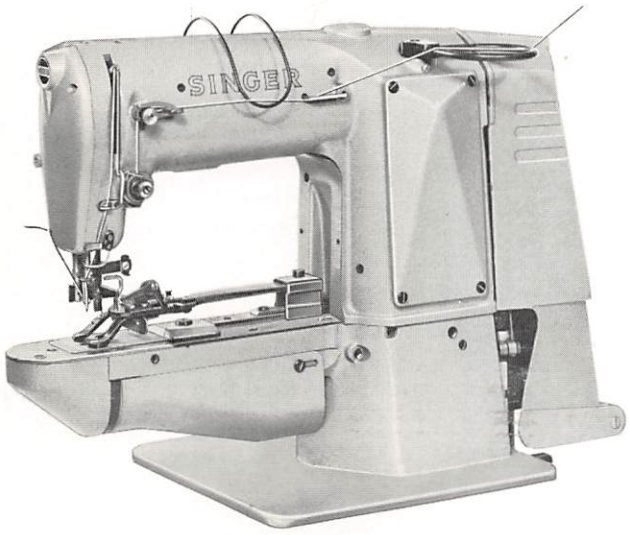
Form 21290
(264)

SINGER*

Service Manual

270-37



THE SINGER COMPANY

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DESCRIPTION

Machine 270-37 is a single needle, single thread, lockstitch machine designed for sewing two and four hole buttons on clothing. The machine sews a single row of stitches parallel to the cylinder when sewing two hole buttons and two rows of stitches parallel to the cylinder with two right angle cross-over stitches when sewing four hole buttons.

Automatic in operation, the machine is equipped with a sewing reel which is located inside the hook body. Thread is wound on reel from upper thread supply during the initial needle penetration. Then, without a break in thread or interruption in machine cycle, stitch formation begins. Reel thread is passed through upper thread loop on each successive stitch to form a regular lockstitch. Thus only one thread is required to form a complete stitch pattern and no stitch starting ends of thread are present. At the end of the stitching pattern, thread is trimmed and excess thread is removed from reel and drawn away by a suction type air pump.

GENERAL CHARACTERISTICS

18 Stitches . . . 6 parallel, 2 cross-over, 6 parallel, 4 tying.

Rotating Hook with Thread Reel . . . makes two revolutions to each revolution of arm shaft.

Rotary Hook Shaft . . . driven by spiral bevel gear from vertical arm shaft.

Throat Plate . . . equipped with scissor type trimming mechanism for cutting thread at completion of stitch pattern.

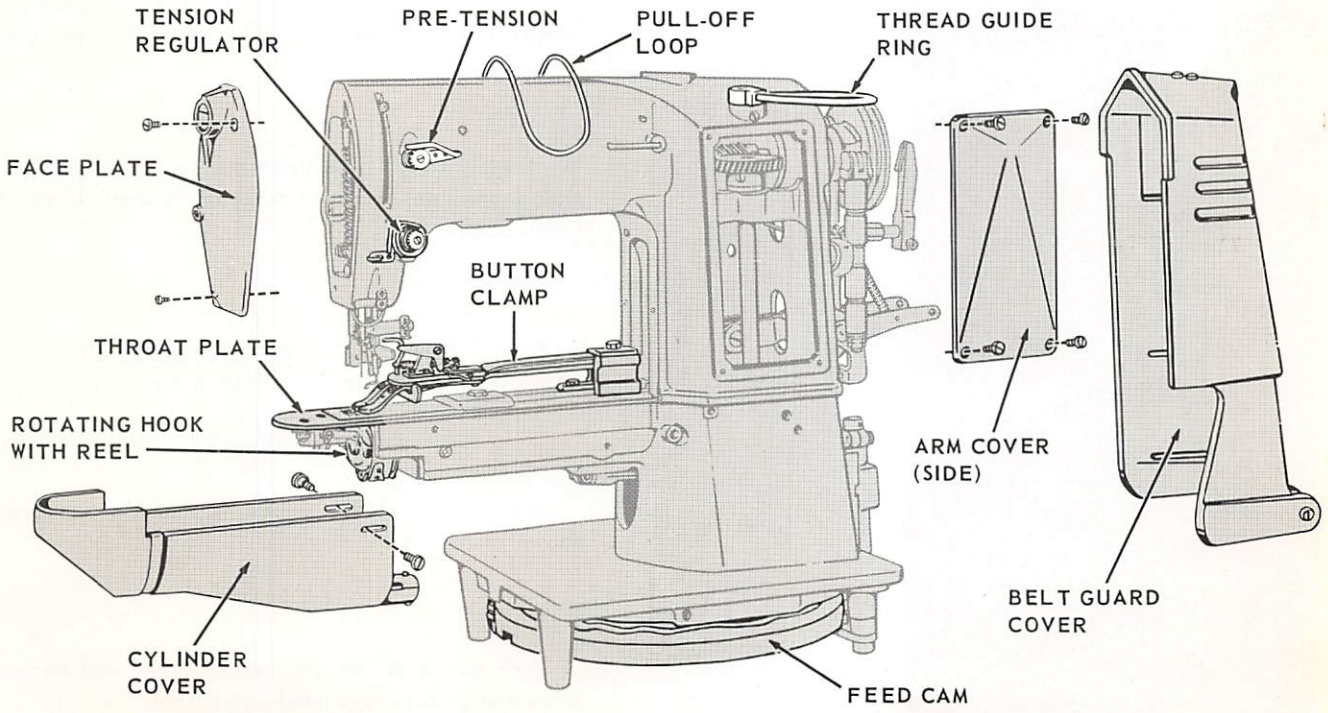
Button Clamp . . . accommodates 14 to 50 ligne buttons.

Work Plate . . . if specified, at additional cost.

Feed Cam . . . controls operation of button clamp.

Safety Interlock . . . prevents clamp from being lifted when machine is in operation.

Belt Guard . . . fully encloses driving belt and stop motion device.



INSTALLATION

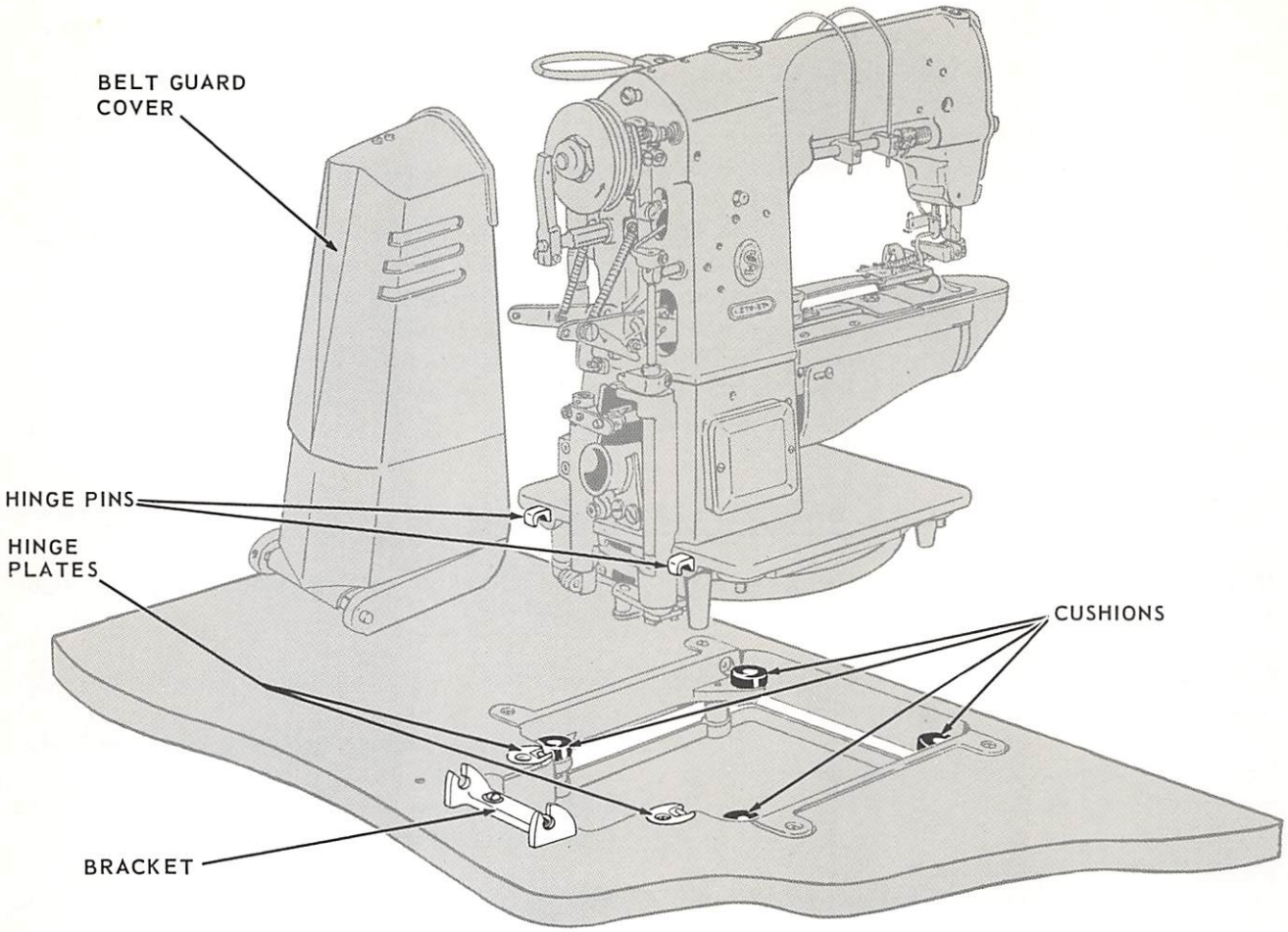


Fig. 3. Installation of Machine

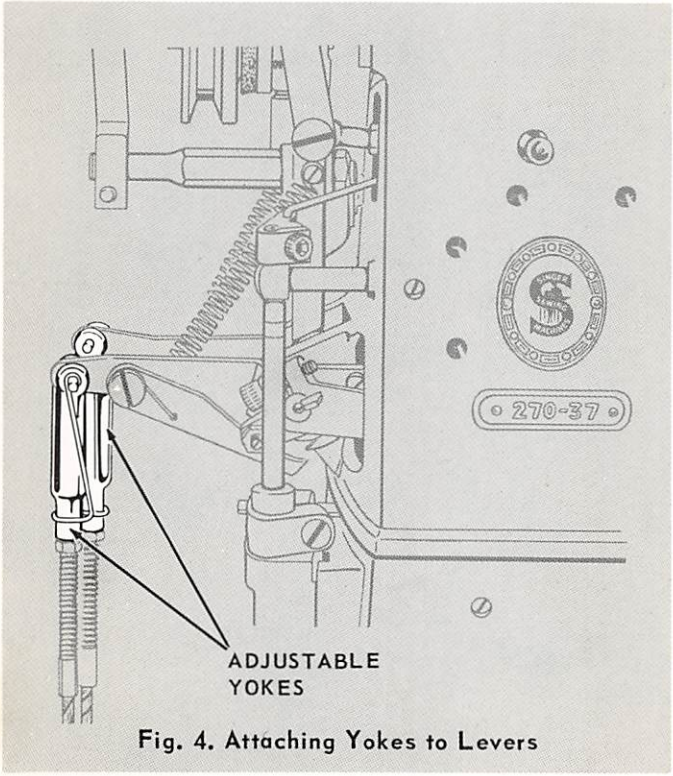


Fig. 4. Attaching Yokes to Levers

Place machine into recess on table top on four rubber cushions at corners of drip pan as shown.

Hinge pins fit into hinge plates at back of recess and should not support machine except when it is tilted back.

Install blower unit in accordance with instructions (Form 21207) included in shipping carton.

Attach adjustable yokes to machine levers as shown in Fig. 4.

Belt guard cover fits into bracket and encloses drive and stop motion mechanism (see Fig. 3).

LUBRICATION

For best results, use **SINGER*** Oil **"Type B"** or **"Type D"**. **"Type D"** Oil is used when an oil is desired which will produce a minimum of stain on fabric.

Daily Care

Before starting machine, apply a few drops of oil to each of the holes indicated in Figs. 5 and 6 and run machine for a short time.

On new machines and machines installed after several weeks of idleness, needle bar and take-up linkage should be oiled by hand before using. The residual lubricant may have congealed or disappeared entirely.

NOTE: Once each year, machine pulley (loose) should be removed and repacked with ball bearing lubricant.

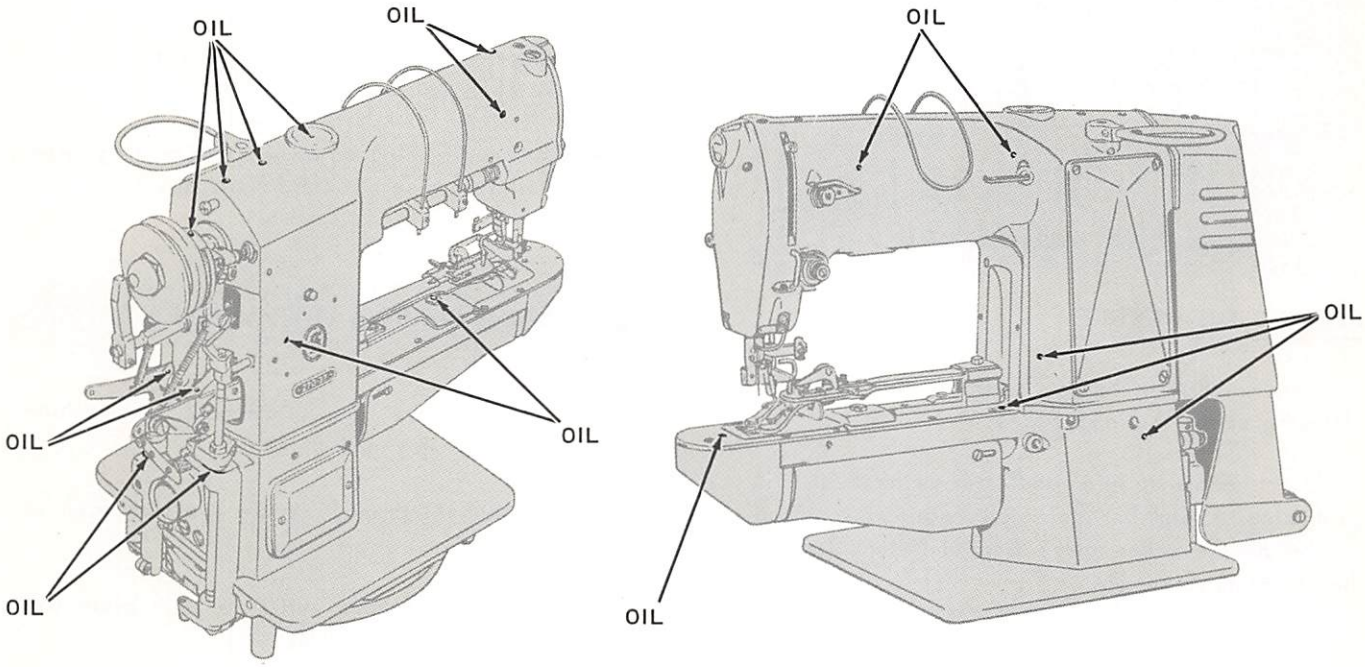


Fig. 5. Lubricating the Machine

Cleaning

Remove all lint and abrasive matter from around hook body and throat plate mechanism (see Fig. 6).

