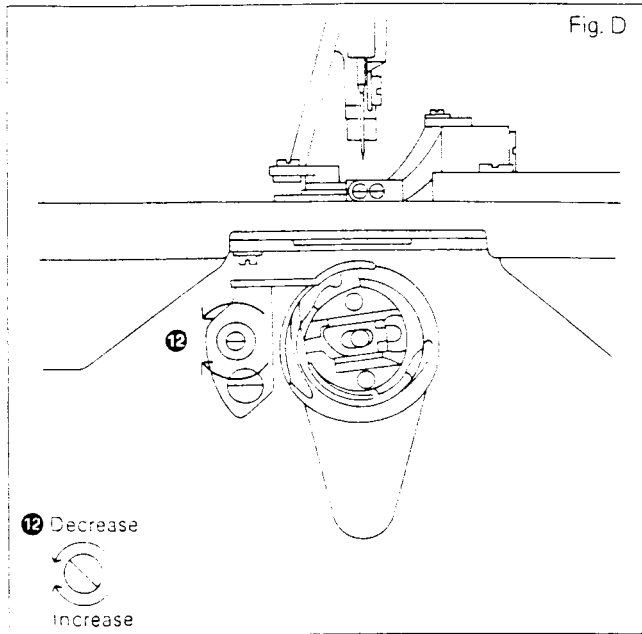


Fig. E

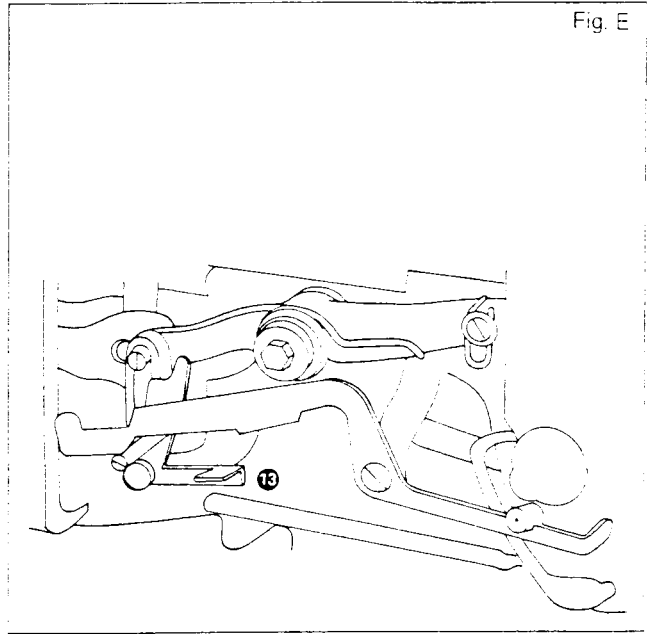


Fig. F

## Threading

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### Needle Thread Fig. A

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1. Pass thread from unwinder ① down through thread tension guide on top of arm ②.
  2. Lead thread through threading points shown.
  3. Pass thread from rear to front through needle eye ③.
  4. Draw about two inches of thread through needle eye to start the stitching ④.
- 

### Whipstitch Buttonhole Fig. A

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Bypass middle tension device ⑤ on machine arm.

On machines designed primarily for whipstitch buttonholes, such as machine 271K14 and 271K24 this middle tension device ⑤ has been omitted.

### Top Cord (271K14 and 271K24) Fig. B

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1. Pass the cord from unwinder ⑥ into wire guide ⑦ on right side of machine head.
  2. Lead cord through threading points shown and behind cording mechanism.
  3. Draw about one inch of cord down through hole in end of cord finger ⑧ to start the stitching.
-

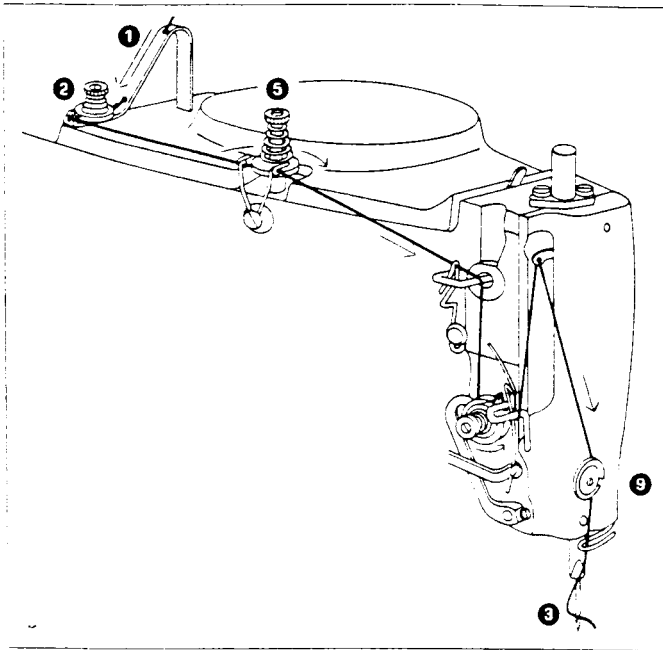


Fig. A

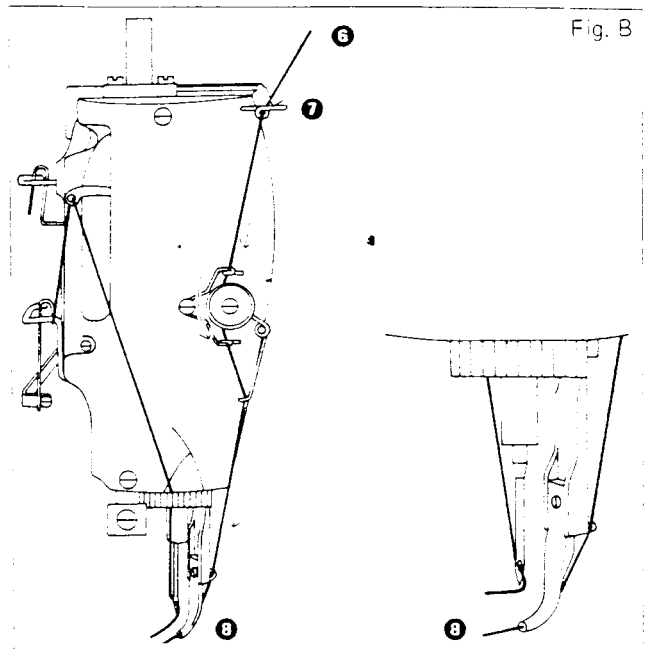
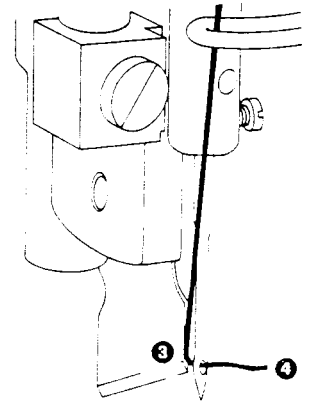
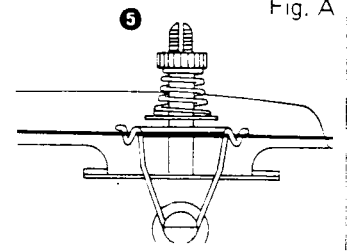
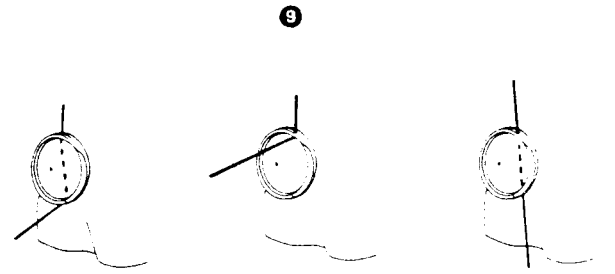
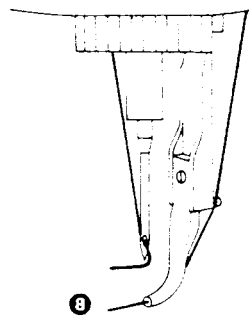


Fig. B



## Bobbin Removal Fig. A

Reach beneath machine bed and with thumb and fore-finger of left hand remove bobbin case cap and bobbin as follows:

1. Open latch ①.
2. Hold latch and pull case from sewing hook ②.
3. Release latch ③.
4. Remove bobbin from bobbin case ④. When latch is held open, bobbin is retained in bobbin case.

## Bobbin Winding Fig. B

1. Thread the tension control ⑤.
2. Place bobbin on spindle ⑥ as far as possible.
3. Wind thread around bobbin ⑦.
4. Push lever ⑧ in, to bring pulley in contact with belt.

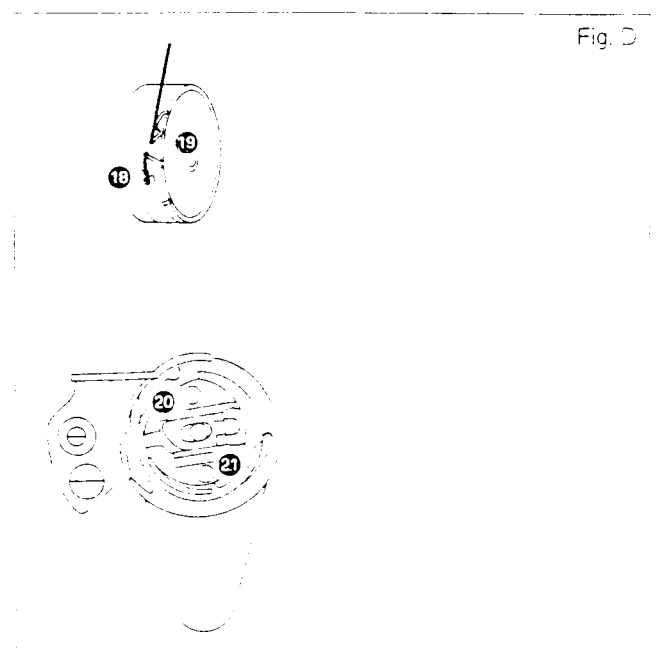
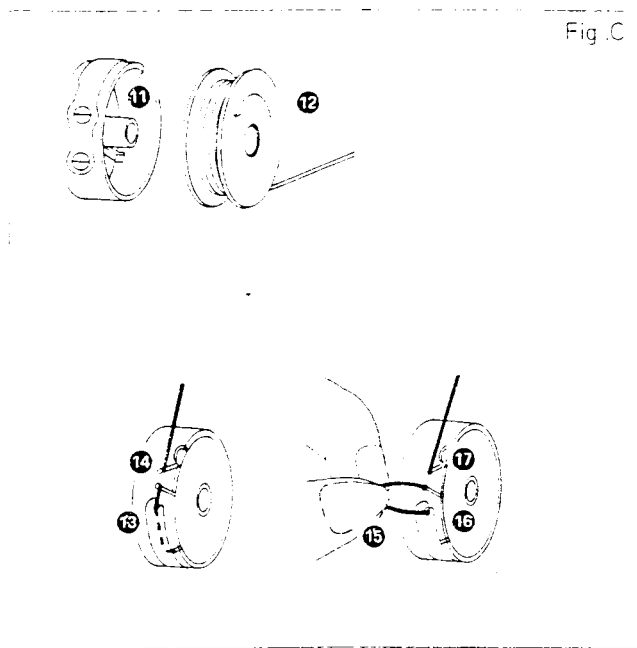
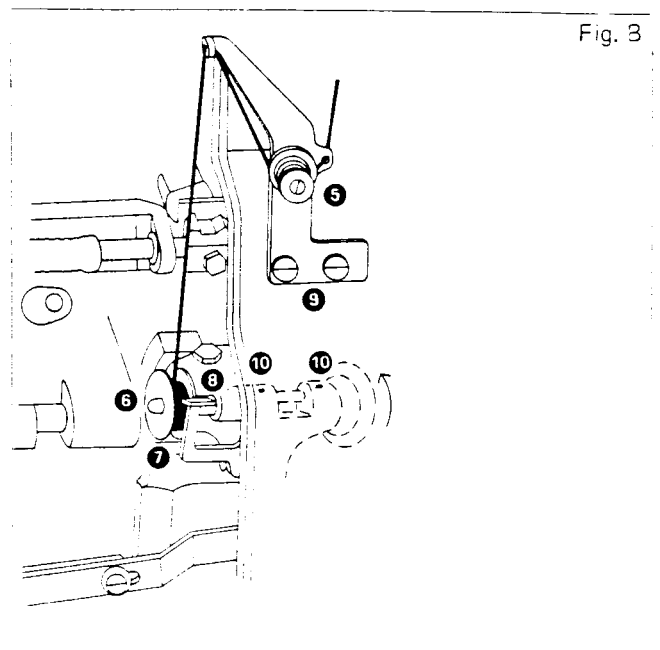
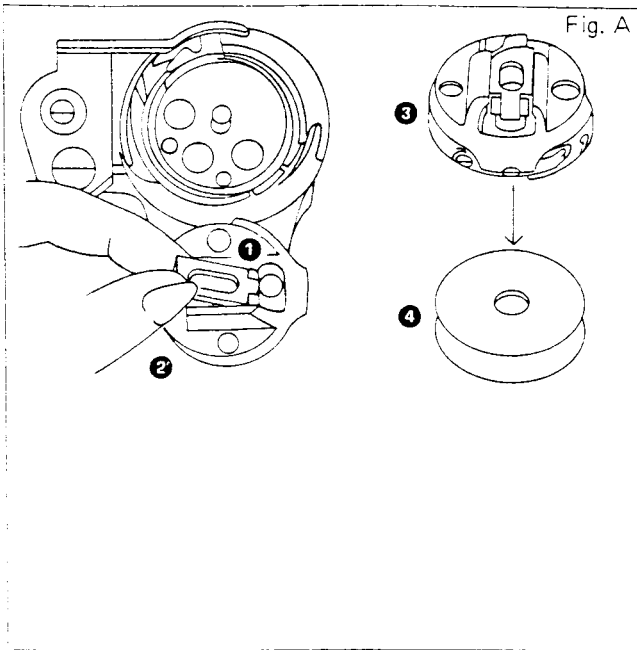
If necessary, loosen screws ⑨, adjust for even winding and tighten screws ⑩. Apply a drop of oil to points ⑪.

The bobbin winder stops automatically when sufficient thread has been wound on bobbin.

## Threading and Replacing

### Bobbin Case Figs. C, D.

1. Hold the bobbin case with slot ⑪ near top.
2. Replace bobbin in bobbin case ⑫.
3. Pull thread into lower slot ⑬.
4. Draw thread up under spring ⑭.
5. Grasp loop of thread above spring ⑮.
6. Pull thread into middle slot ⑯.
7. Draw thread up and slip into upper slot ⑰.
8. Release loop of thread ⑱.
9. Draw thread taut between upper, middle and lower slots ⑲.
10. Replace bobbin case on stud ⑳.
11. Release latch ㉑.
12. Press back until latch catches groove in stud.
13. Draw about 1-1/2 inches of thread from bobbin to start the stitching. Do not exceed this length or thread may be trapped between hook and base.





## Thread Tensions Fig. A

Tension on threads should be as light as possible while still sufficient to set stitches correctly in buttonhole.

Needle thread tension is regulated by thumb nuts **2**, **3** and **4**.

## Needle Thread Take-up Spring Fig. B

Tension on the take-up spring **5** should be sufficient to control thread during downward stroke of the needle.

To set:

1. Turn tension stud **6** clockwise to decrease, anti-clockwise to increase tension.

The height of the spring should be set to control the thread until eye of needle reaches material.

To adjust:

1. Loosen set screw **7**.
2. Turn tension only. Clockwise to decrease, anti-clockwise to increase.
3. Tighten set screw **7**.

## Bobbin Thread Tension Fig. A

Bobbin thread tension is regulated by screw **1**.

Bobbin thread tension is approximately correct when the bobbin unwinds by its own weight if suspended by its thread.

## Side of Arm Tension Fig. A

Tension should be as light as possible but still sufficient to ensure well balanced stitches on the bars in conjunction with the bobbin case tension.

To adjust:

1. Turn thumb nut **4** clockwise to increase, anti-clockwise to decrease.

## Top of Arm Tension Fig. A

Tension should be set to give a purl stitch on the leg and should be just sufficient to draw the purl evenly to top side of buttonhole.

To adjust:

1. Turn thumb nut **3** clockwise to increase, anti-clockwise to decrease.

## Pre-tension Control Fig. C

Tension on needle thread from pre-tension control should be just enough to prevent sewing hock from stealing the thread at the end of the first bar.

To adjust:

1. Turn thumb nut **2** until even the first three or four stitches, immediately following the bar stitches, pull up into an attractive purl stitch.
2. Correct tension shown at **3**.  
Incorrect tension shown at **4**.

