

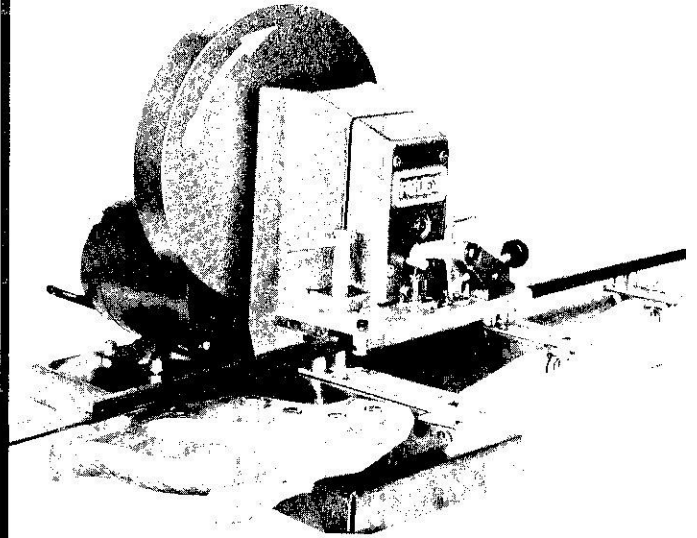
OWNERS
MANUAL

385

**HAND SAW
RETOOTHER**

— NOTICE —

READ INSTRUCTIONS
AND SAFETY RULES
BEFORE USING.



ONE YEAR GUARANTEE

All Foley-Belsaw equipment is guaranteed to be sturdily constructed and free of defects in workmanship or material.

If within one year from date of shipment, any parts should prove defective, replacement parts will be furnished free of charge when defective part is returned postpaid for inspection.

Guarantee does not cover damage sustained in transit or caused by misuse.

We reserve the right to make changes in design, construction, or materials on all Foley-Belsaw machines without notice.

THE FOLEY-BELSAW CO.

6301 EQUITABLE ROAD • BOX 593

KANSAS CITY, MO. 64141

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FOLEY AUTOMATIC HAND SAW RETOOTHER

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MACHINE SPECIFICATIONS

TEETH PER MINUTE	200
MAXIMUM SAW BLADE THICKNESS	.060
POINTS PER INCH	4-16
MOTOR H.P.	1/3
MOTOR R.P.M.	1725
MOTOR ROTATION	C.C.W. or C.W.

II. CHECKING SHIPMENT OF MACHINE FOR DAMAGE AND COMPLETENESS

Examine Shipment: Carefully inspect the machine for intransit damage. Look particularly for cracked castings, bent or broken parts. Any loss of or damaged parts should be reported to the freight agent immediately. Secure the freight agents' notation of loss or damage on the freight bill. Traffic regulations require the transportation company to stand cost of repair or replacement.

REPAIR OR REPLACEMENT OF DAMAGED MACHINE

You may elect to file your own claim against the transportation company. In case of damage to easily replaced parts, order and pay for the new parts needed; enter your claim for their value against the delivering carrier. Return entire machine to Minneapolis for complete rebuilding only in case of serious damage.

Alternatively, you may ask the factory to repair or replace without cost to you. In this case, the following papers must be sent to Minneapolis so parts replacement may be assessed against the transportation company:

- (a) Itemized report showing nature and extent of damage.

See exploded view drawing for parts identification.

- (b) Paid freight bill, bearing agents' notation of damage.
- (c) Original bill of lading, and invoice (if available).