Wipe off all excess oil which may come in contact with material to be sewn.

Machines not in use should be kept well oiled, clean, dry and covered.

Check waste collector daily and empty when full.

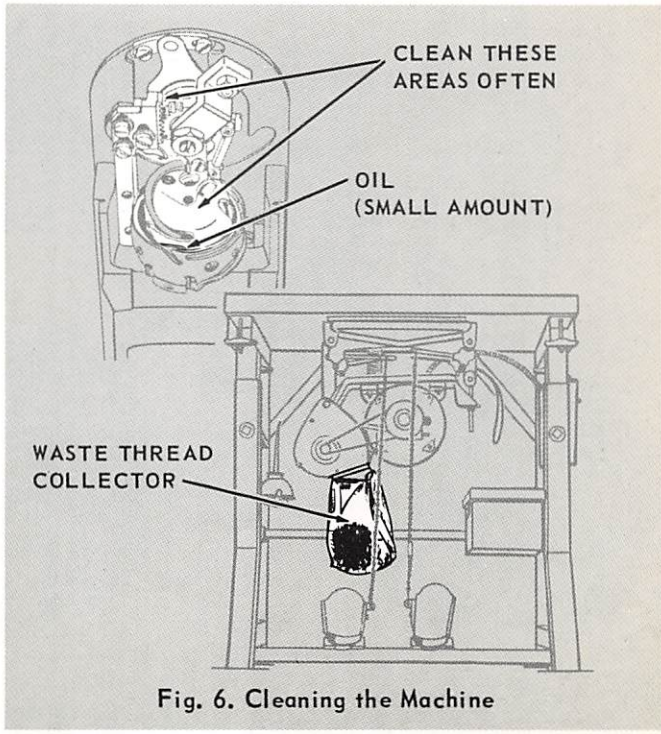


Fig. 6. Cleaning the Machine

SPEED

The maximum speed recommended for Machine 270-37 is 1,850 R. P. M.

NEEDLES

Use **SINGER*** needle – Catalog 2173.

Other needles, determined by size of thread and type of material to be sewn, are available.

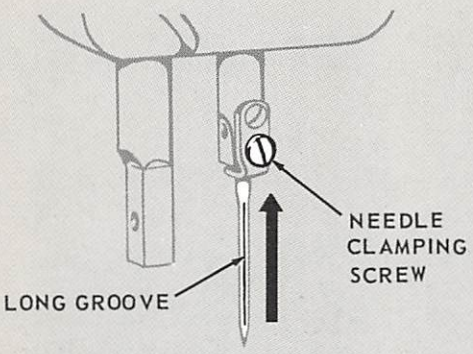


Fig. 7. Setting the Needle

SETTING THE NEEDLE

With machine in "stop" position loosen needle clamping screw shown in Fig. 7.

Insert needle up into needle bar as far as it will go making certain that the single continuous groove of the needle faces away from the hook (facing the operator) as shown.

Securely tighten needle clamping screw.

Stitching Troubles

Check needle often to make sure these defects are not present.

- Wrong needle for thread and material in use - - - a cause of thread breakage.
- Bent needle, clogged needle eye or dirty needle groove - - - a cause of skipped stitches.

THREADING THE MACHINE

The correct threading proceedure for Machine 270-37 is shown in Fig. 8.

Thread passes through needle eye from front to rear.

Draw thread up into cutter in face plate and snip thread end off as shown.

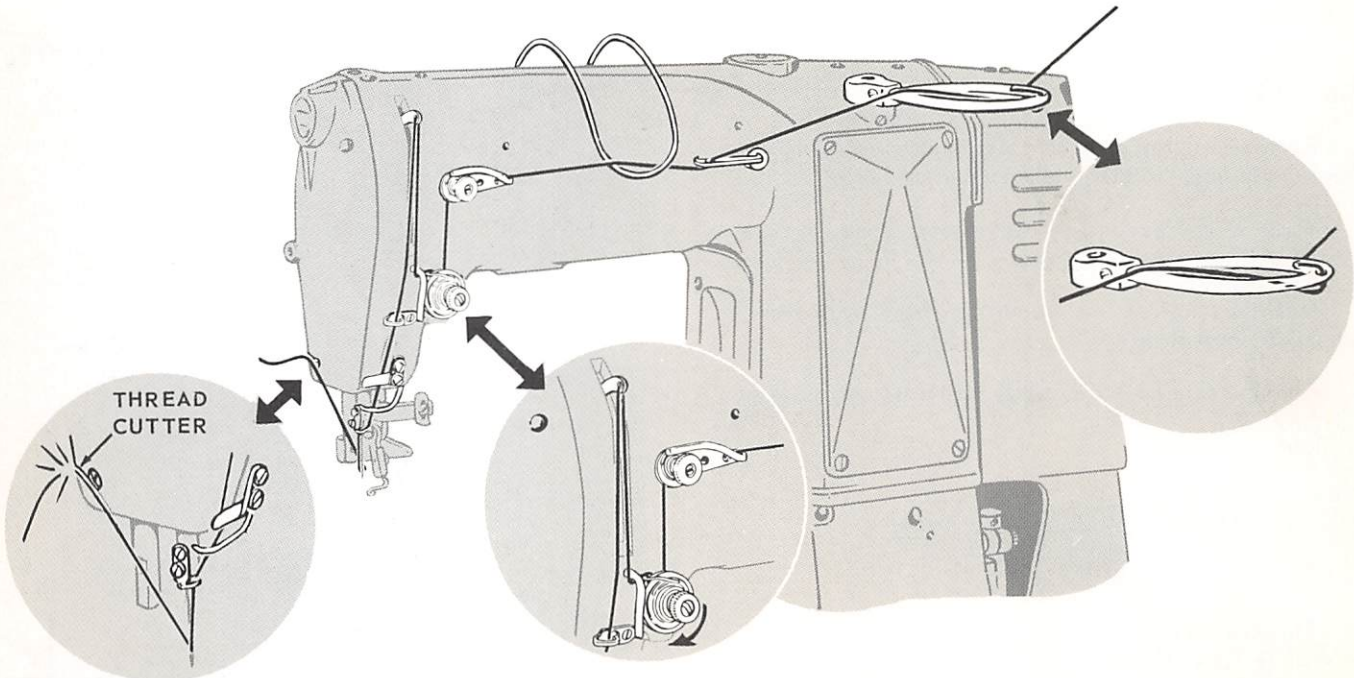


Fig. 8. Threading the Machine

THREAD TENSION

Needle Thread Tension

Tension should be as light as possible while still sufficient to set the stitch correctly in material, (see Fig. 9).

To regulate, turn thumb nut at front of tension discs as shown in Fig. 10.

Reel Thread Tension

When tension on reel thread has been correctly adjusted, the required stitch may usually be obtained to suit the work in process thereafter by varying needle thread tension only.

To regulate, turn adjusting screw shown in Fig. 10 as required.

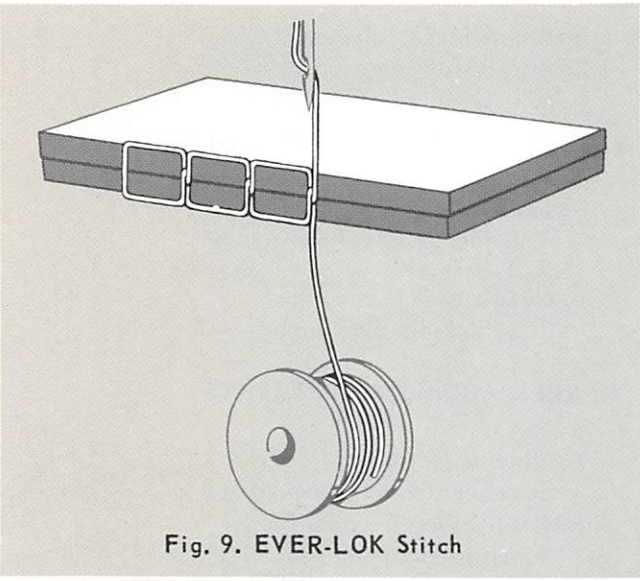


Fig. 9. EVER-LOK Stitch

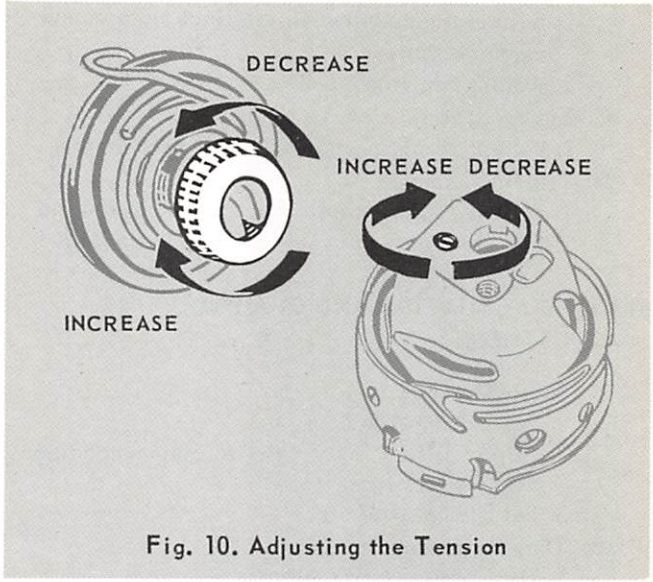


Fig. 10. Adjusting the Tension

SEWING DIFFICULTIES

WHEN THREAD BREAKS

CHECK:

Is machine threaded properly?
Is needle correctly seated in needle bar?
Is needle bent or burred?
Is thread suitable for needle in use?
Is needle thread tension too tight?

WHEN THREAD SNAGS OR MACHINE SKIPS STITCHES

CHECK:

Is needle eye or groove dirty?
Is needle bent or burred?
Is needle size correct for operation?
Is thread suitable for material in use?
Is reel case free of thread end?

HINTS FOR OPERATORS

WHEN OPERATING MACHINE

Be sure to depress starting pedal firmly.
Make sure that button is inserted correctly in clamp.
Make sure that needle thread is not under clamp at start of sewing cycle.
Do not depress clamp lifting pedal until machine goes in "stop".
Inspect reel thread tension for thread or lint accumulation.

ADJUSTMENTS

The sequence of adjustments outlined on this page should be checked and made in the order given to avoid confusion and unnecessary repetition.

I STOP MOTION ADJUSTMENTS

A. Arm Shaft
   1. Adjust for end play
B. Starting Lever
   1. Set clearance between interlocking arm and machine pulley
   2. Adjust arm stop
C. Engaging arm
   1. Adjust to obtain correct "V" belt tension
D. Tripping Linkage
   1. Adjust rock shaft support for binding
   2. Set clearance between bell crank and pawl

II KNIFE ACTUATING AND CLAMP LIFTING ADJUSTMENTS

A. Safety Devices
   1. Set Lifting Arm Lug
   2. Adjust lifting lever pawl to clear engaging surface on lifting lever
   3. Set Clamp lifter stop
B. Tension Releaser
   1. Position tension regulator
   2. Set lifting link connection
   3. Set lifting arm to release tension
C. Button Clamp Foot Lifter
   1. Position lifter beneath arm hook
D. Thread Wiper
   1. Set wiper support
   2. Position wiper wire
E. Thread Pull-off Loop
   1. Adjust tension on spring

III FEED MECHANISM ADJUSTMENTS

A. Feed Driving Gears
   1. Check alignment of timing marks
   2. Eliminate play in gears
B. Feed Linkage Adjustment
   1. Center and position lateral feed linkage
   2. Increase or decrease lateral movement of feed bar
   3. Center and position longitudinal feed linkage
   4. Increase or decrease longitudinal movement of feed bar
C. Feed Timing Adjustment
   1. Time longitudinal feed movement
   2. Time lateral feed movement

IV TRIPPING POINTS ADJUSTMENT

A. Set timing to actuate interlocking arm

V STOP MOTION BRAKE ADJUSTMENTS

A. Obtain brake clearance
B. Adjust brake pressure

VI SEWING MECHANISM ADJUSTMENTS

A. Sewing Hook
   1. Set longitudinal position
   2. Time hook
B. Needle Bar
   1. Set Needle Bar Height

VII REEL WINDING ADJUSTMENTS

A. Winding Linkage
   1. Adjust thread clamping action
B. Reel Driver Tripping Points
   1. Set tripping point for "full pinch"
   2. Adjust Extension for duration of pinch
C. Pre-Tension
   1. Adjust to aid in reel winding

VIII THREAD STRIPPING AND RETRACTING ADJUSTMENTS

A. Finger Plate Follower
   1. Set to actuate stripper finger
B. Stripper Finger
   1. Adjust to remove unused reel thread
C. Retracting Finger
   1. Adjust to pick up reel thread
D. Tension Releaser
   1. Re-check

IX ADJUSTMENTS UNDER THROAT PLATE

A. Reel Holder Position Stop
B. Trimming Knives
   1. Set movable and adjustable knives
   2. Time knives
   3. Adjust knife pressure
C. Loop Pick-up Finger
   1. Position operating lever
   2. Set loop pick-up finger

STOP MOTION ADJUSTMENTS

ARM SHAFT

CHECK:

There should be a minimum of end play in the arm shaft shown in Fig. 11.

