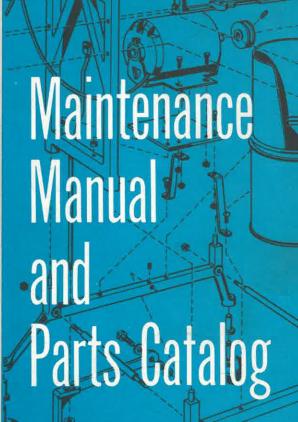
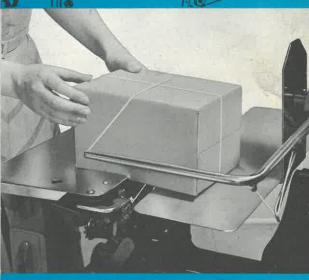


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CABLE ADDRESS "BUNNTYCO"

# Maintenance Manual & Parts Catalog

### BUNN



### **MACHINES**

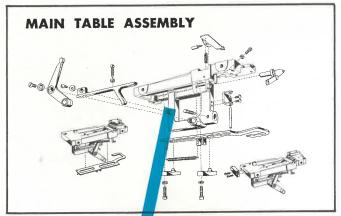
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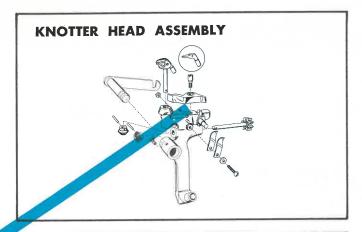


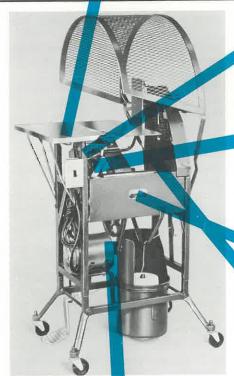
#### Note:

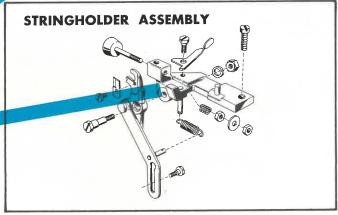
When ordering parts, please give the serial number of your Bunn Tying Machine. You will find it on the name plate on the right side panel of the machine.

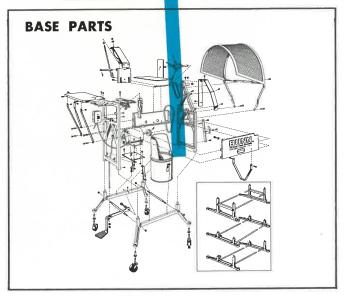
# How to identify the main assemblies

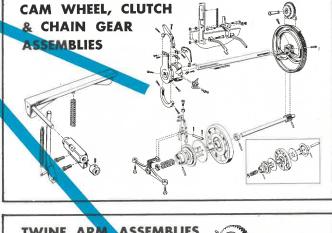


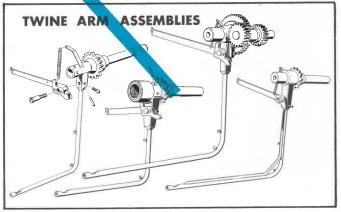












# Installation and Operation

The Bunn Package Tying Machine is shipped to you crated. Uncrate your machine and cut the twine holding the twine arm to the central shaft. Attach the guard which you will find in the crate with the machine.

# Threading Instructions

Before the machine is shipped it is threaded through each guide from the twine can to the stringholder button. Please note the various openings through which the twine passes so that the subsequent threadings may be simplified. A quantity of rock wool in the bottom of the can prevents twine from tangling under the cone and should remain in the container.





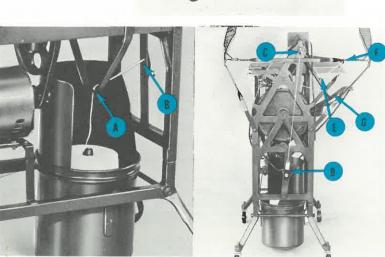
2. RAISE twine from end of "CONE" to hole "A" in bracket, directly above cone.

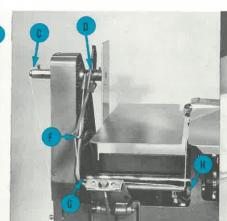
3. PULL twine thru hole "A" to hole "B" in "TENSION BRACKET."

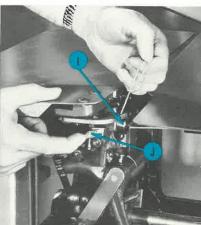
4. PUSH twine thru hole "B."

- 5. PULL twine upward and behind flat spring on tension bracket covering hole "B."
- 6. PUSH about eight inches of twine into hole "C."
- 7. BLAST air into hole "C" until twine "POPS" out at
- 8. PULL twine thru eyelet "E."
- 9. RAISE twine to hole "F" at end of draw back lever
- 10. PULL twine thru hole, "F" and eyelet "G."11. PUSH twine thru hole "H" at end of twine arm.
- 12. PULL twine under and around button "I" and hold with left hand.
- 13. PULL twine tightly with left hand until twine SLIDES INTO CUTTING POSITION.
- 14. LOWER left hand to rest on work table and PULL twine tightly.
- 15. PULL cutting knife lever handle "J" with right hand until twine is cut.
- 16. TURN switch to "ON" position. (Machine is now ready for operation.)