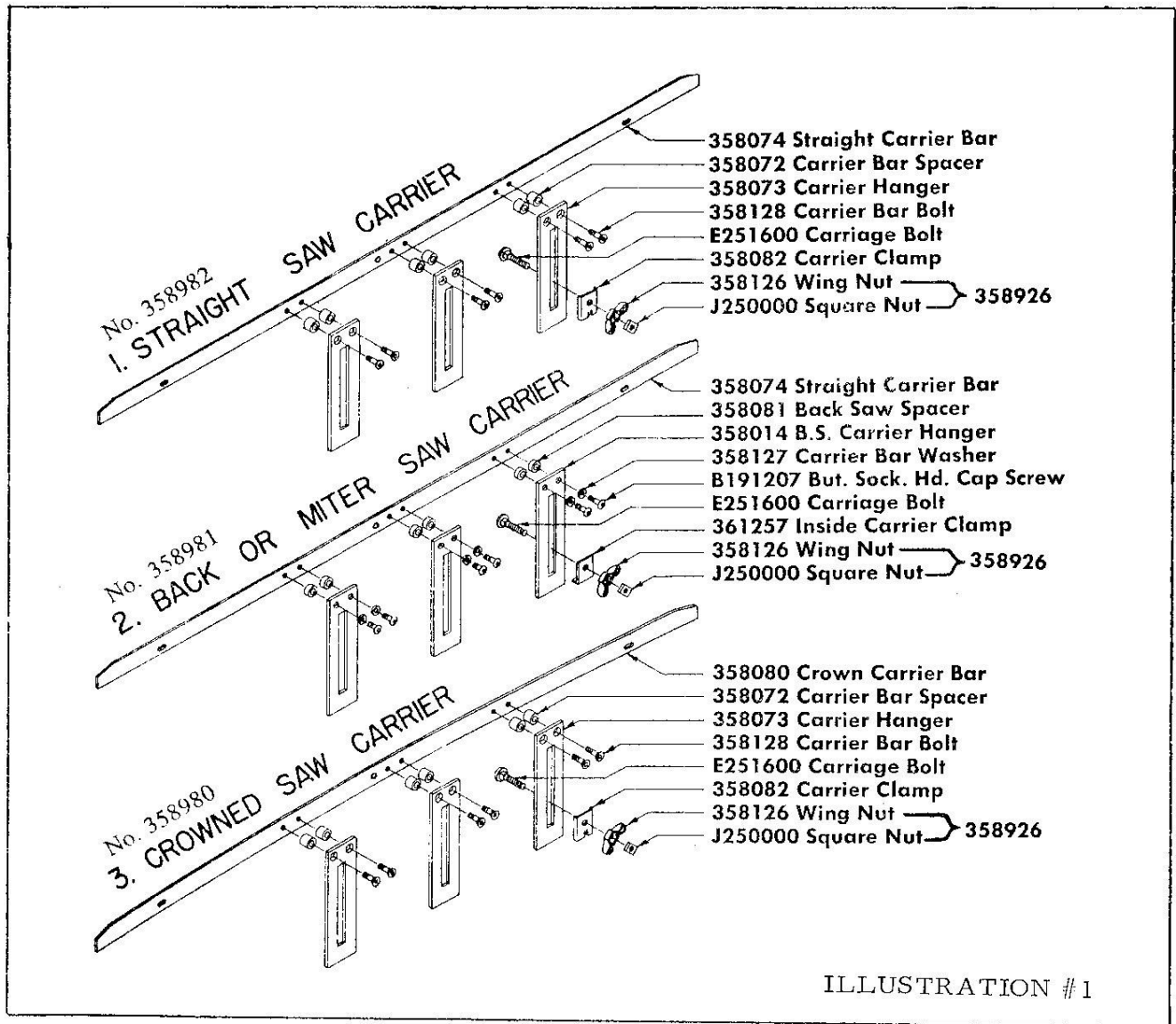
III. INSPECTION OF UNIT BEFORE USING

After unpacking the retoothing, check punch and die setting by placing a small piece of paper between the punch and die. Rotate flywheel one turn and check paper for a clean cut "V" notch. If notch appears ragged on one or both sides or at the bottom of the "V", realign the die. See procedure for die alignment.

Thoroughly lubricate the unit in oil hole provided at top of main frame and at flywheel main shaft. Place small amount of oil on all other moving parts. Examine the unit for loose parts such as gib screw jam nuts, etc. Should such a part be found loose, refer to maintenance section of this manual. If motor driven, run new unit for one or two hours after oiling for breakin. Note, it may be necessary to spin flywheel after motor switch is turned on to first start the unit should the retoothing be too stiff for the motor alone to turn over the flywheel.

IV. SETTING UP OR MOUNTING OF THE RETOOTHING

The retoothing should be mounted on a suitable workbench or table of 38 to 42 inch height. The table or bench should be solid. In addition, a space of 48 inches each side of the retoothing must be available to permit carrier bars to be placed in and fed thru the machine. Securely fasten the retoothing to the mounting surface with the 1/4 dia. thru bolts or lag screws. Note: If unit is motor driven, cranking handle on the retoothing flywheel must be removed.



ASSEMBLY INSTRUCTIONS FOR CARRIER BARS

Place the three Carrier Bars on bench with the sheared corner of the bar up or away from you as shown above. Be sure the $\frac{7}{32}$ " round hole (approximate center of bar) is to the left of the middle two threaded holes.

The Straight Carrier Bar 358074 should be used for assemblies No. 1 and No. 2. The Crown Carrier Bar 358080 should be used for assembly No. 3.

Use long Spacers 358072, countersunk Hangers 358073, and Flat Head Screws 358128 for assemblies No. 1 and No. 3.

Use short Spacers 358081, Button Head Screws B191207, Washers 358127, Hangers 358014, and Carrier Clamp 361257 on assembly No. 2 for Back and Miter Saws.

Assemble as shown above. If the screws come through the back of Carrier Bar, file them flush with bar.

Back or Miter Saw Carrier and the Crowned Saw Carrier are optional equipment.

V. HOW THE RETOOTHER WORKS

PURPOSE - The purpose of the retoother is to form by punching, new teeth that are uniform in size and spacing.

HOW ACCOMPLISHED - The retoother forms new teeth by removing from the saw blade, sufficient material including the old teeth.

The tooth spacing is determined by the ratchet bar fitted to the saw carrier bar.

After the saw has been set, it may be placed into the saw filer. When the Foley power saw setter and filer are used, no adjustment of saw in the saw carrier is necessary. After retooling, the saw is left on the saw carrier, run thru the setter and placed in the filer, ready to be filed.

VI. HOW TO USE THE RETOOTHER

1. Preceding paragraphs have dealt with the subjects of unpacking and inspecting shipment; installing machine on work bench; testing fit of punch and die; and lubrication.

To actually operate Retoother, in re-cutting your first saw, three additional adjusting steps are required:

- (a). Select proper saw carrier and ratchet bar.
- (b). Adjust feed mechanism.

- (c). Set the saw carrier assembly to obtain desired hook angle in the teeth to be cut.

Detailed instructions concerning these steps are given immediately after the following discussion of how to measure saw teeth.

2. **DIFFERENCE BETWEEN POINTS-PER-INCH AND TEETH-PER-INCH:** The standard measurement of saw teeth is points to the inch. There is always one more point to the inch than there are full teeth. For example, an 8-point saw has 8 points to the inch (counting the eighth point at the end of inch). However, there are only 7 full teeth in a one-inch spacing. They consist of 6 full teeth, plus two half teeth -- making a total of 7 teeth to the inch on an 8-point saw.

This difference between points-per-inch and teeth-per-inch should be borne in mind, when operating Retoother, for this reason: The 8-point ratchet bar is used to cut an 8-point saw, but the 9-point ratchet bar must be used to cut an 8-tooth saw.

3. **HAND SAW CARRIERS:** Three types of hand saw carriers are available. (See Illustration No. 1). One is straight -- it is constructed with a straight carrier bar -- for use on saws that have a straight toothed edge. One is constructed with a curved carrier bar -- for use on saws that have a crowned or convex edge. The other is constructed with a straight bar with provision made for back or miter saws.

A straight hand saw carrier is furnished with Foley Retoother (unless substitution of crowned carrier or miter bar carrier was specifically instructed on purchase order). Use of straight carrier (358982) or miter bar carrier (358981) results in the cutting of a straight toothed edge.

Crowned carrier (358980), to permit cutting a crowned or convex toothed edge in hand saws, can be furnished at extra cost.

All sizes of snap-on ratchet bars fit both straight and crowned carriers. No special ratchet bars are needed to retool crowned saws.

Hand saw carriers for Foley Automatic Retoother are interchangeable with carriers used to guide saws through Foley Automatic Saw Filers. Operators having Foley Filer carriers that are drilled and slotted to receive snap-on ratchet bars may use these carriers interchangeably with Retoother carriers.