SETTING:

Loosen set screw in bushing shown in Fig. 11 and lock nut on support screw shown in Fig. 12.

Pull rear bushing out (toward machine pulley) by turning support screw in clockwise direction. Then tighten set screw and lock nut securely.

Check adjustment to make sure end play has been eliminated without binding.

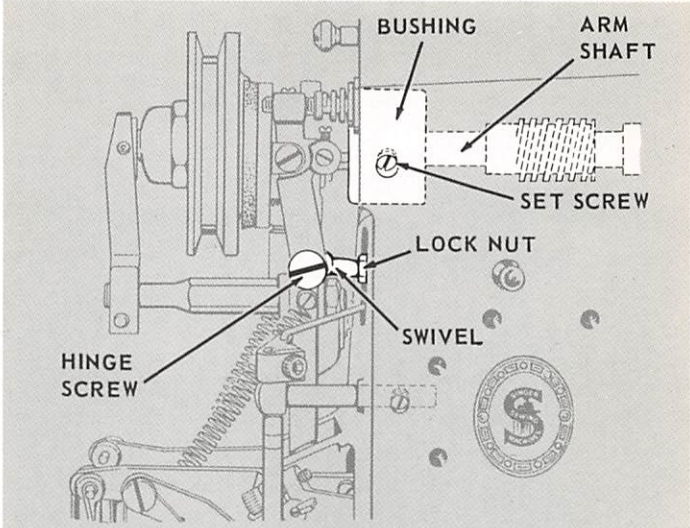


Fig. 11. Stop Motion Adjustment (Left View)

STARTING LEVER

CHECK:

Depress starting lever to engage machine in "run" position.

Turn machine pulley over toward right (looking from face plate back) until bell crank pawl moves into the "coast" position in bell crank as shown in Fig. 13.

At this position, there should be approximately 1/32 inch clearance between high point of camming surface on machine pulley and interlocking arm as shown in Fig. 12.

SETTING:

Loosen lock nut on starting rod and remove hinge screw shown in Fig. 11.

Turn swivel on starting rod, (Fig. 11) in or out one full turn for each 1/32 inch of adjustment required to obtain clearance between camming surface and interlocking arm as shown in Fig. 12.

Replace hinge screw and tighten lock nut on swivel securely.

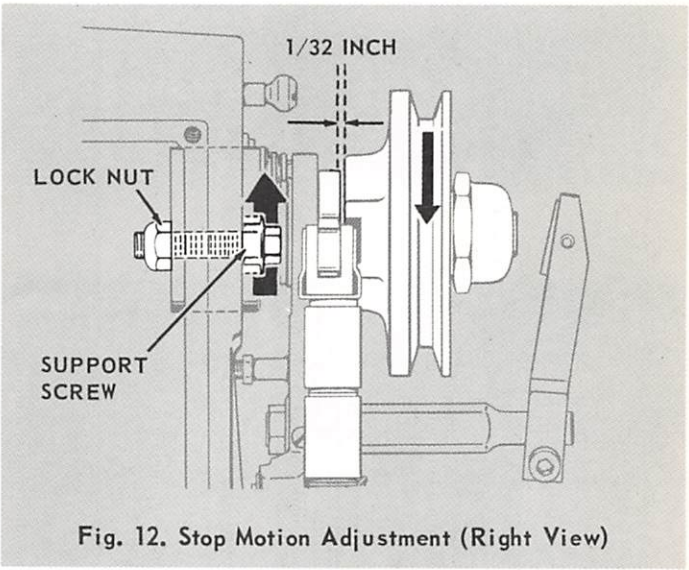


Fig. 12. Stop Motion Adjustment (Right View)

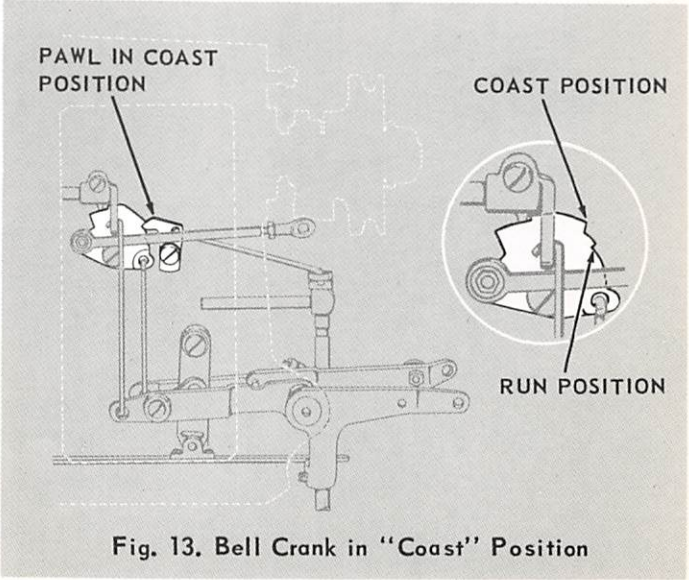


Fig. 13. Bell Crank in "Coast" Position

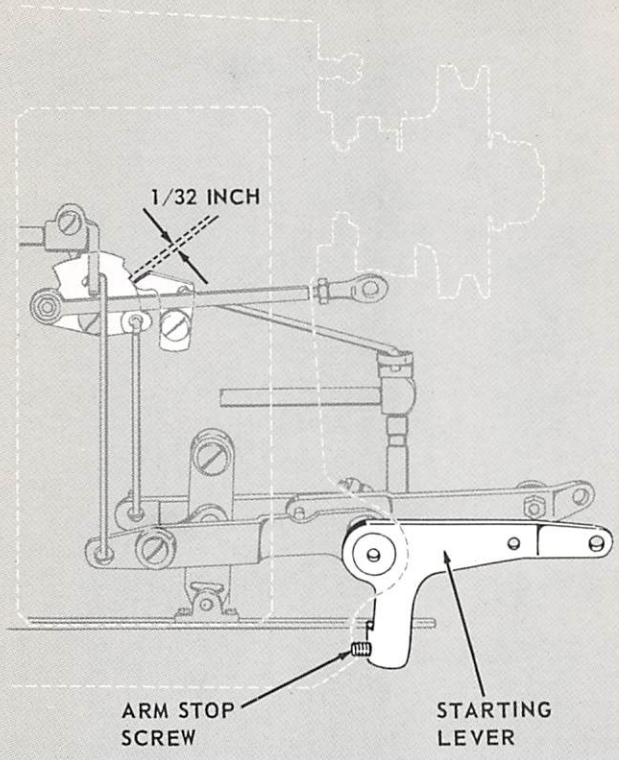


Fig. 14. Adjusting the Arm Stop

STARTING LEVER ARM STOP

CHECK:

Starting lever arm stop, Fig. 14, should limit downward movement of starting lever so that bell crank has 1/32 inch clearance past "run" notch when starting lever is depressed.

SETTING:

Remove "V" belt and turn stop screw to limit downward movement of starting lever arm as required.

Replace "V" belt and check adjustment.

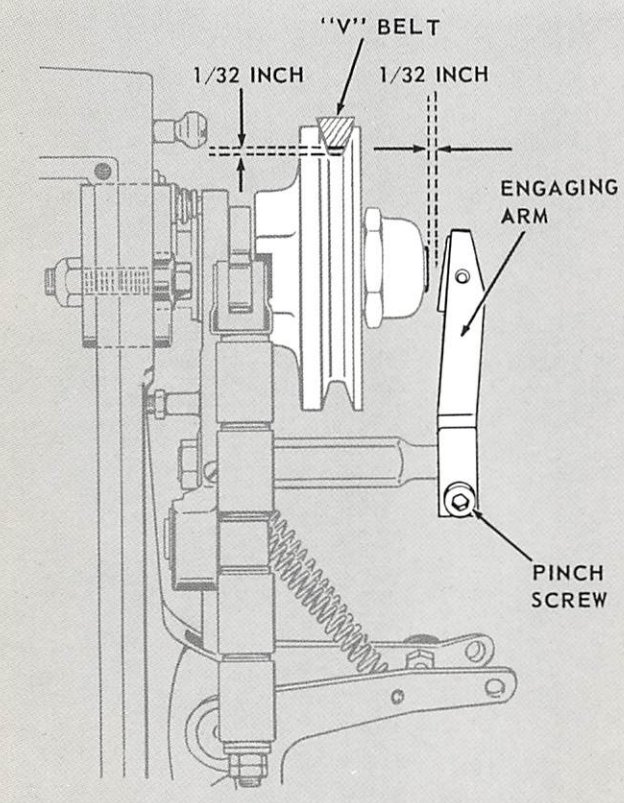


Fig. 15. Setting the Engaging Arm

ENGAGING ARM

CHECK:

Engaging arm should be adjusted so the "V" belt drops approximately 1/32 inch when machine moves from "run" position to "stop" position (See Fig. 15).

SETTING:

Loosen pinch screw, Fig. 15, and position engaging arm closer to or farther from starting cap as shown.

Tighten pinch screw securely and check adjustment.

NOTE: Check **TENSION** on **"V" BELT.** Excessive tightness will not improve performance of machine but **MAY CAUSE DAMAGE** or excessive wear to machine parts.

Tension on "V" belt may be varied by raising or lowering motor, but adjustment should be made in connection with engaging arm adjustment described above.

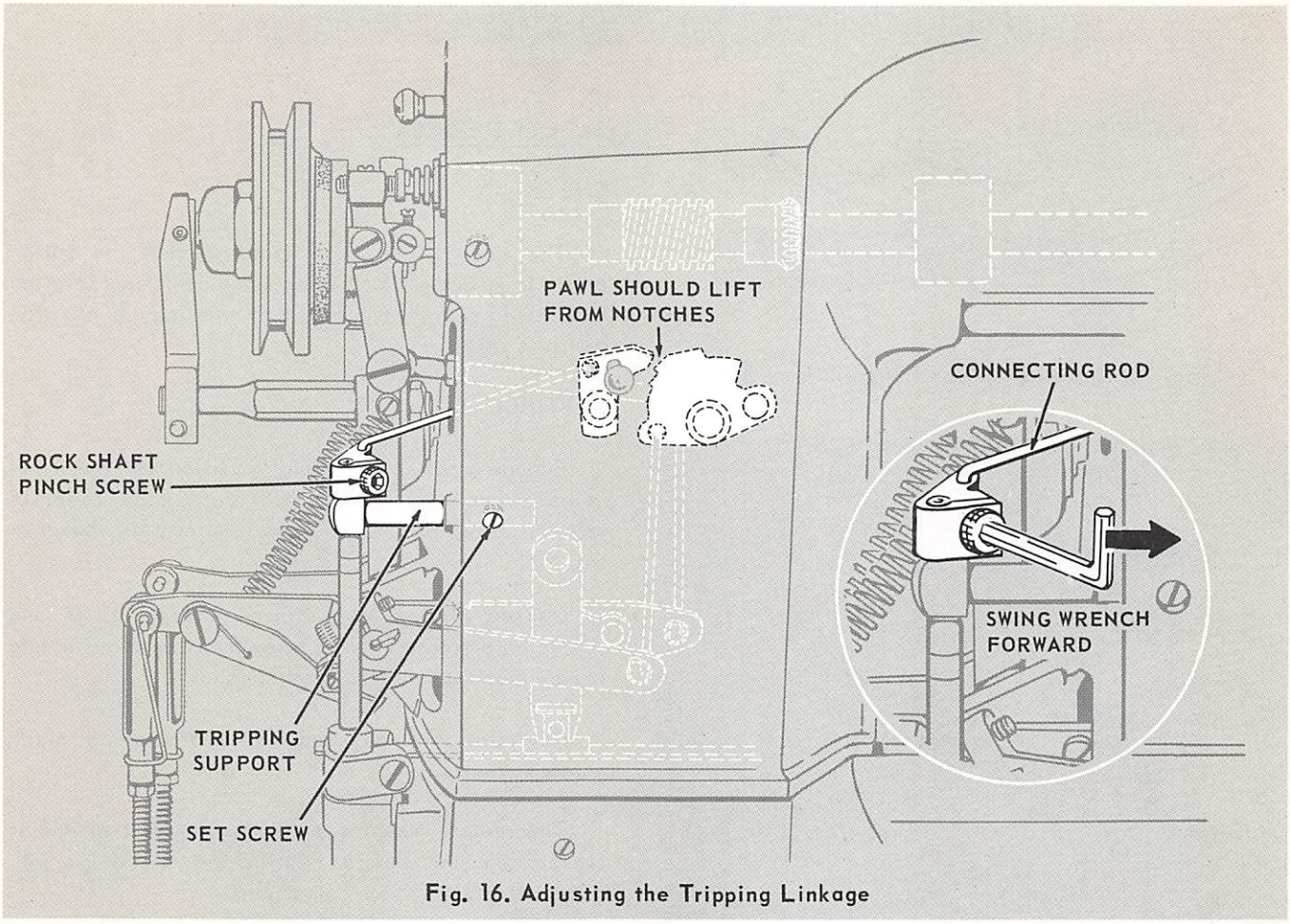


Fig. 16. Adjusting the Tripping Linkage

TRIPPING LINKAGE

CHECK:

Tripping rock shaft support, Fig. 16, should be positioned to hold rock shaft without binding.

SETTING:

Loosen set screw shown in Fig. 16 and position support as required.

Tighten set screw and check for binding.

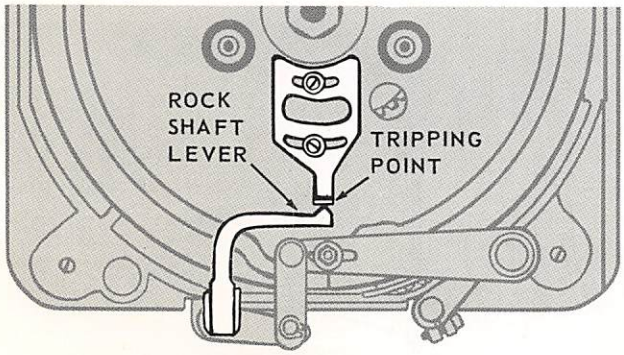


Fig. 17. Lever resting on Tripping Point

CHECK:

Turn machine pulley over toward operator until rock shaft lever rests on tripping point as shown in Fig. 17.