## Whipstitch

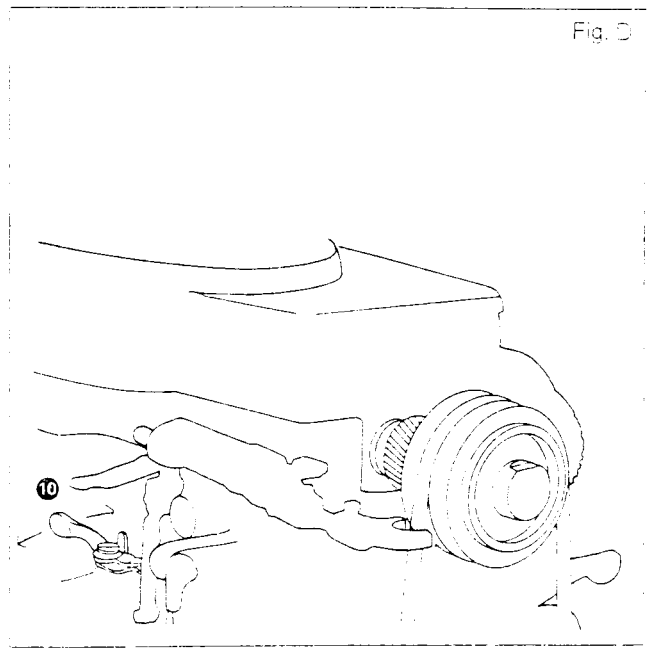
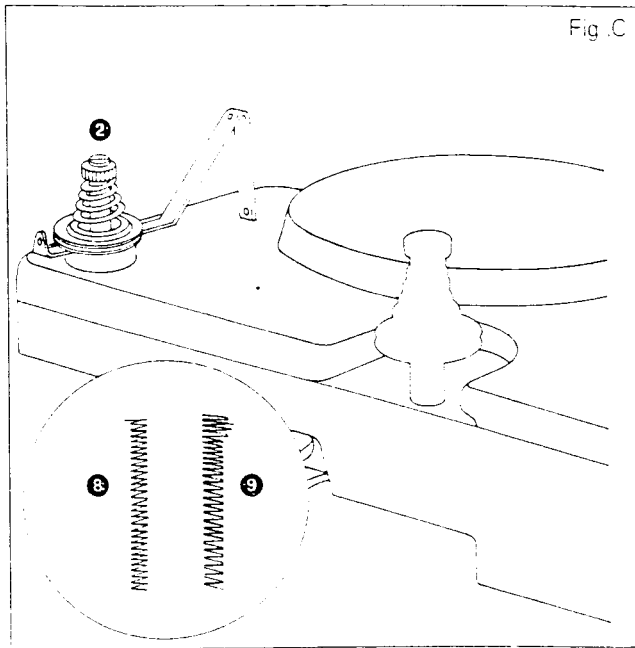
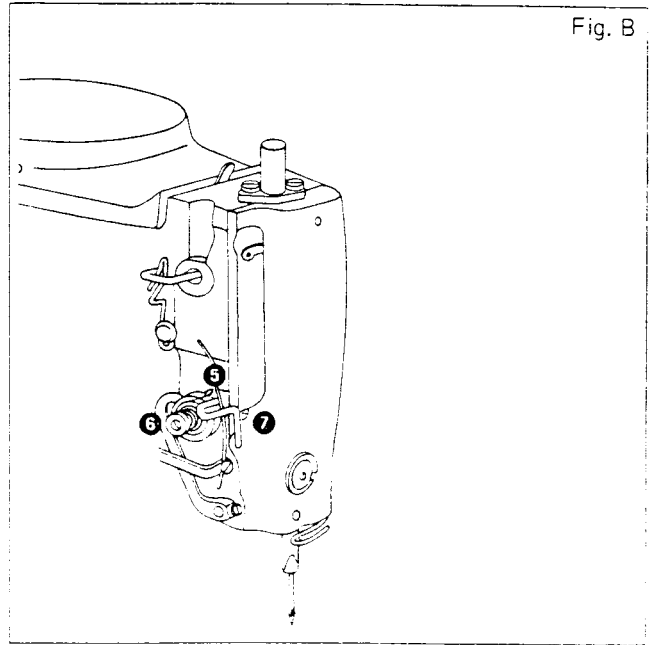
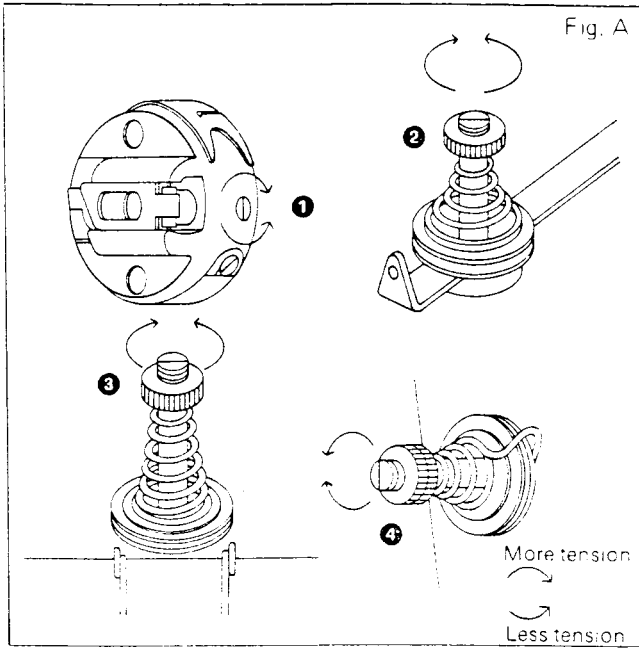
Thread should not be passed through middle tension device.

## Two-speed Belt Shifter Fig. D

A two-speed belt shifter permits operation of the machine at half normal speed when required.

To operate at half speed, pull out lever **10**.

To return to normal speed, push in lever **10**.



## Timing and Setting

All machines are correctly timed and set before leaving the factory.

If for any reason setting or timing has been disturbed, it is necessary to readjust as given in the following section.

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## Automatic Knife Bar Disengaging Lever Fig. A

When sewing at full speed this lever ① should be slightly above pin ② and will have little or no vertical motion.

To adjust:

1. Loosen set screw ③.
2. Move balance weight ④ forward or backward along the lever ① until the lever rests lightly on the pin ②.
3. Tighten set screw ③.
4. Set thread guide height so that when sewing the lever will just clear pin.

## Barring Fig. B

The barring shaft assembly must be positioned with its slide ⑤ in line with the needle bar frame connection ⑥ when the needle bar is at its lowest point.

## Barring Stitches in the Bar Figs. C,D

The number of stitches in the bars is related to the total number of stitches in the buttonhole and can only be altered by changing the stitch regulating gears selected for use. See page 10.

To check the number of stitches in the bars

1. Open up cutting space to maximum.
2. Ratchet machine on to left hand side of buttonhole.
3. Draw a pencil line across gib and slide.
4. Ratchet machine on to bar.
5. Draw a pencil line across gib and slide.
6. Ratchet machine on to right hand side of buttonhole.
7. Draw a pencil line across gib and slide.
8. Ratchet machine on to left hand side of buttonhole.
9. Set machine in run position.
10. Note the pencil line across gib and slide indicating the left hand side of buttonhole.
11. Turn the machine over by hand until the line breaks and the pencil lines marked on the slide and gib, indicating the top bar, just align.
12. Continue to turn the machine over by hand and count the number of needle bar dips until the pencil lines indicating the top bar just break.

The number of needle bar dips counted will be the number of stitches in the bar.

## Barring Stitch Setting Figs. B,D

The desired setting of barring stitches is achieved when the barring plates ⑦ are correctly located on cam ⑧.

To check:

1. Carry out the procedure 1. to 11. detailed above.
2. Continue to turn the machine over by hand until the pencil lines indicating the top bar just break.

At this point the needle should be rising on its right hand throw and the point of the needle just clear of the clamp check.

If the needle is found to be on the left hand throw then:

1. Remove the stitch regulating driving gear.
2. Turn the machine over until the needle is in the desired position.
3. Replace stitch regulating driving gear as instructed on page 10.

When the machine is in this setting the first barring point should have just tripped-off the barring plate.

To adjust:

1. Loosen screw ⑩.
2. Move plate ⑪ flush against back of barring point ⑨.
3. Tighten screw ⑩.

Set the other barring plate in the same way, but at the last stitch in the second bar.

Recheck settings.

## 271K24 Machines

Carry out the same setting procedure as detailed but on the second time round.

## Barring Trip Lever Figs. D,E

This lever ⑫ should retain barring slide ⑤ in position shown in Fig. E, until the needle, on its upward stroke, has cleared clamp check.

To adjust:

1. Ratchet the machine until barring plate ⑩ is under barring point ⑨.
2. Loosen the two screws ⑬.
3. Adjust trip lever ⑫ to fall into notch in barring slide ⑤.
4. Tighten screws ⑬.
5. Check for correct latching action when barring point rides on the other barring plate.

## Barring Tripping Point Fig. F

The barring tripping point ⑭ should cause trip lever ⑫ to release barring slide when trip lever strikes the tripping point.

To adjust:

1. Loosen screw ⑮.
2. Move point as required.
3. Hold point in this position while re-tightening screw ⑮.
4. Do not allow tripping point to depress trip lever any more than is necessary to release the barring slide.
5. Recheck for excessive play, 1/64 inch (0.4mm) maximum, of barring slide and adjust the stop screw ⑯ when necessary.

## Barring Stitch Width Figs. B,C,D,E

The width of barring stitches is controlled by the height of barring point ⑨.

A slight adjustment of barring point will change width of barring stitches considerably.

To set approximately:

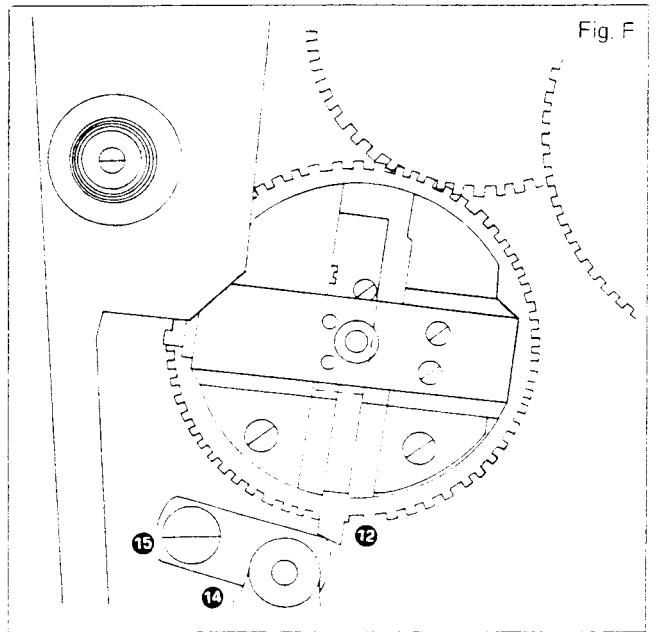
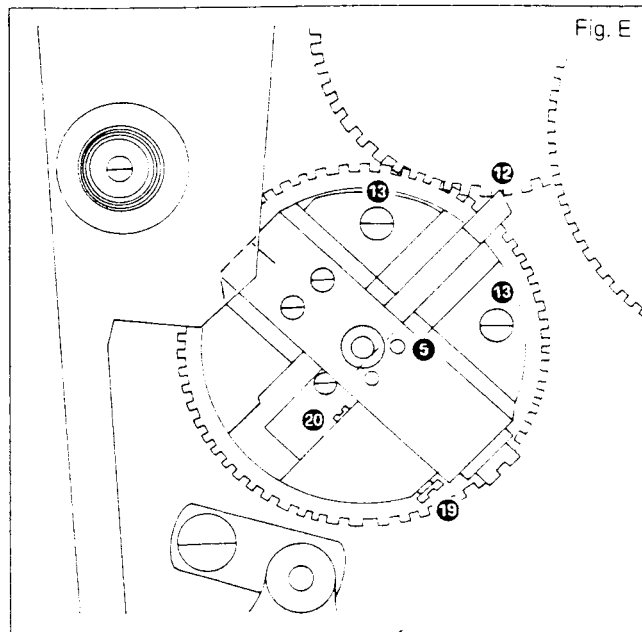
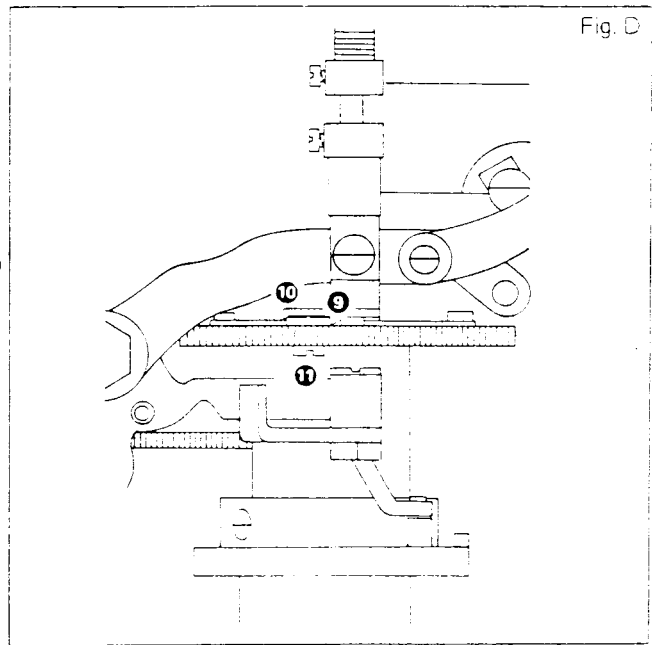
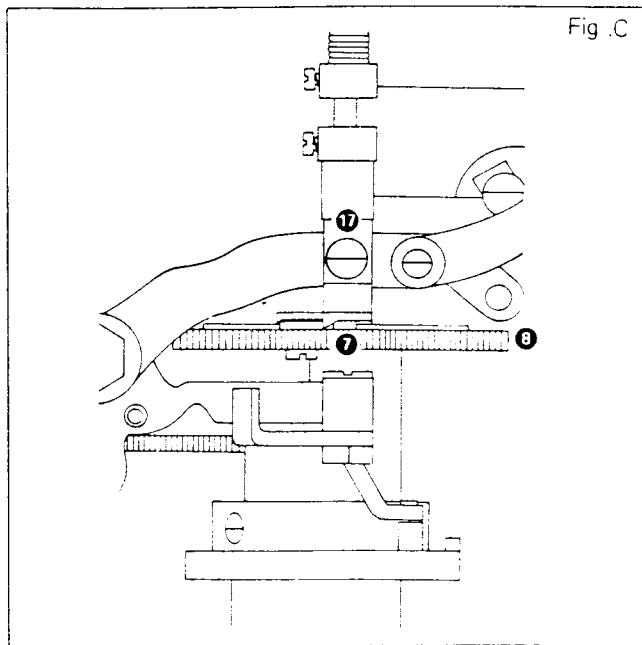
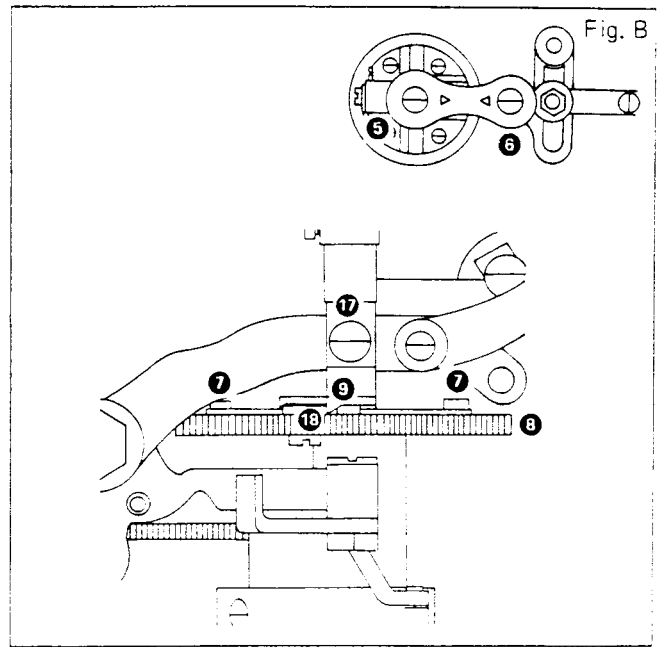
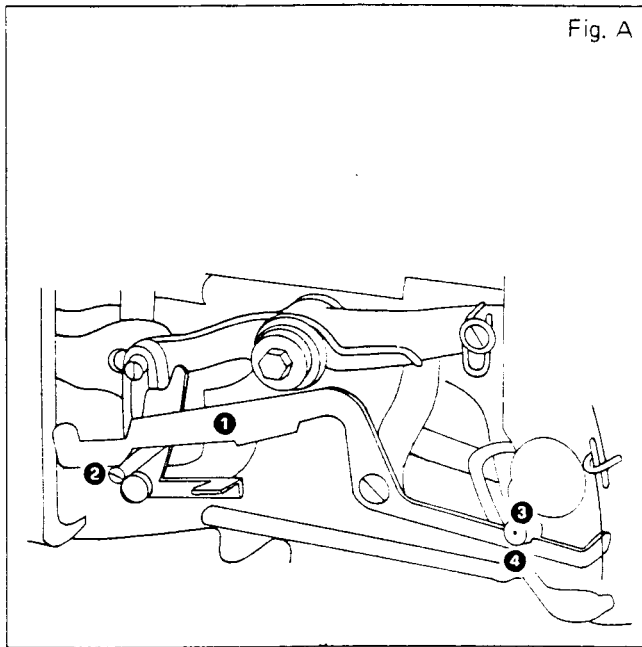
1. Loosen screw ⑰.
2. Insert a 0.015 inch (0.4mm) shim ⑱ between barring point ⑨ and top surface of cam ⑧.
3. Drop barring point on top of shim.
4. Tighten screw ⑰.

To increase width:

1. Ratchet the barring plate cam ③ until the barring point ⑨ rides on top of first barring plate ⑦ on the cam.
2. Back out stop screw ⑲.
3. Loosen barring point screw ⑰.
4. Lower barring point as required.
5. Tighten barring point screw ⑰.
6. Turn in stop screw ⑲ until there is 1/64 inch (0.4mm) maximum play in barring slide ⑤.
7. Turn in set screw ⑳ against end of stop screw.

To decrease width:

1. Ratchet the barring plate cam ③ until the barring point ⑨ rides on top of barring plate ⑩.
2. Loosen barring point screw ⑰.
3. Raise barring point as required.
4. Tighten barring point screw ⑰.
5. Back out set screw ⑳.
6. Turn in stop screw ⑲ until there is 1/64 inch (0.4mm) maximum play in barring slide.
7. Turn in set screw ⑳ against end of stop screw ⑲.
8. Check for excessive play or binding while barring point rides over the other barring plate on cam.



## Barring Tension Plate Actuator

(Machines 271K12) Fig. A

Adjustment in 'run' position.

1. Position barring point on barring plate.
2. Loosen lower set screw ① on actuating rod ③.
3. Move lower collar ② to apply tension between plates ④.
4. Tighten lower set screw ①.

Adjustment in 'stop' position.

1. Loosen upper set screw ①.
2. Move upper collar ⑤ to relieve tension between plates ④.
3. Tighten upper set screw ①.

## Belt Shifter Fig. B

When the speed adjusting lever is moved to the left ⑥ the belt shifter shaft ⑦ should lie in a horizontal position.

To adjust:

1. Loosen screw ⑧.
2. Raise or lower stop ⑨ as required.
3. Tighten screw ⑧.

## Belt Shifter Timing Figs. C,D

The belt shifter should shift the driving belt from full to half speed three stitches before entering 'stop'.

The shift is initiated when its trip stud ⑩ is raised by trip point ⑪ on disc ⑫.

This action disengages the first ⑬, and engages the second ⑭, engagement face of the block ⑮, with the actuator ⑯, moving the belt shifter and belt to half speed position.

To time:

1. Ratchet machine until the correct interval between stitches is reached.
2. Loosen the two set screws ⑰.
3. Rotate disc on shaft until trip point ⑪ is in tripping position beneath trip stud ⑩.
4. Tighten two screws ⑰.

## Belt Shifter Actuator Setting Fig. E

When machine is at 'stop', clearance ⑱ between actuator ⑲ and block ⑮ should be approximately 0.02 inch (0.5mm).

This setting ensures maximum engagement of the actuator with first face on block, when next sewing cycle begins.

To adjust:

1. Loosen lock nut ⑲.
2. Loosen set screw ⑳.
3. Turn actuator to correct setting.
4. Tighten set screw ⑳.
5. Tighten lock nut ⑲.

## Belt Shifter Operating Block

Setting at 'Stop' Fig. F

When machine is at 'stop' and shaft is depressed ㉑ the point of the first engaging face on the operating block ㉒ should just clear the actuator ⑯.

This setting permits the actuator to drop behind the first engaging face on the operating block as the machine goes into 'stop'.

To adjust:

1. Loosen set screw ㉓.
2. Move block ⑮ forward or backward to correct setting.
3. Tighten set screw ㉓.

## Belt Shifter Operating Block Setting. Clearance of First Engaging Face at Moment of Trip Figs. C,F.

At moment of trip there should be a clearance ㉔ of 0.02 inch (0.5mm) between point of first engaging face ㉒ and the actuator ⑯.

To check:

1. Set machine to running position.
2. Ratchet machine to bring trip stud ⑩ on high position of trip point ⑪.
3. Push belt shifter shaft ㉕ forward until point of first engaging face is directly beneath actuator ⑯.
4. Clearance should be 0.02 inch (0.5mm).