NOTE: If the end of the old cone of twine is caught before running out of the machine, the first of the next cone can be tied to it with a square knot. The knot will work through the machine. If the end of twine is not caught as it leaves the cone, the machine may be threaded from the new cone up to any point.







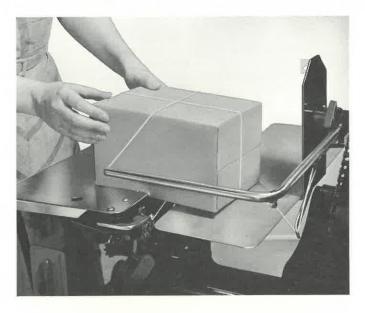
# **Machine Operation**

We advise making a thorough study of your machine as it is turned through a complete cycle by hand.

#### To turn your machine over by hand the following method is suggested:

- With motor turned off, face the machine from the side on which you find the nameplate and serial number.
- Press the foot trip. Grasp the large pulley wheel at the top and pull down. With the machine threaded and a package in place, the complete cycle can be observed when hand operated in this manner.
- 3. Turn on the motor and the machine is ready for use.

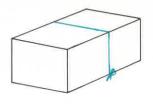
CAUTION: Be careful to avoid being struck by the twine arm as it makes a circular revolution.



# Correct Operating Procedure

Grasp both ends of bundle between thumbs and forefingers. Press right end against vertical standard and then press foot trip (or on Post Office model press entire bundle down on pressure trip). Hold bundle steady and firmly until tie is complete. (After tie is completed on post office models, quickly pick up bundle before next tying cycle begins. THEN turn bundle to tie the short way and repeat above directions.)

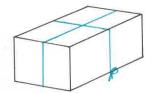
# One way wraps



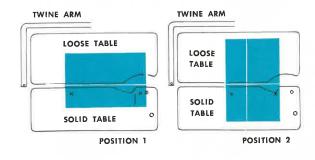
To operate your Bunn Tying Machine to the best advantage, we suggest the following steps for a single, double, or triple wrap one way machine:

- Standing in front of the machine at the operating position, which is the widest side of the fixed table (hereafter referred to as the trough), hold the package firmly in tying position and step on foot trip.
- The position of the package should be such that the center is directly over the separation of the trough and the loose table. Also, the right side of the package should be located against the shoulder or groove in the trough.
- 3. While holding the package firmly with both hands, fingers at side, thumbs on top, step on the foot-trip and remove foot instantly. As soon as the tie is completed, remove the package and you should find a snug, secure package tied with a non-slip knot that will stand even the roughest handling.

# Cross ties



For tying packages, boxes, etc., with a cross tie, place the package on the machine for the long-way wrap first. The package need not set against the ledge above the knotter, but rather slightly on top of this ledge. Step on the foot-trip, INSTANTLY removing the foot. The twin arm will make one wrap and come to a stop. Grasp the package, and turn in a clock-wise direction one-quarter of a turn, bringing the right hand toward the body. Set the right-hand side of the package against the ledge, and do not force the package away from the operator, but rather draw it back slightly. This action makes the cross, bringing the string in position for the tip-up to catch it. Holding the package firmly in this position, set the foottrip once more—INSTANTLY removing the foot, The twine arm will make the final revolutions, and the machine will tie the knot. This is a very simple operation when once it is understood.



# How to avoid problems

CAUTION: Never file the face of the stringholder casting! It was filed by a trained workman, and the groove was put there for a purpose, and is not caused by wear. Necessary adjustments can be made by regulating the spring tension.

- 1. Threading: Be sure your machine is threaded properly. This is the major cause of machines not working properly (see threading instructions).
- 2. Twine: Your machine is adjusted for a definite size twine. For best results this should be used at all times.
  - a. Weak twine will cause trouble, as it will break at the stringholder button instead of pulling out
  - b. If the twine is too large it will not be released by the knotter jaws.
  - c. If the twine is too small it will cause a loose knot.
- 3. Stringholder Button: If you are using the proper size and a good grade of twine, and it breaks frequently, leaving short pieces behind the stringholder button, this is usually caused by too much spring pressure on the button. This can be remedied by loosening the two lock nuts, with washer between, that regulate the spring tension.
- 4. Stringholder Button Adjustment: Keep the stringholder button free of broken bits of twine. If there is a small piece of twine wrapped around the shaft of the stringholder button this will take the tension from the end of the twine, permitting it to jerk out or pull part way back into the button at the time the arm starts its revolution, causing a half or single loop knot





to be formed. Use the lever attached to the side of the stringholder button for releasing the tension and removing small bits of twine from this unit.

5. Clean Stringholder Button: After a period of use the hole in the stringholder casting may become filled with lint. A small pair of tweezers can be used to clean out this material.

CAUTION: Do not use a sharp instrument to force the button open. Always use the release lever!

- 6. Twine Running Tension: A smooth, easy running tension is always the best. Neither too tight nor too loose. This can be tested by pulling a quantity out from the end of the twine arm. The adjustment for running the tension is the flat spring held in place by two knurled brass nuts at the back of the machine. If the tension is too tight these should be loosened approximately one-half turn at a time, until the proper tension is made. If the tension is too loose they should be tightened one-half turn at a time until the tension
- 7. Single Loop Knots: If your machine is making a one-loop knot that always slips out, it is possible that the running tension is too tight, and the tension should be loosened until a double-loop knot is formed. This adjustment can be made as outlined in No. 6.
- 8. Cutting Knife: When the knife becomes dull it can be replaced by removing the screw that holds it in place and inserting a new knife, or the edge can be sharpened by grinding a small quantity off the cutting edge on a grinding wheel or hand stone.