At this position, bell crank pawl should lift out of notches in bell crank far enough for machine to move into "stop" when actuated by tripping point on feed cam as shown in Fig. 17.

SETTING:

With rock shaft lever resting on tripping point, loosen rock shaft pinch screw with socket wrench as shown in Fig. 16.

Using socket wrench as a lever, in pinch screw, swing wrench forward (toward face plate) to remove play in connecting rod and **ALSO** to raise point of bell crank pawl approximately .020 inch above top of "coast" notch in bell crank as shown in Fig. 16.

Securely tighten pinch screw and check adjustment.

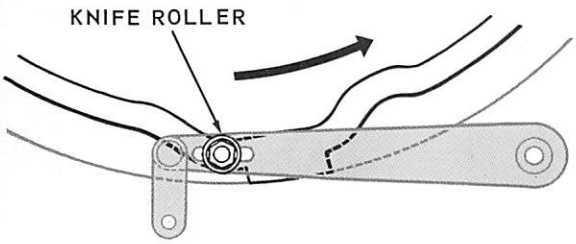


Fig. 18. Knife Roller positioned in Cam Path

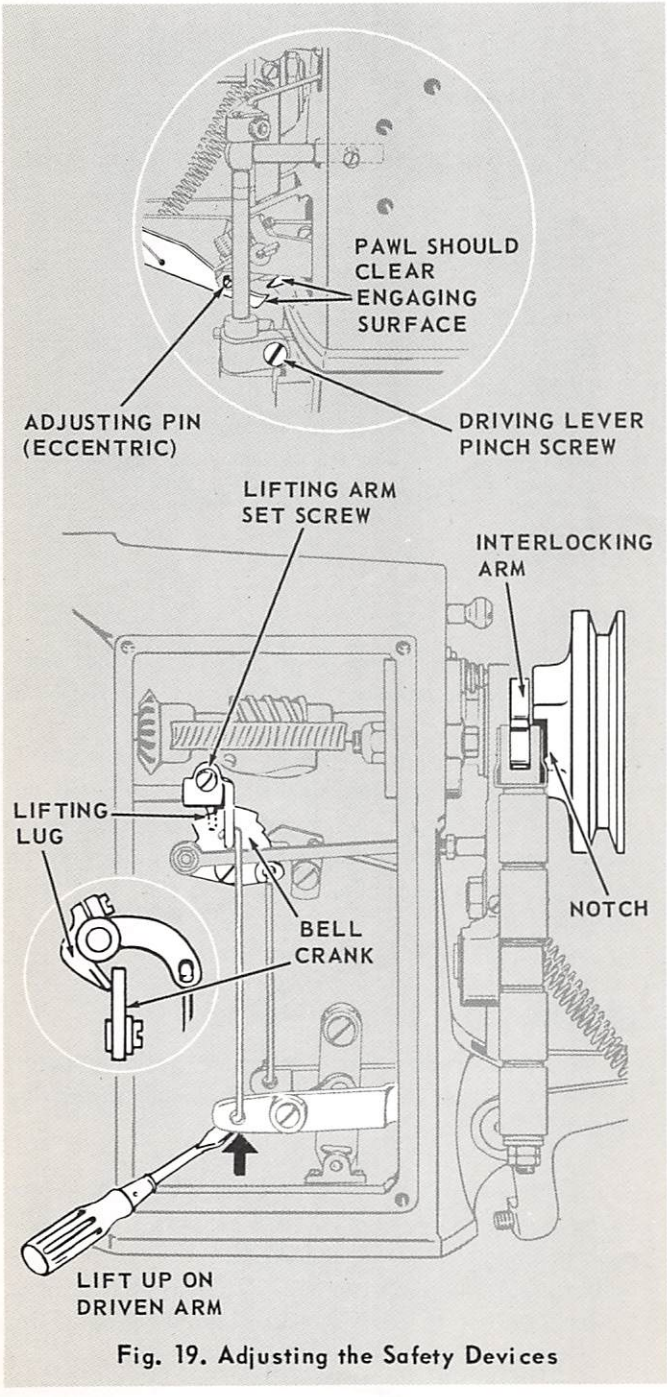


Fig. 19. Adjusting the Safety Devices

SAFETY DEVICES

CHECK:

The safety interlock should prevent the button clamp from being lifted when machine is in operation and should prevent machine from starting when button clamp is raised.

SETTING:

Engage machine in "run" position and turn machine pulley over toward right until knife roller is at extreme outward position on feed cam as shown in Fig. 18.

Loosen driving lever pinch screw, Fig. 19 and lift up on driven arm with screwdriver to bring lifting lug against back of bell crank as shown.

Maintain this position while tightening pinch screw securely.

Then rotate machine pulley again until the point is reached just before interlocking arm drops into notch on pulley ("stop" position).

Set adjusting pin (eccentric), while depressing clamp lifting lever arm, so that pawl on lifting arm does not engage driven arm and slides by as shown in inset, Fig. 19.

Then rotate machine pulley to bring machine into "stop" position and adjust the clamp lifter stop shown in Fig. 20 by means of adjusting nuts. The stop should be set to limit extreme downward movement of lever arm and thereby avoid binding of starting lever rock shaft when clamp lifter is activated before machines goes into "stop" position.

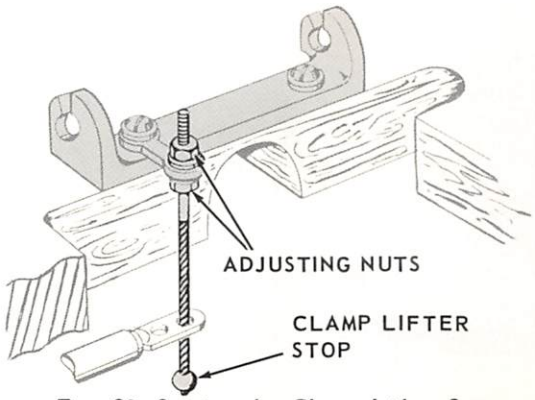


Fig. 20. Setting the Clamp Lifter Stop

TENSION RELEASER

CHECK:

When button clamp is raised, the first upward movement of the lifting bar, Fig. 21, should separate the tension discs and release tension on needle thread.

SETTING:

To adjust the tension release, first loosen the set screw in casting below tension regulator, Fig. 21, and move entire regulator all the way in. Tighten set screw.

Then loosen the screw in lifting link connection and set lifting link so that it projects approximately 1/32 inch as shown. Tighten screw.

Next, loosen the pinch screw in lifting arm (see inset) and push up on lifting bar until tension discs just begin to release. Maintain this position while tightening pinch screw. **MAKE CERTAIN** that lifting arm is against shoulder on rock shaft.

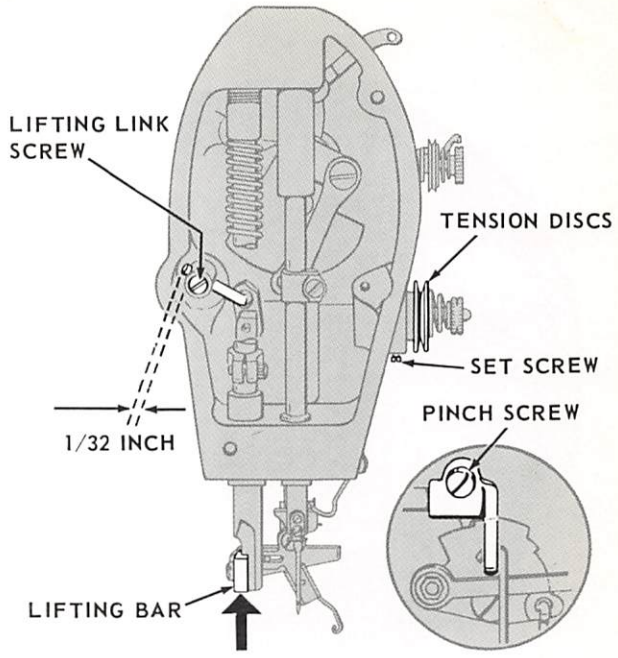


Fig. 21. Adjusting the Tension Releaser

BUTTON CLAMP FOOT LIFTER

SETTING:

Loosen lifting bar clamp screw, Fig. 22, and position foot lifter approximately 1/8 inch below arm hook as shown. Then tighten clamp screw.

THREAD WIPER

SETTING:

Loosen wiper support screw, Fig. 22, and position wiper support so that slot in body finger is horizontal. Tighten wiper support screw.

Position wiper wire to clear needle by approximately 1/16 inch.

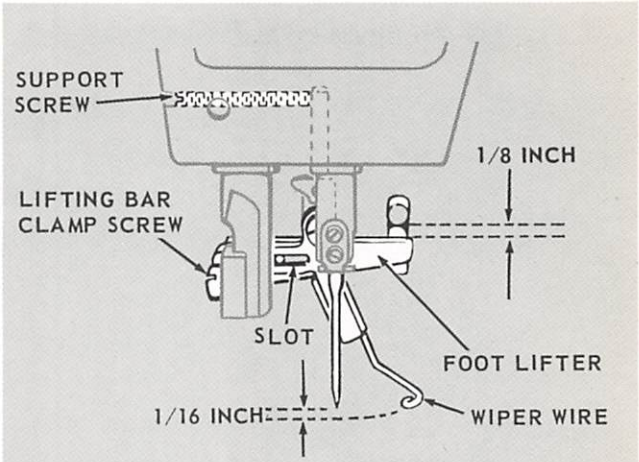


Fig. 22. Adjusting the Foot Lifter

THREAD PULL-OFF LOOP

CHECK:

The pull-off loop should draw sufficient thread from the unwinder to complete the stitch pattern. Also, pull-off loop should not "whip" and may be controlled by increasing or decreasing tension on spring.

SETTING:

Loosen the four bracket set screws shown in Fig. 23 and position the pull-off loop as close as possible to machine arm without touching. Tighten bracket set screws. Then loosen collar set screw and move collar to increase or decrease tension as required. Tighten collar set screw.

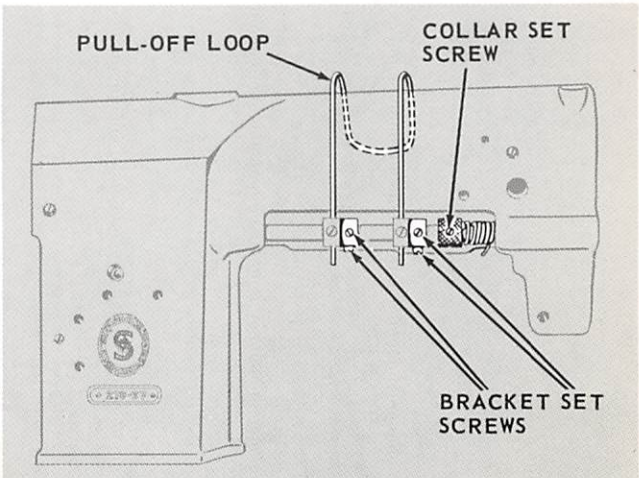


Fig. 23. Setting the Pull-off Loop

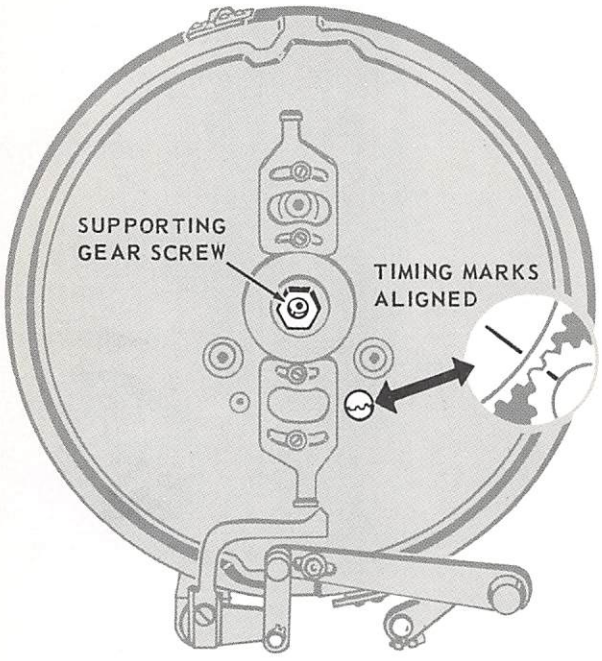


Fig. 24. Alignment of Timing Marks

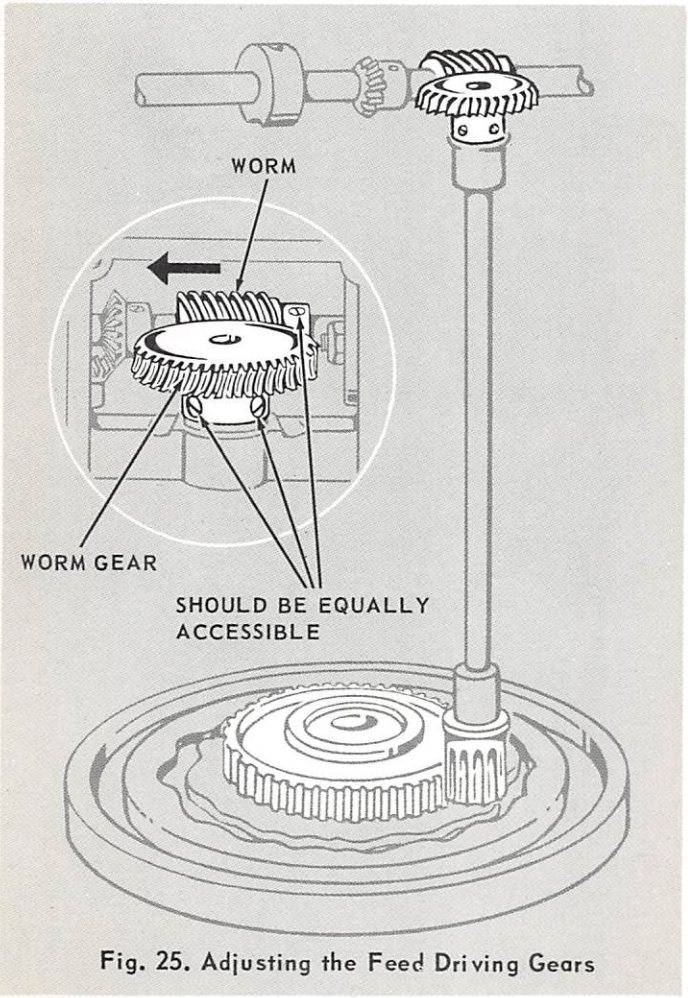


Fig. 25. Adjusting the Feed Driving Gears

FEED DRIVING GEARS

CHECK:

Cam supporting gear and vertical shaft pinion gear are positioned at factory so that timing marks shown in Fig. 24 will be aligned when machine is in "stop" position.