To adjust:

5. Loosen screw ㉖.
6. Raise or lower trip stud ⑩ to correct setting.
7. Tighten screw ㉖.

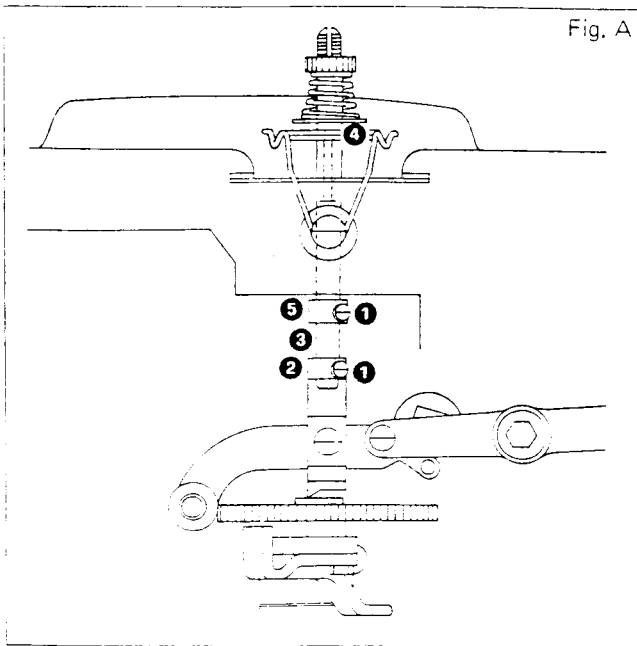


Fig. A

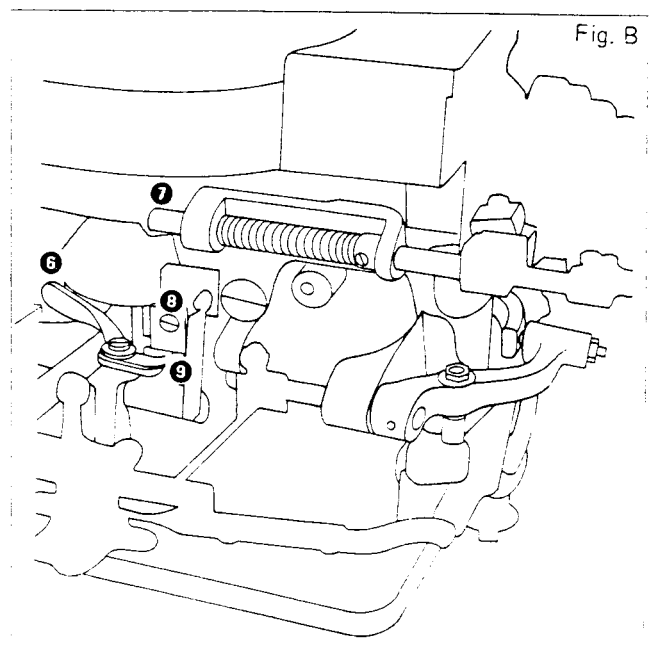


Fig. B

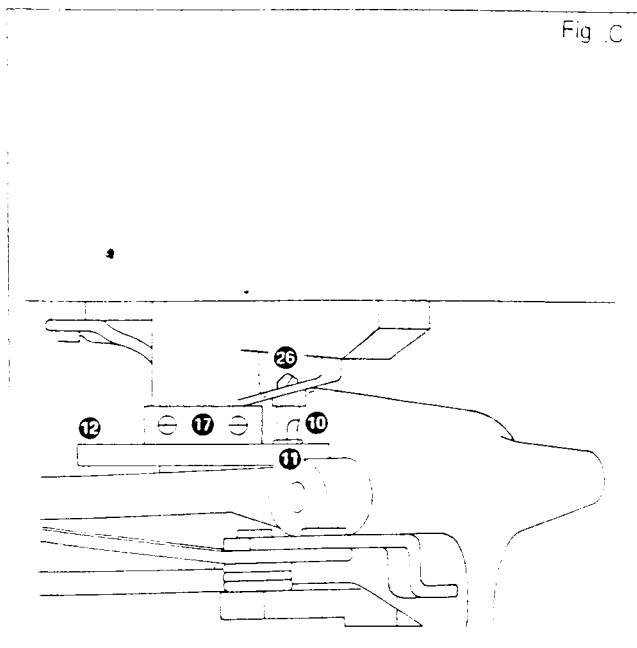


Fig. C

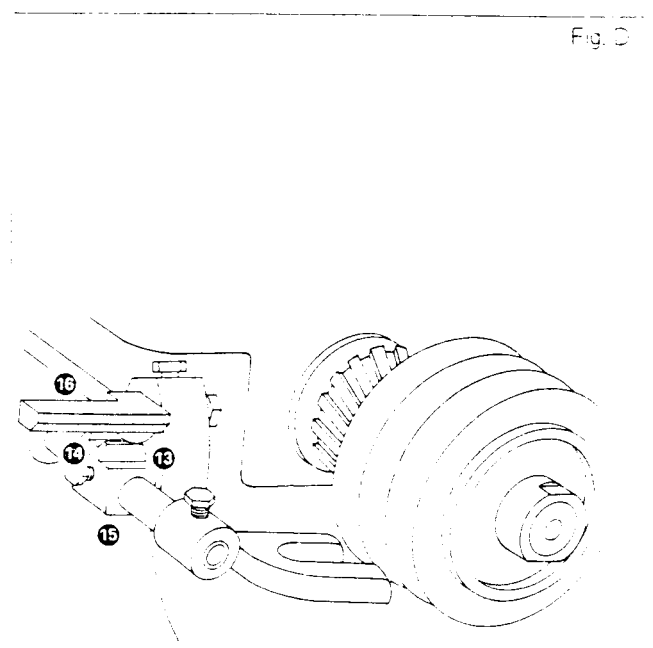


Fig. D

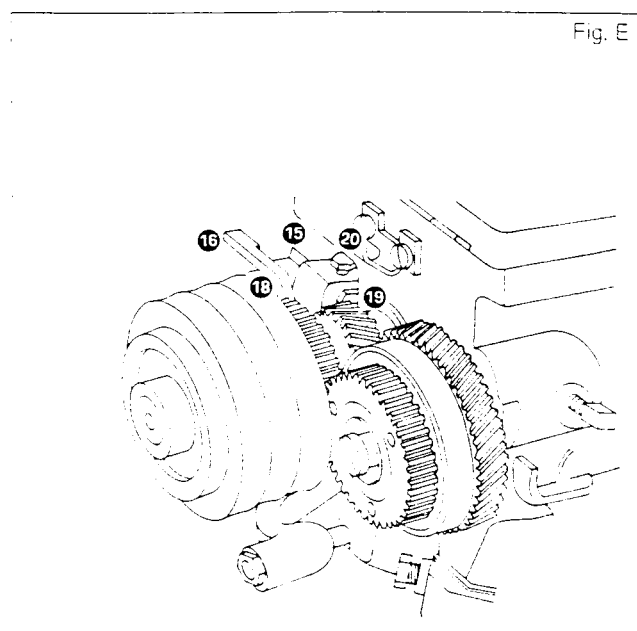


Fig. E

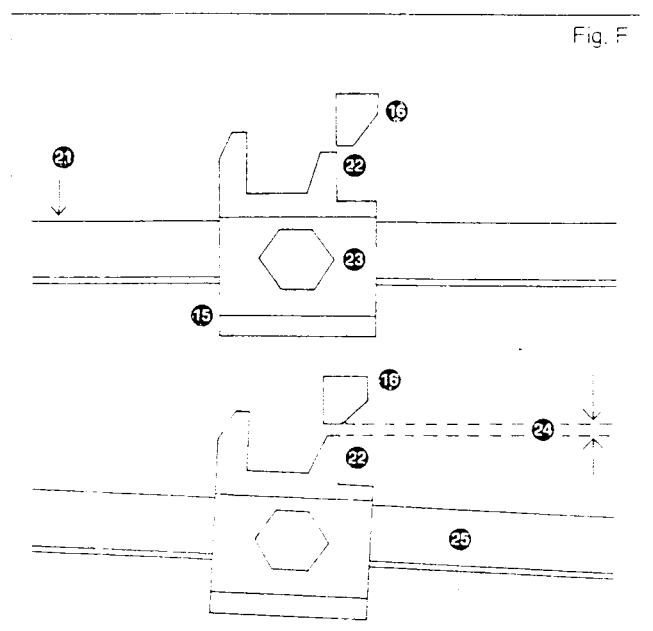


Fig. F

## Bight Width Fig. A

The position of stud ① in the slotted link ② determines width of the bight.

To adjust:

1. Open arm top cover.
2. Loosen nut ③.
3. Move stud to left or right to increase or decrease, until desired width of bight is obtained.
4. Tighten nut ③.
5. Close arm top cover.

## Bobbin Case Stop

(Horizontal Position) Figs. B.C.

The bobbin case stop should be set with its rear edge ④ flush with rear surface of position finger ⑤ on bobbin case base.

To adjust:

1. Loosen hinge stud set screw ⑥.
2. Move bobbin case stop ⑦ opener bracket ⑧ bracket collar ⑨ and hinge stud ⑩ together to required setting.
3. Tighten set screw ⑥.

(Vertical Position) Fig. B

When the bobbin case stop is in its lowest position ⑪ there should be a clearance ⑫ of approximately 0.005 inch (0.13mm) between notch ⑬ in bobbin case base ⑭ and bottom surface of stop.

To adjust:

1. Loosen screw ⑮.
2. Move stop as required to give correct setting.
3. Tighten screw ⑮.

## Clamp Check Centralising

(Left to Right) Fig. E

To centre the clamp check ⑯ relative to the needle plate.

1. Place machine in 'stop' position.
2. Loosen set screw ⑰.
3. Move clamp check block ⑱ to right or left, to centre the clamp check over needle plate.
4. Raise clamp check by hand to ensure proper seating.
5. Recheck position and reset if necessary.
6. Tighten set screw ⑰.

## Clamp Check Clearance with Needle Fig. D

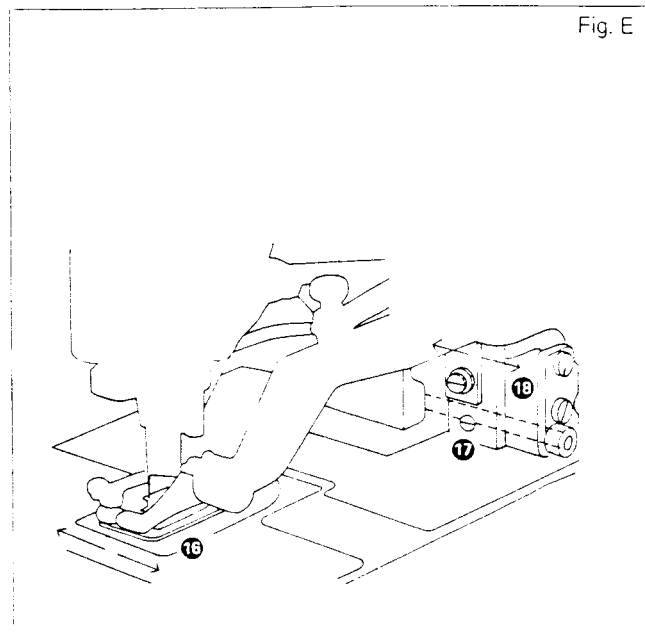
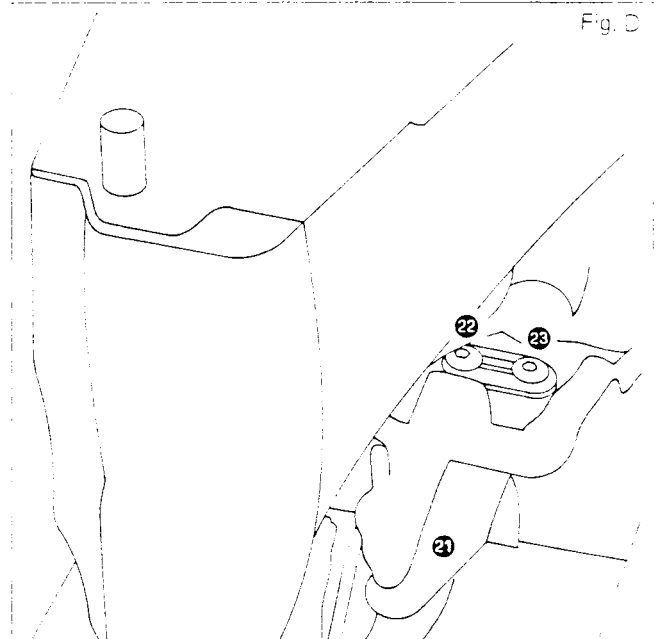
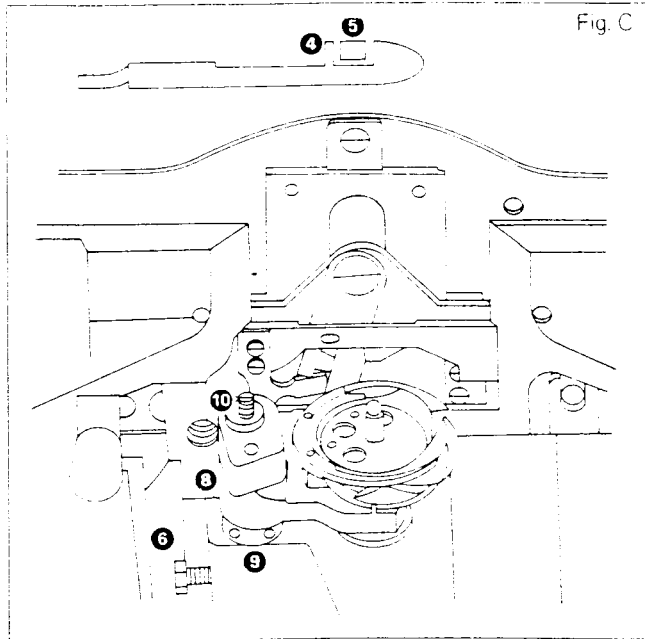
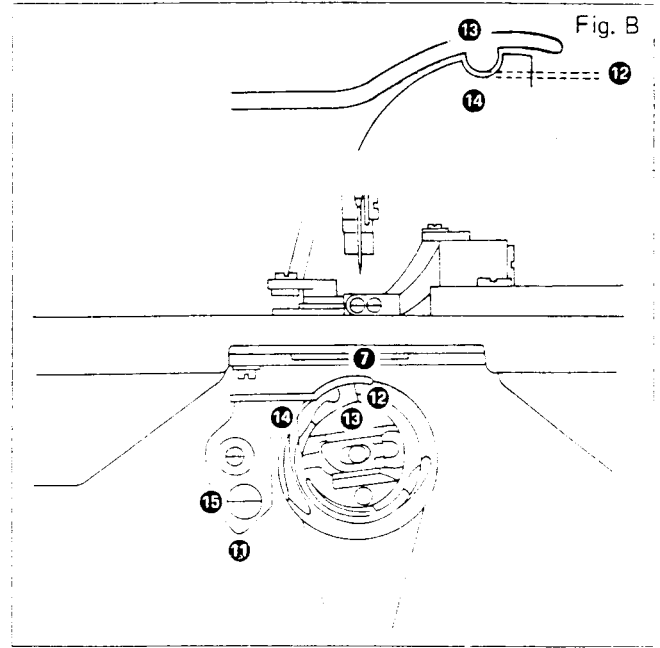
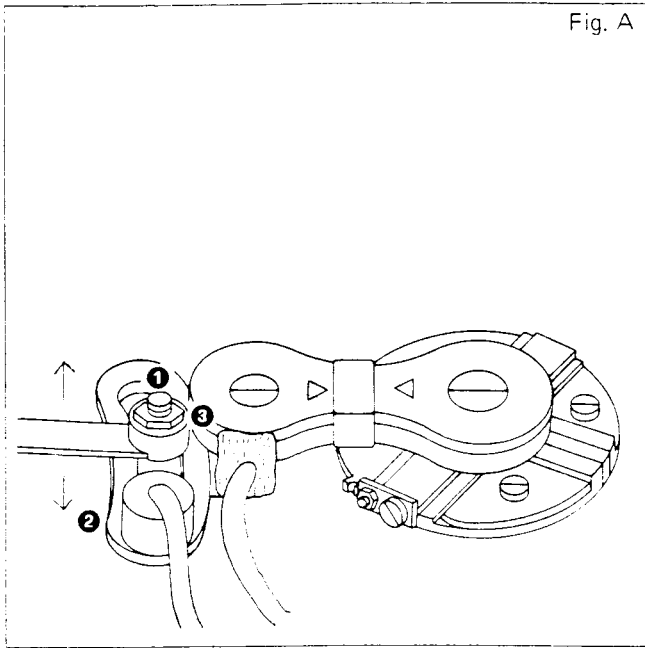
Clamp check ⑯ should never overlap needle slot ⑲ in needle plate.

At 'stop' there should be a minimum of 0.015 inch (0.4mm) clearance ⑳ between front of needle and inside edge of clamp check.

To adjust:

1. Check 'Needle and Knife Alignment' page 32.
2. Check 'Needle Plate Centralising (front to rear)' page 32.
3. Ratchet machine to bring clamp arm ㉑ forward to give access to socket screws ㉒ and ㉓.
4. Loosen right hand socket screw ㉔.
5. Ratchet machine back to 'stop'.
6. Loosen left hand socket screw ㉕.
7. Bring needle to lowest position.
8. Move clamp check ⑯ to give a minimum clearance ㉖ of 0.015 inch (0.4mm) in front of needle. Give more clearance if this is necessary to avoid overlapping needle slot.
9. Tighten left hand screw ㉗.
10. Ratchet forward and tighten screw ㉘.





## Cutting Space Fig. A

The space between the lines of stitching in a buttonhole is determined by the position of the regulator **1** on the clamp carrier slide lever **2**.

To adjust:

1. Loosen screw **3**.
2. Move the regulator **1**.  
For wider space, toward rear of slot **4**.  
For narrower space, toward front of slot **5**.
3. Tighten screw **3**.

## Driving Lever Spring Tension Fig. B

Tension on spring **6** should be just sufficient to hold knife bar at its highest position should the thread break and the automatic knife disengaging lever **7** operate.

To set:

1. Loosen screw **8**.
2. Set spring **6** to 11 o'clock position **9**.
3. Tighten screw **8**.
4. Hook spring arm **10** under driving lever **11**.

## Feed Wheel Tripping Points Figs. C

Feed wheel **12** is cut to produce the same amount of tying stitches at the start and finish of a buttonhole.

The tripping lever point **13** should be actuated by the feed wheel tripping point **14** one stitch before the stop, when the interlocking rod will strike the face of the large lobe of the cam, as illustrated in fig. D, riding over the first notch and dropping into the second notch, stopping the machine.

To adjust:

1. Loosen the two screws **15**.
2. Move the tripping lever point **13** in direction **16** for earlier action, in direction **17** for later action.
3. Tighten screws **15**.

