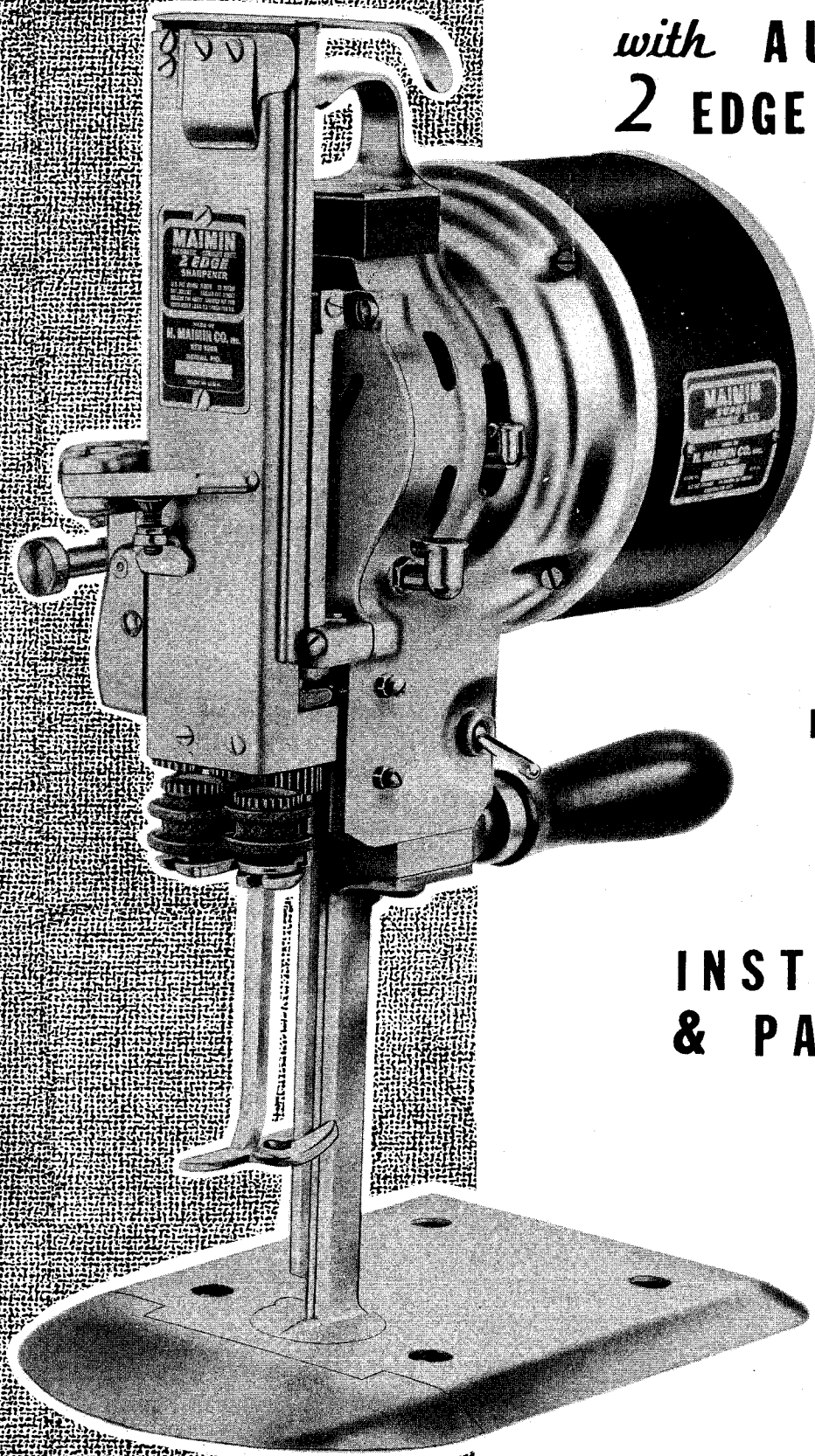


# **MAIMIN**

**STRAIGHT KNIFE MACHINE**  
*with* **AUTOMATIC**  
**2 EDGE SHARPENER**



**MODEL E**

**INSTRUCTIONS  
& PARTS LIST**

Copyright 1960

H. MAIMIN CO. INC.  
575 8th Ave., New York 18, N. Y.

# SECTION I - OPERATION

## A. CUTTING

The material should be spread smoothly and stacked to the maximum practical height in order to receive the full benefit of your Maimin cutting machine. The shapes to be cut should be marked on the top ply or on a paper pattern laid on the top ply. Starting the cut at the right side of the lay and working toward the left is recommended. Always cut the small marked pieces from the large marked pieces for accuracy and convenience.

It is easy to follow the pattern lines by sighting through the opening in the presser foot as it rides along the top of the lay. When making a turn in the cut, allow the presser foot leg to rise slightly to prevent any pinching of the material.

To raise or lower the presser foot leg (Key No. 29), simply press down on the presser foot trigger (Key No. 172) which will release the leg. Raise the leg by raising the presser foot lift (Key No. 26). Make sure that the presser foot leg is lowered to the baseplate when the machine is not in use. This is done to provide a safety guard for the knife.

## B. STARTING

Attach the current connector to the terminal pins (204) of the terminal block located on top of the front housing. Remove the connector when the machine is not in use.

To insure smooth, quiet operation, the machine must be oiled daily and the armature revolved several times by turning fibre knob before starting the motor. Fill the large oil cup (249) on side of the motor three times daily for the first month and twice daily thereafter. This lubricates the cross-head and gibbs. There is only one place to oil in the new machine.

Start the machine by means of the switch (250) located at the left of the machine handle.

## C. SHARPENING

Be sure that the machine is clear of the material. Then, with the motor running and the presser foot leg down to the baseplate, trip the sharpener trigger (103). The machine will operate the sharpener automatically throughout its entire cycle. Do not shut off the motor until the sharpener stops with the stones above the top of the standard and out of the way.

The gear shifter mechanism on the left side of the automatic sharpener provides a choice of grinding either a smooth or rough edge. The letters "R" (rough) and "S" (smooth) are stamped on the side of the shifter support (154). Simply pull the pin knob (129) out and move the shifter arm (130) to the desired position. Before operating the sharpener,

make certain that the pin (150) is seated in the recessed hole in the shifter arm. Otherwise, the gears will not be meshed and the stones will not turn.

Because of the high speed at which the blade moves up and down, only the very front tip of the bottom edge is "cutting" its way through the cloth in conjunction with the "slicing" action of the front edge. The Maimin sharpener properly grinds the required edge on the bottom as well as the front full length of the blade.

When using a new blade, it will be necessary to run the sharpener about twelve times to obtain the initial keen cutting edge. Thereafter when the blade becomes dull through use, it will be necessary to run the sharpener up and down only once or twice to renew the edge. The frequency of sharpening depends upon the type of blade being used. It takes longer to sharpen the better quality steel blades, but these, of course, will hold their edge much longer.

Most operators prefer the smooth edge for finer fabrics and the rougher edge for coarse materials. Some have found it advantageous to use the rough edge for cutting within the body of the lay and then shift to the smooth edge when shaving the edges. They get faster cutting with the rough edge and also the benefit of the smooth keen edge for shaving. When shifting from rough to smooth, or smooth to rough, run the sharpener down two or three times to form the new edge.