SETTING:

Remove excessive play between worm gear and worm by loosening two screws in worm (see inset Fig. 25) and moving worm forward on shaft.

When the worm gear is properly assembled on vertical shaft, the spot and set screws shown should be equally accessible through side opening in arm casting.

Insure minimum play between vertical shaft pinion gear and cam supporting gear by loosening socket head screw inside supporting gear screw as shown in Fig. 24.

By means of "hex" head on supporting gear screw, turn the bracket (which is eccentric) until only minimum amount of play exists between gears. Then tighten socket head screw inside supporting gear screw.

FEED LINKAGES

NOTE: Adjust lateral and longitudinal feed linkages when changing from two or from four hole buttons or when changing the hole spacing in the button.

LATERAL FEED LINKAGE

CHECK:

Lateral feed linkage should be adjusted so that feed plate moves the same distance on one side of needle hole in throat plate as it moves on the other side. Then, lateral feed linkage should be adjusted to increase or decrease the distance feed plate moves on both sides of needle hole.

NOTE: Hole in feed plate does not necessarily have to be centralized to obtain the above setting.

SETTING 1: (To obtain equal distance)

Remove cylinder arm cover and vertical arm cover (See Fig. 27).

Insert button to be sewn into clamp, engage machine into "run" position and rotate machine pulley until needle is just above button (See Fig. 26).

Loosen clamp screws A and B, Fig. 27, and move feed plate so that button is centered laterally (across cylinder) as shown in inset Fig. 27.

At this position, lateral rock shaft driving arm and driven arm should be parallel as shown in inset, Fig. 27. If necessary, move linkage as required to obtain this position. Then securely tighten screw A.

Next, obtain correct position of needle in relation to holes in button by turning machine pulley and moving feed plate to bring needle into right rear hole of button. Then tighten screw B.

SETTING 2: (To increase or decrease distance)

Loosen lateral driving arm stud nut as shown in inset, Fig. 27.

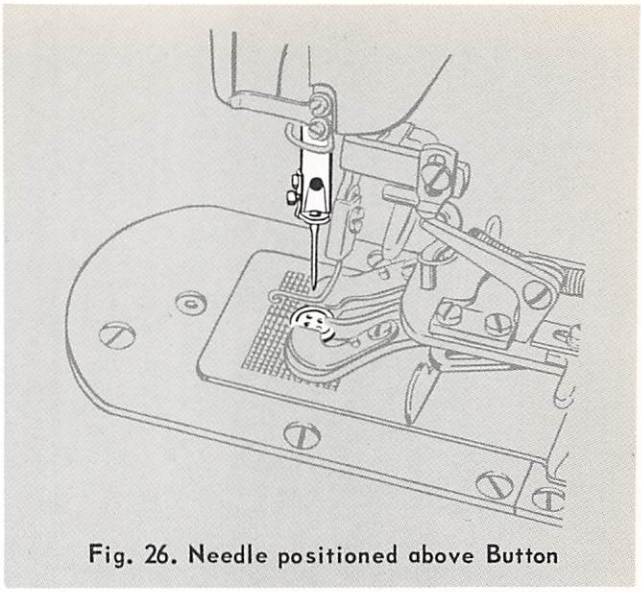


Fig. 26. Needle positioned above Button

When sewing two hole buttons, move stud toward rear of machine allowing feed bar positioner to register over lateral rock shaft.

When sewing four hole buttons or changing the hole spacing, move stud toward front of machine as required to obtain the desired distance between holes.

When adjustment is obtained, securely tighten stud nut, replace arm cover and adjust longitudinal setting.

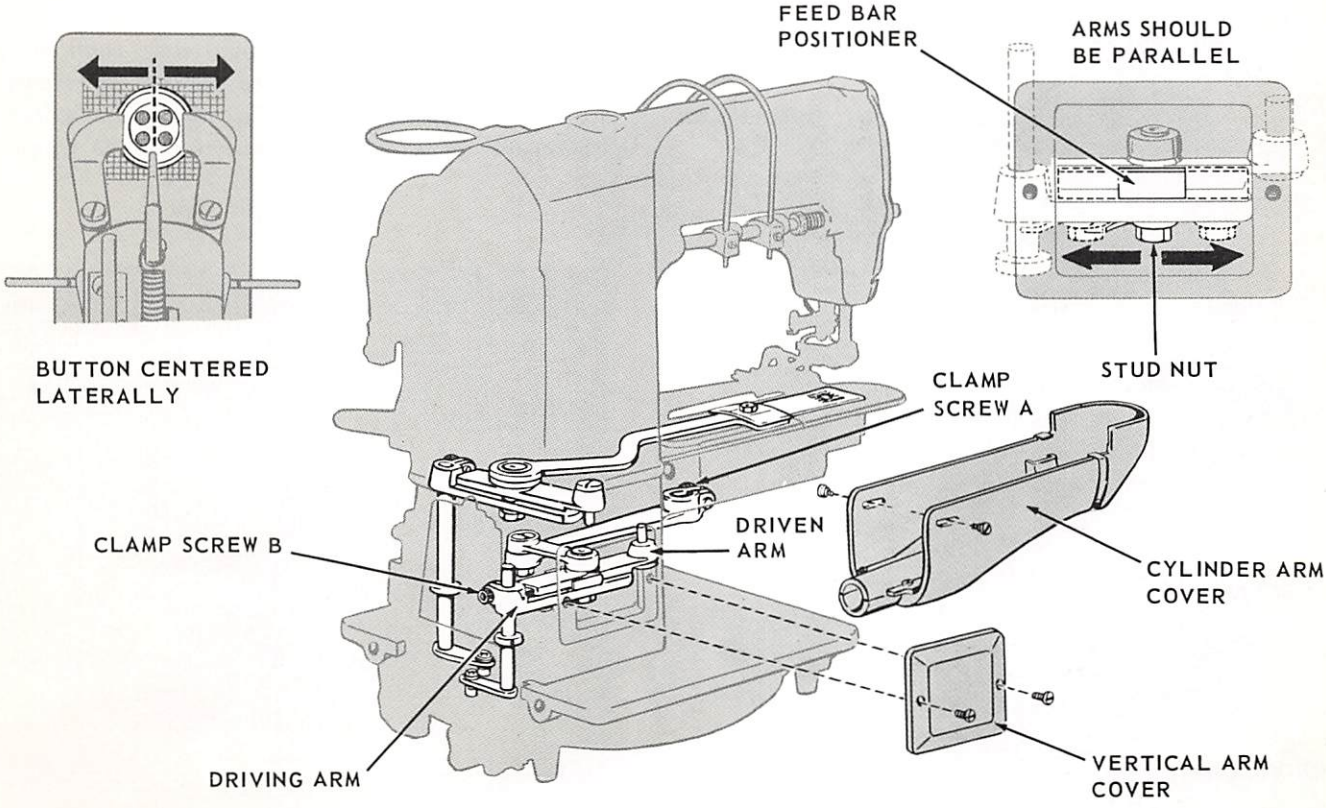


Fig. 27. Adjusting Lateral Feed Linkage

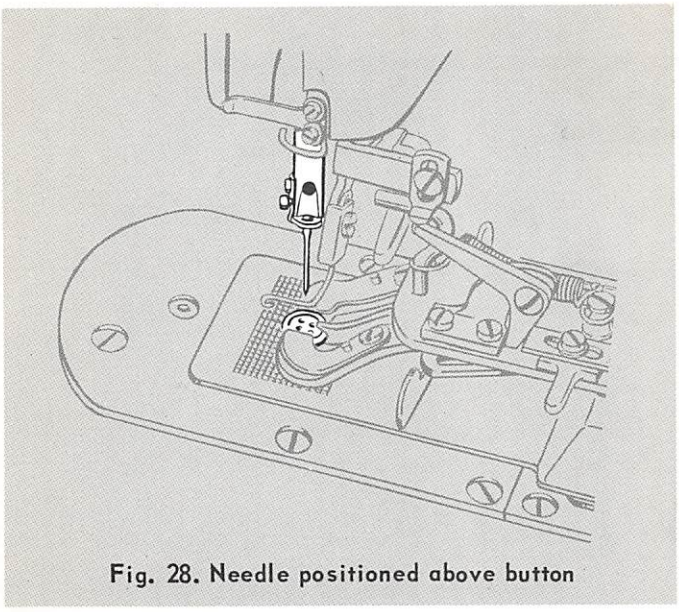
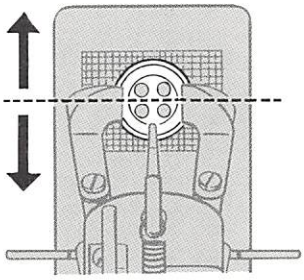


Fig. 28. Needle positioned above button



BUTTON CENTERED LONGITUDINALLY

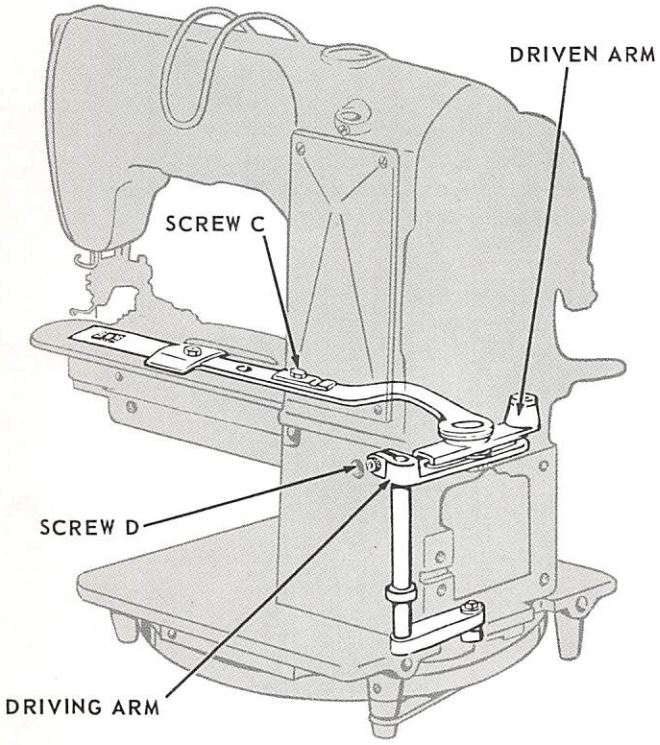


Fig. 29. Adjusting Longitudinal Feed Linkage

LONGITUDINAL FEED LINKAGE

CHECK:

Longitudinal feed linkage should be adjusted so that feed plate moves the same distance forward from needle hole in throat plate as it moves backward. Then, longitudinal feed linkage should be adjusted to increase or decrease the distance feed plate moves forward and backward.

LONGITUDINAL FEED LINKAGE

SETTING 1: (To obtain equal distance)

Insert button to be sewn into clamp, engage machine into "run" position and rotate machine pulley until needle is just above button (see Fig. 28).

Loosen screws C and D shown in Fig. 29 and move feed plate so that button is centered longitudinally (along the bed) under the needle as shown.

At this position, longitudinal rock shaft driving arm and driven arm should be parallel as shown in Fig. 30. If necessary, move linkage as required to obtain this position. Then securely tighten screw C.

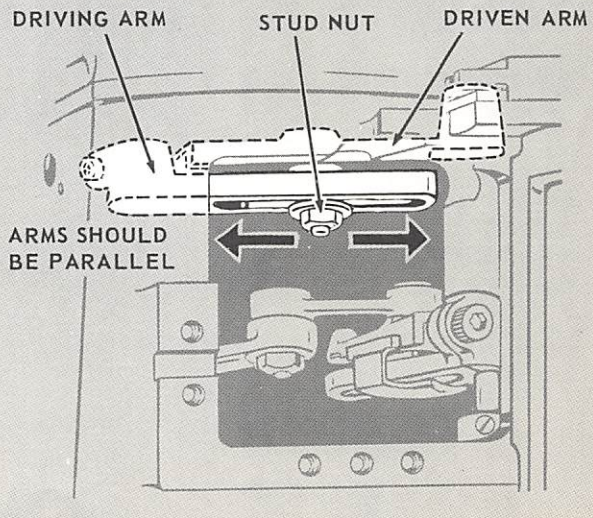


Fig. 30. Driving Arm parallel with Driven Arm

Next, obtain correct position of needle in relation to holes in button by turning machine pulley and moving feed plate to bring needle into right rear hole of button. Then tighten screw D.

SETTING 2: (To increase or decrease distance)

Loosen longitudinal driving arm stud nut shown in Fig. 30.

Move stud toward left or right as required to obtain the desired distance between holes in button.

When adjustment is obtained, securely tighten stud nut.

TIMING THE FEED

NOTE: Longitudinal feed timing should be set before making any lateral timing adjustment.

CHECK:

Feed bar shown in Fig. 31 should be stopped before needle enters the button and should not begin to move until the needle leaves the button.

LONGITUDINAL SETTING:

Longitudinal feed movement is timed by loosening the three cam mounting screws shown in Fig. 32 and rotating the cam toward left (as viewed from the bottom of machine) to speed up the longitudinal feed in relation to needle movement, or toward right to slow down the feed in relation to needle movement.

When adjustment is correctly set, securely tighten three cam mounting screws.