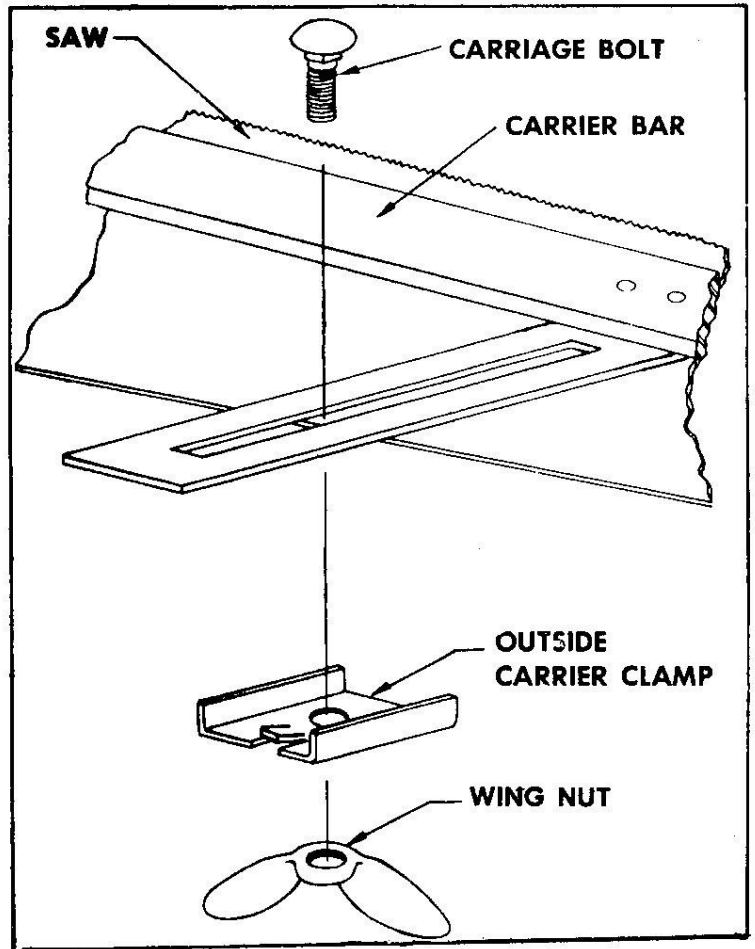


ILLUSTRATION #2

4. HAND SAW CARRIERS: (See Illustration No. 1)

(a). Straight saws should be clamped on straight carrier (358982) as shown in Illustration 2. Failure to clamp the saw properly or not tight enough can cause saw to shift during retooling and a wavy, irregular cutting edge will result.

(b). Crowned saw carrier (358980) is furnished as optional equipment at extra cost. Standard amount of crown or curvature on a 44-inch carrier bar is $\frac{3}{16}$ of an inch. Upon request the carrier bar can be furnished with $\frac{1}{8}$ ", $\frac{1}{4}$ ", or $\frac{7}{16}$ " crown. Mount saws on carrier as shown in Illustration 2.

- (c). Back or miter saws should be clamped on carrier hangers as shown in Illustration No. 3. Notice a different carrier clamp is used to hold the back of the saw. Saw must be parallel to carrier hanger. Carrier bar washer (358127) must be under button head cap screw and shims should be placed under the saw back at each carrier hanger before tightening wing nut if back of saw is thinner than standard.

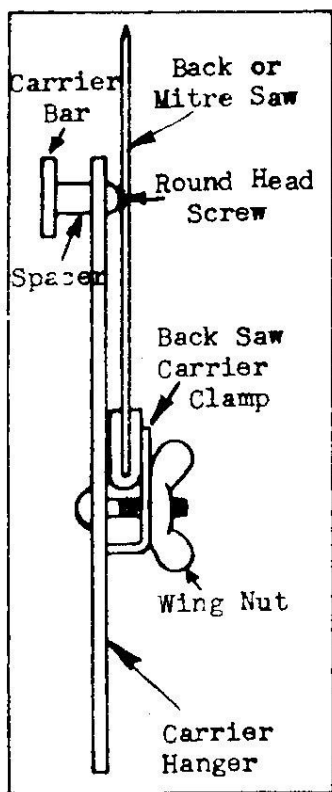


ILLUSTRATION 3

5. STRAIGHT HAND SAWS: Height at which saw should be clamped on carrier is determined by use of Retoother gage pictured in Illustration 3. Position saw on carrier with old toothed edge approximately parallel with carrier bar, and extending about one inch above carrier bar. This measurement of one inch is an approximation only; Retoother gage should be used to position each saw at exactly the right height; this height will vary from saw to saw, depending upon tooth size.

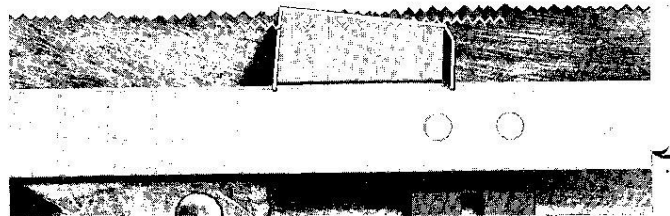


ILLUSTRATION 4

6. To cut an 8-point saw, the number "8" mark on gage should be aligned with base of old teeth, as shown in Illustration 4. This means saw is at correct height on carrier, so punch will remove completely all the old teeth and so cut will be just deep enough to form perfect new 8-point teeth directly below the old tooth level. Use of the gage insures removal of enough steel to form complete new teeth, yet guarantees against wasting the saw blade through excessive removal of saw stock.

In using gage, care must be taken to select lowest section of blade. In other words, mark on gage should be aligned with base of lowest tooth. This is true except in the case of a badly hollowed saw. (See Paragraph 27).

7. Similarly, to cut a 4-point saw, the number "4" mark on gage should be aligned with base of old teeth. To cut 16-point teeth, the number "16" mark on gage should be aligned with base of old irregular teeth.
8. Only "4", "6", "8" and "16" marks are given on gage. Correct height of saw on carrier for other "in between" tooth sizes is obtained by basing on a point in between markings.

For example, a 7-point saw should be positioned just slightly higher on carrier than an 8-point saw. In other words, a 7-point saw should be gaged midway between the "6" and "8" marks on gage.