Before installing a new blade in the machine, it is advantageous to sharpen the bottom edge of the blade to a razor-like keenness on an oil stone. This will be sufficient for the life of the blade as the bottom edge beyond the very tip does not actually cut. Any loose threads which may get further back under the blade are cut cleanly instead of being drawn into the throat plate. This prevents raveling and insures a clean cut on soft and loosely woven fabrics. For cutting very soft fabrics, such as flannels, terry cloth, imitation furs, etc., or for extremely hard materials, such as rubberized cloth, heavy canvas, etc., it is advisable to sharpen the bottom of a new blade on an oil stone and round the bottom front corner to the diameter of a ten cent coin. Rounding the corner enables the blade to cut the very soft materials cleanly and swiftly. For cutting the hard cloth, the rounding of the corner strengthens the blade and facilitates the cutting.

## D. MAIMIN BLADES AVAILABLE

There are three types of blades available. They are (1) the regular carbon alloy steel blades - BT, (2) the high speed steel blades - ZZT, and (3) the special alloy blade - ST. The most popular blade is the high speed steel blade as it retains an

edge for a long time and has excellent wearing qualities. The carbon alloy steel blade is less expensive, but loses its edge faster and therefore wears out more quickly. The ST blade is generally used for very special materials, such as fibreglas or heavy canvas. This type of knife retains its edge for a longer period but is not practical for regular materials because of its high cost.

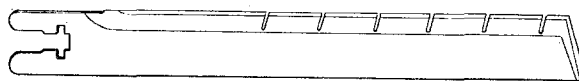


*Regular Blade - available in carbon alloy steel, high speed steel, or special alloy.*

Special blades are available for cutting unusual or difficult materials.



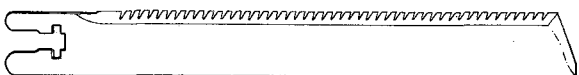
*Long Blade - 1/8" longer than the regular blade, it is used to prevent clogging of loosely woven materials in the throat plate. For terry cloth, quilting, pile fabrics, etc.*



*Slotted Blade - for synthetic leather, supported fabrics, rubber-backed fabrics, and certain types of plastics.*



*Wave Blade - popularly used for plastics. Also taffeta and buckram.*



*Saw Blade - used for rubberized fabrics, canvas, and crinoline.*



*Serrated Blade - for fabrics with flock dots.*

## SECTION II - CARE AND MAINTENANCE

### A. LUBRICATION

As previously mentioned in the Operation Section, the machine must be oiled each day before starting the motor. To oil the crosshead and gibbs, fill the large oil cup (249) with oil. Make sure that Maimin oil or any good grade of "30 weight" oil is used. Do not use sewing machine oil or any other light oil as these are not designed to give the lubrication needed for your cutting machine. On all new machines received from the factory, the ball bearings are grease-sealed and require no lubrication. However, if any of these bearings are replaced by standard open bearings, it will be necessary to lubricate once every few days with Maimin oil.

The sharpener needs only periodic lubrication with a few drops of oil in the gears, bushings, and chain after cleaning. However, be careful to avoid using too much oil.

### 3. CLEANING

Keep the slot in the knife standard clean and free of lint. It should be cleaned by using the saw tooth slot cleaner provided. Any accumulation of

dirt in the slot will interfere with cutting and sharpening. Remove the blade as follows:

1. Raise the presser foot leg to its top position.
2. Lower the knife to its lowest position by turning the fibre knob (243) at the rear of the motor.
3. When the knife locking bolt and nut (225) are entirely visible, unlock the nut with the knife key provided and remove the knife.
4. After the slot has been cleaned thoroughly, slide the blade up the knife slot until its "T"-shaped shoulder is firmly against the knife locking bolt in the holder.
5. Hold the lower part of the blade up and against the back of the knife slot, and lock the knife securely. Always use genuine Maimin blades with the patented "T"-slot shank.
6. Revolve the armature by the fibre knob to make

"T" - SLOT

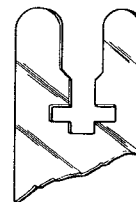


Figure 1.

certain that the knife does not strike the table when the machine is started.

**NOTE:** Always tighten the knife locking bolt and nut before running the machine to prevent damage to the crosshead and gibbs.

After prolonged use, dust from the materials being cut will accumulate in the motor housing and sharpener. This dust should be blown out to permit proper ventilation and operation of the machine. With the motor running, point a stream of air into the back of the motor and then into the side of the front housing beside the fan. The jet of air should blow most of the dust out of the machine. The sharpener should be run down to its lowest position on the blade and the dust blown out.

Occasionally dirt will get into the rollers (260) on the base plate of the machine. These should also be blown out. Never use oil to lubricate these rollers as the oil has a tendency to collect dust. If lubrication becomes necessary, use a powdered graphite.

Occasionally clean the sharpener stones of accumulated dirt and oil in order to insure the proper grinding. Using a stiff bristled brush, such as a toothbrush, or rag dipped in cleaning fluid, scrub the flanges of the stones. The stones may also be removed, soaked in cleaning fluid, and then replaced after putting a drop of oil in the stone bushing.

When changing stones, it is important that they be replaced in the proper position. See Figure 2, below.

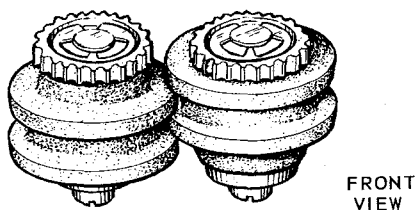


Figure 2.

## C. PARTS REPLACEMENT, ASSEMBLY AND DISASSEMBLY

1. *Sharpener stones.* When replacing stones, change one at a time. This should assure correct positioning of the new stones. Remove the stones by loosening the screw (41) beneath the stone carrier and slide out each stone with its bushing. To install a new stone with its bushing and gear, the screw head must fit exactly in the hollow of the stone carrier. Lock the screw securely. Before installing on the machine and replacing the screw, put several drops of oil in the stone bushing. Check the gears of the stone bushing to make sure they are in mesh with the gear (35). A knife worn to the point where the stones rub each other should be discarded.

After new stones are installed, check to insure that both rims of each stone touch the blade. If not,

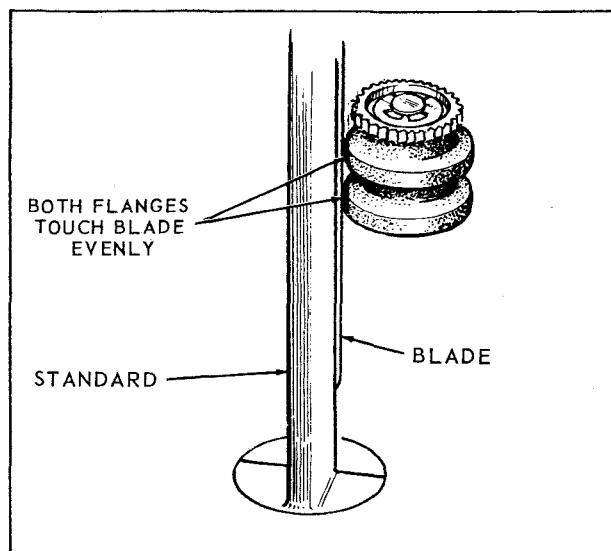


Figure 3.

bend the stone carrier in or out so that both flanges will touch the blade (See Fig. 3). Three types of emery stones are used with the Maimin Automatic Sharpener Model E. The #60 (coarse grit), the #100 (fine grit), and the #150 (very fine grit). For general cutting, the #60 is most satisfactory and is recommended for use on all materials. For very fine woolsens and fine cottons and synthetics, the #100 may be preferred for smoother cutting. For very soft materials, such as fine rayons and fine knitted fabrics, the extra smooth #150 stone may be used.