LATERAL SETTING:

Lateral feed movement is timed by loosening the stud nut on lateral rock shaft roller shown in Fig. 33 and moving roller to the left (as viewed from top) to slow down the lateral feed in relation to needle movement or toward right to speed up the feed in relation to needle movement.

When adjustment is correctly set, securely tighten stud nut.

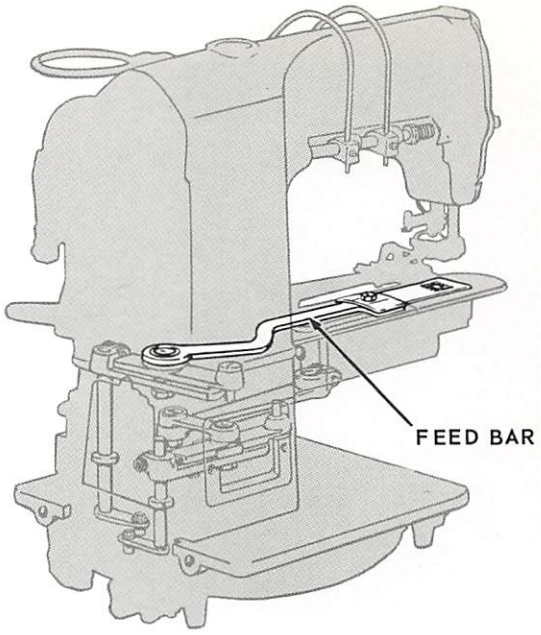


Fig. 31. Lateral and Longitudinal Feed Linkage

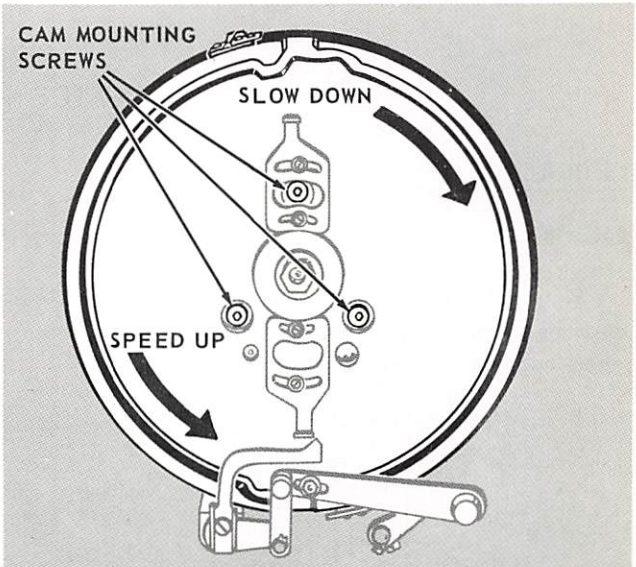


Fig. 32. Timing Longitudinal Feed

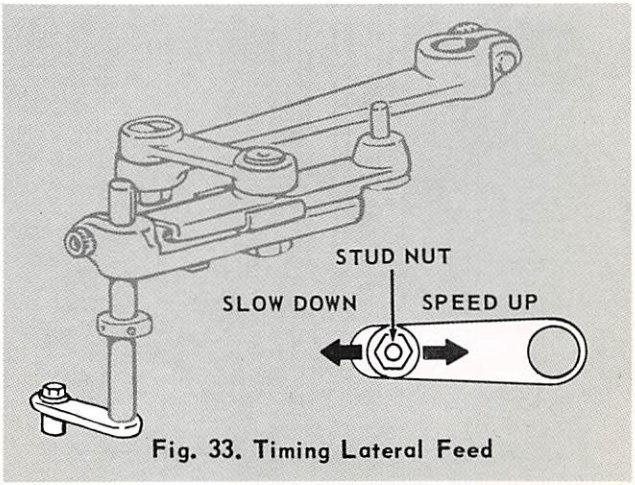


Fig. 33. Timing Lateral Feed

STOP MOTION TRIPPING POINTS

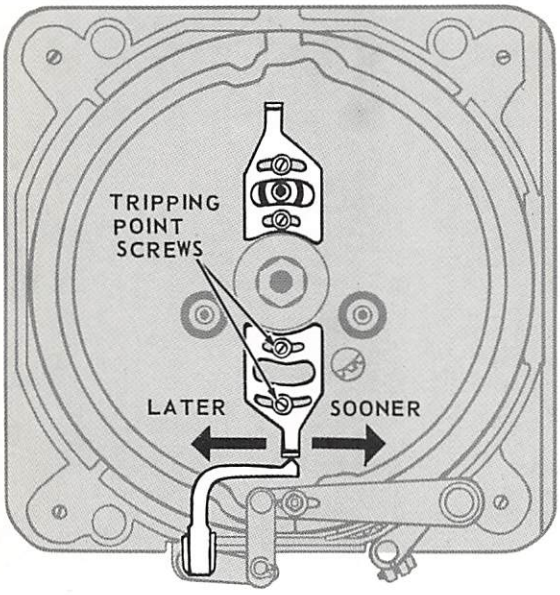


Fig. 34. Adjusting the Tripping Points

TIMING

CHECK:

Tripping points on underside of cam should be set so that interlocking arm drops back on to camming surface of machine pulley (tight) as soon as notch, on machine pulley, passes interlocking arm.

SETTING:

With machine tilted back on its hinges, loosen the two tripping point screws shown in Fig. 34 and move tripping point to the right to set trip off sooner or left to set trip off later. Securely tighten tripping point screws.

STOP MOTION BRAKE

CLEARANCE

CHECK:

There should be approximately 1/32 inch clearance between brake shoe and machine pulley (tight) when machine is in run position (See Fig. 35).

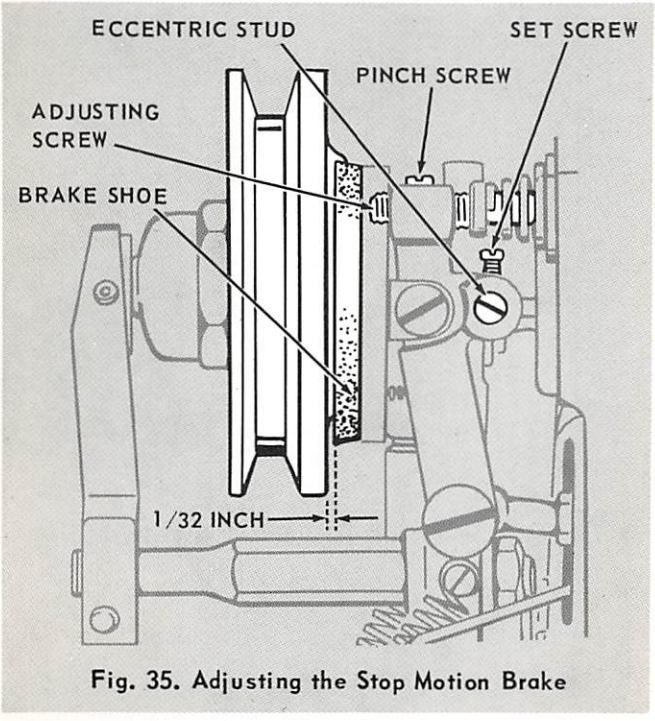


Fig. 35. Adjusting the Stop Motion Brake

SETTING:

Engage machine in run position and loosen the set screw shown in Fig. 35.

Turn eccentric stud until brake shoe clears machine pulley by approximately 1/32 inch. Then tighten set screw.

PRESSURE

CHECK:

Brake pressure should be regulated to prevent machine from going into "stop" too hard to avoid damage to machine parts.

When checking brake pressure, machine speed and thickness of material to be sewn have a definite relation to the amount of pressure required.

SETTING:

Loosen pinch screw shown in Fig. 35 and turn adjusting screw inward for more pressure or outward for less pressure. Then tighten pinch screw securely.

NOTE: Check stop motion brake adjustment about once a month. Loss of braking power due to wear or glazing of braking surfaces may be compensated for by re-adjusting for correct clearance and pressure.

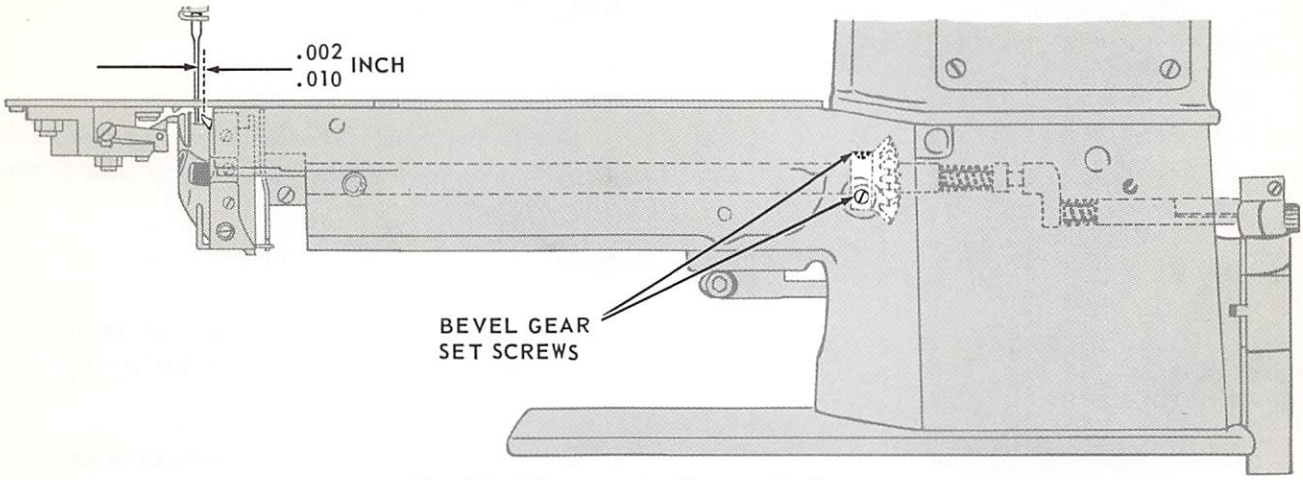


Fig. 36. Adjusting the Sewing Mechanism

LONGITUDINAL POSITION OF HOOK

CHECK:

With hook body firmly seated against front bushing, and hook point at center of needle, the distance between hook point and needle should be from .002 to .010 inch (See Fig. 36).

SETTING:

Loosen two bevel gear set screws and front bushing set screw as shown in Figs. 36 and 37.

With hook body seated against front bushing, turn adjusting pin as required to obtain .002 to .010 inch clearance. Securely tighten front bushing set screw.

Maintain relationship of hook point with center of needle and tighten two bevel gear set screws.

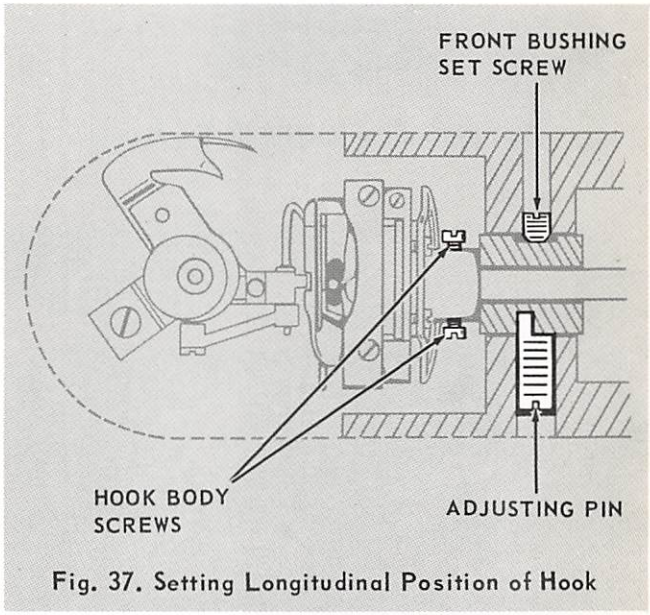


Fig. 37. Setting Longitudinal Position of Hook

HOOK TIMING (Radial Position)

CHECK:

Loop taking occurs when needle bar has risen .100 inch from bottom dead center position. At this position, hook point should be at centerline of needle as shown in Fig. 38.

NOTE: A gauge for positioning needle .100 inch from bottom dead center position is available upon specific request at additional charge.

SETTING:

Loosen two hook body screws shown in Fig. 37. With needle set for .100 inch above bottom dead center, move hook body as required to position point of hook at centerline of needle. Securely tighten two hook body screws.

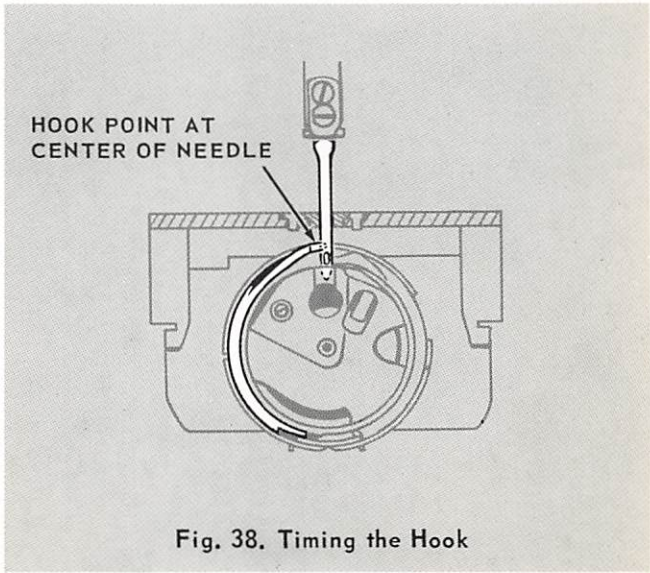


Fig. 38. Timing the Hook

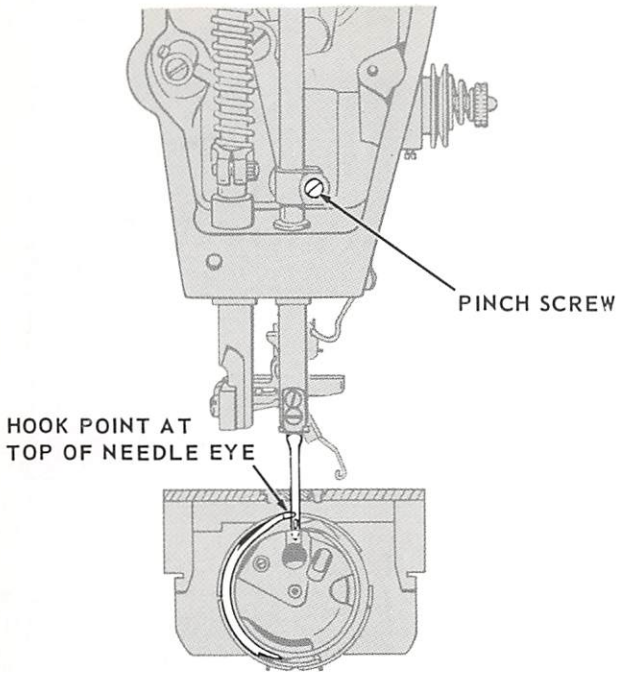


Fig. 39. Setting the Needle Bar Height

NEEDLE BAR HEIGHT

CHECK:

Needle bar height should be set so that hook point is at top of needle eye at loop taking (see Fig. 39).