### ... but just in case you do have a problem, here's how to:

## replace the drive belt

- 1. Remove clutch fork No. 63 located just above motor by removing the clutch fork pivot pin No. 66.
- 2. Remove the two cap screws that hold the lower bearing No. 67 to the side frames and remove lower bearing (do not pull clutch out).
- 3. Slip belt over clutch and re-assemble lower bearing.
- 4. Re-assemble clutch fork No. 63 and clutch fork pivot pin No. 66, making sure the clutch block lever No. 112 fits into the slot of the clutch fork. (See page 15.)

# replace the stripper spring

If the twine continually catches in the stripper No. 52, it may mean that the spring that operates the stripper is broken or has lost its tension.

- 1. Remove sheet metal trough from main table.
- 2. Remove stripper screw No. 53 and remove stripper.
- 3. Replace stripper coil spring No. 54 and re-assemble. Be sure screw is all the way in. (See page 13).

## replace the stripper

- 1. Remove sheet metal trough from main table.
- 2. Remove stripper screw No. 53 and remove stripper.
- Re-assemble with new stripper. The notched face of the stripper should be close to the side of the knotter body when using twine 12-ply and under. When heavy twine, 16- to 24-ply, is used a space of .010" should be allowed between the stripper face and side of knotter body. (See page 13.)

5. Adjustments can be made by bending the stripper. A few taps with a light hammer will normally give the

correction needed.

## replace the knotter

In replacing the knotter in your Bunn Machine, the mechanic must be careful to time the new knotter properly. When the knotter is timed correctly, the two taper pins in the bevel gears should be parallel to each other, with the knotter roller at the bottom of the cam. In other words, when the knotter is point-

ing straight ahead.

Note the position of the teeth on the star wheel. You will see that the star wheel contains seven uniform teeth and one slightly beveled. When timed properly the beveled tooth will be slightly to the right of the center line — as shown at right. If the *pointed tooth* is not in correct position – remove the taper pin and bevel gear, located at the



end of the star wheel shaft, and time correctly.

If knotter holds the loops of the knot, and fails to release after the tying cycle-

- 1. There is an adjusting screw located directly back of the knotter for adjusting the space between the jaws.
- 2. The adjusting screw is set at a 45° angle and is held in positive location by a small hexagon lock nut.
- 3. By holding the set screw in place with a screw driver, the lock nut is released and the set screw turned in a clockwise direction until the twine is released (usually a quarter turn is sufficient).
- 4. Then by holding the set screw in location with a screw driver, tighten the lock nut securely.

# correct clutch slipping

- 1. Your machine is equipped with a dry clutch and no oil should be allowed to get between the clutch plate and the clutch disc, as this will cause the clutch to slip.
- 2. When oil on the clutch is causing the machine to not operate properly, it is suggested that an oil can containing a solvent be used and a few drops "squirted" between the clutch disc and the clutch plate. This should dissolve the oil and allow the machine to operate satisfactorily.
- 3. Another method that may be used is to place a small quantity of powdered rosin between the clutch disc and the clutch plate. This is done by turning off the motor with the machine in neutral position, and by using a screw driver and the frame of the machine for leverage force the large main gear to move about two teeth in a counterclockwise direction. This will cause a small space to open between the clutch disc

and the clutch face. Now drop a small quantity of powdered rosin in this opening and start the machine.

4. If this does not correct the slipping, it is necessary that the clutch be removed and the disc wiped clean.

### clean the clutch

- 1. With machine in neutral position, drive out the tapered pin in the clutch gear washer No. 83. This will allow the clutch to come apart.
- 2. Wipe both faces of the clutch clean and reassemble.

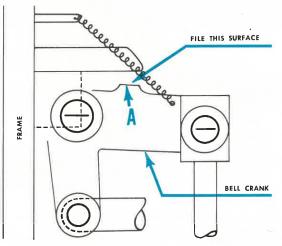
# correct automatic tripping of cross tie

Note: Automatic tripping may occur on older tying machine models which don't have a wedge (part No. 112W) in the trip mechanism.

When cross tie machine trips automatically on the cross tie, the following remedy is recommended:

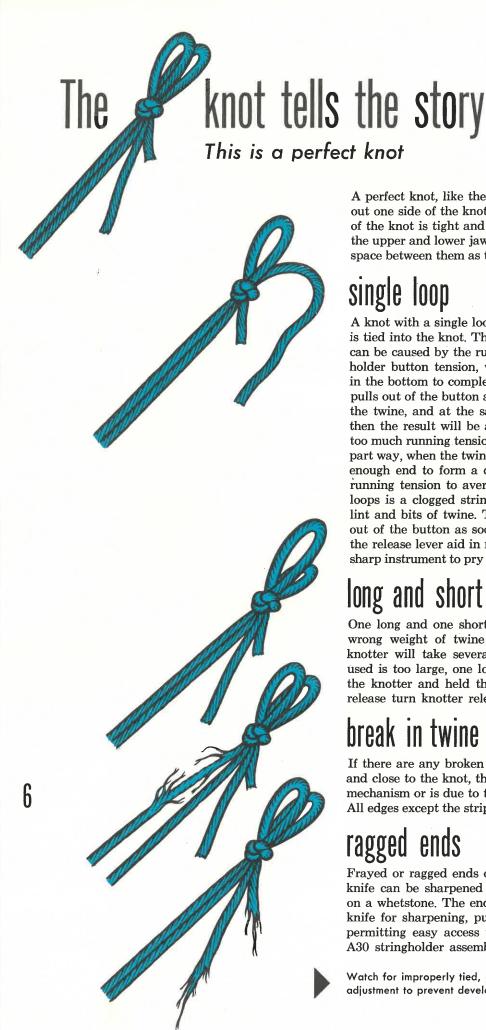
1. Turn off motor at switch.