Generally, the #60 stones are preferred for use with the high speed "ZZT" blades and the "ST" blades. The #100 grit stones are recommended for use with the carbon alloy steel "BT" blades.

2. *Carbon brushes.* On single phase machines only, it is necessary to replace the carbon brushes (241) periodically. If the motor starts slowly, the chances are that the carbon brushes are worn out. The two brushes are located on the top and bottom of the back housing (245). Simply remove each cap screw (239), pull out the old carbon brush with its spring and insert the new one.

**IMPORTANT:** When changing the brushes, check the commutator for a black carbon ring around it left by the brushes. This can be cleaned by pressing a piece of commutator chalk or fine emery cloth lightly against the commutator while the motor is running.

3. *Inserts.* When the inserts (256) are worn so much that the knife slaps between them, it will be necessary to replace them.

a. Remove the two or three screws (258) on the right side of the standard and remove the old inserts by sliding them down and out through the bottom of the standard.

b. Clean out the slot in the standard, install the new inserts and replace the screws.

c. With fine emery cloth or oil stone rub both ends of each screw in the standard to eliminate any burrs on the standard which might interfere with cutting.

4. *To remove the crank (213):*

- a. First remove the sharpener from the machine (as described in Paragraph 6) to expose the crank.
- b. On single phase machines, with someone holding the fibre knob (243), insert the knife key handle into the hole in the face of the crank. Tap against the key handle in the direction shown by the arrow on the crank until the crank loosens on the armature shaft. The crank has a left-hand thread.
- c. On the new style three phase machines, remove the fibre knob (243) and insert a  $\frac{1}{4}$ " Allen wrench, which is the same Allen wrench used for the standard bolts (254). The crank is secured by a long bolt extending through the armature shaft. Insert the Allen wrench into the head of the bolt and, holding the crank, turn the wrench counter-clockwise. As the bolt is being removed, occasionally tap it lightly on the end to push the crank forward.
- d. On the old style three phase machines, you will notice a clearance hole in the left side of the front housing. Insert a  $\frac{5}{32}$ " Allen wrench through this hole to loosen the two screws in the shoulder of the crank. Then insert two  $\frac{1}{4}$ " - 20 screws 2" long in the two threaded holes in the face of the crank. Remove the crank from the shaft by alternately screwing each of these screws a few turns at a time until the crank comes off. To replace the crank, remove the two  $\frac{1}{4}$ " - 20 screws and match the keyway in the crank with the key on the armature shaft. Tap the crank back onto the shaft, being sure to turn the fibre knob (243) when tapping to prevent the crank from cocking. Then tighten the two Allen set screws.

5. *Removing the motor and crank ball bearings:*

- a. Back motor bearing (244). It is necessary first to remove the back housing (245) and then push the bearing out. Replace the back housing and tighten the motor bolts. Then put in the new back bearing. When installing a new bearing, place the old bearing behind it while tapping it into the back housing. Rotate the old bearing when tapping so that the pressure will be evenly distributed. In this way, neither the inner nor the outer race of the new bearing will be harmed.

b. Front motor bearing (210). Remove the armature after removing crank and back housing. Unscrew the bearing lock (211) and then push the bearing forward and out. Install the new bearing as described in 5 a

c. Crank pin bearing (215). Remove the bearing lock (216) on the face of the crank, remove the screw in the back of the crank and tap the bearing out.

d. Reassembling motor.

- (1) The motor cylinder (236) should be replaced on the front housing (233) so that the nameplates on both sides are in the same horizontal plane.
- (2) The back housing has a punch mark on the underside which matches a punch mark on the motor cylinder. Be sure that these two marks are in line with one another when replacing the back housing on the motor cylinder. Otherwise, the motor will not function properly. See Figure 4.

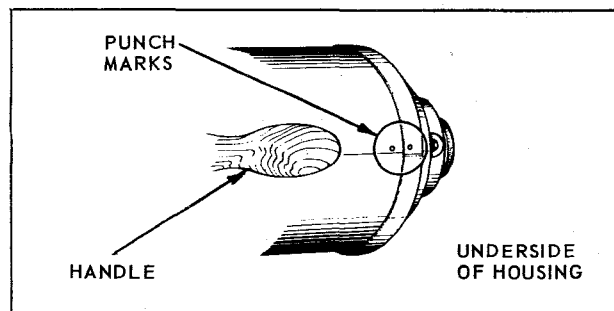


Figure 4.

6. *Removal of the sharpener.* Remove the pulley cover (208) and the four sharpener screws (156, 115 and 171). Note that the screws holding the sharpener to the front housing are of different length and must be replaced in their proper locations when the sharpener is attached to the machine again.

7. *To disassemble the sharpener:*

- a. Remove the presser foot lift (26) by removing the two screws (27).
- b. Pull latch (3) forward to remove it from the chain roller (125) and then pull the slide (8) halfway down the frame.
- c. Remove the presser foot leg (29) while pressing on the presser foot trigger (172).
- d. Remove the bearing block top (1) by unscrewing the two screws (2).
- e. Pull the slide from the frame (126).

8. *To disassemble the slide (8):*
  - a. Remove the pair of lower presser foot stops (30) by removing the four screws (31).
  - b. Remove the two flat springs (13 and 16) by removing the four screws (17) and sliding the flat springs up the slide and off.
  - c. Remove the slide from the lower gear block by removing the two screws (15).
  - d. This will expose the guide lock spring (14) and the guide lock (11) which are both in the lower gear block.
  - e. The latch (3) and the latch spring (4) may be removed by removing the two screws (5).
9. *To disassemble the frame (126):*
  - a. Remove presser foot cam shoe (167).
  - b. Remove the front plate (159) by removing the two front plate screws (164).
  - c. Remove the presser foot trigger spring (174) by lifting up on the presser foot trigger.
  - d. Remove the side cover (147) by removing its two holding screws (148).
  - e. The 16-tooth bevel gear (134) can be removed by removing the stud for bevel gear bushing (155) and then removing the bushing (135) and gear.
  - f. The pulley support spring (160) can be removed by pushing up on the pulley support and prying the spring out of the socket in the pulley support, using a screwdriver.
  - g. The upper gear block (162) can be removed from the frame by unscrewing the two screws (109 and 133). The frame can then be raised from the upper gear block.
  - h. The tubes (146 and 149) can be removed by loosening the two clamp screws (144) and sliding the tubes out from the tube clamp (145).
10. *To assemble the sharpener:*
  - a. When reassembling the frame, make sure that the interlock pin (102) is engaged in the interlock (158) on the face plate (159).
  - b. Take the assembled frame and assembled slide and insert the slide (8) into the frame (126), making sure that the pilot rods (25 and 24) slide into the respective tubes. Also be sure that the square shaft (23) fits into the bevel gear (134).
  - c. Replace the cam shoe (167) on the cam (168) making sure that the heavier section of the cam shoe is to be against the presser foot leg. Slide the presser foot leg up in the slide and the frame, holding down on the presser foot trigger to permit the leg to move up past the cam.
  - d. Rotate the pulley rubber (141) by hand until the chain roller (125) is at the top of the frame. Then replace the bearing block top (1) on top of the square shaft (23). Make sure that the wider section of the bearing block top is to be facing the chain (124).
  - e. Attach the sharpener to the front housing by means of the four screws, making sure that the interlock return spring (157) is in the interlock (158) but in front of the interlock pin (102).
  - f. Tighten the screws evenly and make the final tightening of the screws in clockwise direction.
  - g. Run the sharpener until the chain roller (125) engages latch (3). Run the sharpener before replacing the pulley cover to make sure that the sharpener is operating properly.