Fig. A

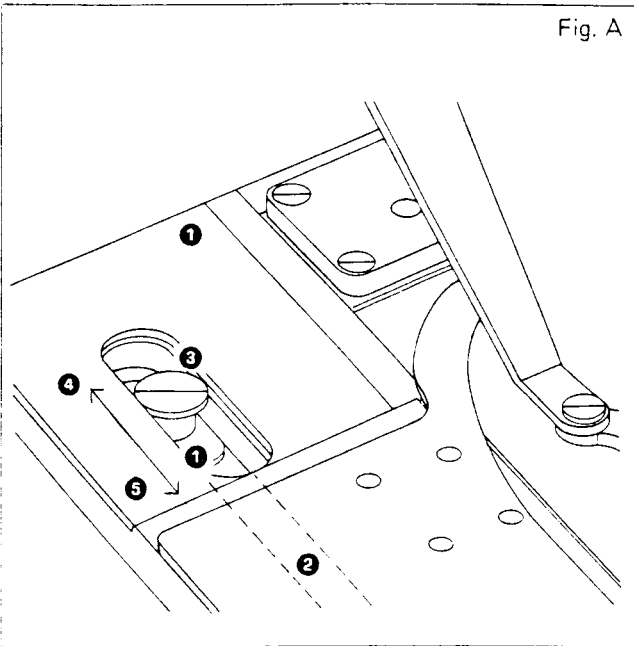


Fig. B

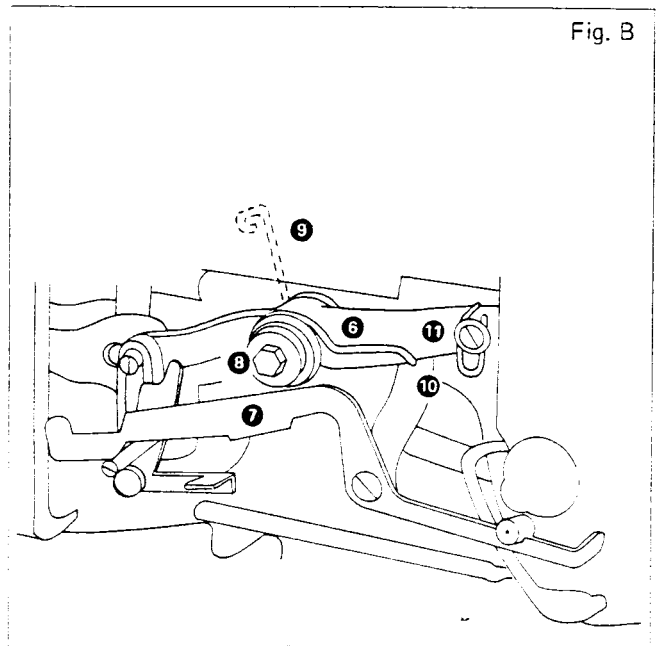
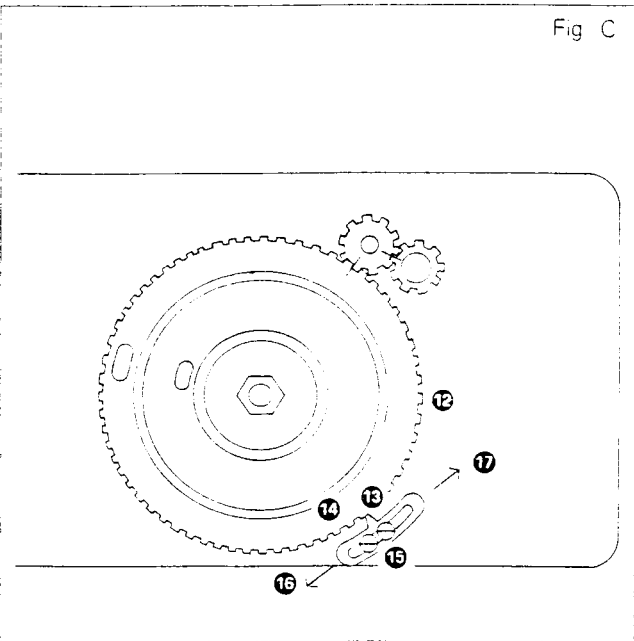


Fig. C



## Interlocking Rod Guide and Lock Pin Clearance Figs. A.B.

Clearance between interlocking rod guide and lock pin should be approximately 1/16 inch (1.6mm) when rod ① has tripped and is riding on high point ② of stop cam ③. This permits rod guide ④ to raise lock pin ⑤ and correctly activate tension releaser shaft crank ⑥ and safety tripping lever lock when machine reaches 'stop'.

To adjust:

1. Loosen lock nut ⑦.
2. Turn adjusting screw ⑧ in tension releaser lever ⑨ downward to increase clearance or upward to decrease clearance, as required.
3. Tighten lock nut ⑦.

## Interlocking Rod Tension Fig. C

Tension should be just sufficient to prevent rod ① from jumping out of notch ⑩ in stop cam ③.

To adjust:

1. Loosen lock nut ⑫.
2. Turn thumb screw ⑬.
3. Tighten lock nut ⑫.

Heavy fabrics require a lighter interlocking rod tension than light weight fabrics.

## Knife Bar Height Figs. D.E.

When knife is at the correct height there will be a small clearance ⑭ between the stud ⑮ and top of slot inside connecting link ⑯. This ensures 1/64 inch (0.4mm) clearance ⑰ between top of knife bar and its 'stop'.

To adjust:

1. Put starting lever at 'run' position.
2. Loosen screw ⑱ reached through hole ⑲.
3. With knife bar in its highest position, press down on forward end of driving lever forcing connecting stud ⑮ to bear against top end of slot in connecting link ⑯.
4. Tighten screw ⑱ just enough to hold knife bar in position.
5. Tap rear end of lever lightly ⑳ until there is the small clearance required ⑰.
6. Tighten clamping screw ⑲.

## Knife Holder Guide Stud Location Fig. F

The bevelled section of lower stud ㉑ should never protrude above the tapped hole in casting. Needle bar frame ㉒ should hinge freely on the guide stud which is locked in place against bottom of casting by lock nut ㉓.

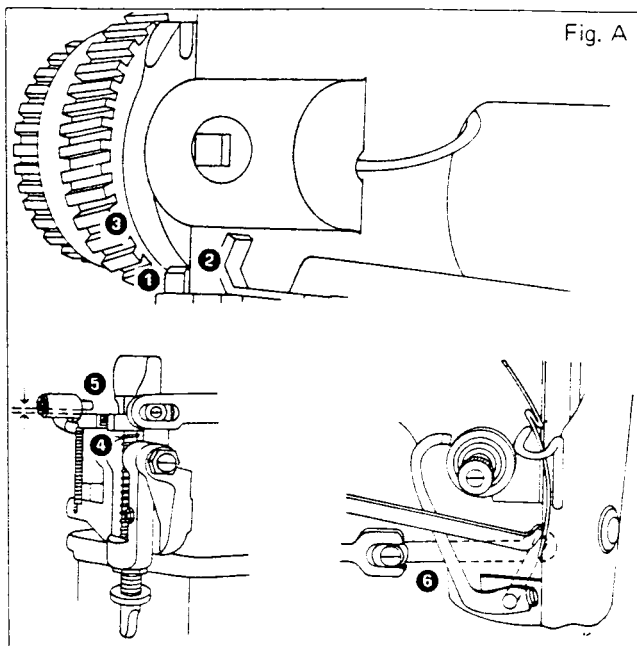


Fig. A

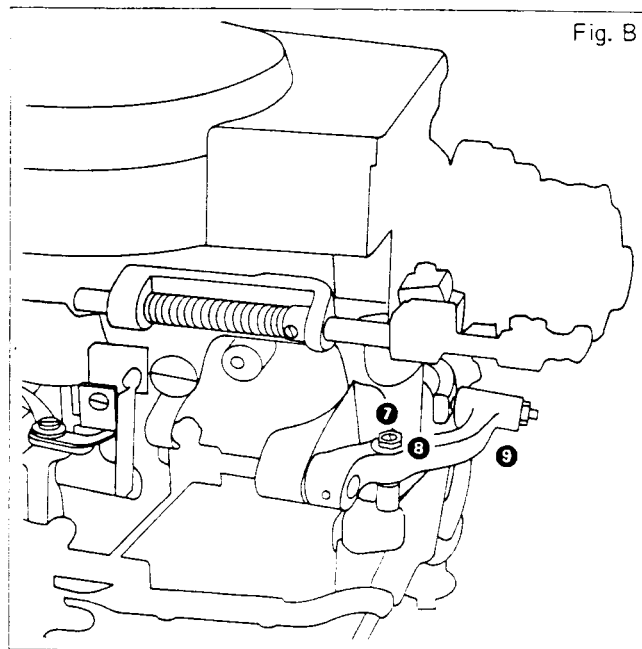


Fig. B

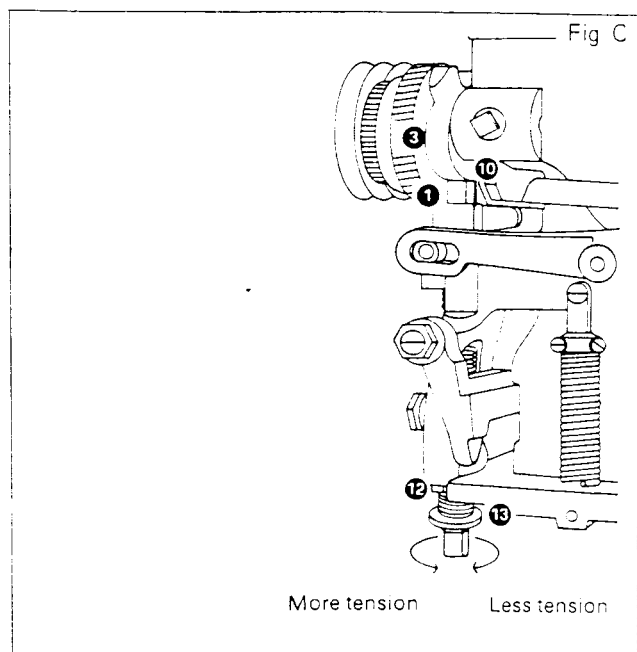


Fig. C

More tension      Less tension

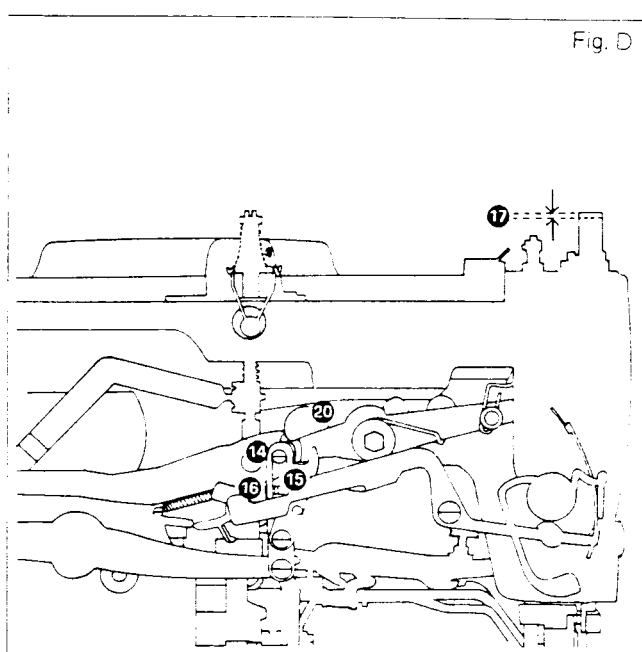


Fig. D

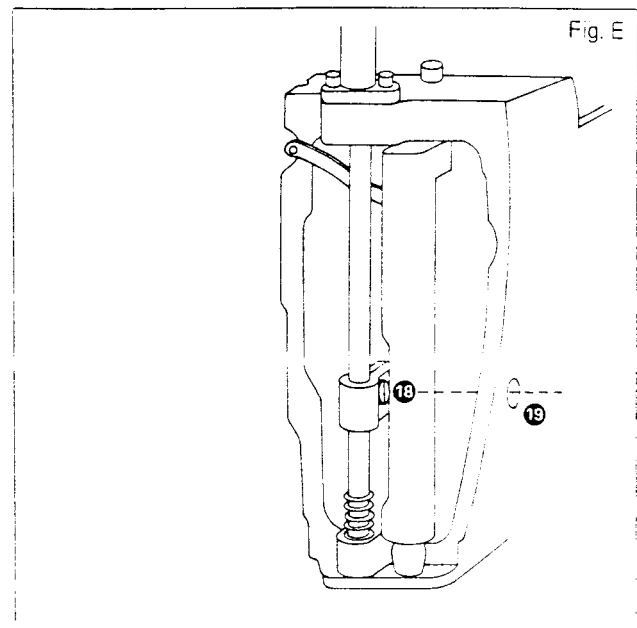


Fig. E

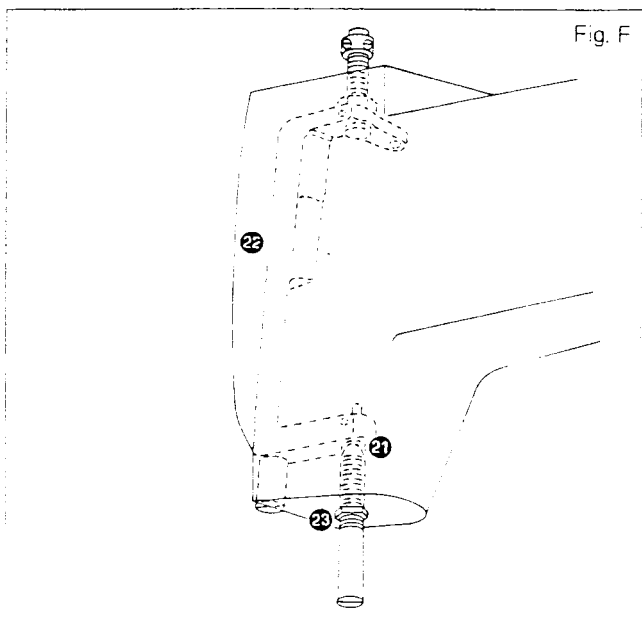


Fig. F

## Knife Alignment in Needle Plate

### Slot Fig. A

1. Time feed wheel tripping point as instructed on page 28.
2. With machine tripped to go into stop, turn the machine over until the starting lever rod rides on highest point of cam.
3. Loosen thumb screw ① on underside of machine.
4. Push down knife bar ②.
5. Move clamp carrier slide ③ toward left or right until the knife is centred in needle plate slot ④.
6. Tighten thumb screw ①.

## Latch Tripping Plate Fig. B

The latch tripping plate should allow the upper cutting blades to operate just before the clamp check begins to rise.

1. With machine in 'stop' position loosen screw ⑤.
2. Raise or lower bracket ⑥ to give approximately 1/16 inch (1.6mm) clearance ⑦ between roller ⑧ and clamp lifting arm ⑨.
3. Tighten screw ⑤.
4. Loosen latch tripping plate screw ⑩.
5. Move plate ⑪ to right or left to give 1/16 inch (1.6mm) clearance ⑫ between latch and plate.
6. Tighten screw ⑩.
7. Check that cutting blades move just before clamp begins to rise.
8. Reset clearance if necessary.
9. Securely tighten screw ⑩.

## Needle and Knife Alignment Fig. C

The left and right hand sides of a buttonhole should always be stitched equidistantly from the knife ensuring the buttonhole cut will be made at the exact centre.

To align the needle with the knife:

1. Loosen the two screws ⑬.
2. Move the pitman ⑭ and needle bar frame ⑮.
3. Upward, to move needle left ⑯.
4. Downward, to move needle right ⑰.
5. When set correctly, the needle on its right hand throw, will align with centre of knife slot in needle plate ⑱.
6. Tighten screws ⑬.

## Needle Bar Frame Height Fig. D

The needle bar frame ⑲ may be raised or lowered to conform with movement of pitman above it by:

1. Checking knife holder guide stud location as detailed on page 30.
2. Loosening sleeve nut ⑳.
3. Turning sleeve downward or upward as required.
4. Tightening sleeve nut ⑳ while maintaining desired sleeve position.

## Needle Bar Frame Play Fig. D

To remove up and down play of needle bar frame ⑲ between lower end of sleeve ㉑ and head of stud ㉒.

1. Loosen the two collar set screws ㉓.
2. Push head of stud ㉒ upward to hold needle bar frame without binding.
3. At the same time press collar ㉔ on top end of stud ㉒ downward, flush against top of sleeve.
4. Tighten screws ㉓.

## Needle Bar Height Fig. E

When the needle bar is at its lowest point, the distance from the top surface of the needle plate to the bottom of the needle bar should be

271K11, 271K12, 271K211, 271KX1 machines	0.437 inch 11mm
271K13 machines	0.477 inch 12mm
271K14, 271K24 machines	0.497 inch 13mm

To adjust:

1. Insert a 5/32 inch (4.0mm) socket wrench ㉕ through access hole in machine arm and loosen screw ㉖ on connecting stud ㉗.
2. Raise or lower needle bar ㉘ as required.
3. Tighten screw ㉖.

## Needle Plate Centralising

(front to rear) Fig. F

Needle should rise and fall at an equal distance between front and rear edges of needle slot in needle plate.

To adjust:

1. Set needle correctly in needle bar.
2. Hand ratchet machine until clamp check ㉙ clears access to needle plate screws ㉚.
3. Loosen screws ㉚.
4. Move needle plate ㉛ forward or backward as required to centre needle in slot.
5. Tighten screws ㉚.