9. Occasionally a saw will be so badly hollowed in the center that two retoothing passes are necessary. In the case of a badly hollowed saw, use Retoother gage near ends of saw blade when positioning saw on straight carrier. Take one cut through Retoother, to remove high heel and high toe of saw. Then regage saw on carrier and take a second retoothing cut the entire length of blade. This guards against punch having to take too deep a "bite". Punch will cut a maximum of 1/2" depth. Whenever necessary, take a preliminary retoothing cut of not more than 1/4" on high spots, then regage saw on carrier and take finishing retoothing cut the entire length of blade.
10. It is not necessary to remove saw handle except in extreme instances where blade has been worn down to near the level of handle. To determine whether handle should be removed, flip feed pawl up so it does not engage in notches on ratchet bar. Run saw carrier through carrier slides. Handle may remain on saw during retoothing operation as long as it does not strike the die preventing placing the heel of the blade under the punch. Also make sure that the wing nut holding the carrier clamp at the toe end of saw does not strike the die holder.
11. **CROWNED SAW:** To cut a crowned or convex toothed edge with the Foley Retoother, it is necessary to mount saw in a special crowned carrier (358980).
12. When mounting a straight saw on crowned carrier, use Retoother gage to insure positioning blade at correct height. Gage should be used near center of saw blade, midway between toe and handle end, under most conditions.
- If gaged near handle or the end of saw--rather than near middle of blade--saw will be positioned high enough on carrier so that ends of saw will be recut, but there may not be sufficient metal in middle of blade to form complete new teeth.
13. The only time that ends of saw blade should be used, for gaging height of saw on carrier, is where saw is hollowed out in the center. In such a case, it is best to gage near the ends of saw, to insure against taking a deeper cut than punch can handle.
- Gage saw near ends, and take one retoothing pass, which cuts down the high ends only. Then regage saw on carrier, using center position of blade as gaging point; with this setting, recut blade its entire length.
14. **SNAP-ON RATCHET BARS:** Snap-on ratchet bars are stamped at one end, to show the tooth spacings that each bar provides. Sizes run as follows (the first five bars being standard equipment and the last four being optional equipment available at extra cost):
- (324507) bar stamped 13 - 7 - 4 provides tooth spacings of 13 points per inch when feed pawl is adjusted to engage in every notch on bar; it provides tooth spacing of 7 points per inch when pawl is adjusted to engage in every second notch; it provides tooth spacing of 4 points per inch when pawl is adjusted to engage in every fourth notch.
- (324508) bar stamped 8 - 4 1/2 provides the two tooth spacings of 8 and 4 1/2 points per inch.
- (324509) bar stamped 9 - 5 provides the two tooth spacings of 9 and 5 points per inch.

(324510) bar stamped 10 - 5 1/2 provides the two tooth spacings of 10 and 5 1/2 points per inch.

(324511) bar stamped 11 - 6 provides the two tooth spacings of 11 and 6 points per inch.

(324512) bar stamped 12 - 6 1/2 provides the two tooth spacings of 12 and 6 1/2 points per inch.

(324514) bar stamped 14 - 7 1/2 provides the two tooth spacings of 14 and 7 1/2 points per inch.

(324515) bar stamped 15 - 8 - 4 1/2 provides the three tooth spacings of 15, 8 and 4 1/2 points per inch.

(324516) bar stamped 16 - 8 1/2 provides the two tooth spacings of 16 and 8 1/2 points per inch.

All ratchet feed bars are made of resilient steel so may be flexed without damage, to fit both straight and crowned hand saw carriers.

15. **SELECTION OF SNAP-ON RATCHET BAR:** Select ratchet bar stamped with the number of points that you wish to cut into saw blade. See Paragraph 14 for complete outline of tooth spacings provided by each bar.

Examples:

- (a) To cut a 9-point saw, select ratchet bar stamped 9 - 5. Cause the pawl to feed in every notch on ratchet bar and this results in the cutting of 9-point teeth.

To cut a 5-point saw, use the same ratchet bar, but cause the pawl to feed in every second notch.

- (b) To cut an 8-point or 4 1/2-point saw, select the bar stamped 8 - 4 1/2. Adjustment of pawl to feed in every notch will space 8 points per inch. Feed in every second notch will space 4 1/2 points per inch.

16. **ATTACH SNAP-ON RATCHET BAR TO CARRIER:** In attaching snap-on ratchet bar to hand saw carrier, the end bearing the size marking must always be to the left -- so notches or teeth on bar face to the right. Spacing of pins in bar is such that bar cannot be clamped onto carrier in reversed position. Turn bar end for end if difficulty is encountered in assembling ratchet bar to carrier.

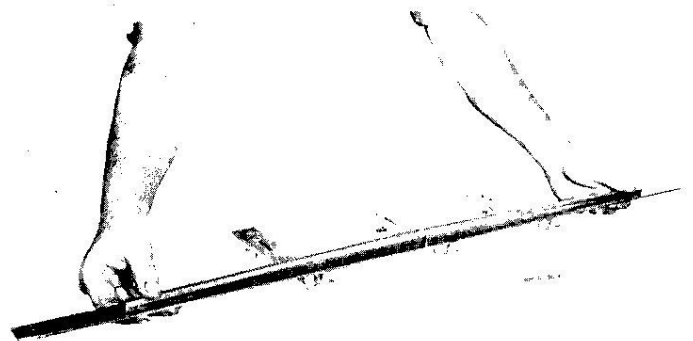


ILLUSTRATION #5

17. **TO UNDERSTAND FEED MECHANISM:** To observe and understand the feed mechanism, attach any one of the ratchet bars to the bare hand saw carrier. Do not clamp saw to carrier during this test. Grasp ratchet bar at each end. Place on top of carrier bar. Slip end catches of ratchet bar into end slots of carrier. Slide ratchet bar in direction of size markings on bar, until prongs engage and hold ratchet bar securely in place. Center peg of ratchet bar will then drop easily into center hole of carrier bar.

In attaching ratchet bar to crowned carrier, follow same procedure but after end prongs have been located in carrier bar slots, the center of ratchet bar should be forced upward a sufficient amount so center peg will enter center hole in crowned bar. All ratchet bars are resilient; they may be flexed without damage, to fit both straight and crowned hand saw carriers.

Flip feed pawl (385521) up, out of the way, so it does not engage in the notches on ratchet bar. After ratchet bar has been assembled on hand saw carrier, slip carrier assembly into carrier guides at front of Retoother. Always insert carrier from left-hand side. Slide carrier back and forth manually to make sure it moves freely.

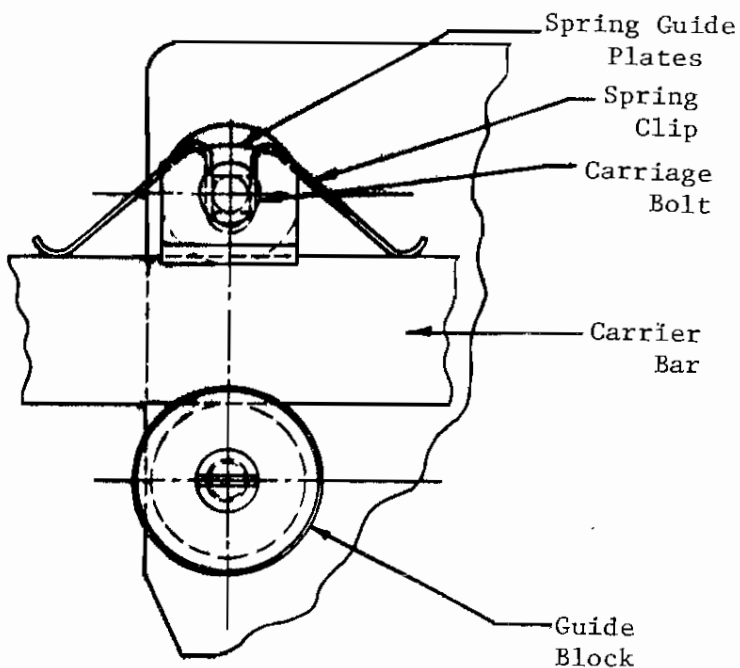


ILLUSTRATION #6

18. **SPRING PRESSURE ON CARRIER BAR:** Placing of spring in full uppermost position (Illustration #6) results in minimum amount of pressure on carrier bar. To increase pressure, loosen the hex nut J251000; push down on spring clip; tighten the nut.