SETTING:

With point of hook at centerline of needle, remove face plate and loosen needle bar pinch screw shown in Fig. 39.

Raise or lower needle bar as required to position hook point at top of needle eye. Securely tighten needle bar pinch screw and replace face plate.

NOTE: A gauge for setting needle bar height is available upon specific request at additional charge.

REEL WINDING ADJUSTMENTS

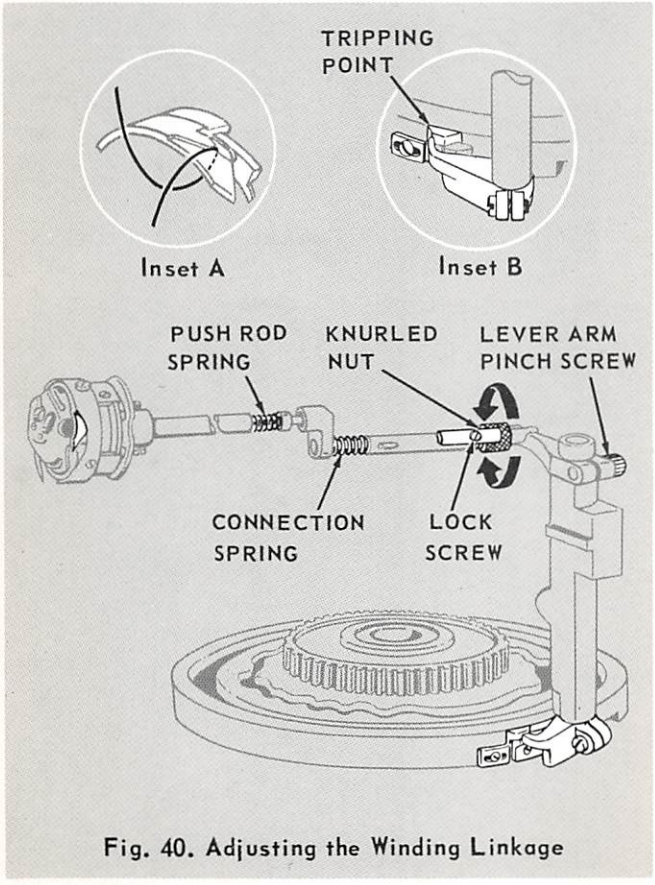


Fig. 40. Adjusting the Winding Linkage

WINDING LINKAGE

CHECK:

Reel winding linkage should be set to clamp the needle thread in throat of hook body as shown in inset A, Fig. 40.

SETTING:

Remove cylinder arm cover and turn machine pulley until tripping lever rests on tripping point as shown in inset B, Fig. 40. Then loosen lever arm pinch screw and lock screw on knurled nut as shown. Make certain that tripping lever remains **IN CONTACT** with tripping point on feed cam.

Back off on knurled nut one full turn from fully engaged position and compress push rod spring by pushing in on lever arm until heavier bias of connection spring is felt. Hold this position while tightening lever arm pinch screw.

Adjust for **POSITIVE CLAMPING ACTION** of restricting spring by turning knurled nut as required. Then tighten lock screw on knurled nut and replace cylinder arm cover.

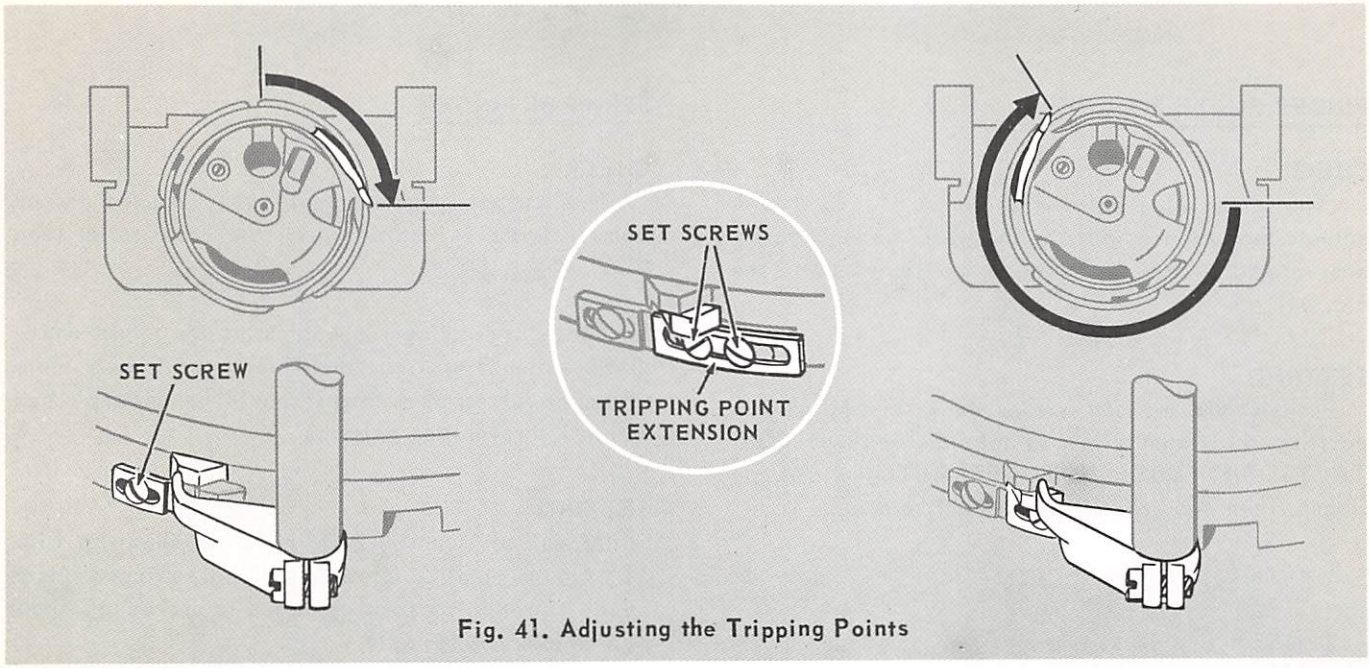


Fig. 41. Adjusting the Tripping Points

REEL DRIVER TRIPPING POINTS

CHECK:

Tripping point on outside edge of feed cam, Fig. 41, should be set to engage the reel winding linkage when the hook point has rotated approximately 1/4 revolution past loop taking (3 to 4 o'clock).

Tripping point extension also shown in Fig. 41 controls the duration of time in which the reel is wound and consequently the amount of thread that is wound on the reel.

The adjustment of the tripping point extension varies with the type of operation performed but may be generally set to release the winding mechanism when the hook has rotated slightly less than one full revolution from loop taking (11 to 12 o'clock).

SETTING 1: (Tripping Point)

Loosen set screw shown in Fig. 41 and position tripping point to engage the winding mechanism when the hook point has rotated approximately 1/4 revolution past loop taking. Securely tighten set screw.

SETTING 2: (Tripping Point Extension)

Loosen two set screws in tripping point extension and move extension to obtain the desired amount of wind. Securely tighten two set screws and adjust pre-tension.

NOTE: For cams having two sets of tripping points, repeat proceedure for other set.

PRE-TENSION

CHECK:

Pre-tension device shown in Fig. 42 aids in controlling the amount of thread that is wound onto the reel.

SETTING:

Turn thumb nut as required produce a slight drag on needle thread.

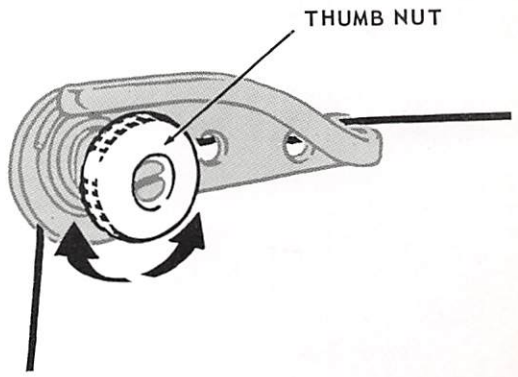


Fig. 42. Adjusting the Pre-Tension

FINGER PLATE FOLLOWER

CHECK:

The finger plate follower shown in Fig. 43 should actuate the stripper finger spring when the knife roller has rotated in the cam path to position shown (see Fig. 44).

SETTING:

Loosen the two set screws shown in Fig. 43 and position the finger plate so that the follower **CONTACTS BUT DOES NOT DEFLECT** the stripper finger. Then securely tighten two set screws.

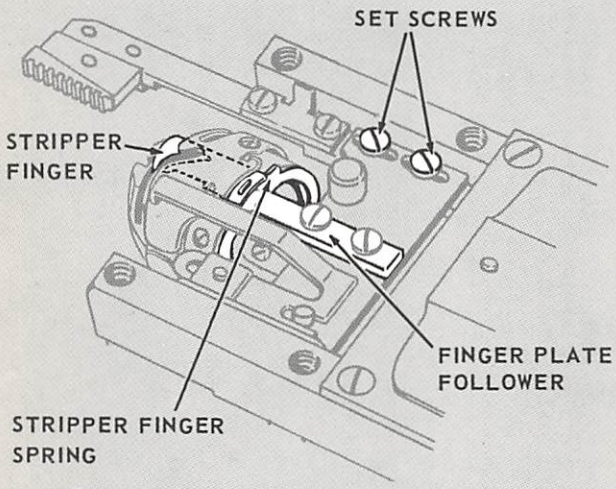


Fig. 43. Setting the Finger Plate Follower

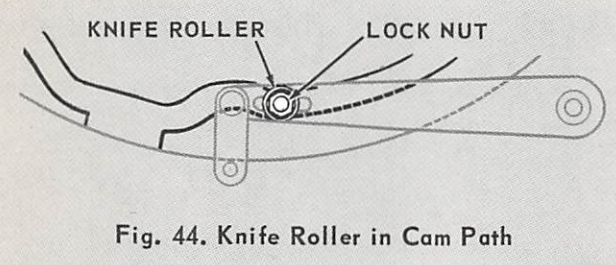


Fig. 44. Knife Roller in Cam Path

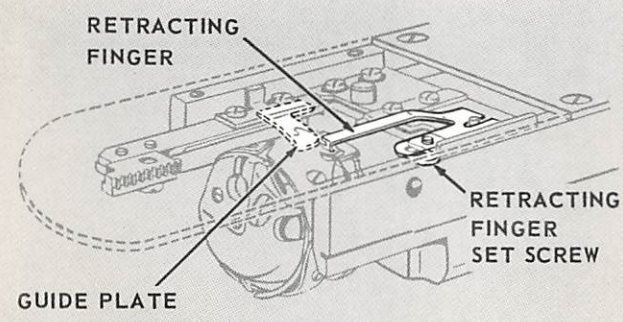


Fig. 45. Setting the Retracting Finger

STRIPPER FINGER

CHECK:

The stripper finger should strip unused thread from reel and is controlled by the knife roller (see Figs. 43 and 44).

The stripper finger should start its return immediately after it picks up reel thread and the complete retraction of stripper finger should be accomplished within 1/8 revolution of hook.

SETTING:

Loosen lock nut on knife roller as shown in Fig. 44. Adjust position of stud so that stripper finger starts its return as soon as thread is picked up. Then tighten lock nut securely.

NOTE: Check movement to make sure that stripper finger does not interfere with needle thread on previous stitch. Stripper finger should extend far enough to pick up reel thread but not so far as to pick up needle thread.

RETRACTING FINGER

CHECK:

The retracting finger shown in Fig. 45 should be in line with edge of guide plate (on underside of throat plate) and should pick up reel thread as stripper finger carries it by.

SETTING:

Loosen retracting finger set screw shown in Fig. 45 and move the retracting finger as required to pick up reel thread. Securely tighten set screw.

TENSION RELEASE

CHECK:

The needle thread tension release (adjusted earlier) may have altered during subsequent adjustments in its relation to other movements of machine. Check tension release to make sure that proper adjustment has been retained.

Tension release should occur as thread clamping action begins.

REEL HOLDER POSITION STOP

CHECK

Reel holder position stop, Fig. 46, should be set to maintain position of reel holder while allowing sufficient clearance (approximately .020 inch) for thread to pass between stop and slot of reel holder.

SETTING:

Loosen bracket screw shown in Fig. 47 and position stop as required. Then tighten bracket screw securely.

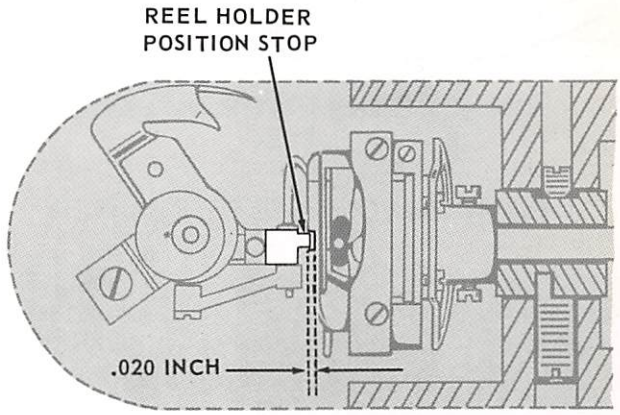


Fig. 46. Setting the Position Stop

TRIMMING KNIVES

CHECK:

The trimming knives are of scissor type design and are fully adjustable to allow for resharpening.