- 2. Step on foot trip and hold down. This will cause the bell crank located at the left side of machine just under main table to remain open.
- 3. Using a small Pillar file, file a small amount off of surface "A" of bell crank.
- 4. Start machine and step on foot pedal and release instantly. If this does not cause the machine to stop for the cross tie, file off an additional amount of stock from surface "A" until the arm will revolve and stop when the foot pedal is engaged, and the foot instantly removed.



Or when machine trips automatically it may be due to one of the following reasons:

- 1. Trip rod may be bent and is binding. This can be easily straightened.
- 2. Vibration set up by dry bearing in clutch wheel. Bearing should be oiled.
- 3. Clutch block lever loosing its position on clutch fork roller. File surface "A".



A perfect knot, like the illustration, has two long even loops extending out one side of the knot with one short end and one long end, the body of the knot is tight and hard. The stripper should be on the line where the upper and lower jaws meet at the lip of the lower jaw and very little space between them as the stripper pushes the twine off the knotter.

### single loop

A knot with a single loop or "half knot" will not hold, as only one end is tied into the knot. The other end is free to pull out of the knot. This can be caused by the running tension being set too tight for the stringholder button tension, which will not leave enough free end of twine in the bottom to completely form the double loop knot. If this free end pulls out of the button at any time before the knife trap operates to cut the twine, and at the same time, pull out the residue of the free end, then the result will be a single loop knot. Another fault could be that too much running tension could cause the end in the button to jerk back part way, when the twine arm starts its revolution. This would not leave enough end to form a double loop knot. The remedy is to loosen the running tension to average easy running. Still another cause of single loops is a clogged stringholder. Keep the stringholder button clear of lint and bits of twine. Too much clogging will cause the twine to jerk out of the button as soon as the twine arm starts to revolve. Press on the release lever aid in removing lint and broken off ends. Do not use a sharp instrument to pry out lint between button and face of stringholder.

### long and short loops

One long and one short loop, while not serious, is usually caused by wrong weight of twine for opening between jaws of knotter. Each knotter will take several different weights of twine, but if the twine used is too large, one loop can be caught in the back of the throat of the knotter and held there until released by the adjusting screw. To release turn knotter release screw in a clockwise direction.

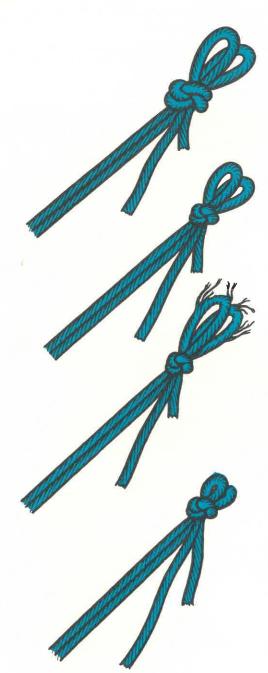
#### break in twine in front of knot

If there are any broken plys in the twine running around the package and close to the knot, this usually caused by either friction against the mechanism or is due to too much tension in tying a firm, solid package. All edges except the stripper points must be kept smooth.

### ragged ends

Frayed or ragged ends of twine at the knot indicate a dull knife. The knife can be sharpened by grinding on a fine emery wheel or honing on a whetstone. The ends should have very clean cuts. To remove the knife for sharpening, pull the knife trap forward with the hand, thus permitting easy access to the screw holding the knife or remove the A30 stringholder assembly.

Watch for improperly tied, poor knots; they indicate the machine requires proper adjustment to prevent development of trouble which might result in major repairs.



#### loose knot

When the body of the knot is loose and the loops slightly shorter than normal this indicates that the knotter release screw is set in too far, allowing the loops to release from the knotter too soon. Turn release screw in counterclockwise direction. The stripper could be too short.

### short loops

Short loops and tight knot can be caused by lack of balance between the running tension and the stringholder button tension. With stringholder tension properly set, the running tension should be neither too tight nor too loose. If running tension is too loose, knotter does not take up enough slack causing strain on free end of twine held in button.

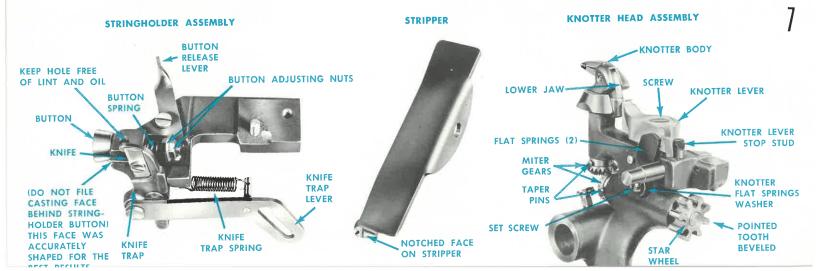
### cut loop ends

One or more cut plys of twine in loop of knot are caused by the stripper points shearing against the side of knotter jaws when stripping. This shearing is not serious unless one or both loops are entirely cut. If only one or two plys are cut there is no weakening of the tie. To remedy, bend down top front end of the stripper with a light hammer.