19. **TO TEST FEED MECHANISM:** To test feed mechanism, slide carrier bar to the right so Retoother feed pawl will engage in first notch at left-hand end of ratchet bar. Depress feed pawl. Turn flywheel slowly either clockwise or counter-clockwise, to check the moving parts of feed mechanism.
20. **FEED PAWL ADJUSTMENT:** Feed pawl adjusting screw (Illustration #7) regulates length of feed pawl stroke. It can be screwed in or turned out as needed, so that feed pawl engages in every notch, or every second notch, or every fourth notch of the ratchet bar.

21. Feed pawl adjusting screw should not turn easily as it could move during retooling. Tightening the 1/4-20 socket set screw diagram #62 in the base feed arm casting diagram #20 increases the drag on the adjusting screw.

CAUTION: To feed in every notch, without danger of skipping, pawl must drop back one full notch and about halfway on the next notch.

The pawl will skip, and uneven teeth will result, if pawl is adjusted to feed directly into each notch -- without the extra one-half notch of backward travel.

When certain the adjustment is correct, run the entire length of ratchet bar through Retoother.

Repeat the procedure after changing adjustment screw so pawl engages every second notch on ratchet bar. To feed every second notch, adjust pawl to drop back two full notches and about halfway on the third notch.

To feed four notches at a time, pawl must drop back four full notches and about halfway on the fifth notch.

22. **ADJUSTMENT FOR RIP OR CROSS-CUT TEETH:** The angle at which punch and die are mounted in Retoother is never changed. Variation of tooth pitch or hook is obtained by changing the angle at which saw carrier rides through Retoother.

By loosening the two tee handles, the angle at which saw passes through Retoother can be varied -- to permit cutting of rip teeth or of crosscut teeth, as desired.

Note the markings on the protractor. When pointer is set at number "8", the saw carrier will pass through Retoother at correct angle to form standard rip teeth. When the pointer is aligned with number "15" mark, the adjustment is correct to cut standard crosscut teeth. These angles of an 8-degree pitch on the face of rip teeth, and of 15 degrees on the face of crosscut teeth, are the saw manufacturers' standards. Some carpenters like either a little more or a little less than the standard amount of hook on the teeth of their saws. The saw carrier assembly on Foley Retoother permits full adjustment from 0 degrees to 30 degrees so teeth can be formed with any desired amount of hook.

Loosen tee handles and swing saw carrier to each standard angle, once at the 15-degree crosscut pitch and once at the 8-degree rip pitch. After setting saw carrier at the desired angle, tighten both tee handles to prevent angle from changing.

This test adjustment of carrier will demonstrate how position-setting must be made for each retooling job, depending upon whether rip teeth or crosscut teeth are wanted.

CAUTION: Turn tee handles t-i-g-h-t, to hold adjustment securely. Uneven teeth will result if tee handles are permitted to work loose during retooling operation.

23. **MOUNTING SAW ON CARRIER:** The saw to be retooled should be mounted on hand saw carrier as shown in Illustration 7, with saw handle to the left and with toe of saw to the right. To cut a straight toothed edge, use standard straight hand saw carrier. This carrier is used for all regular carpenters' hand saws.

A special crowned carrier is needed to cut a crowned or convex toothed edge into a saw blade.

Back or miter saws should be retooled on back saw carrier.

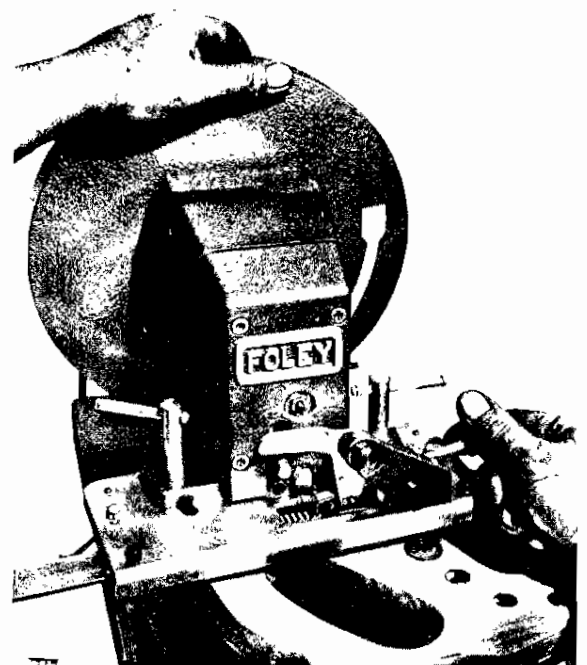


ILLUSTRATION #7

24. TO RETOOTH SAW: (8 Point) After you have attached the snap-on bar to the carrier, place the carrier bar in the retoother between the guides so the center hanger is in line with the punch.

Be sure the punch is at its highest position and place the saw on the carrier bar with the handle to the left, with the old edge of the tooth about an inch above the carrier bar, tighten the clamp on the center hanger against the saw blade but not too tight.

Now adjust the handle end of the saw with the gauge as shown in the Illustration 4 with the top of number 8 line at the bottom of the lowest tooth and lock the clamp. Now adjust the point end of the saw to the bottom of the lowest tooth and lock the clamp tight.

Now recheck the handle end of the saw again to see that this end is correct with gauge as this end may not be at the correct setting after you have set the point end of the saw. After you have checked the saw at both ends, tighten all clamps tight.

Now pull the carrier bar and saw all the way to the right so the saw clears the die. Drop the feed pawl onto the bar and check to see that it feeds properly. If everything is set properly turn on the motor and the saw will feed through the machine. Place your right hand under the saw to steady it when you start retooling and your left hand under the handle end when the saw is half way through retooling.