NOTE: Sequence of adjustment should be followed in the order given.

SETTING 1: (Adjusting Knives)

Remove throat plate from machine.

Loosen knife holder screw and set movable knife so that thread separating point, Fig. 47, easily passes through triangle formed by thread on last stitch, as thread is cast over loop pick up finger. Securely tighten knife holder screw.

Loosen two screws in adjusting plate and set adjustable knife so that cutting edge does not pass center of needle hole bushing in throat plate when knife holder is rotated. Tighten two screws.

Assemble throat plate to machine meshing knife holder pinion gear with knife rack as shown in Fig. 48. The first tooth on knife rack must mesh with first space between teeth on pinion gear.

Eliminate play between rack teeth and pinion teeth by loosening adjusting block screw shown in Fig. 48 and moving block toward front of machine. When play has been removed, tighten adjusting block screw.

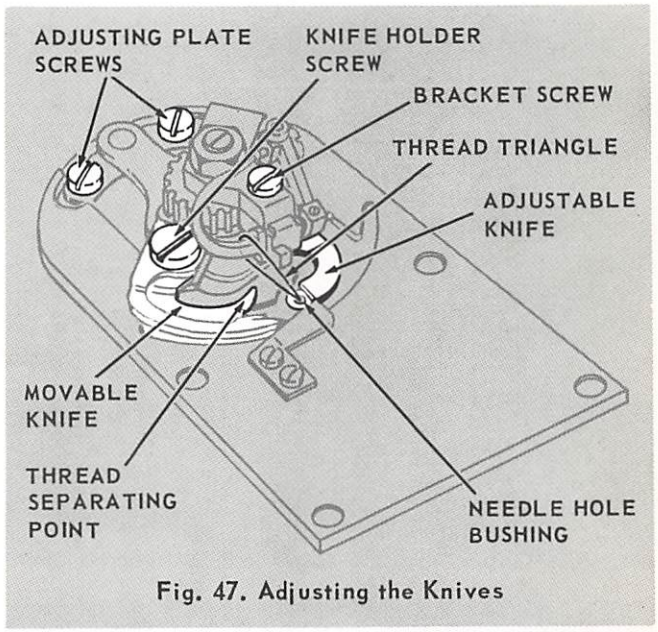


Fig. 47. Adjusting the Knives

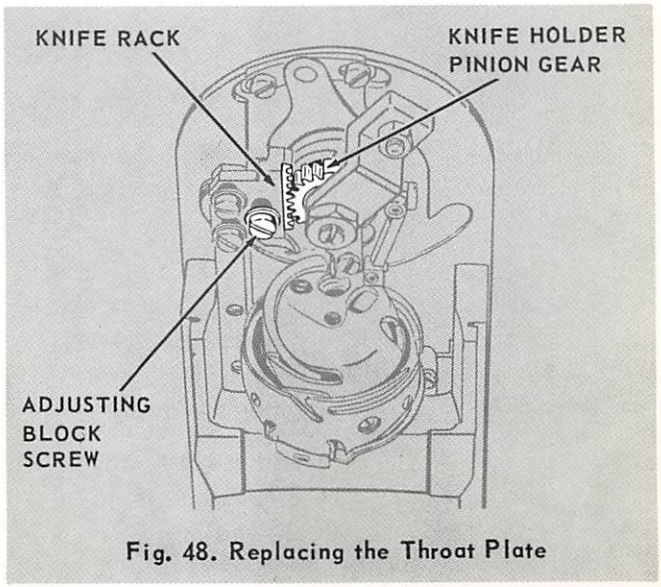


Fig. 48. Replacing the Throat Plate

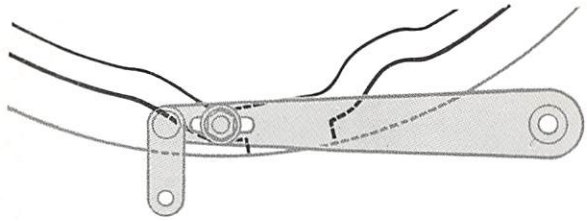


Fig. 49. Feed Cam at Winding Position

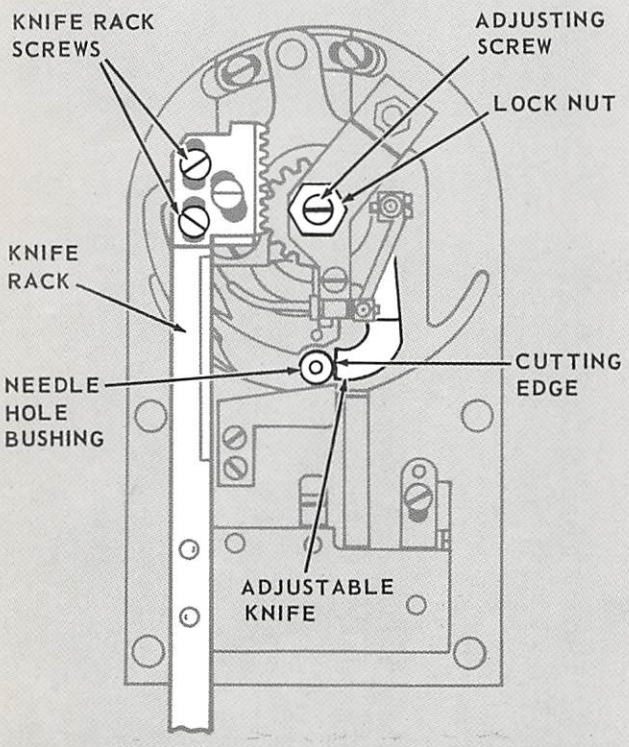


Fig. 50. Timing the Knives

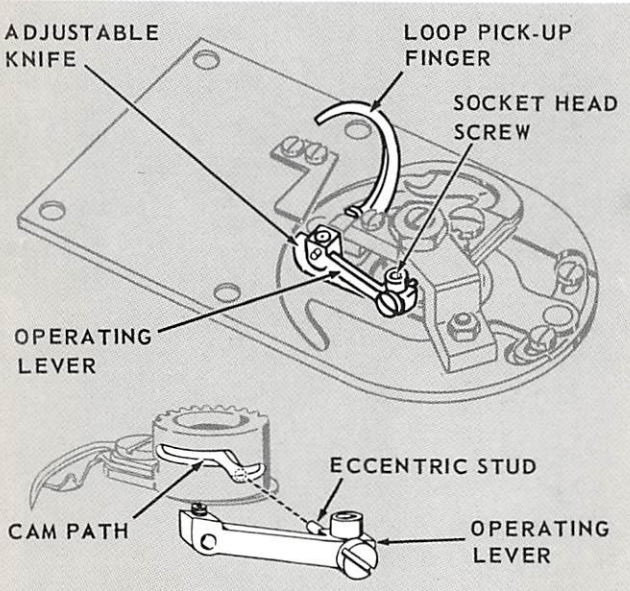


Fig. 51. Positioning the Operating Lever

SETTING 2: (Timing the Knives)

Engage machine in "run" position and turn ma- pulley over toward right until feed cam reaches reel winding position as shown in Fig. 49.

Loosen two knife rack screws, Fig. 50, and move knife rack until cutting edge of adjustable knife is even with edge of needle hole bushing in throat plate. Maintain this position while tightening two knife rack screws.

CAUTION: Make certain that knife does not make contact or damage thread during reel winding portion of machine cycle.

SETTING 3: (Knife Pressure)

To adjust pressure of movable knife on adjustable knife, loosen lock nut shown in Fig. 50 and turn adjusting screw clockwise or counter-clockwise as required. When satisfactory cutting pressure has been obtained, tighten lock nut securely.

LOOP PICK-UP FINGER

CHECK:

Motion of loop pick-up finger, Fig. 51, is con- trolled by the movement of the eccentric stud in cam path of knife holder pinion (See inset, Fig. 51).

When the eccentric stud is at the start of transi- tion in cam path, there should be a maximum clear- ance between the pick up finger operating lever and adjustable knife.

SETTING 1: (Positioning the Operating Lever)

Remove throat plate and rotate knife holder until eccentric stud is at start of transition in cam path as shown in inset, Fig. 51.

At this position, operating lever will be at its closest point in relation to adjustable knife and bottom surface of throat plate.

Loosen socket head screw shown in Fig. 51 and rotate eccentric stud to obtain maximum clearance between stud end of lever and adjustable knife. Then securely tighten socket head screw and replace throat plate.

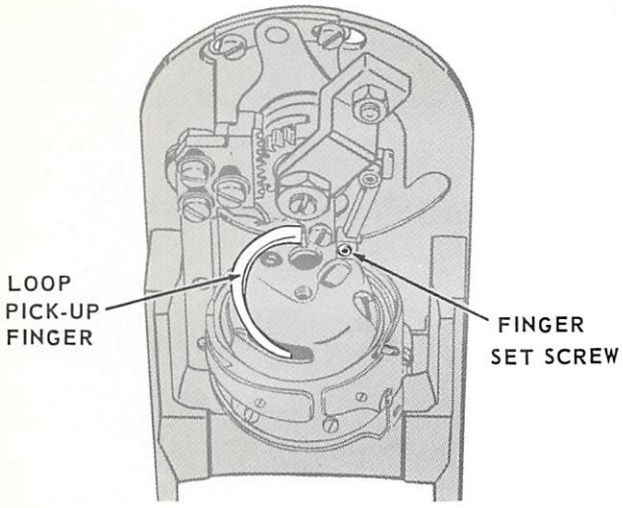


Fig. 52. Positioning the Loop Pick-up Finger

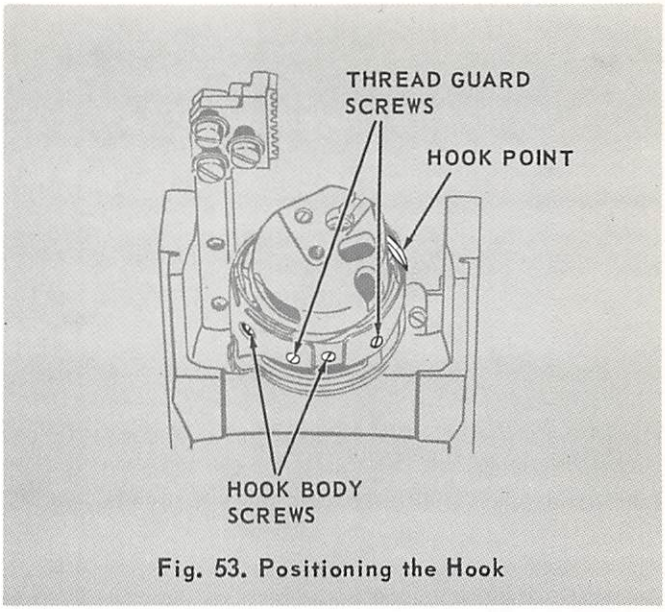


Fig. 53. Positioning the Hook

SETTING 2: (Positioning Loop-up Finger)

With machine in "stop" position, loosen finger set screw shown in Fig. 52 and move loop pick-up finger into reel holder as far as possible without causing a bind. Securely tighten finger set screw.

SEWING REEL

REMOVAL:

Remove arm cylinder cover and button clamp.

Remove throat plate and engage machine in run position.

Turn machine pulley over toward right until hook point moves approximately to position shown in Fig. 53.

Remove two thread guard screws and two hook body screws, Fig. 53.

Slip hook section out from beneath the hook thread guard, making certain that stripper finger does not change its position as shown in Fig. 54.

Lift reel holder upward and out of machine.

Remove large head screw from reel and remove reel from holder as shown in Fig. 55.

CAUTION: Do not lose small circular spring located behind reel.

REPLACEMENT:

Insert reel in holder and fasten securely with large head screw.

Replace reel holder and hook section in reverse order instructed for removal.

Replace throat plate as instructed on page 23.

Replace button clamp and arm cylinder cover.

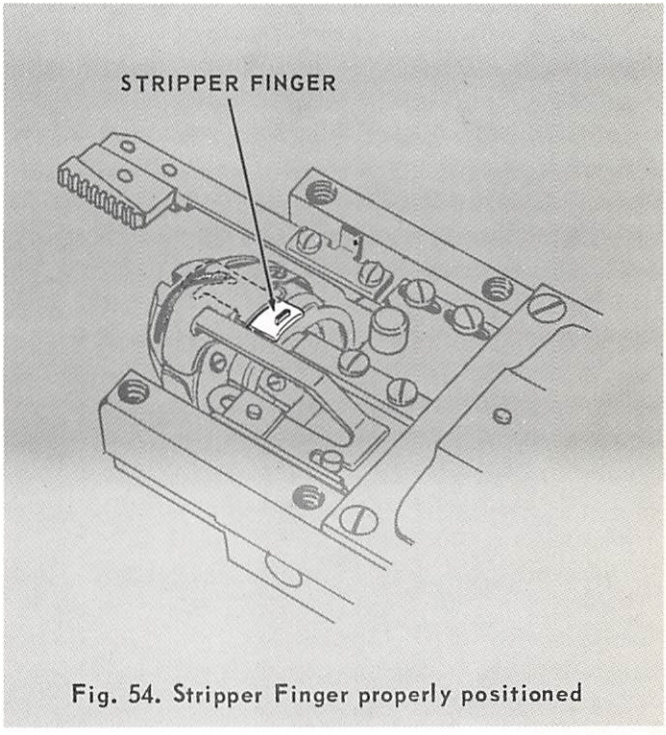


Fig. 54. Stripper Finger properly positioned

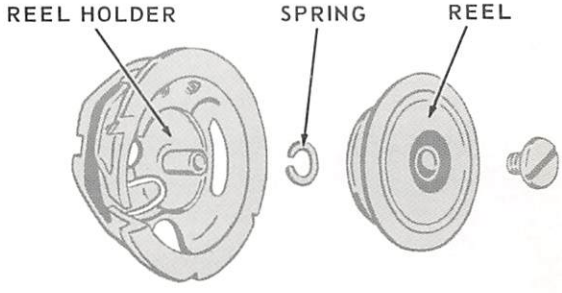


Fig. 55. Reel and Reel Holder