### very short loops and long ends

Very short loops and extra long ends caused either by knot slipping by the stripper or the knotter flat springs becoming weakened or both. The stripper to form a perfect knot should rub slightly against the side of knotter jaws and should be flush with top of knotter. It should also follow down the shoulder at the side of the jaws to get behind the knot for proper stripping. To close gap between stripper point and knotter, hit left side of stripper with hammer. The stripper is lightly case hardened. If knotter flat springs are weak, the loops will force out of knotter jaws before forming proper length. Replace weak springs with new ones to restore original performance.

For fast efficient maintenance, please study the illustrated examples of improperly tied knots, due to the wrong adjustments, and read the explanation on how to correct the trouble and obtain smooth machine operation.



# Complete list of parts

Part No.	Description Page Num		Description	Illustrated Page Numb
$\square \bigcirc 1$	Frame—left end (tent)17	$\bigcirc$ 9AS		t, cam wheel 15
$\odot$ 2	Frame—front end (square) 17	$\bigcirc$ 9AL	Screw—set, long,	cam wheel 15
$\square \bigcirc 3$	Frame—near side, long17	<b>○ 9B</b>	Key—cam wheel	
3C	Frame—near side, clamp model	<b>10</b> and <b>11</b>	Cam—drawslide,	, regular
$\bigcirc$ 3B	Frame—near side		(sold in pairs onl	y)15
$\bigcirc$ 3FS	Screw—fillister head	○ <b>10PO</b> and	Cam—drawslide,	
$\bigcirc$ 3HS	Screw—hex. head	<b>○ 11PO</b>		y)
$\square \bigcirc 4$	Frame—far side, long17	$\bigcirc$ 10A	Pin-dowell—dray	wslide cam 15
<b>4C</b>	Frame—far side, clamp model	○ <b>11A</b>	Screw—drawslide	e cam 15
5L	Base—left side, long, regular17	$\square \bigcirc 12$	Switch-knotter	head cam15
O 5LPO	Base—left side, long17	$\Box \bigcirc \mathbf{12A}$	Pin—switch	
5DL	Base—left side, low17	$\square \bigcirc \mathbf{12B}$	Screw—switch	
5UL	Base—left side, high17	$\bigcirc$ 13		
5TL	Base—left side, tilted 17	○ 13A		k 15
5R	Base—right side, long, regular 17	○ <b>13B</b>	Screw-knotter r	ack 15
○ 5RPO	Base—right side, long17	$\bigcirc$ 14	Kick-out, clutch,	regular 15
5DR	Base—right side, low17	<b>14H</b>	Kick-out, clutch,	heavy
5UR	Base—right side, high17	○ <b>14A</b>	Screw-clutch ki	ck-out15
$5\mathrm{TR}$	Base—right side, tilted17	$\square \bigcirc 16$	Cam riser	
5SS	Screw—socket set, base17	○ <b>16A</b>	Screw-riser cam	1
□ ○ 6	Tie-Rod-Base (specify length	$\triangle \Box \bigcirc \mathbf{A17L}$	Knotter head ass	sembly—light
	measure shoulder to shoulder) . 17		(10 ply and below	
<b>6E</b>	Screw—hex. head, machine 17	$\triangle \Box \mathbf{A17H}$	Knotter head ass	· ·
○ <b>6A</b>	Nut-base tie-rod		(12 ply and abov	
□ <b>7</b>	Trough—split type17	○ <b>A17A</b>		b-assembly 12
□ . 7A	Bracket—trough, front17	○ <b>17B</b>	Pin	•
□ ○ 111 7B	Bracket	○ <b>17C</b>	Oil cup	12—
□ 7L	Trough—laundry type	○ <b>17D</b>	Stud-knotter le	
□ ○ <b>7PO</b>	Trough—post office type	○ <b>17E</b>	Stud-tip-up link	-
□ 7RT	Trough—roll towel	$\triangle \bigcirc \mathbf{A18LM}$	Knotter body ass	
□ 7MR	Trough—meat roll	<del></del> 0		gear 12
○7N	Nut—bracket screw	<b>△ A18HM</b>	Knotter body ass	
○7S	Screw—bracket	<u></u>	heavy, with mite	
□ ○ A8-17-30	Tying unit—complete,	$ riangle  color{18JL}$	Jaw-knotter—ligh	
_ O A0-17-00	(composed of assemblies	$\triangle \bigcirc \mathbf{A18J}$	Knotter-jaw asser	
	indicated in part number)	△ 18JH	Jaw-knotter, hear	
A8	Main table assembly—regular 13—		Pin-knotter jaw.	
	Main table sub-assembly—	○ 18R	Roller-knotter ja	
A8B	regular	○ <b>19</b>	Gear-miter, knot	
A8BC	Main table sub-assembly—	○ <b>19TP</b>	Pin-taper, knotte	
AobC	clamp model	○ <b>A20</b>	Star wheel assem	
○ A OPPO	Main table sub-assembly	0 1120	with miter gear.	
○ <b>A8BPO</b> <b>A8C</b>	Main table assembly—clamp	<b>21</b>	Lever-knotter	
AoC	model	$\bigcirc$ 22	Screw—knotter le	
<b>⊃ A8PO</b>	Main table assembly	○ 22S	Screw-set, knotter	
	Screw-set, knotter pivot13	○ <b>22</b> 5 ○ <b>23</b>	Spring-knotter fla	
○ 8 <b>D</b>		○ 23A	Screw-knotter fla	
	Stud—drawslide spring 13 Stud—knotter head stop 13	○ <b>23B</b>	Washer—knotter	
○ 8E	-	○ 23C	Nut-knotter flat	
○ 8 <b>F</b>	Stud—drawslide lever13	○ <b>23</b> € ○ <b>24</b>	Stud—knotter he	
○ 8G	Stud—riser lever	$\bigcirc$ 24 $\bigcirc$ 25	Roller—knotter h	
○ 8H	Washer—riser lever		Pivot assembly—	
○ 8Í	Screw—riser lever	○ A26 ○ 26 A	_	
$\bigcirc$ 8R	Screw—hex. head,	○ 26A	Screw—pivot asse	
- 00	main table mounting	○ <b>26B</b>	Washer—pivot as	
○ 8S	Screw—fil. head,	~ <b>9</b> ₹	lock screw	
	main table mounting17	○ <b>27</b>	Screw-knife trap	
□ ○ <b>A9</b>	Cam wheel assembly	<b>○ 28</b>	Screw—knotter re	
□ ○ 9	Cam wheel		adjusting	