**IMPORTANT:** If the stones are on the sharpener, be sure that there is a knife in the machine.

- h. Replace the presser foot lift on the presser foot leg.
- i. Replace the pulley cover. Run the sharpener again to make sure that the pulley brake is properly adjusted.

## SECTION III - ADJUSTMENT AND REPAIR

### A. ADJUSTING THE CROSSHEAD AND GIBBS.

After six months' use, readjust the crosshead and gibbs (218 and 222) to insure quieter and smoother operation. First remove the sharpener and blade from the machine, and then the access screw (252) on the right side of the front housing. Be sure to retighten knife locking bolt and nut.

Do the following:

1. Loosen both locking screws on the connecting rod (220).
2. Insert a #6-32 screw (the screw which fastens the cover (240) to switch box may be used) into wrist pin (223) and draw wrist pin forward to prevent end play. Tighten the

lower connecting rod locking screw, rotate the motor by hand a few times to seat the connecting rod properly on the crank pin (217)) and tighten the upper locking screw.

3. Loosen slightly the three screws on the right-hand gibb (218) on the same side of the housing as the two adjusting screws (253).

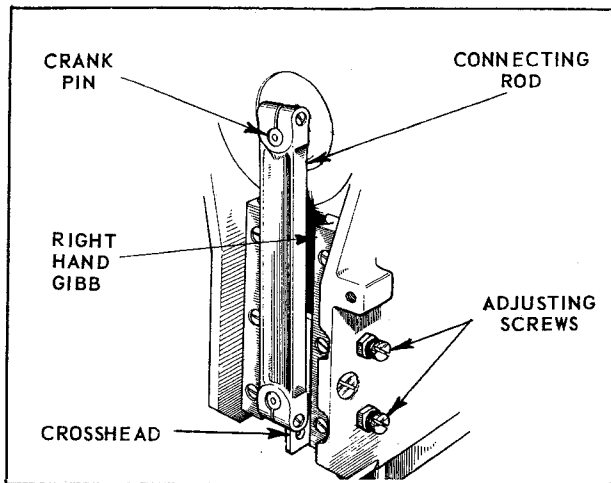


Figure 5.

4. Loosen the adjusting screw nuts and turn both upper and lower adjusting screws (253) just enough to allow the crosshead (222) to slide up and down without side play.
5. Lock the adjusting screws by tightening the nuts. Tighten the gibb screws.
6. Turn the motor over several times by hand to be sure that the crosshead still moves freely. If any binding occurs, reset connecting rod. If bind remains, readjust gibb. Then oil, and turn on the power before replacing the sharpener to make sure the motor is running properly.

## B. SETTING THE POSITION OF THE STANDARD

At times, it is desirable to change the position of the standard because of the readjustment of the crosshead and gibbs, replacement of inserts, or changing the width of the bevel on the blade. With the sharpener removed, turn the machine upside down and do the following:

1. Loosen the three bolts (254) connecting the standard to the housing so that the standard is free to slide.
2. Loosen the knife locking nut (225) and slide a knife into the standard and into the knife locking bolt.
3. Move the standard forward to the point where the back of the "T"-slot in the knife will press against the knife bolt,

causing the knife to cock. Then back off a slight amount, so that the knife has about  $\frac{1}{32}$ " play in the knife lock and lock the knife in this position.

4. With the knife locked, keep the standard pressed firmly against the back of the knife. This will determine the forward position of the standard.
5. Rotate the motor with the fibre knob and slowly turn the standard from side to side until the knife determines the freest position. Finger-tighten the standard bolts and check again to make sure that the knife will run freely in the standard.
6. Still holding the standard firmly to the housing to prevent shifting, tighten the connecting bolts to lock the standard in place.
7. Turn the motor over by hand again. If there is any binding when the blade is in the machine and none when it is out, the standard is not properly set and the above procedure must be repeated.

## C. FLAT SPRINGS

The tension of the flat springs (13 and 16) should be equal in order to produce an even bevel on each side of the blade. To increase or decrease the spring pressure, merely bend the spring. To do this it is necessary to remove the spring.

If one side of the blade is not being sharpened, the fault is probably due to a broken flat spring. To replace the flat spring, it will be necessary to remove the two screws (17) and slide the flat spring up and out.

## D. PULLEY BRAKE

If the sharpener starts by itself or fails to stop, the fault is most likely in the pulley brake (209). Remove the pulley cover (208) and bend the brake upward slightly to increase the tension against the pulley rubber when the sharpener is at the top of the traverse.

## E. PULLEY RUBBER

Occasionally oil gets on the crank and the pulley rubber (141) causing the pulley rubber to slip and the sharpener to operate improperly. Wipe the oil from the pulley rubber and the side of the crank while turning the motor by the fibre knob. To change the pulley it is necessary to remove first the sharpener and then the nut (139) and the flange. The rubber then can be easily removed and a new one installed. Replace the flange and the nut. When tightening the nut, DO NOT GRASP THE PULLEY

RUBBER as this will cause the rubber to become out-of-round. When tightening the nut, hold the flange with pliers, and then using a wrench or pliers, tighten the nut (See Fig. 6). Reinstall the sharpener on the machine and replace the pulley cover.

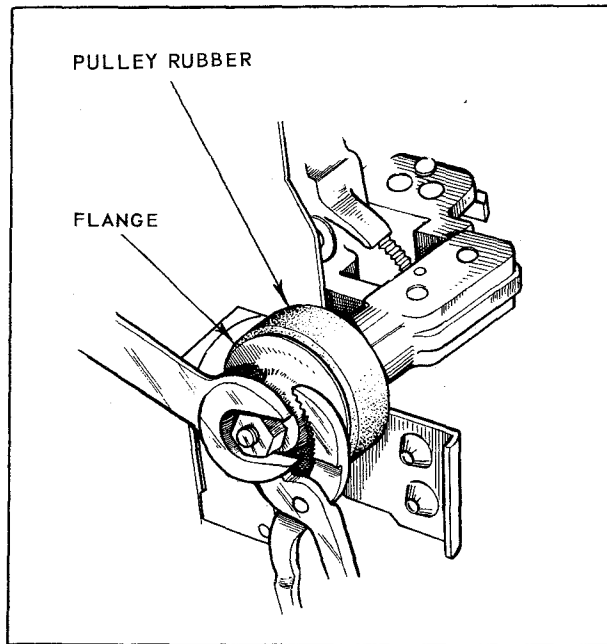


Figure 6.

#### F. PRESSER FOOT LEG

To obtain a proper and uniform bevel on the machine, it is necessary that the presser foot leg (29) be at the proper distance from the standard. With the presser foot leg all the way down, the distance from the back of the leg to the standard should be equal at both the top of the standard and at the bottom of the standard. For the Model E machine, this distance should be approximately  $15\frac{1}{16}$ " , See Figure 7.

If the presser foot leg is too far in at the bottom, then the stones will sharpen too far back on the lower part of the blade. This condition can be corrected by pulling the presser foot leg out slightly and squeezing the presser foot toes together with pliers. This will cause the presser foot leg to set farther out at the bottom.