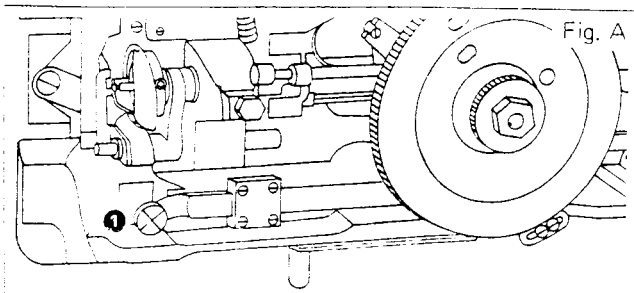


Fig. A

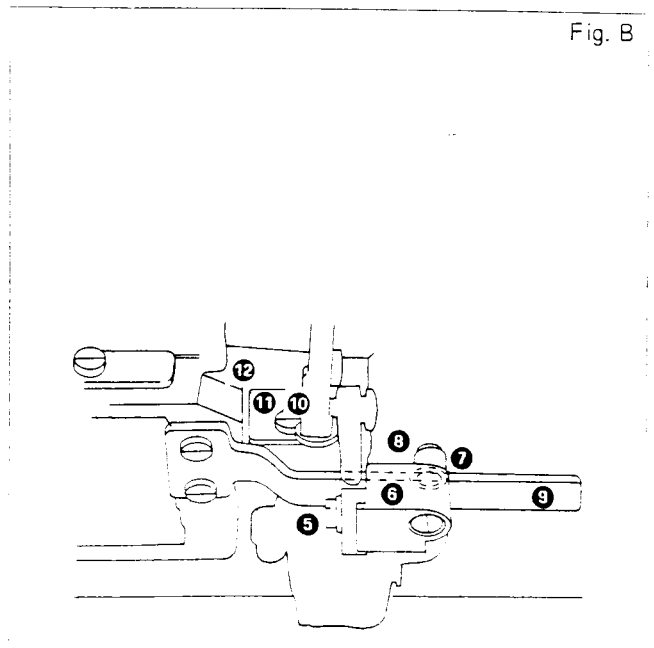


Fig. B

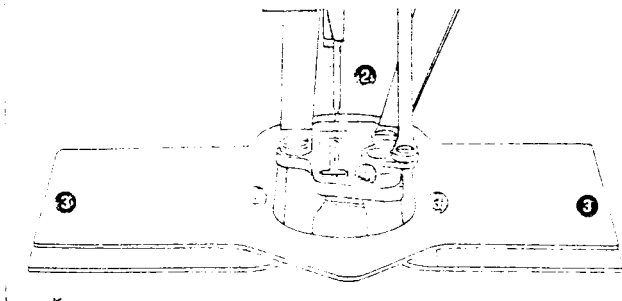


Fig. C

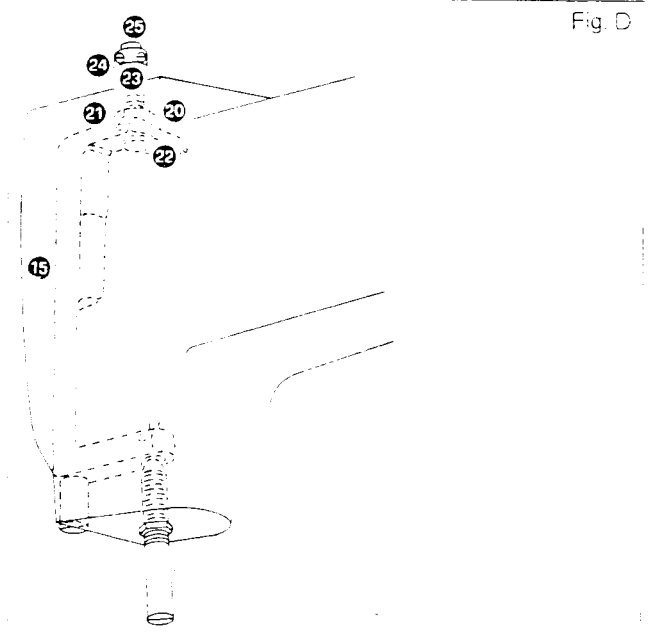


Fig. D

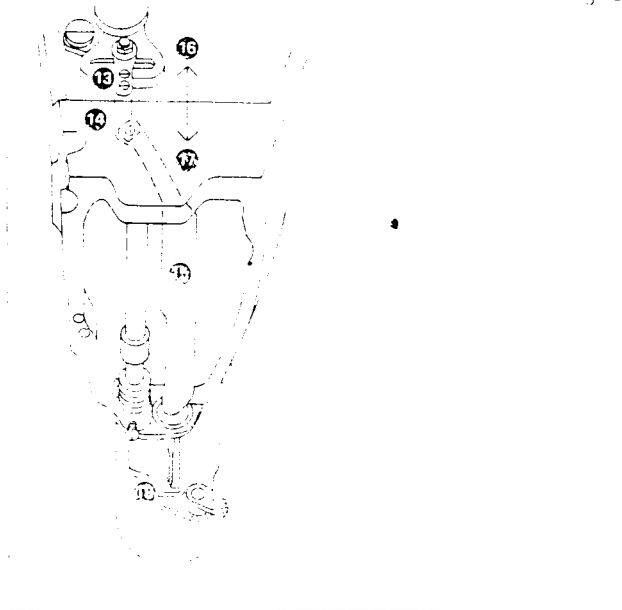


Fig. E

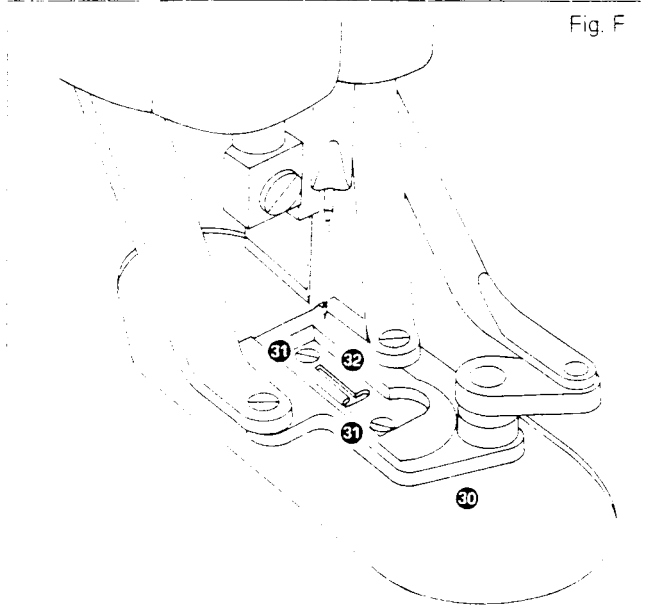


Fig. F

## Safety Devices Fig. A

During the sewing cycle, two locks, the tripping safety lock ① and the sewing safety lock ② prevent the lower thread cutting lever from operating and the clamp check from rising, respectively. Both these locks should be set to fall behind the lifting lever ③ when machine is ready to operate and to release fully as machine reaches stop position.

## Safety Tripping Lever Lock Fig. B

To adjust for locking:

1. Loosen two screws ④ in lock plate ⑤.
2. Move lock plate in or out as required.
3. Tighten screws ④.

To adjust for releasing:

1. Loosen screw ⑦ on release plate ⑥.
2. Raise or lower release plate as required.
3. Tighten screw ⑦.

## Sewing Hook Fig. C

When the sewing hook point ③ is at 12 o'clock position facing operator, the counterbalance ⑨ should be at 90° to the right of hook point.

Ensure that hook body is seated correctly against hook shaft.

## Sewing Hook Setting Fig. C

Sewing hook should be set with a clearance ⑩ of approximately 0.003 to 0.005 inch (0.08 to 0.13mm) between needle ① and hook ③.

Ensure needle is not deflected by needle guard.

To set:

1. Loosen two screws ⑫.
2. Loosen hook bushing (front) set screw ⑬.
3. Tap bushing to give correct clearance ⑩ between hook point ③ and needle ①.
4. Tighten screw ⑬.
5. Recheck this clearance and retime hook.
6. Tighten screws ⑫.

## Sewing Hook Timing Figs. C,D

When the needle rises, 0.155 inch (4.0mm) above its lowest position, on the left hand throw ⑭, the hook point should be in the centre of the needle ⑮ and 1/16 inch (1.6mm) above the eye of the needle ⑯.

To time:

1. Loosen the two screws ⑰.
2. Hold hook point dead centre of needle.
3. Turn arm shaft until needle eye is 1/16 inch (1.6mm) below hook point, as needle bar rises on left hand throw.
4. Lightly tighten screws ⑰.
5. Tap hook shaft to give 0.002 to 0.003 inch (0.05 to 0.08mm) end play.
6. Securely tighten screws ⑰.
7. Recheck and if necessary retime.

## Sewing Safety Lock Fig. B

To adjust for locking:

1. Loosen screw ⑱.
2. Move safety lock in hinge bracket ⑲ as required.
3. Tighten screw ⑱.

To adjust for releasing:

1. Loosen pitman ⑳ screws ㉑.
2. Lengthen or shorten pitman as required.
3. Tighten screws ㉑.

## Starting Lever Rod Fig. E

When the adjusting screw ㉒ on starting lever ㉓ is pressed hard against machine casting, there should be a 1/32 inch (0.8mm) clearance ㉔ between the bottom face of the feed wheel tripping lever ㉔ and the bottom of its engaging notch in the starting lever rod ㉕.

To adjust:

1. Loosen lock nut ㉖.
2. Turn adjusting screw ㉒ to give correct clearance.
3. Tighten lock nut ㉖.

## Stop Cam Face and Interlocking Rod Clearance Fig. F

With rod in stop notch ㉗, clearance ㉘ should be approximately 0.015 inch (0.4mm).

To adjust:

1. Loosen lock nut ㉙.
2. Turn stop screw ㉚ inward to increase clearance, outward to decrease clearance.
3. Tighten lock nut ㉙.



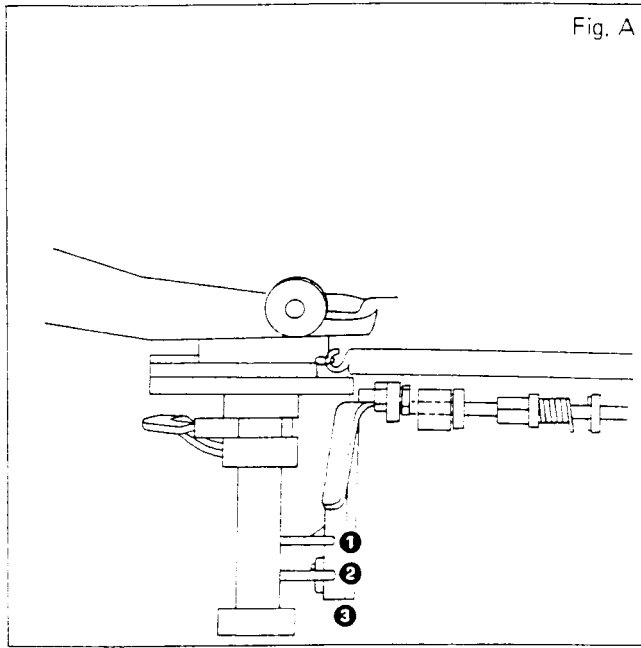


Fig. A

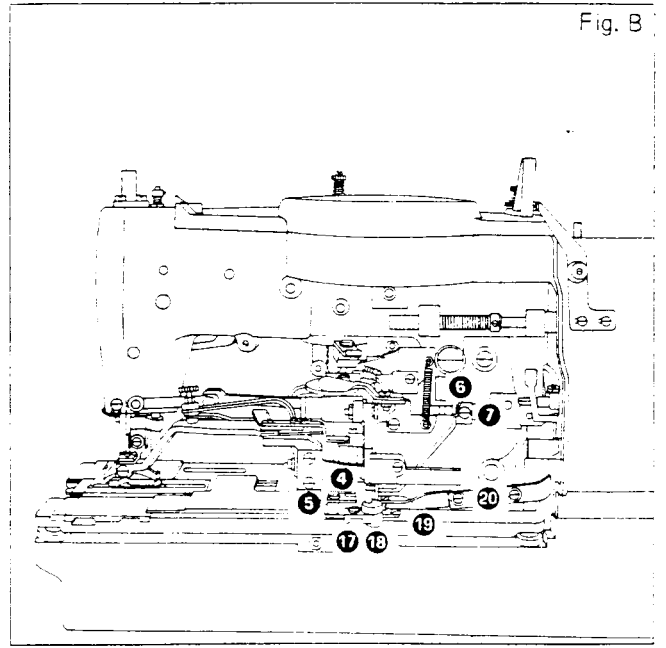


Fig. B

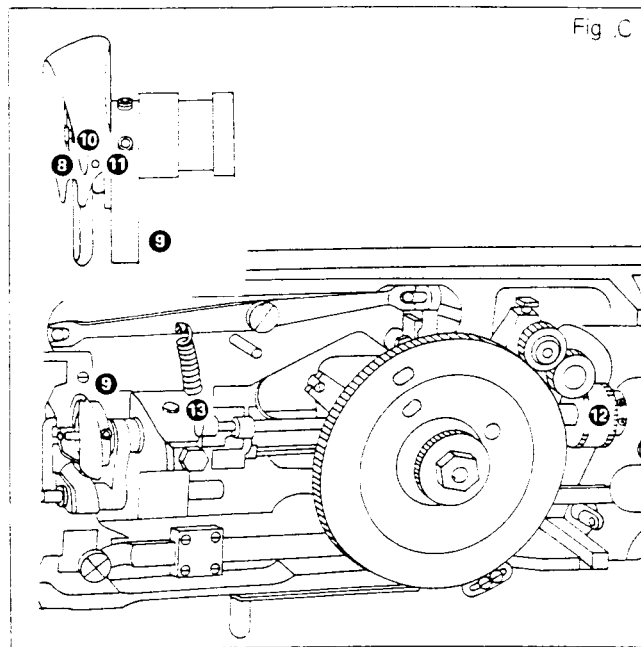


Fig. C

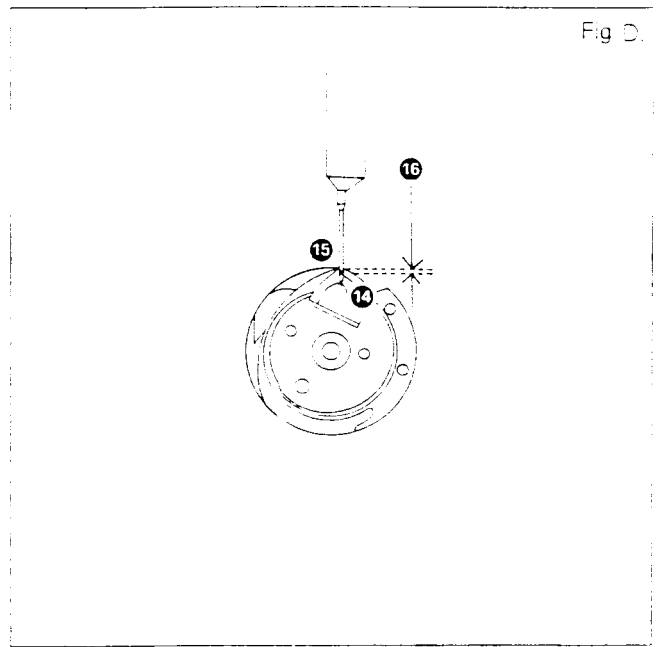


Fig. D

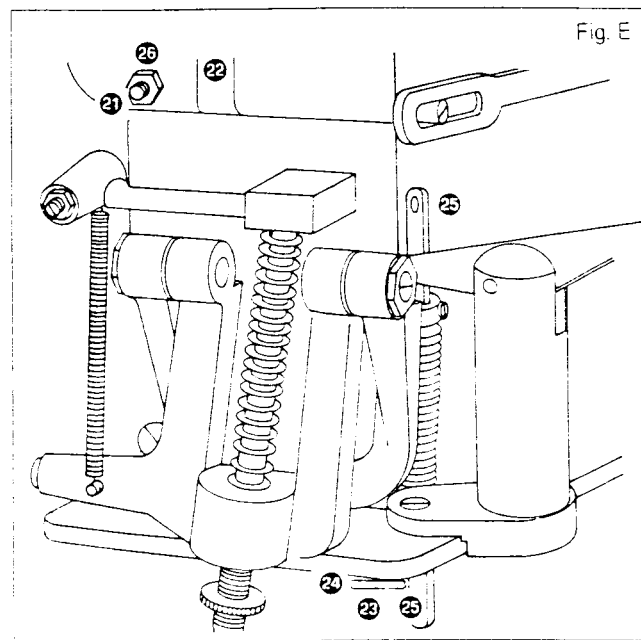


Fig. E

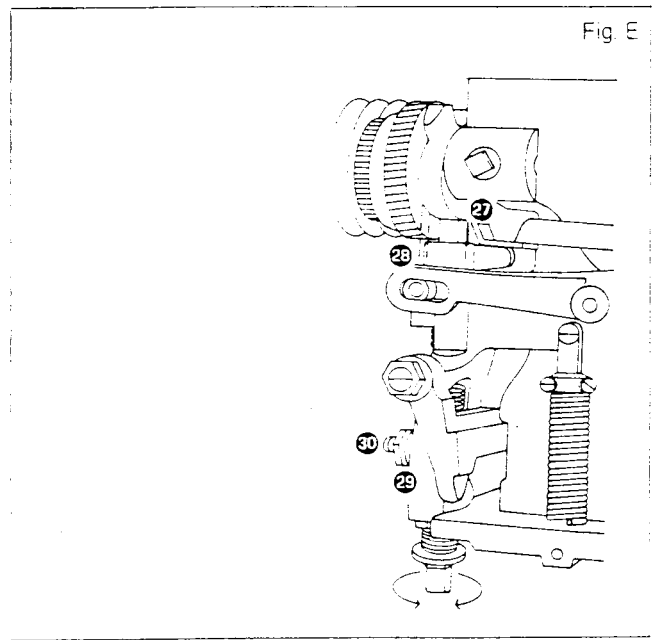


Fig. E

## Stop Cam Gear and Pinion Eliminating Excessive Play Fig. A

1. Loosen set screw ①.
2. Turn eccentric stud ② clockwise (facing rear of machine) until minimum play, without binding between gear teeth, is obtained. Turning the stud clockwise draws the stop cam closer to the interlocking rod, making certain that rod will ride on the high point of stop cam before dropping into 'stop' position notch. The high point of the stud should be at 6 o'clock position ③.
3. Ensure there is 0.003 to 0.006 inch (0.1mm) clearance between the stop cam and the stop cam gear stud washer.
4. Tighten set screw ①.

## Stop Motion Fig. B

To ensure a positive stop, a two-speed drive mechanism automatically slows down the arm shaft to half speed as machine approaches 'stop'.

A stop cam ④ driven at half arm shaft speed, is engaged by the stop motion interlocking rod ⑤ designed to retard arm shaft speed before stopping.

## Tension Releaser (top of arm)

(All machines except 271K12) Fig. C

Adjustment in 'run' position:

1. Position barring point ⑥ on barring plate ⑦.
2. Loosen set screw ⑧.
3. Move collar ⑨ on tension releaser rod ⑩ to relieve tension on thread between discs ⑪.
4. Tighten set screw ⑧.