 $<sup>\</sup>bigcirc$ Used in post office models, too. Order may be written with "P.O." appended to part number.  $\square$ Must order with machine serial number.  $\triangle$ Specify twine size used.  $\triangleleft$ Used with backgeared models.

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Part No.	Description	Illustrated on Page Number	Part No.	Description Page Numb
○ 28A	Nut-knotter release scre	ew 13	<b>○49D</b>	Stud-roller—drawslide lever13
○ <b>29</b>	Post—knotter release	13	<b>○ 50</b>	Spring—drawslide
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AJUII	heavy, regular		○ <b>51L</b>	Lever—tip-up
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- 400CTT	light, clamp models		$\triangle \Box \bigcirc \mathbf{52B}$	Stripper—heavy, regular
<b>○ A30CH</b>	Stringholder assembly—		$\triangle \Box$ 52LA	Stripper—light, laundry
	heavy, clamp models		$\triangle \Box$ 52LR $\triangle \Box$ 52LB	Stripper—heavy, laundry
○ <b>30L</b>	Stringholder sub-assembly		$\bigcirc$ 53	Screw-stripper
	light, regular	14		Spring-stripper
□ <b>30H</b>	Stringholder sub-assembly	y —	○ <b>54</b>	Lever-riser
	heavy, regular		○ <b>55</b>	
□ 30CL	Stringholder sub-assembly	y —	○ <b>55A</b>	Screw-riser lever stop
	light, clamp model		$\bigcirc$ 55 ${f B}$	Nut-riser lever stop screw 13
□ 30CH	Stringholder sub-assembly	y —	$\bigcirc$ <b>56</b>	Guide—riser pin
_ 00011	heavy, clamp model	,	○ 56A	Screw—guide mounting13
○ SUEC	Screw-stringholder mount	ting	O 57	Pin—riser13
○ 30FS			<b>58</b>	Spring—trip
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○ <b>30PP</b>	Pin—stringholder locating	g14	⊖ 59 ⊖ 59 <b>PO</b>	Bell-crank trip—regular
○ <b>A31L</b>	Knife trap assembly—		60A	Nut-pivot screw (clamp model
	long lever		OUA	
A31S	Knife trap assembly—sho		20	& replacement)
	lever (for very heavy ply	only)	60	Screw-pivot, (clamp model
⊃ 31	Knife trap			& replacement on old style)
⊃ <b>32L</b>	Lever—long, knife trap		○ 61	Screw-pivot
32S	Lever—short, knife trap		○ 61A	Nut-pivot screw15
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⊃ <b>33N</b>	Nut-pivot screw		□ 62T	Rod-trip, medium (241/8")
⊃ 34	Rivet—knife trap			
⊃ 35	Spring—knife trap	$\dots$ . 14	□ 62U	Rod-trip, long (28½")
⊃ 35A	Stud-knife trap spring	14	<b>62N</b>	Nut-trip rod 17
○ 36	Knife	14	62W	Washer-trip rod17
<b>○ 37</b>	Screw-knife mounting		○ A63	Fork assembly—clutch
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⊃ 39L	Spring—light, stringholde		<b>○ 64</b>	Roller-clutch fork15
) 99L			○ <b>65</b>	Screw—clutch fork roller15—
	button (for 10 ply and belo		○ <b>66H</b>	Pin-clutch fork pivot15
39H	Spring, heavy, stringhold		0 0011	
	button (for 12 ply and ab		- OF	(includes cotter pins)
<b>40</b>	Nut—stringholder buttor	$1 \dots 14$	○ <b>67</b>	Bearing—lower
<b>→ 41</b>	Washer—stringholder but	tton14	○ <b>67S</b>	Screw—lower bearing 15
○ <b>42</b>	Lever-release, stringholde		□ <b>A68</b>	Loose table assembly 17
	button		○ 68P1	Pin-loose table retaining,
<b>○ 43</b>	Screw-release lever			for ¾" diam. stud16—
	Drawslide assembly—reg		<b>68P2</b>	Pin-loose table retaining,
○ <b>A45</b>	(sold with A47 only)			for 7/8" diam. stud
4.450			68S	Housing—ball bearing, double
A45C	Drawslide assembly—clar		000	(loose table)
	type (sold with A47 only)	) 13	68S short	Housing—ball bearing, single
A45D	Drawslide assembly—		000 811011	<del>-</del>
	double headed type			(loose table)
○ <b>A47</b>	Cap assembly—drawslide	e13	69	Yoke—clamp
○ 47A	Roller—drawslide cap		69R	Rod—yoke
○ 47B	Stud-roller—drawslide ca		<b>69T</b>	Screw—thumb, yoke clamp
○ 47 C	Screw—drawslide cap		70	Lever—short
			70P	Pin—taper, short lever
○ 47D	Washer-lock—drawslide		70R	Roller—short lever
○ <b>A49</b>	Lever assembly—drawsli		70K 70S	Stud-roller—short lever
<b>○ 49A</b>	Washer—lever retaining.			
○ <b>49B</b>	Screw—lever retaining		71	Lever—long
	Roller-drawslide lever	13	71LS	Stud—large, long lever
<b>○ 49C</b> ·	100101			