If the presser foot leg is too far out at the bottom, the blade will have a tendency to hook out at the bottom. This can be corrected by lightly tapping the hook on the front of the presser foot with a mallet. This will cause the standard to spread the

toes slightly and permit the presser foot leg to move in closer to the standard.

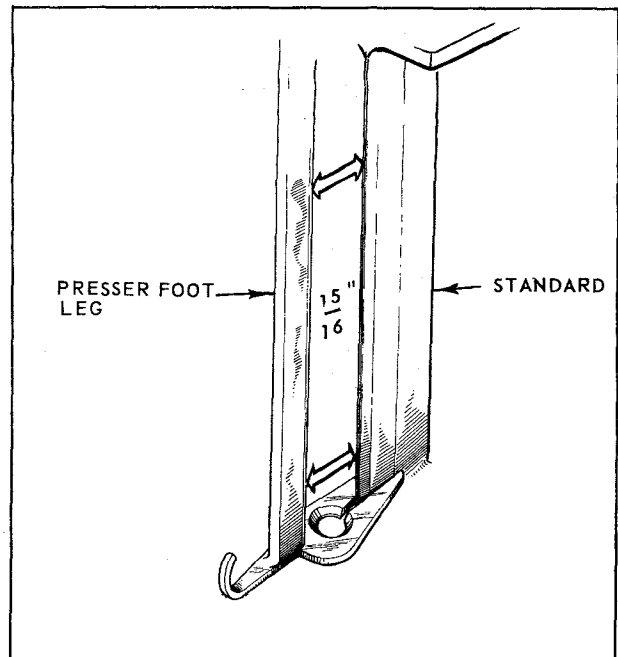


Figure 7.

#### G. TUBE ADJUSTMENT

The helix tubes (146 and 149) are properly adjusted at the factory, and it is generally not necessary to make further adjustments. The tubes cause the stones to swing around and come into contact with the blade. They should not be used to press the stone against the knife for sharpening action. This is done by the flat springs.

When the tubes are properly adjusted, there should be about  $\frac{1}{16}$ " play between the stone and the blade when using a new blade and a new pair of stones. The play is measured by pulling the stone away from the blade. Whenever adjusting the tubes, make sure that the adjustment is made with a new pair of stones and a new blade. Otherwise, the stone may jam against the blade and prevent proper operation of the sharpener.

Adjustments of the tubes can be made by loosening the tube clamp screws (144) and slightly turning the tubes with a large screwdriver. Make the adjustment with the sharpener halfway down the blade. Be sure there is enough play between the stones and the blade. Then check this play with the sharpener in a few different positions on the blade. Then tighten the tube clamp screws.



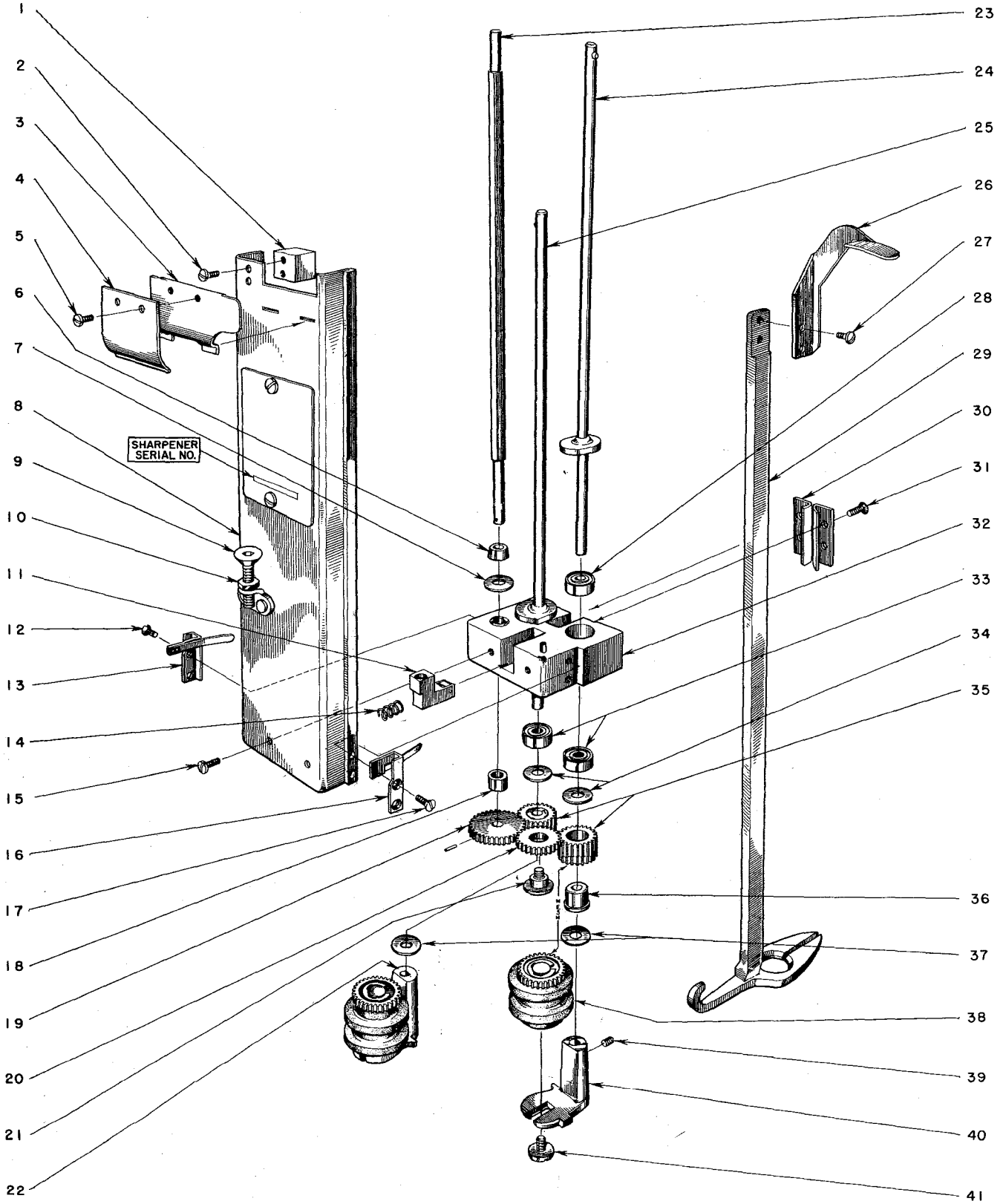
# SECTION IV - SHARPENER TROUBLE SHOOTING

1. *Blade edge not sharp* –
  - a. Check for a worn out blade.
  - b. Check the stones for excessive wear or dirtiness.
  - c. Check for weak or broken flat springs.
  - d. Check for misalignment of the standard and presserfoot leg.
  - e. Check the pulley rubber for excessive wear or oiliness.
2. *Bevel too wide* –
  - a. Presserfoot leg set too close to the standard.
  - b. Standard set too far forward.
  - c. Check for excessive stiffness of the flat springs.
  - d. Check for improperly adjusted tubes.
3. *Bevel too narrow* –