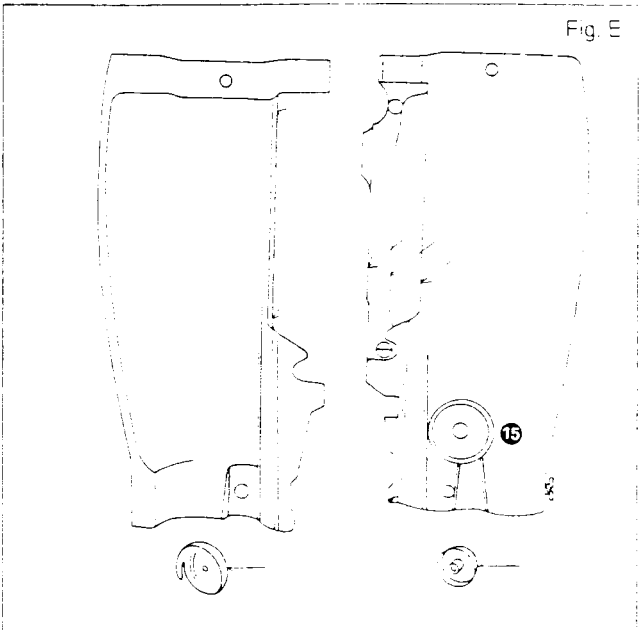
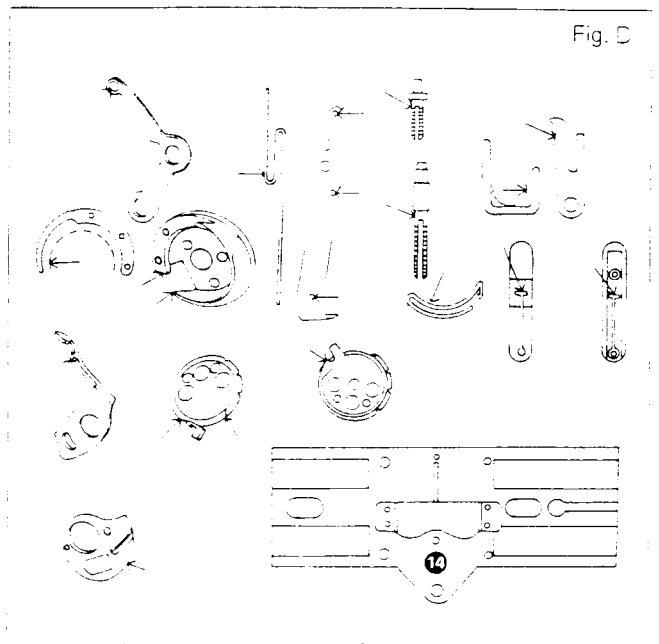
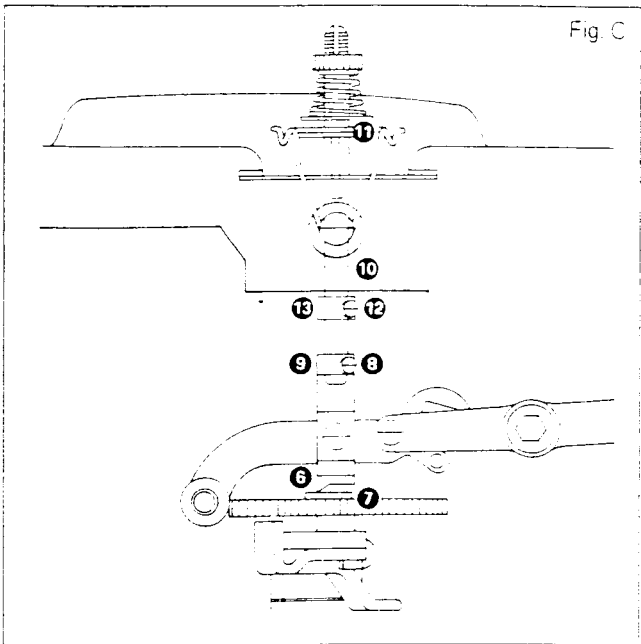
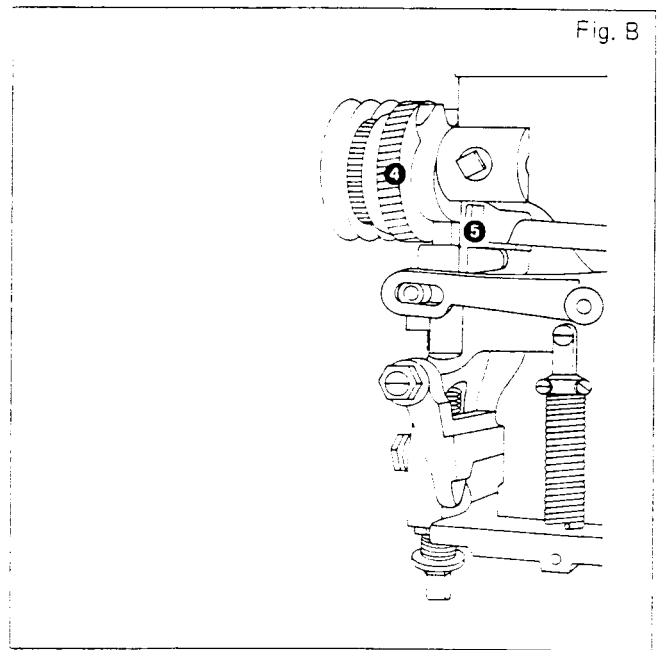
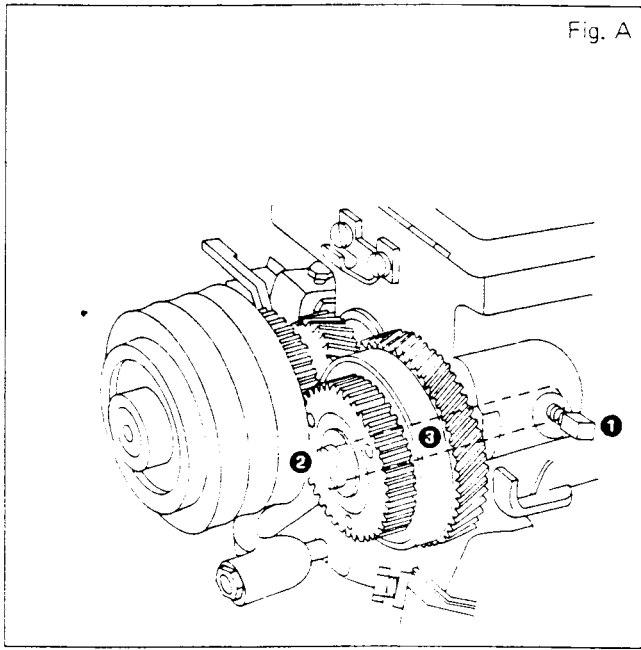
Adjustment in 'stop' position:

1. Loosen set screw ⑫.
2. Move collar ⑬ to relieve tension on thread between discs ⑪.
3. Tighten screw ⑫.

## Thread Breaking or Fraying Elimination Figs. D,E.

Check:

1. Threading is as instructed on page 16.
2. Needle is in good condition.
3. Needle eye and groove are clear.
4. Needle is suited to thread in use.
5. Needle is set correctly in needle bar.
6. All needle thread handling parts arrowed in figs. D and E are free from burrs and sharp edges.
7. Angular cut does not break into tapped hole ⑭.
8. Thread check cap ⑮ is away from casting.
9. Oil reservoir is clean and lint free.
10. Needle thread tension is not too heavy.
11. Bobbin thread tension is correct.
12. Needle thread clamping knife is correctly housed in clamp check.
13. Needle guard is set correctly.
14. Gear train movement is absolutely free.  
To locate a bind in the gear train:  
Remove one of the stitch regulating gears as instructed on page 10.  
Rotate arm shaft to check upper part of mechanism.  
Turn feed wheel driving shaft to check lower part of machine.  
After location and elimination of binding replace stitch regulating gear as instructed on page 10.



## Top Cord Finger (Machine 271K14)

### Height Setting Fig. A

The cord finger ① should just clear ② the top surface of the clamp check ③ during movement of finger from right side to front of needle and return.

To adjust:

1. Loosen screw ④.
2. Raise or lower finger as required.
3. Tighten screws ④.

### Timing Figs. B, C, D.

The cord rotating tripping cam ⑤ should actuate the cord finger ① on the first stitch after the first bar and again at the end of the sewing cycle, with the needle in the material. At the top end of the buttonhole the last barring stitch must be on the right hand throw of the needle. The cord rotating tripping cam ⑤ should be set so that the cording finger ① is actuated as the needle rises on the first stitch after barring has been completed / i.e. on the left hand throw of the needle. The cording finger should now have taken up a position in front of the needle as shown in Fig. C and remain there until buttonhole is finished. Finger should then return to its starting position at right of needle as shown in Fig. D.

To time cord rotating tripping cam:

1. Loosen the two set screws ⑦ in hub of cam.
2. Turn cam ⑤ on its upright shaft as required.
3. Tighten cam set screws ⑦.

### Tripping Latch Function

(Machine 271K14) Figs. C, D.

The cord finger tripping latch ⑧ should hold cord rotating sector ⑨ in position (keeping finger in front of needle) while machine is stitching entire right side of buttonhole.

To adjust:

1. Loosen lock nut ⑩.
2. Turn latch screw ⑪ as required.
3. Tighten lock nut ⑩.

### Adjustable Catch Function Fig. C

The adjustable catch ⑫ located on underside of sector ⑬ must accept tripping latch ⑧ at first stitch after bar.

To adjust:

1. Loosen screw ⑭ immediately behind adjustable catch ⑫.
2. Move catch as required.
3. Tighten screw ⑭.

## Top Cord Finger (Machine 271K24)

### Timing Figs. B, E.

1. Machine in run position.
2. Ratchet machine on to second cycle at start of bar.
3. Turn machine until first, left hand dip of needle bar after completing barring stitches. At this point, with needle in the material the cord finger should swing.

To adjust:

- Loosen cord rotating tripping cam screws ⑦.
- Adjust position of cam on shaft until the desired setting is achieved.
- Tighten screws ⑦.
4. Ratchet machine to complete buttonhole. Place machine in run position and ratchet to top end of buttonhole on first cycle. Rotate machine to commence crossover to right hand side of buttonhole. The cord finger should rotate round needle in material on the last stitch on the left hand side just before the clamp carrier starts to move down the buttonhole.

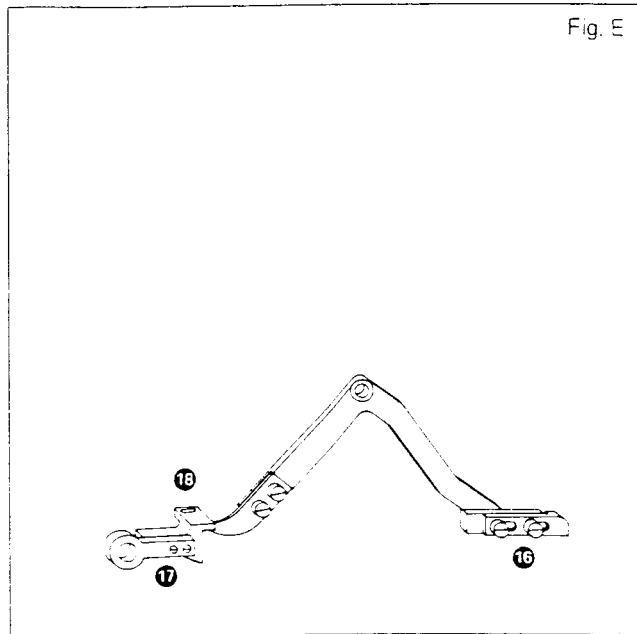
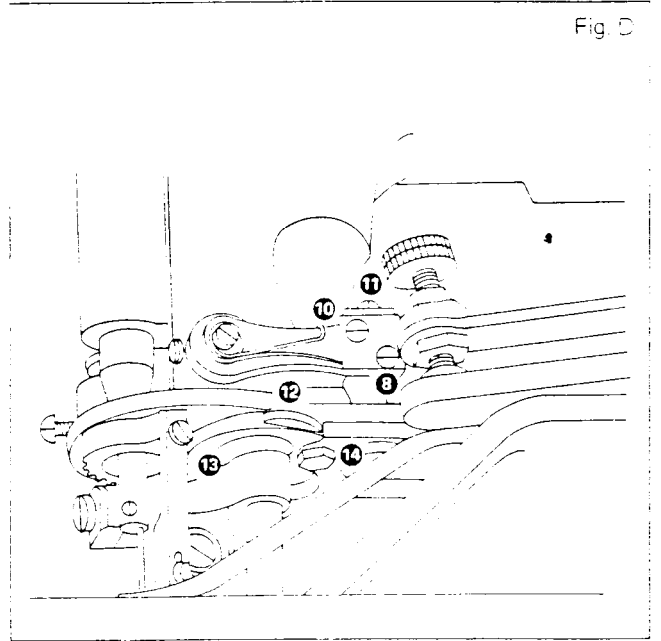
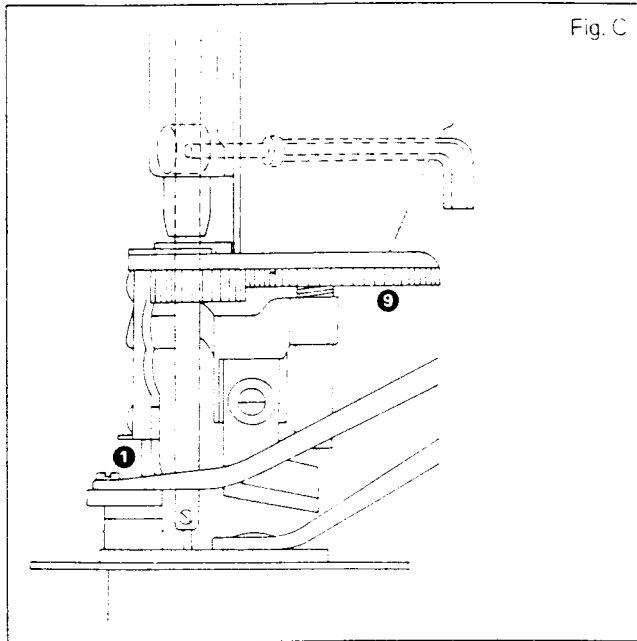
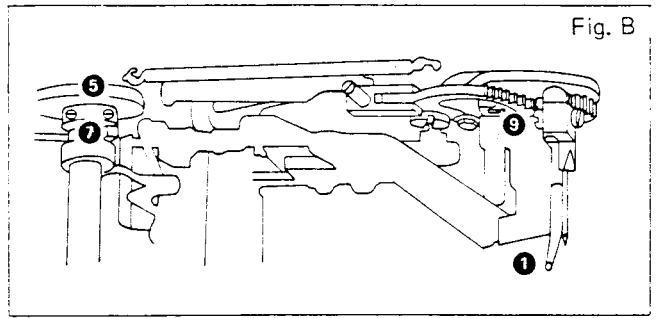
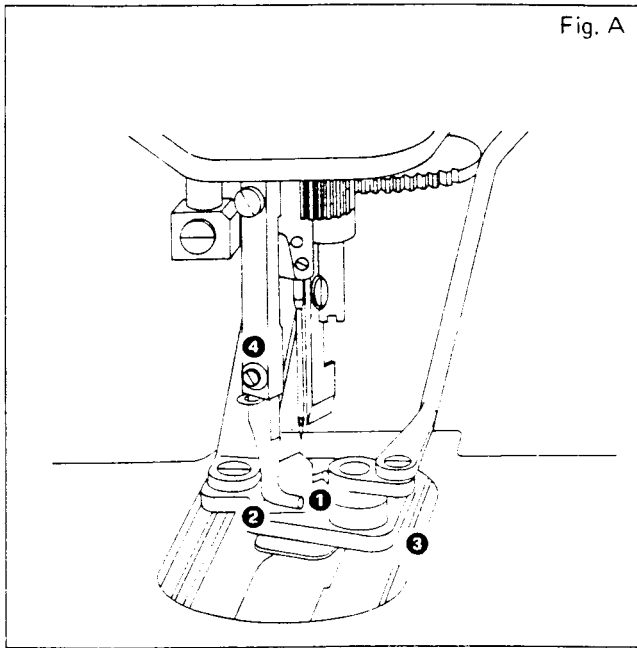
To adjust:

- Loosen cord rotating tripping cam segment hexagonal screws ⑮.
- Adjust position of segment on cam until this setting is achieved.
- Tighten screws ⑮.

5. Ratchet machine to bottom end of buttonhole first cycle. Rotate machine until crossover to left hand side of buttonhole. The cord finger should rotate round needle in material on the last stitch on the left hand side just before the clamp carrier starts to move up the buttonhole.

To adjust:

- Loosen cord rotating sector catch tripping lever tripping point extension screws ⑯.
- Adjust extension until the desired setting is achieved.
- Tighten screws ⑯.
- Loosen cord rotating sector catch connection screws ⑰.
- Adjust catch ⑱ to ensure cord is retained correctly in front of needle.
- Tighten screws ⑰.



## Upper Thread Cutting and Clamping Blades

### Forward Position Fig. A

When cutting blade connection is released to the rear as shown, moving the cutting and clamping blades to their forward position ①, the rear edges of these blades should be flush with the inside edge of the clamp check ②.

To adjust:

1. Loosen lock nut ③.
2. Turn stop nut ④ on connecting rod ⑤ against nylon washer ⑥ as required.
3. Tighten lock nut ③.

### Cocked Position Fig. B

With connecting rod pulled forward to cocked position as shown, the top of cutting blade should be flush with the inside left edge of check ⑦. On machines 271 K14 and 271 K24 the blade will be flush with the inside right edge.

To adjust:

1. Loosen lock nut ⑧.
2. Turn screw ⑨ as required.
3. Tighten lock nut ⑧.

### Pressure Fig. C

The pressure on the cutting and clamping blades should be just sufficient to trim the thread and hold the starting end.

To adjust:

1. Loosen lock nut ⑩.
2. Turn screw ⑪ to adjust pressure as shown.
3. Tighten lock nut ⑩.

### Cam Follower Position Figs. D,E.

Hand ratchet the machine until the larger of the two lobes ⑫ on the cutting cam fully actuates the cam follower ⑬ as shown in fig. D.