After the saw has been retooled, remove the saw and carrier bar from the machine. Remove the ratchet bar from

the carrier bar, by grasping it near the center pin and pulling upwards and back to the right at the same time so the hooks on the end come out of the slots in the bar.

Be sure to flip the feed pawl up out of the way of the carrier bar when through retooling.

CHIP DRAWER: Steel chips are formed as old teeth are removed and new teeth are punched into saw blades. At front of Retoother, a drawer which extends underneath the punch and die is provided to catch these steel particles. Drawer should be emptied periodically, so no accumulation will clog "V" slot of die.

VII. MAINTENANCE

1. Lubrication of the Retoother. Lubricate the retoother each 8 Hrs. of operation by placing a S.A.E. grade 30 motor oil at the following locations.
 - a. Oil hole on top of main frame.
 - b. Main shaft between flywheel and main frame casting.
 - c. Feed lever pivot pins.
 - d. Feed pawl pivot pin. Remove excess oil with cloth or cotton waste.
2. Lubrication of the Motor.
 - a. Refer to motor nameplate data.
3. Die-Removal and Sharpening. Remove cap screws part No. B251611 diagram No. 57 and loosen cap screw part No. B252411 diagram No. 58. Slide die from die holder casting.

Sharpening of the die is best done on a surface grinder by removing

.005 to .015 material from top of die. Note, never grind in the "V" of the die. A makeshift job of grinding the die can be done by holding the top side of the die against the flat side of a grinding wheel. The grinding wheel must be in good condition and should be 46 to 60 grit. Lightly stone cutting edges to remove butt.

After sharpening the die, check overall height by placing the die on a flat surface. The die should be maintained at a height of 1-5/32 inch by placing shims as necessary under the die.

4. Punch - Removal and Sharpening.

- a. Remove Die holder casting from base.
- b. Turn flywheel by hand until punch is at bottom of stroke.
- c. Loosen cap screw part No. B161206, diagram No. 53.
- d. Slide punch down until clear of punch holder for removal. See Illustration No. 8.
- e. Sharpening of the punch is best done on a tool grinder by grinding .005 to .020 from end of the punch. Note, shear angle on end of punch should be maintained. A makeshift job of grinding the punch can be done by holding the end of the punch against the side of a grinding wheel. The wheel should be 46 to 60 grit. Lightly stone cutting edges to remove burr.
- f. Replace punch and lock clamping screw diagram No. 53, part No.

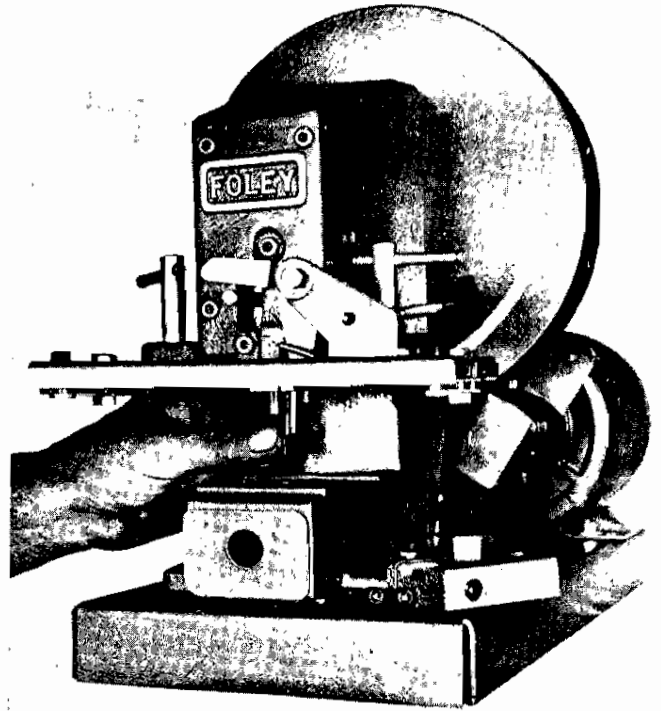


ILLUSTRATION #8

B161206 securely to prevent punch from coming loose.

5. Punch and Die - Adjusting for Wear and Alignment.

- a. To adjust for wear of punch and die, have punch mounted in the punch holder, diagram No. 34, part No. 385035. Be sure the punch is slid all the way into punch holder before locking screw diagram No. 53 is tightened. Next, slide die holder with the die in it, up against the punch. Note, at the bottom of the stroke or when the punch is at its lowest position, determined by turning the flywheel, the bottom of the punch should be 1/32 lower than the top of die. That is, the punch must enter the die about 1/32 inch, if less than this amount, the

punch and die will not function. The punch can be raised or lowered by removing or adding spacers, diagram No. 4, under cap screw in the end of the punch.

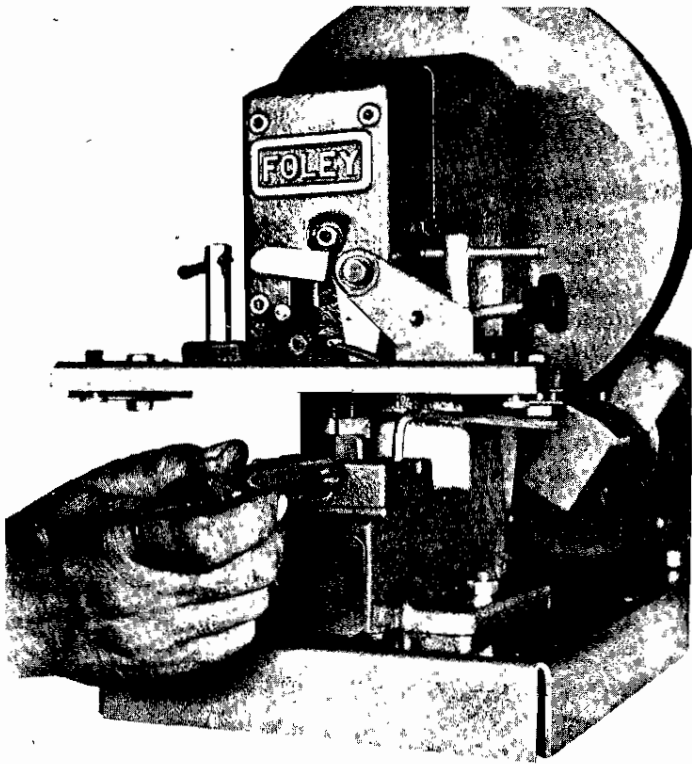


ILLUSTRATION #9

6. To Align the Punch and Die.

- a. Start with the punch securely locked into the punch holder. You should have previously adjusted punch for wear and sharpened if necessary.
- b. Place the die holder and with punch at bottom of its stroke, slide the die and die holder up to the punch. Slightly snug up die holder cap screws diagram No. 57 and 58. With a wood or plastic handle of a screw driver, tap the die holder casting in against the punch.