(Trouble shoot under # 1, above)
4. *One side of blade not sharpening* –
  - a. Check for a weak or broken flat spring.
  - b. Check for worn inserts.
5. *Uneven blade wear* –
  - a. Check the pulley rubber for excessive wear or oiliness.
  - b. Check for worn lower presserfoot stops, guide lock, and front plate.
  - c. Check that presserfoot leg is straight.
6. *Blade sharpening at an angle* –
  - a. Check for dirt in the inserts.
  - b. Make certain that the blade is tight against the back of the inserts.
  - c. Check for misalignment of the presserfoot leg and the standard.
  - d. Check for loose crosshead and gibbs.
7. *Bottom of the blade chewed out* –
  - a. Check for a stone loose on its bushing.
8. *Sharpener overrunning* –
  - a. Check for a weak or broken pulley brake.
  - b. Check for too low a setting of the trigger stop screw.
9. *Sharpener not running smoothly* –
  - a. Check the pulley rubber for excessive wear or oiliness.
  - b. Check for a weak or broken pulley spring.
  - c. Check for broken pulley support stud (107).
10. *Sharpener traverses but the stones fail to rotate* –
  - a. Make certain that the gear shift is in gear.
  - b. Check 16-tooth bevel gear for broken teeth.
11. *Sharpener fails to operate* –
  - a. Make certain that the presserfoot leg is all the way down.
  - b. Check for a worn out pulley rubber.
  - c. Check for cloth jammed in the gears.
  - d. Check for stripped gears.
12. *Presserfoot leg slipping* –
  - a. Check for a weak or broken presserfoot trigger spring.
  - b. Check front plate for worn upper presserfoot stops.
  - c. Check for a worn cam shoe.
13. *Presserfoot leg fails to operate* –
  - a. If the sharpener is not all the way up –
    - (1) The motor is stopping before the sharpening cycle is completed.
    - (2) The pulley brake and/or trigger stop screw is set too high.
  - b. If the interlock is interfering –
    - (1) The interlock pin is broken or is not properly engaging the interlock.
14. *Latch slipping from chain stud* –
  - a. Check for a worn latch and/or latch spring.
  - b. Check for a worn chain stud.
15. *Stones slapping against the blade* –
  - a. Check the adjustment of the tubes.
16. *Sharpener screeching* –
  - a. Make certain that the gear shift is engaged.
  - b. Check the lubrication of the gears.
17. *Material ravelling beneath stroke of blade* –
  - a. Make certain that the bottom of the blade was sharpened prior to inserting into the machine and that the bottom front corner of the blade was rounded.

# MODEL E PARTS

ALWAYS GIVE MACHINE SERIAL NUMBER WHEN ORDERING PARTS. ORDER BY PART NUMBER - NOT KEY NUMBER.

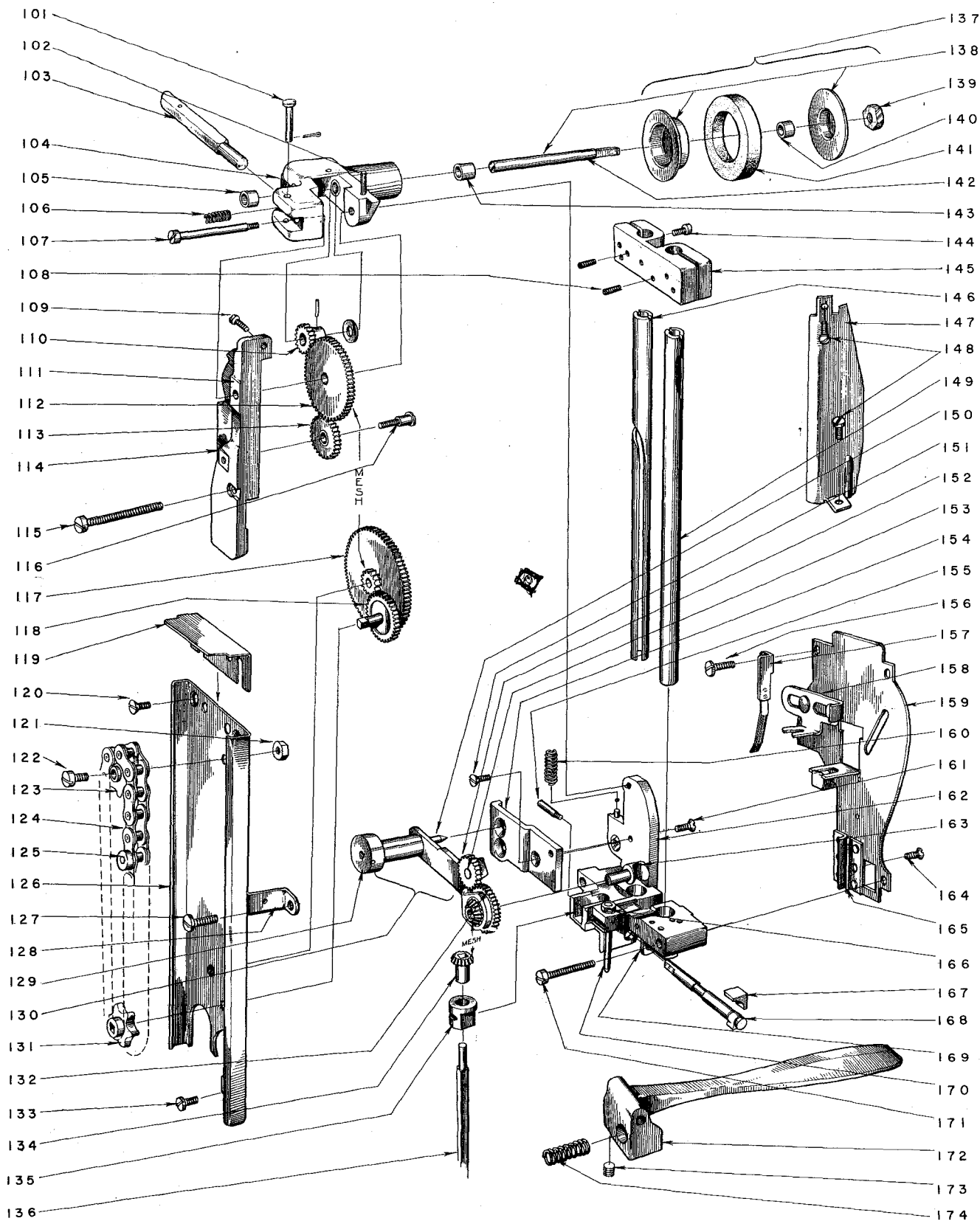


# PARTS LIST 1

KEY #	PART #	PART NAME
1	811	Bearing Block Top
2	811S	Screws For Bearing Block Top
3	801	Latch
4	802	Latch Spring
5	802S	Latch Spring Screw
6	813	Square Shaft Collar
7	813W	Square Shaft Collar Washer
8	800A	Slide
9	803	Screw For Trigger Stop
10	803N	Trigger Stop Nut
11	819	Guide Lock
12	816FS	Screw For Flat Spring
13	816FL	Flat Spring For Stone, Left
14	819A	Spring For Guide Lock
15	822S	Screw For Lower Gear Block
16	816FR	Flat Spring For Stone, Right
17	816FS	Screw For Flat Spring
18	812B	Bearing For Square Shaft
19	805	Gear For Square Shaft, 28 Teeth
20	806	Gear Block Idler Gear
21	808	Stud For Gear Block Idler
22	826	Stone Carrier, Left
23	812	Square Shaft (Give Serial Number)
24	815E	Pilot Rod With Cam, Right
25	814E	Pilot Rod With Cam, Left
26	824E	Presser Foot Liff
27	824SE	Presser Foot Lift Screw
28	822A	Ball Bearings For Pilot Rod, Pair
	822B	Bushings For Pilot Rod Top And Bottom
29	823	Presser Foot Leg (Give Size)
30	818	Presser Foot Stops, Lower, Pair
31	818S	Screw For Stop, Lower
32	822	Lower Gear Block Only
	822E	Lower Gear Block With 2-812B, 2-822B
33	822A	Ball Bearings For Pilot Rod, Pair
	822B	Bushings For Pilot Rod, Top And Bottom
34	807W	Washer for 807 Gear
35	807	Gear, 20 Teeth With Bushing
36	807A	Flanged Bushing For Gear, 20 Teeth
37	826W	Stone Carrier Washer
38	820	Stones Only, #60 Grain, (Pair)
	820A	Stones Only, #100 Grain, (Pair)
	820B	Stones Only, #150 Grain, (Pair)
	821	Stones With Bushings, #60, (Pair)
	821A	Stones With Bushings, #100, (Pair)
	821B	Stones With Bushings, #150, (Pair)
	821C	#60 Stones With Nylon Bushing, (Pair)
	821D	#100 Stones With Nylon Bushing, (Pair)
	821E	#150 Stones With Nylon Bushing, (Pair)
39	826S	Stone Carrier Set Screw
40	827	Stone Carrier, Right
	827W	Stone Carrier Washer
41	809	Screw For Holding Stone