Part No.	Description	Illustrated on Page Number	Part No.	Description	Illustrated on Page Number
<b>7</b> 1SS	Stud-small, long lever		□ <b>79AD</b>	Pulley assembly—do	uble
<b>72</b>	Rod-yoke lever pivot			clutch, small (8¼" di	
<b>72C</b>	Collar—pivot rod		□ <b>79AL</b>	Pulley assembly—sin	
<b>72CS</b>	Screw—pivot rod collar			large (9¼" diam.)	,
<b>7</b> 3	Joint-yoke		□ 79ADL	Pulley assembly—do	uble
<b>73P</b>	Pin—taper, yoke joint			clutch, large (9¼" di	am.)
74	Fork—yoke		○ <b>79B</b>	Rivet—clutch disc	
<b>74A</b>	Plate—yoke fork cap		○ 79C	Bearing—clutch	15
<b>74</b> B	Rivet—cap plate		○ <b>79E</b>	Disc—clutch	
74C	Pin—yoke fork		$\bigcirc$ 80A	Pinion—clutch shaft,	1-cut15
<b>74</b> D	Plate—narrow, fork guide		80B	Pinion—clutch shaft,	
<b>74E</b>	Plate—wide, fork guide		$\bigcirc$ 80P	Pin—taper, pinion	
74F	Screw—guide plate		$\square \bigcirc 81$	Shaft—single clutch.	
□ ○ <b>75</b> A	'V' Belt	17	□ 81A	Shaft—double clutch	
75B	Bushing—motor pinion		<b>○ 82</b>	Clutch member—oute	
□ 75P-11	Pinions—motor		82A	Clutch member—inne	
□ 75P-12	Pinions—motor		82B	Pin-taper—double clu	
□ <b>75P-1</b> 3	Pinions—motor			member	
□ <b>75P-14</b>	Pinions—motor		$\bigcirc$ 83	Collar—clutch pulley	
□ <b>75P-1</b> 5	Pinions—motor		○ <b>83A</b>	Collar—clutch shaft e	
□ <b>75P-18</b>	Pinions—motor		○ <b>83D</b>	Pin-collar—clutch pul	•
□ <b>75P-20</b>	Pinions—motor		○ <b>83E</b>	Pin-end collar—clutch	
□ <b>75P-22</b>	Pinions—motor		$\square \bigcirc 84$	Spring—clutch	
□ <b>75-</b> S	Pinions—motor	17	□ <b>85</b>	Twine arm	
$\square \bigcirc 75S-15$	Sheave—motor		□ <b>A85BB</b>	Twine arm assembly-	
□ <b>75</b> S-1 <b>7</b>	Sheave—motor			ball bearing	
$\square$ 75S-20	Sheave—motor		$\square$ A85NB	Twine arm assembly-	
□ <b>75</b> S-22	Sheave—motor			needle bearing	
○ <b>75SS</b>	Screw—set, motor sheave	17	$\square \bigcirc \mathbf{A85BrB}$	Twine arm assembly-	
75 Q	Key—fibre pinion			bronze bearing	
<b>□ 76</b>	Gear—main cam		□ ☆ A85BG	Twine arm assembly-	
□ <b>76B</b>	Gear—main cam (for two			back geared.	16
	cross tie & laundry models	)	○ 85PO	Twine arm	
□ <b>76E</b>	Gear—main cam		□ 85-102	Twine arm—10" 2 wra	
	(single wrap clamp models	)	□ 85-162	Twine arm—16" 2 wra	
□ ○ <b>76EP</b>	Gear—main cam		□ 85 <b>-163</b>	Twine arm—16" 3 wra	
HOT	(single wrap models)		□ 85-182-4	Twine arm—18" 2 wra	
□ <b>76F</b>	Gear—main cam (for 10" &		□ 85-183-4 □ 85-283-4	Twine arm—18" 3 wra	•
	cross tie models & all one-	way	□ 85-202-4 □ 85-202-4	Twine arm—20" 2 wra	
o HACO	machines)		□ 85-203-4 □ 85-203-4	Twine arm—20" 3 wra	
○ <b>76SS</b>	Screw-set—short, main car		□ 85-232-4 □ 85 232-4	Twine arm—23" 2 wra	
○ FRST	gear		□ 85-233-4	Twine arm—23" 3 wra Twine arm—26" 2 wra	
○ <b>76SL</b>	Screw-set—long, main cam		□ 85 -262 □ 85 -263	Twine arm—26 2 wra	
<b>77</b>	gear		□ 85-203 85BR2	Bearing—bronze, 2 wr	•
□ <b>○ 78</b>	Key—main cam gear		00DIL2	twine arm	ар
□ ○ <b>A79</b>	Shaft—mainClutch gear & shaft	· 10	○ <b>85BR3</b>	Bearing—bronze, 3 wr	ean
	assembly—single		Ognica	twine arm	ар
□ <b>A79</b> D	Clutch gear & shaft		85C	Collar—twine arm ster	m
_ Alb	assembly—double		85CS	Screw-set, collar	
□ ○ <b>A79A</b>	Clutch pulley & shaft asser	mbler	○ 852D1	Ring—retaining	16
	-single, (8¼ diam.)	iibiy	○ 85E	Eye—twine guide	
□ <b>A79AD</b>	Clutch pulley & shaft asser	nhlv	85F	Plate-bearing retaining	
LAIVAD	-double (8¼ " diam.)	iioiy	85FP	Pin-plate	
	Clutch pulley & shaft asser	mbly	85FS	Screw-plate	
	—large, single (9¼ diam.)		85GP	Pin—drawback spring	
	Clutch pulley & shaft asser		☆ 85K	Gear—21T. twine arm	transfer
	—large, double (9¼ diam.		☆ 85LS	Gear—42T. twine arm	
<b>79</b>	Gear assembly—single clut		☆ 85LL	Gear-back—loose table	_
□ <b>79</b> D	Gear assembly—double clu		85M	Key-sprocket—twine a	
□ ○ <b>79A</b>	Pulley assembly—single	U.II	☆ 85N	Shaft-transfer—twine	
	clutch, small (8¼" diam.).	15	☆ 85NA	Bearing-transfer shaft-	
		10	,,	9	