Proceed to snug down cap screws diagram No. 57 as you tap on the die casting. Tighten cap screws diagram No. 57 and 58. See Illustration No. 9.

- c. Check alignment by placing a piece of paper between punch and die and slowly turn the flywheel by hand. If setting is correct, you should get a clean sharp die cut without ragged edges and no tearing in the bottom of the "V" notch.

7. Adjustment of Gib Buttons and Gib Plate.

- a. Remove Die Holder Casting with Die. Loosen jam nuts diagram No. 67. To tighten gibs, turn gib screws diagram No. 6 and 60 - Clockwise. Note, when making adjustments, turn the flywheel by hand. If an increase in turning effort is noticed, the gibs are set too tight.
- b. Lock jam nuts diagram No. 67 and install Die and Die Holder as described in paragraph 6.

8. Adjustment of Friction Drive Wheel.

- a. Loosen the (4) four motor mounting nuts and slide the motor to the left. Note, point at which the friction wheel diagram No. 42 just touches the flywheel diagram No. 18. Move the motor an additional $1/16$ to $3/32$ inch to the left and tighten the motor mounting nuts. It is important that sufficient pressure be maintained between flywheel and friction wheel to avoid slippage. It is well to keep in mind that over tightening of the friction wheel will result in excess wear of the motor bearings.

9. Check guide blocks, diagram No. 24, part No. 385024. If worn, rotate 1/4 turn to expose unworn surface.

MACHINE MALFUNCTIONS

1. Problem - Ragged tooth.
Correction:

- a. Sharpen Punch and Die.
- b. Adjust Gib buttons and gib plate.
(See maintenance section of manual.)
- c. Adjust spring pressure on carrier bar.

2. Problem - Uneven teeth.
Correction:

- a. Saw carrier bar clamps should be set up tighter.
- b. Carrier bar is kinked or bent - straighten or replace.
- c. Feed pawl is slipping on ratchet bar. Sharpen end of feed pawl.
- d. Increase drag on feed pawl adjusting screw.

3. Problem - Teeth uniform in size but not in a straight line.
Correction:

- a. Sharpen punch and die.
- b. Check condition of carrier bar. Look for kinks and bends in the carrier bar.

4. Problem - Feed pawl slips on ratchet bar.
Correction:

- a. Sharpen feed pawl.
- b. Replace worn feed pawl.
- c. Replace worn ratchet bar.
- d. Replace feed pawl return spring.
- e. Clean ratchet bar teeth.

5. Problem - Old teeth are not completely removed and new teeth not formed.
Correction:

- a. Allow a greater distance between the carrier bar and the bottom of the gullets, of the saw teeth.

- b. Set the saw in the carrier bar, reading 6 points on the saw gage for 8 point saw, or 14 points for a 16 point saw, etc. This procedure will make more of the saw blade available to the retoothing punch ensuring sufficient material to permit forming new teeth.

6. Problem - Carrier Bar Sticking.
Correction:

- a. Check carrier guides, dia. No. 16, part No. 361023 for burrs. Also check front guides, dia. No. 24 part No. 385024 for wear. Rotate worn.
- b. Remove bends, burrs from carrier bar.

7. Problem - Feed pawl not pushing square on the ratchet bar.
Correction:

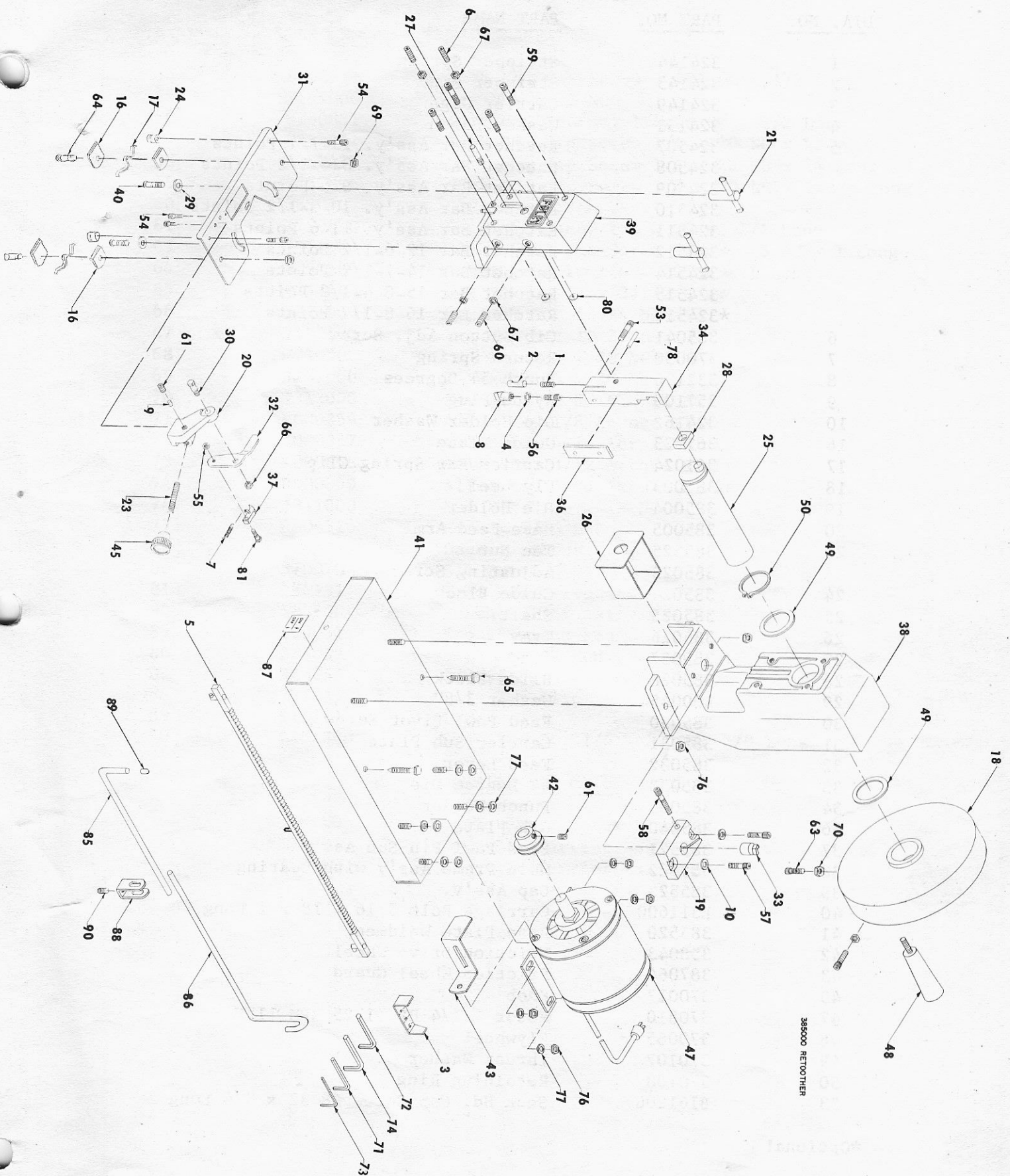
- a. Loosen two (2) cap screws, dia. No. 54, part No. B190811 and position casting to square up feed finger.