# MODEL E PARTS

ALWAYS GIVE MACHINE SERIAL NUMBER WHEN ORDERING PARTS. ORDER BY PART NUMBER - NOT KEY NUMBER.



# PARTS LIST 2

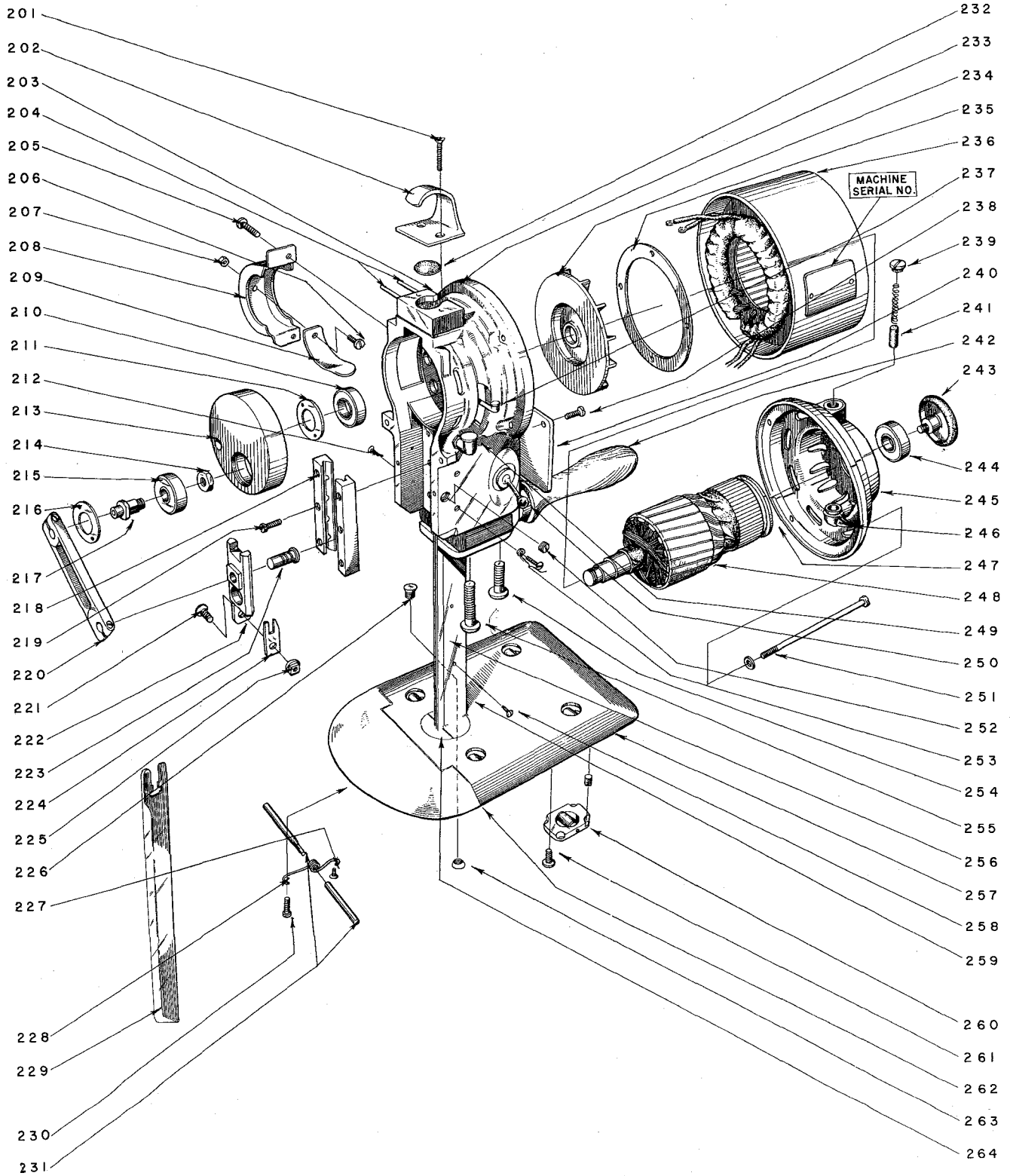
KEY #	PART #	PART NAME	KEY #	PART #	PART NAME
101	840P	Trigger Pin	142	838A	Shaft For Pulley
102	846E	Interlock Pin	143	838B	Bearing For Pulley Support (Inner)
103	840	Trigger For Sharpener	144	876S	Tube Clamp Screws (Allen)
104	845E	Pulley Bracket	145	876	Tube Clamp Only
105	838C	Bearing For Pulley Support (Outer)		876X	Tube Clamp Complete With 876, 2-876S, 2-875S
106	840A	Spring For Sharpener Trigger	146	874	Helix Tube, Left
107	844	Stud for Pulley Support	147	869	Side Cover
	844A	Bushing For Upper Gear Block	148	869S	Screw For Side Cover
108	875S	Set Screw For Tube Clamp	149	875	Helix Tube, Right
109	848S	Screw For Front Bracket	150	882A	Pin
110	839	Gear, 16 Teeth	151	880A	Long Screw For Shifter Support
111	848	Front Bracket		880B	Nut For Shifter Support
112	830	Gear Assembly, 50/12 Teeth	152	887	Gear, 20 Teeth
*	830A	Gear Assembly, 50/20 Teeth	153	886	Stud For 20 Tooth Gear
113	825	Gear Assembly, 28/12 Teeth (Located Behind Key #114)	154	880	Shifter Support
*	825A	Gear Assembly, 28/26 Teeth	155	841A	Stud For Bevel Gear Bushing
114	849	Bushing For Double Gear, 28/12 Teeth	156	833S	Screw To Anchor Sharpener Frame To Machine
115	848B	Screw, Lower Left To Fasten Sharpener To Machine	157	873A	Interlock Return Spring
116	850	Screw For Double Gear, (28/12 Teeth)	158	873	Interlock
117	829	Gear Assembly, 64/20 Teeth	159	870	Front Plate Only
*	829C	Gear Assembly, 56/20 Teeth		870E	Front Plate With 871, 873
118	828	Sprocket Gear, 32 Teeth	160	847	Pulley Support Spring
119	831	Cover Slide Top	161	880C	Short Screw For Shifter Support
120	831S	Screw For Cover Slide Top	162	859B	Upper Gear Block For Pull Shifter, Complete
121	836N	Nut For Idler Sprocket	163	883	Pivot Stud
	836W	Washer For Idler Sprocket	164	870S	Screw For Front Plate
122	836	Stud For Idler Sprocket	165	871	Presser Foot Stop (Upper) Pair
123	835	Idler Sprocket	166	857N	Nut For Guide Lock Release Pin
124	834	Chain		857W	Washer For Guide Lock Release Pin
125	834R	Chain Roller	167	856L	Presser Foot Cam Shoe
126	800	Frame (Give Serial Number of Machine)	168	856	Presser Foot Cam
127	833S	Screw To Anchor Sharpener To Machine	169	858	Cam Bracket
128	833	Frame Anchor		858S	Screw For Cam Bracket
129	882B	Pin Knob	170	857	Guide Lock Release Pin
130	881X	Gear Shift Assembly Complete (Pull Type) Includes:	171	859D	Screw, Lower Right, To Fasten Sharpener To Machine
	881	Shifter Arm	172	489	Presser Foot Trigger.
	882A	Pin	173	490	Trigger Screw
	882C	Pin Spring (Not Shown)	174	492	Trigger Spring
	882D	Retaining Ring For Spring (Not Shown)			
	882S	Screw For Pin Knob			
	886	Stud For 20 Tooth Gear			
	887	Gear, 20 Teeth			
	882B	Pin Knob			
131	837	Driver Sprocket	494		Squeeze Trigger Complete
132	843	Gear, 28/16 Teeth, Mitre Assembly	494A		Squeeze Trigger Handle
133	859S	Screw For Upper Gear Block	494C		Pivot Screw For Handle
134	842	Bevel Gear, 16 Teeth	494CW		Lockwasher For Pivot Screw
135	841	Bushing For Bevel Gear	494E		Handle Pivot Bracket
136	812	Square Shaft (Give Serial Number of Mach.)	494H		Screw, Bracket To Housing
137	838F	Pulley Flanges With Ring, Bushing & Nut	494J		Presser Foot Cam Block
138	838	Pulley With Flanges And Shaft	494L		Stud For Cam Block
139	838N	Nut For Pulley	494M		Sleeve For Stud
140	838D	Spacer Bushing For Pulley	494R		Link
141	838R	Pulley Rubber Ring	494S		Link Screw