To set:

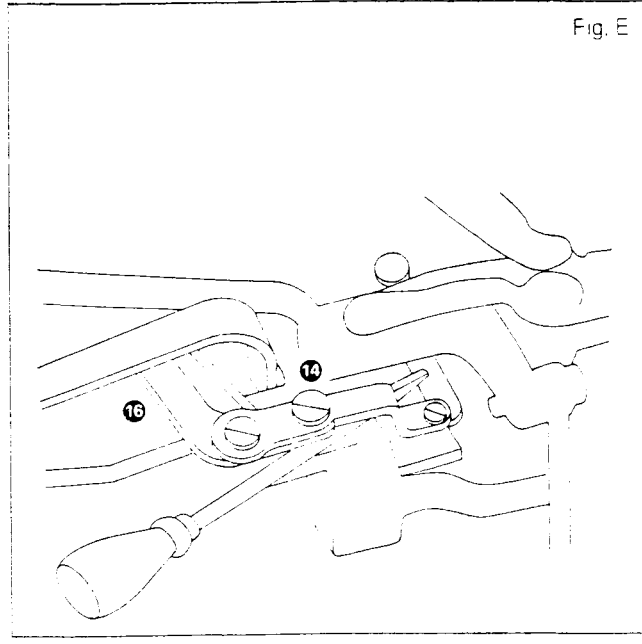
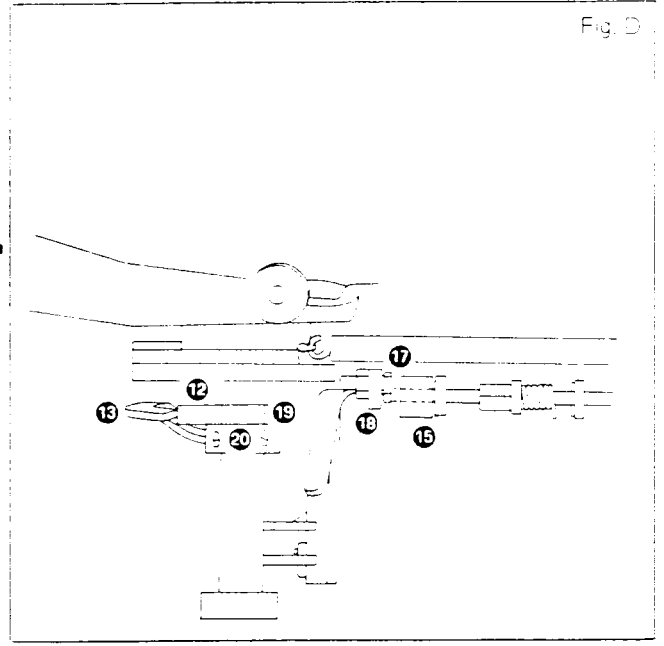
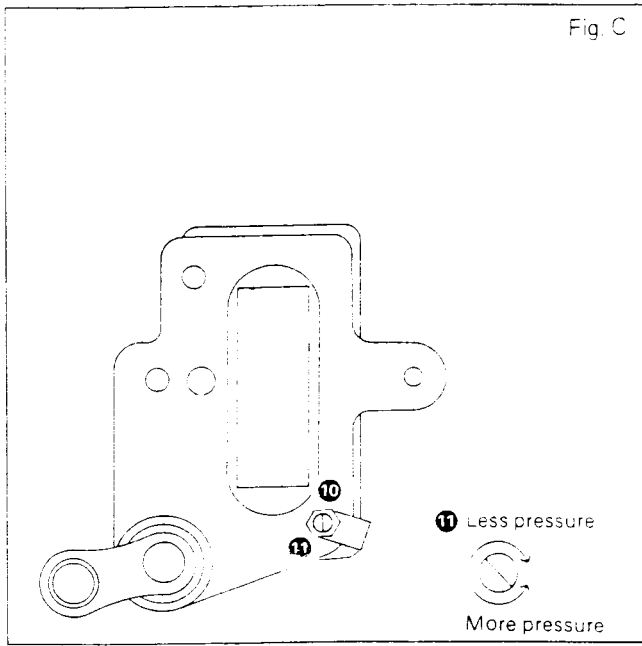
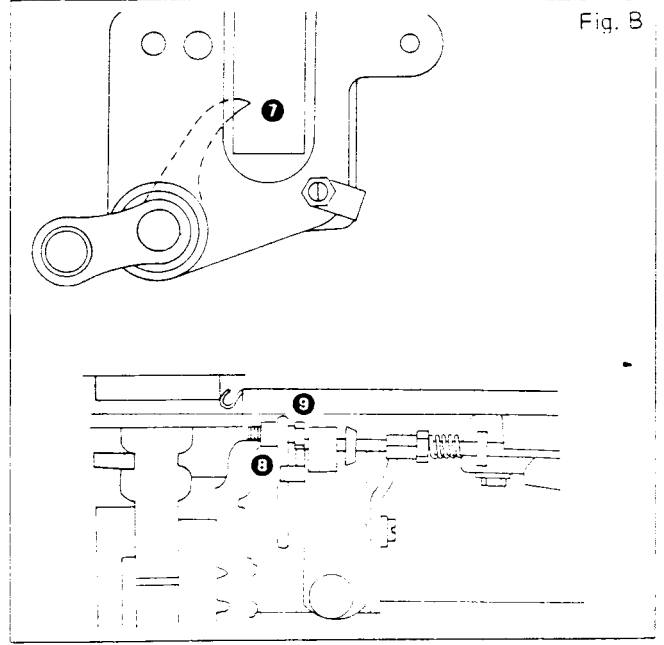
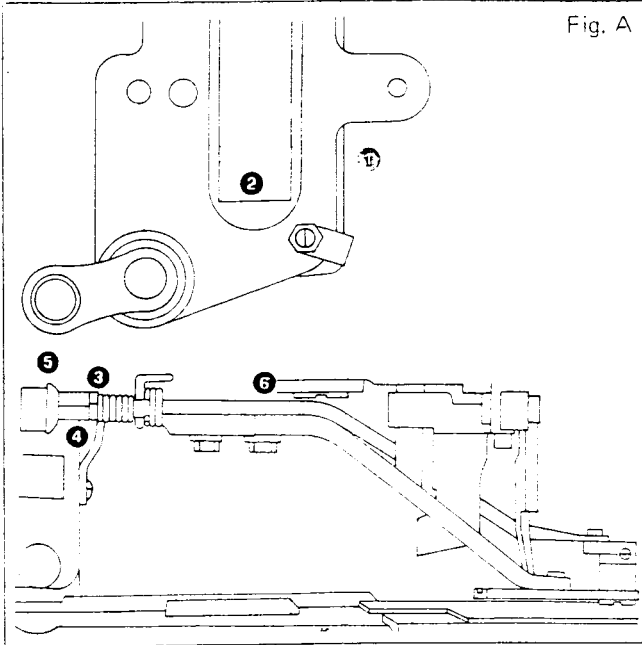
1. Loosen adjusting screw ⑭.
2. Using a small screwdriver as shown in fig. E remove all play between cam follower ⑬ and rod ⑮.
3. Tighten screw ⑭ just enough to hold cutting lever ⑯ in position.
4. Tap cutting lever ⑯ lightly to give approximately 1/64 inch (0.4mm) clearance ⑰ between rear end of rod ⑮ and stop screw ⑱.
5. Tighten screw ⑭.

### Retrim Action Timing Fig. D

The cutting blades are correctly timed when the timing marks ⑲ on the cutting cam and the feed wheel shaft are aligned.

To time:

1. Loosen the two set screws ⑳.
2. Rotate cam as required.
3. Tighten set screws ⑳.



## Removal and Replacement

Instructions for the removal and replacement of certain items which may require to be changed, are contained in this section.

See page 10 for gear changing instructions.

### Index

	Page
Knife	44
Stop cam gear spring	44
Under thread cutting blades	46
Upper thread cutting and clamping blades	46



## Knife Fig. A

### Removal

1. Remove knife fastening screw ① and washer ②.
2. Remove knife ③.

### Replacement

1. Place new knife in holder.
2. Push knife upward in holder recess as far as it will go.
3. Replace fastening screw ① and washer ②.
4. Check that front edge of knife ③ when cutting will reach 1/16 inch (1.6mm) below top surface of needle plate ④ (if knife does not make full cut, it should be set slightly lower, but never low enough to strike the hook).
5. Tighten screw ①.

## Stop Cam Gear Spring Figs. B.C.

### Removal

1. Remove wick ⑤ from eccentric stud.
2. Note timing marks on matched tooth ⑥ and groove ⑦ on pinion and stop cam gear.
3. Loosen eccentric stud set screw ⑧.
4. Withdraw eccentric stud ⑨ with retaining ring and washer from gear assembly and casting.
5. Catch stop cam gear ⑩ as it falls from the machine.
6. Remove the three screws ⑪ from gear assembly.
7. Separate positive drive gear and cover from stop cam gear spring housing ⑫.
8. Remove stop cam gear spring ⑬ from housing.

### Replacement

1. Insert ends of replacement spring ⑬ in position. Cover the spring with a cloth and press entire spring into housing with palm of hand.
2. Apply gear lubricant to spring, filling spring casing ⑭.
3. Replace positive drive gear and cover ⑫ in housing.
4. Replace and tighten three securing screws ⑪.
5. Replace stop cam gear ⑩ on machine.
6. Match the groove timing marks ⑮ on stop cam gear ⑩ with the gear tooth timing mark on pinion ⑥.
7. Replace eccentric stud ⑨ with washer and retaining ring.
8. Adjust play between stop cam gear ⑩ and pinion ⑮ as instructed on page 36.
9. Tighten eccentric stud set screw ⑧.
10. Replace eccentric stud wick ⑤.

Fig. A

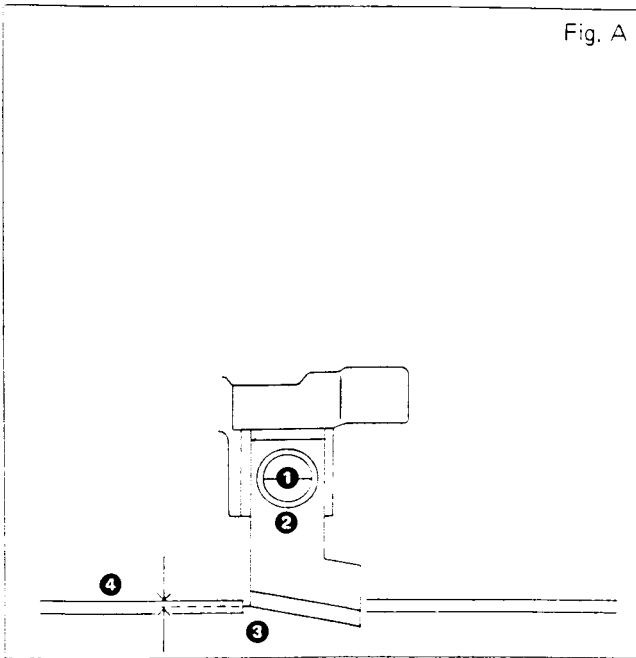


Fig. B

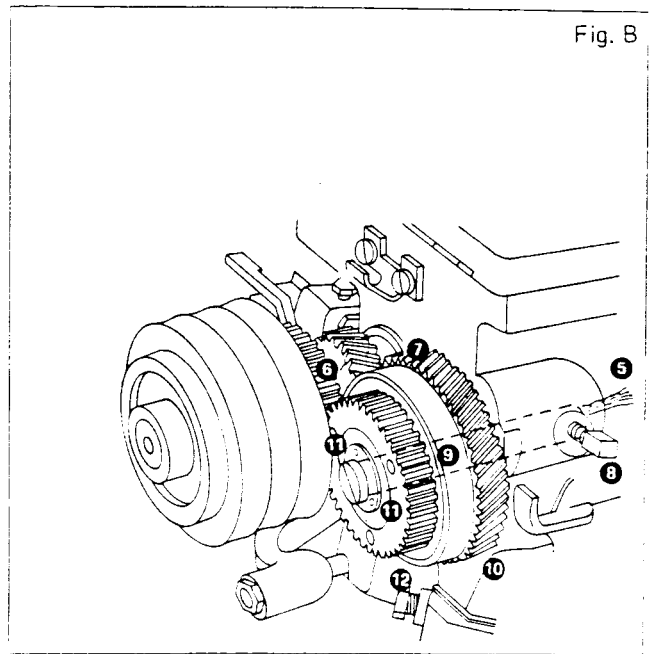
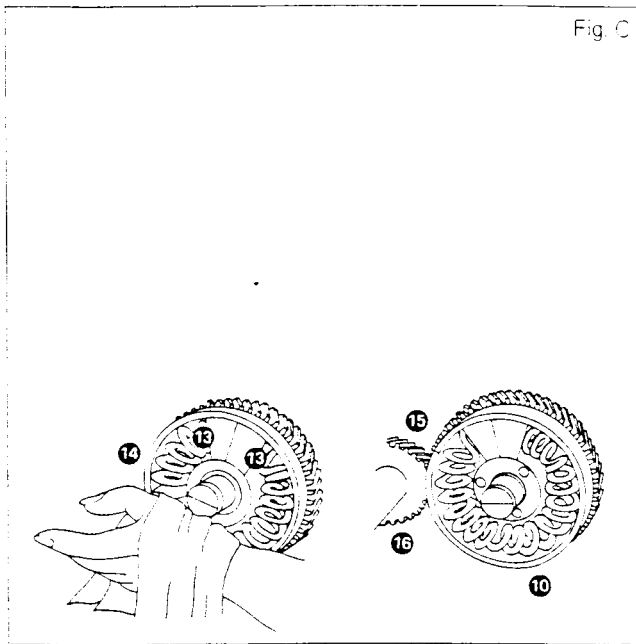


Fig. C



## **Under Thread Cutting Blade** Figs. A.C.

### **Removal**

1. Turn machine over on its hinges.
2. Remove bobbin case stop screw ⑨.
3. Remove bobbin case stop ⑩.
4. Remove the two blade-holding screws ⑪.
5. Remove under thread cutting blade ⑫.

### **Replacement**

1. Place new cutting blade in position ⑫ with its cutting edge between pull-off finger ⑬ and needle plate ⑭.
2. Insert two screws ⑪ and move blade as far as it will go toward left side of machine bed.
3. Ensure edge of blade is parallel with knife slit in needle plate.
4. Tighten screws ⑪.
5. Replace bobbin case stop ⑩.
6. Replace bobbin case stop screw ⑨.
7. Adjust bobbin case stop as instructed on page 26.

## **Upper Thread Cutting and Clamping Blades** Figs. A.B.

### **Removal**

1. Remove connecting rod screw ①.
2. Remove check holder screw ②.
3. Remove clamp check ③ from machine and turn it upside down as shown in fig. B.
4. Remove small screw ④ at front end of mat in bottom of check and swing mat out of way ⑤.
5. Remove blade holder screw ⑥.
6. Remove clamping blade ⑦ and upper thread cutting blade ⑧.

### **Replacement**

1. Replace new clamping blade ⑦ and upper thread cutting blade ⑧.
2. Fasten blades with blade holder screw ⑥.
3. Swing mat back into position and secure by screw ④.
4. Replace clamp check ③ on holder.
5. Fasten clamp check to holder with screw ②.
6. Fasten clamp check to connecting rod with screw ①.

Fig. A

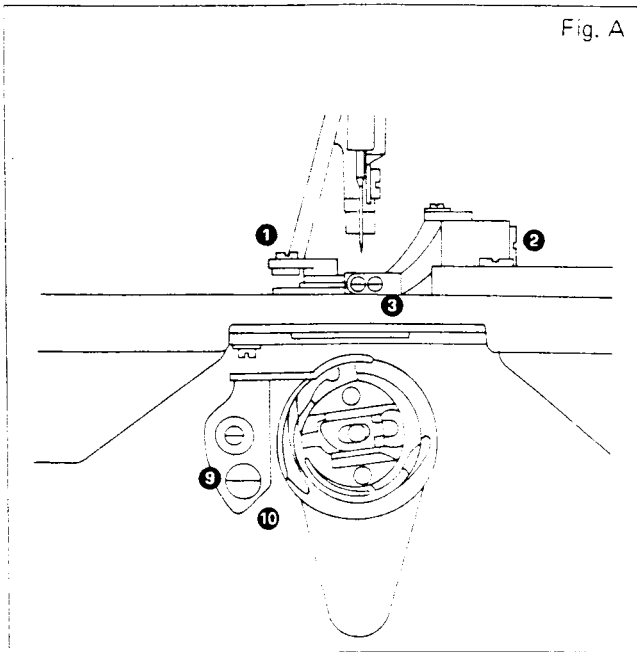


Fig. B

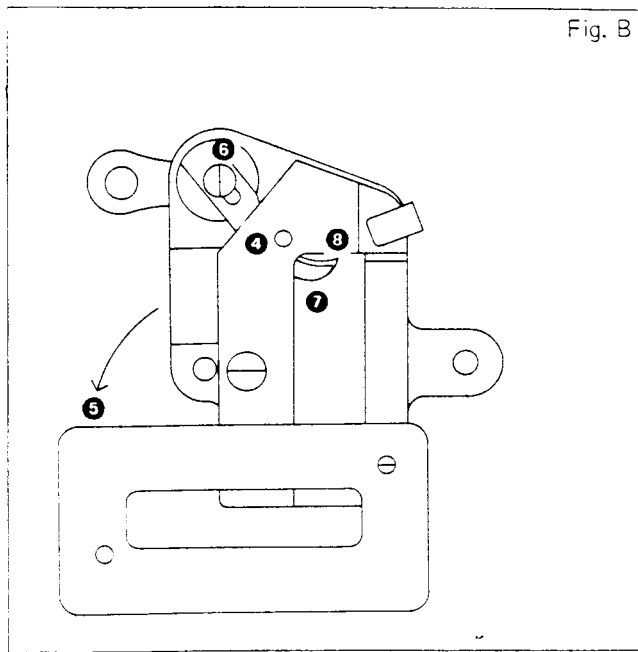
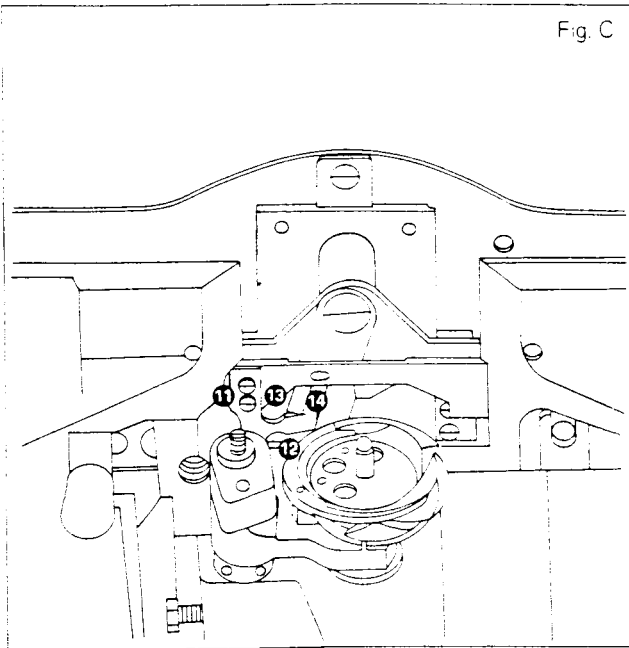
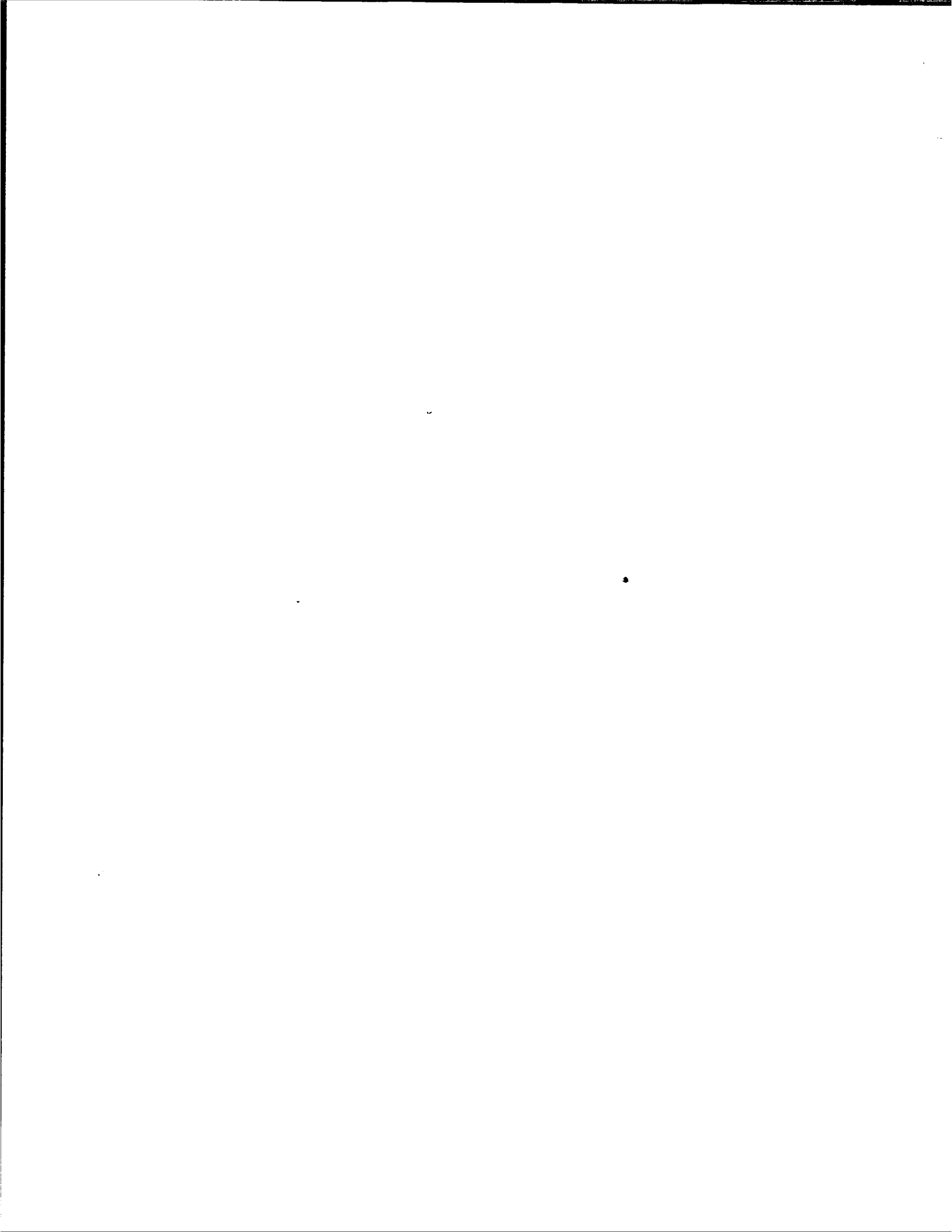


Fig. C





## Special Instructions for 271K12 Machines

The instructions contained in the following section apply to machine 271K12 only.