8. Problem - Cracked Die.
Correction:

- a. Replace die. To avoid cracked die, be sure the punch does not enter the die more than 1/32 inch. Also, keep punch and die sharp as well as correctly aligned.

9. Problem - Handle of saw hitting retoothing die.
Correction:

- a. Remove handle of saw. This will be necessary on badly worn saws that have been resharpened many times.



285000 RETROTHROWER

PARTS LIST FOR 385000 RETOOTHER

<u>DIA. NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>
1	324144	Stripper Spring
2	324145	Stripper Pin
3	324149	Carrier Gage
4	324153	Washer-Punch
5	324507	Ratchet Bar Ass'y. 13-7-4 Points
	324508	Ratchet Bar Ass'y. 8-4-1/2 Points
	324509	Ratchet Bar Ass'y. 9-5 Points
	324510	Ratchet Bar Ass'y. 10-5-1/2 Points
	324511	Ratchet Bar Ass'y. 11-6 Points
	*324512	Ratchet Bar 12-6-1/2 Points
	*324514	Ratchet Bar 14-7-1/2 Points
	*324515	Ratchet Bar 15-8-4-1/2 Points
	*324516	Ratchet Bar 16-8-1/2 Points
6	385041	Gib Button Adj. Screw
7	370050	Return Spring
8	332136	Punch 54 Degrees
9	357109	Nylon Plug
10	324162	Die Holder Washer
16	361023	Guide Plate
17	361024	Carrier Bar Spring Clip
18	385003	Flywheel
19	385004	Die Holder
20	385005	Base-Feed Arm
21	385525	Tee Nut
23	385023	Adjusting Screw
24	385024	Guide Block
25	385025	Shaft
26	385026	Tray
27	385027	feed pin
28	385028	Slide Block
29	R000454	Washer 3/8"
30	385030	Feed Pawl Pivot Screw
31	385031	Carrier Sub Plate
32	385032	Feed Lever
33	385033	54 Degree Die
34	385035	Punch Holder
36	385040	Gib Plate
37	385521	Feed Pawl Pin Sub Ass'y
38	385522	Main Frame Ass'y with Bearing
39	385523	Cap Ass'y.
40	E311600	Carriage Bolt 5/16 - 18 x 1 Long
41	385520	Base Plate Weldment
42	358043	Friction Drive Wheel
43	387064	Friction Wheel Guard
45	370017	Knob
47	370810	Motor - 1/4 HP. 1725 RPM 115V
48	370065	Flywheel
49	370107	Thrust Washer
50	370108	Retaining Ring
53	B161206	Sock Hd. Cap Screw #8-32 x 3/4 Long

*Optional

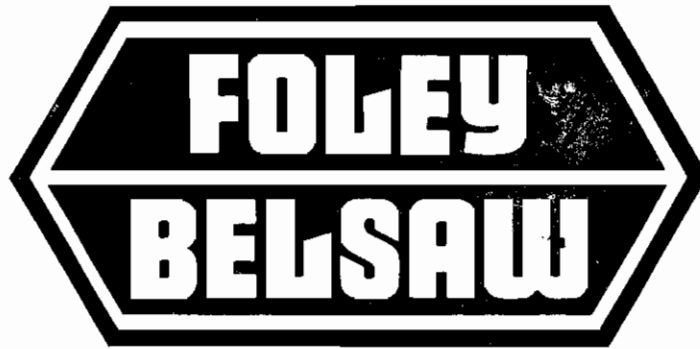
PARTS LIST FOR 385000 RETOOTHER

<u>DIA. NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>
54	B190811	Sock Hd. Cap Screw 10-24 NC x 1/2 Long
55	J131000	Hex Nut 6-32 NC
56	B250831	Sock Hd. Set Sc. 1/4-28 NF x 1/2 Long
57	B251411	Sock Hd. Cap Screw 1/4 - 20 NC x Long
58	B252411	Sock Hd. Cap Screw 1/4 - 20 NC x 1 1/2 Long
59	B252806	Sock Hd. Cap Screw 1/4 - 20 NC x 1-3/4 Long
60	385042	Side Gib Screw
61	C250420	Sock Set Screw 1/4 - 20 NC 1/4 Long
63	C311624	Socket Hd. Set Screw 5/16 - 18 NC x 1 Long
64	E251600	Carriage Bolt 1/4 - 20 NC x 1 Long
65	E254003	Lag Screw 1/4 x 2-1/2 Long
66	J192000	Hex Jam Nut 10-24 NC
67	J192100	Hex Jam Nut 10-32 NF
68	J250000	Sq. Nut 1/4 - 20 NC
69	J251000	Hex Nut 1/4 - 20 NC
70	J312000	Hex Jam Nut 5/16 - 18 NC
71	R000856	Allen Key 1/8 Across Flats
72	R000857	Allen Key 3/16 Across Flats
73	R000858	Allen Key 3/32 Across Flats
74	R000859	Allen Key 5/32 Across Flats
76	J311000	Hex Nut 5/16 - 18 NC
77	R000526	Washer 5/16 SAE
78	324111	Dowel - Short
80	370010	Gib Button
81	324131	Feed Pawl Pivot Screw
84	385550	Punch Holder Ass'y.
85	385051	Front Switch Rod
86	385052	Back Switch Rod
87	385053	On-Off Decal
88	381019	Trip Rod Clip
89	370131	Tip
90	C251020	Sock Set Sc. 1/4 - 20 NCX 5/8 Long

CARRIER BAR KITS

*358980	Crown Carrier Bar Kit
*358981	Back Saw Carrier Bar Kit
358982	Straight Carrier Bar Kit

*Optional



**Any Questions?
Call Toll Free**



**1-800-328-7140
1-800-821-3452**

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