### PARTS NOT SHOWN

494	Squeeze Trigger Complete
494A	Squeeze Trigger Handle
494C	Pivot Screw For Handle
494CW	Lockwasher For Pivot Screw
494E	Handle Pivot Bracket
494H	Screw, Bracket To Housing
494J	Presser Foot Cam Block
494L	Stud For Cam Block
494M	Sleeve For Stud
494R	Link
494S	Link Screw

# MODEL E PARTS

ALWAYS GIVE MACHINE SERIAL NUMBER WHEN ORDERING PARTS. ORDER BY PART NUMBER - NOT KEY NUMBER.



# PARTS LIST 3

KEY #	PART #	PART NAME	KEY #	PART #	PART NAME
201	408	Screw For Goose Neck		423	Handle Only
202	407	Goose Neck		423B	Handle, Uprturned With Block
203	405	Terminal Block	243	422	Fibre Knob Complete
	405A	Terminal Block, 3 Phase		422B	Small Fibre Knob Complete For Knob Cover
204	406	Terminal Pin		422C	Knob Cover Only
	406A	Terminal Pin, 3 Phase	244	418	Ball Bearing For Back Housing
205	866S	Screw For Pulley Cover	245	417X	Back Housing Assembled With
206	867S	Screw For Brake			Brush Tubes, 2-421, 417L
207	867N	Palnut For Brake Screw		417	Back Housing Only
208	866	Cover For Pulley, Only	246	417L	Shunt Wire
	866X	Pulley Cover With Brake	247	400G	Armature Short Circuitor
209	867	Brake (Bronze)	248	400	Armature (Give Machine Serial No.)
210	403	Ball Bearing For Front Housing	249	402B	Oil Cup To Crosshead
211	404C	Bearing Lock For Front Housing	250	442	Switch
	404W	Sealing Washer For Bearing Lock	251	419	Motor Assembling Bolt And Nut
212	409S	Gibb Anchor Screw	252	421	Access Screw
213	413	Balance Crank Only	253	410	Adjusting Screw For Gibb
	413X	Balance Crank Assembled	254	425	Connecting Bolt For Standard, Short
		With 413W, 414, 415	255	425A	Connecting Bolt For Standard, Long
	413A	3 Phase Balance Crank (New Style)	256	428	Inserts For Standard 4" to 8"
	413AX	Balance Crank, 3 Phase, Assembled			(Give Standard Size)
		With 413W, 414, 415		428A	Inserts For Standard, 9"
214	415N	Crank Pin Nut	257	429	Base Plate With Rollers And Lip
215	414	Ball Bearing For Crank		429A	Small Base Plate With Rollers And Lip
216	413W	Bearing Lock For Crank	258	428S	Insert Screw
217	415	Crank Pin	259	424	Standard 4", 5", 6", 7", 8"
218	409	Gibbs (Pair)		424A	9" Standard
219	409A	Gibb Locking Screw	260	436	Roller Carrier Assembly
220	412	Connecting Rod		436A	Roller Carrier For Small Base Plate
221	416	Knife Locking Bolt		436B	Roller Carrier Cover For
222	411	Crosshead			Small Base Plate
223	411P	Wrist Pin	261	436S	Screw For Roller Carrier
224	411A	T-Slot Lock	262	430	Lip For Base Plate
225	416	Knife Locking Nut		430A	Lip For Small Base Plate
226	435	Cone Lock For Base Plate	263	435	Cone Lock For Base Plate To Standard
		To Standard	264	426	Throat Plate
227	433S	Base Plate Screw For Spring		427	Screws For Throat Plate
228	433	Spring For Lip		427N	Nest, Brass, Threaded
229		Blade			
230	434	Lip Screw For Spring			
231	431	Shafts For Lip, Set			
	432	Screw For Shaft			
232	405F	Fibre Disc For Terminal Block			
233	402	Front Housing			
234	400F	Fan	457		Knife Key
235	400W	Fan Washer	458		Current Connector
236	401	Stator With Coils	458A		Current Connector, 3 Phase
237	402A	Oil Cup To Front Bearing	458B		Grounded Current Connector, 1 Phase
238	441S	Screw For Switch Cover	458K		Ground Shield For Connector (Enclosed Type)
239	421	Cap Screw For Carbon Brush	458M		Ground Shield For Connector, 3 Phase
240	441C	Cover For Switch	458S		Connector Thumb Screw, Fibre
241	420	Carbon Brush & Spring	459		Lamp Bracket
242	423A	Handle With Block	460		Globe, 110 Volts
			461		Globe, 220 Volts
			868		Lamp Bracket Clamp
			868S		Screw For 1 Lamp Bracket Clamp

### PARTS NOT SHOWN

457	Knife Key
458	Current Connector
458A	Current Connector, 3 Phase
458B	Grounded Current Connector, 1 Phase
458K	Ground Shield For Connector (Enclosed Type)
458M	Ground Shield For Connector, 3 Phase
458S	Connector Thumb Screw, Fibre
459	Lamp Bracket
460	Globe, 110 Volts
461	Globe, 220 Volts
868	Lamp Bracket Clamp
868S	Screw For 1 Lamp Bracket Clamp