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## Barring Stitch Width Figs. A,B.

Barring stitch width is controlled by raising or lowering the barring point ① relative to barring plates ②.

To set:

1. Centre regulator screw ③ in regulator slot ④.
2. Adjust barring point for approximately 1/8 inch (3.2mm) stitch.
3. Loosen screw ⑤.
4. Raise or lower barring point ① for wider or narrower stitch respectively.
5. Tighten screw ⑤.

## Bight Stitch Width Figs. A,B.

Bight stitch width is controlled by raising or lowering bight stitch adjusting point ⑥ relative to tie stitch plate ⑦.

To set:

1. Centre regulator screw ③ in regulator slot ④.
2. Set adjusting point ⑥ for approximately 1/16 inch (1.6mm) stitch.
3. Loosen lock nut ⑧.
4. Raise stop screw ⑨.
5. Loosen holding screw ⑩.
6. Raise or lower adjusting point ⑥.
7. Tighten adjusting point holding screw ⑩.

When correct bight stitch width is obtained.

8. Turn stop screw ⑨ inward until it contacts barring lever ⑪.
9. Tighten lock nut ⑧.

## Driving Arm Safety Fig. C

Driving arm safety should be set to prevent cutting blades getting under needle during sewing.

To set:

1. Loosen screws ⑫.
2. Set driving arm safety on cutting cam ⑬ so that flange edge of driving arm safety ⑭ just clears inside edge of cam follower ⑮ during full cycle of feed wheel shaft. This setting should also allow cam follower ⑮ to clear end of flange edge of safety when machine enters stop.
3. Tighten screws ⑫.

## Needle Thread Pull-off Fig. D

To ensure sufficient loose thread for trimming and for starting next buttonhole.

1. Loosen screw ⑰.
2. Adjust roller ⑱ to activate pull-off ⑲ for an approximate 1 inch (25.4mm) stroke at pull-off end on return of knife bar ⑳.

## Needle Thread Tension Release Fig. E

To allow thread to be pulled off for trimming.

1. Loosen screw ㉑.
2. Adjust sleeve ㉒ to relieve tension on thread between discs ㉓ when machine is in 'stop' position.

## Sewing Safety Lever Setting Fig. F

This lever ㉔ should be set so that trimmed end of thread will be held in position for covering.

To set:

1. Machine in 'stop' position.
2. Loosen clamp screw ㉕.
3. Position the sewing safety lever ㉔ on stop rod ㉖ relative to cam follower ㉗ so that on 'run' position the roller ㉘ will engage cam follower, (withdrawing clamping blade 3/16 inch (4.8mm) behind needle) and clamping blades retain thread at start of sewing.
4. Tighten screw ㉕.

Fig. A

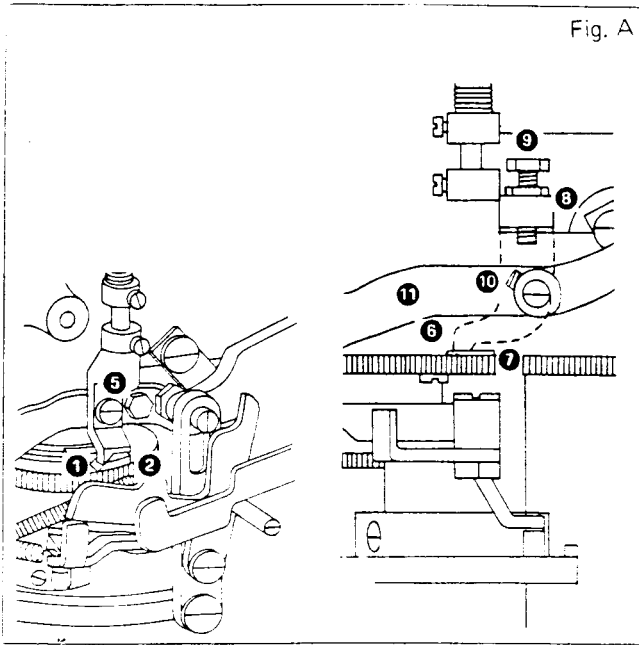


Fig. B

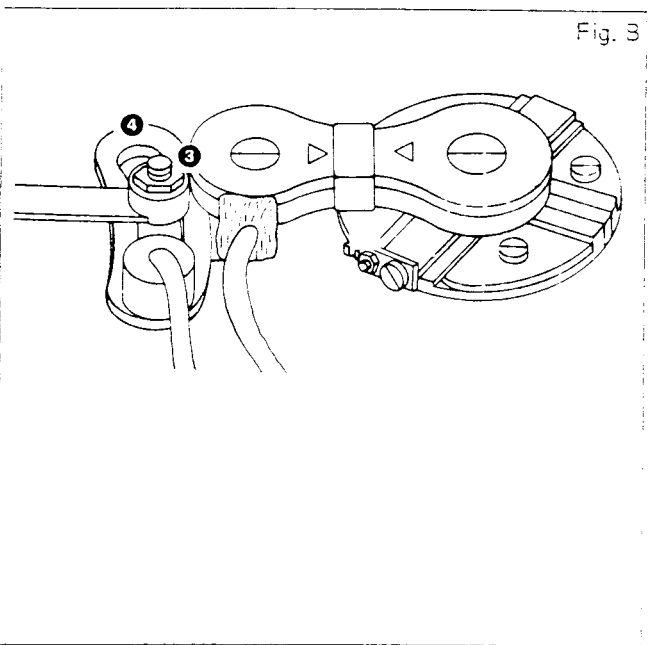


Fig. C

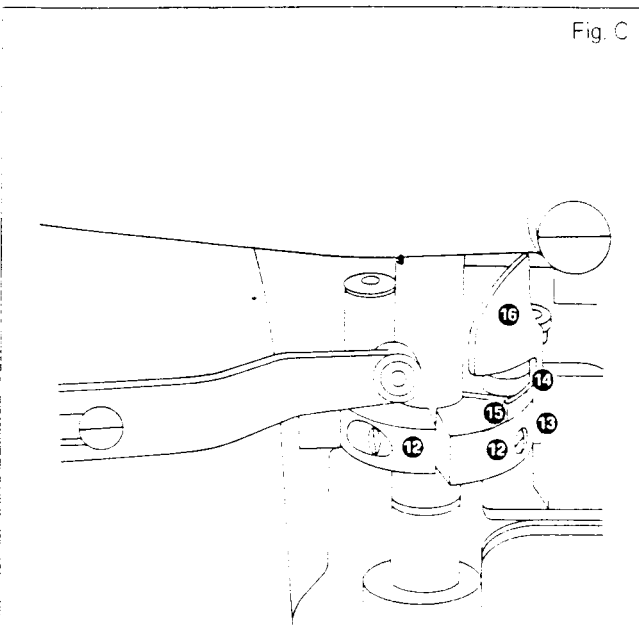


Fig. D

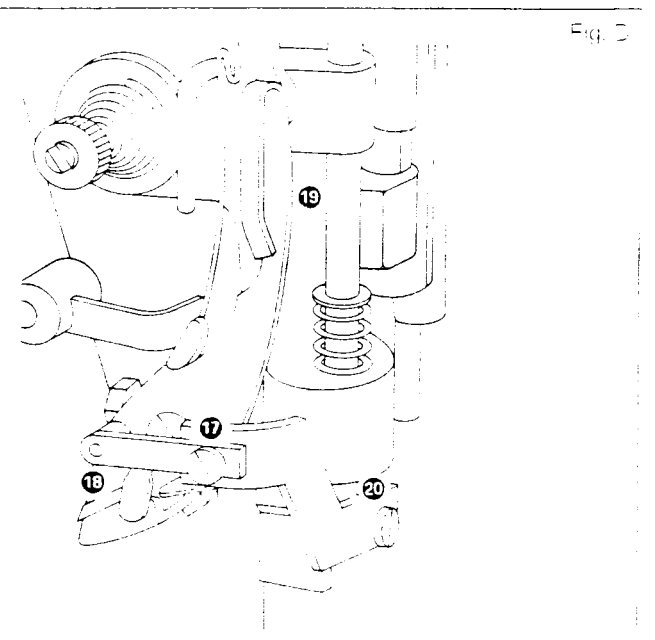


Fig. E

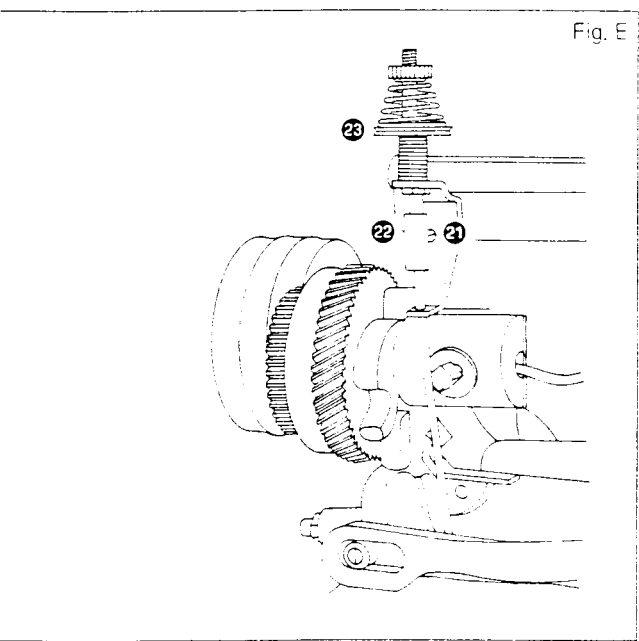
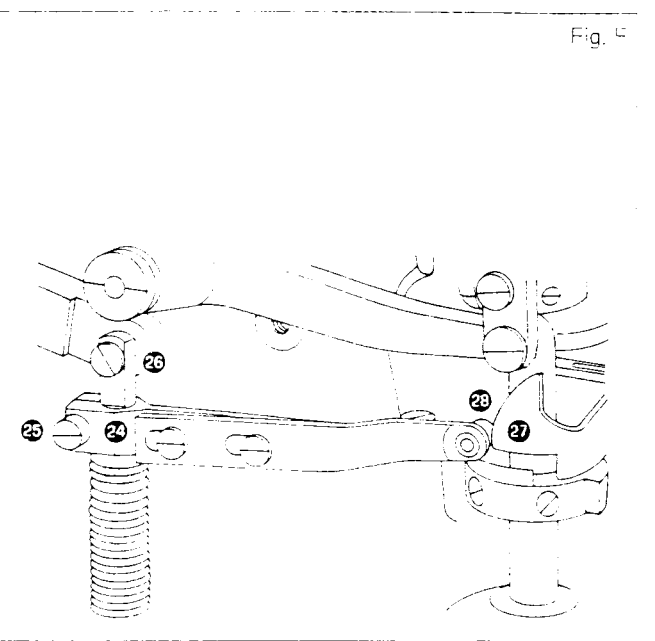


Fig. F





## Tie Stitch Centralising Fig. A

The position of tie stitches relative to stop position is controlled by tie stitch plate ① on barring plate cam ②.

To set:

1. Adjust tie stitch plate ① so that bight adjusting point ③ just reaches top of incline on plate, on last dead stitch just before clamp carrier starts to move forward.

## Tie Stitch Width Fig. B

Stop screw ④ on barring slide ⑤ controls tie stitch width.

To set:

1. Loosen nut ⑥.
2. Adjust stop screw ④ for approximately 1/32 inch (0.8mm) stitch when regulator screw ⑦ is centred in slot of regulator ⑧.
3. Tighten lock nut ⑥.

## Upper Thread Cutting Cam

### Timing Fig. F

The cam should be timed to ensure covering of trimmed end of thread while preventing needle striking trimmer blades.

To time:

1. Set machine for maximum length of buttonhole.
2. Loosen screws ⑨.
3. Turn cutting cam on feed shaft ⑩ until roller ⑪ engages cam follower ⑫. This setting should start clamping blades moving away from needle when needle point is approximately 1/32 inch (0.8mm) away from clamping blades.
4. Tighten screw ⑨.

## Upper Thread Cutting Cam

### Follower Setting Fig. D

The cam follower ⑬ should be set to ensure trimming action with guide screw ⑭ not striking end of slot in guide plate ⑮.

To set:

1. Machine in 'stop' position.
2. Loosen screw ⑯ in cutting lever connection ⑰.
3. Set body of cam follower ⑬ flush against feed wheel shaft ⑩ to hold guide screw ⑭ approximately 1/64 inch (0.4mm) from end of slot in guide plate ⑮.
4. Tighten screw ⑯.

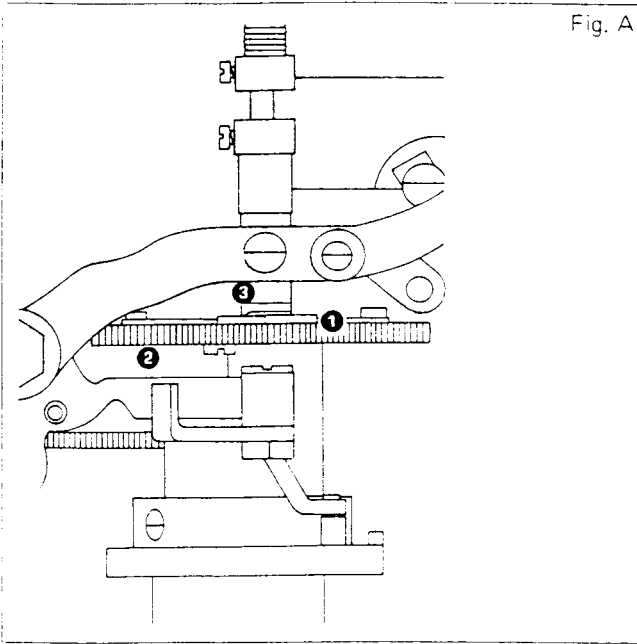


Fig. A

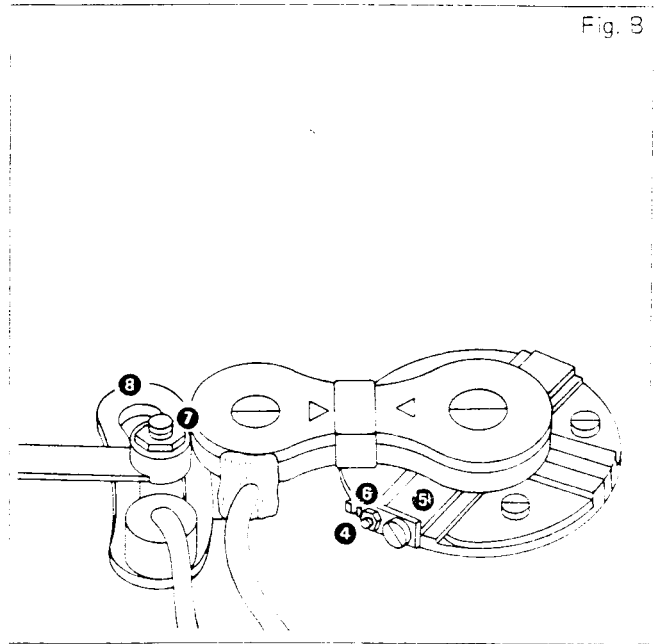


Fig. B

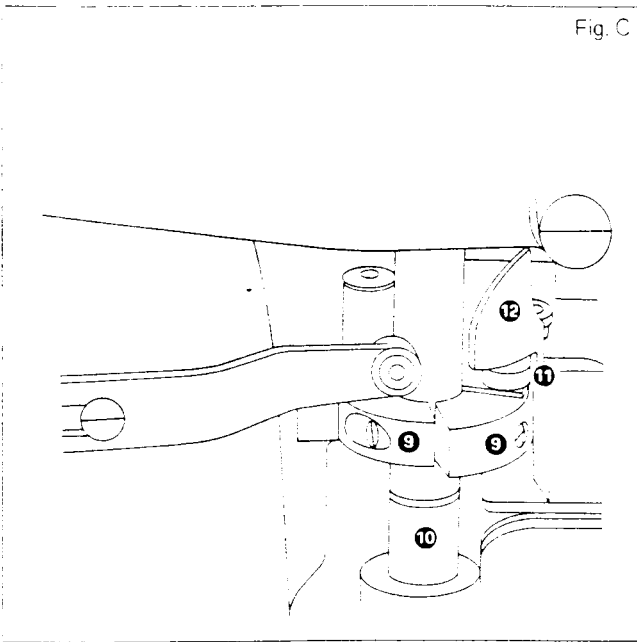


Fig. C

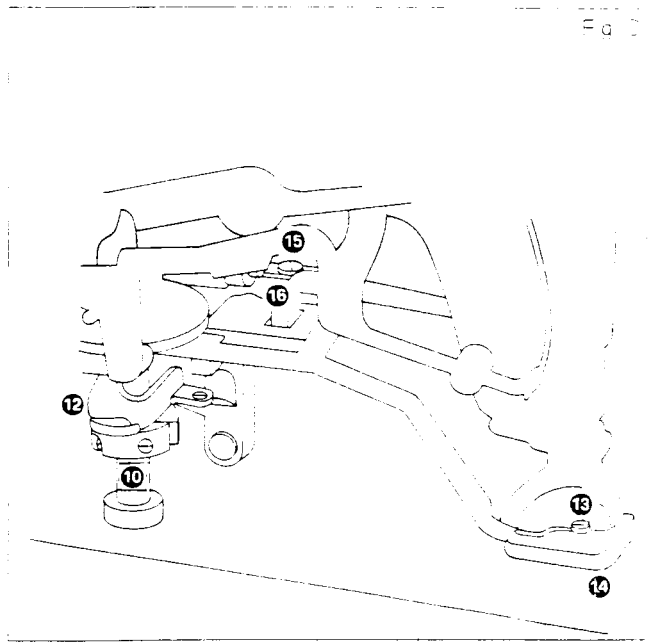


Fig. D