OUsed in post office models, too. Order may be written with "P.O." appended to part number.

Part No.	Description	Illustrated on Page Number	Part No.	Description	Illustrated or Page Number
85P2	Pin—15T. sprocke	t. twine arm	○ <b>110P</b>	Disc—fibre	
85P3	Pin—12T. sprocke		110PR	Disc-foam plastic	
85 Q	Pin-taper—twine a		○ <b>110T</b>	Screw—can mounting	ng
85R	Race-needle bearin		□ <b>111</b>	Pad-straight yoke	
85S	Spacer—twine arm		□ 111N	Nut-straight yoke	pad
85 <b>TB-A</b>	Bearing-needle—1/2		□ 111S	Screw-straight yok	
85TB-B	Bearing-needle—1		112	Lever—clutch block	
85TB-S	Spacer-bearing—1			large (replacement-c	
☆ 85U	Bearing-ball—T. A		○ <b>112A</b>	Lever—clutch block	
☆ 85V	Housing—ball bear		<u> </u>	small	
85W	Washer-thrust, T.A		○ <b>112W</b>	Wedge-kickout leve	
☆ 85X	Flag-T.A. back gea		○ <b>112WS</b>	Stud-kickout lever	
☆ 85XS	Screw—flag mount		115A	Screw-tension boos	
% 80AS 90A	Caster—2½″ plast		115TB-B	Bracket-tension bo	
90H	Caster—3" plastic,		115TB-R	Rocker arm-tension	n booster
○ 90J	Caster—3" plastic,		115G	Guard—tension boo	
○ 90S	Sleeve—caster		115H	Screw—tension boos	
○ 90S ○ 91A	Nut-knurled tensio		115S	Screw—tension boos	
_	Nut-knurled tension		1100	bracket mounting	
91B	(used on tension be		115T	Screw—tension boos	ster
○ 00	Spring—tension		2202	rocker pivot	
○ <b>92</b>	Stud—tension spri		115U	Nut—tension booste	er
○ 92 Q	Screw—tension spi		1100	rocker pivot screw	-
○ 92R			115V	Spring—compression	1.
○ 93G	Guard—running to		1194	tension booster	-,
93M	Bracket—large ten		115W	Plunger—compression	n spring
93S	Screw—bracket me		119 44	tension booster	on spring,
○ A94	Lever assembly—p		○ <b>A116</b>	Running tension ass	embly
□ 94L	Lever-trip—model		O 117	Screw—assembly mo	
□ 94M	Lever-trip—model		118C	Collar-T.B. plunger	Junioning 17
□ 94U	Bracket—'U' trip	support	118P	Plunger-tension—bo	ostor
□ 94UI	Treadle—'U' trip	·1 177	118S	Screw-set—T.B. plu	
94N	Washer-trip lever			Guide—T.B.	ilger conar
94P	Screw-trip lever pi		119	Stud—T.B. spring	
○ <b>94PS</b>	Spring—pressure to		119A	Spring—tension boo	atom
○ 94 Q	Stud—pressure tri		119B	Stud—T.B. spring re	
○ <b>94S</b>		ip bearing13—15	119C		
○ <b>94T</b>		trip13—15	119N	Nut-T.B. guide lock Cam—tension boost	
○ <b>94TP</b>	Pin—bearing locat		120	Screw—T.B. cam	er
○ <b>94V</b>	Collar-P.T. pivot s	tud 15	121		
○ <b>94W</b>	Screw-set—collar		122	Pin—T.B. cam Chain-roller	17
96	Spring—straight h				
A103-6	Drawback lever as			Chain gear assembly	
$\bigcirc$ A103-8 $\frac{1}{2}$	Drawback lever as		○ 123SA	Shoe—small radius,	
	8½"		123SB	Shoe—large radius,	
A103-10	Drawback lever as		o 100D	(roll towel & 10" mo	
A103-12	Drawback lever as		○ 123R	Rivet—chain gear sl	
103R	Rivet—drawback		123D2	Stud—chain gear, 2	
103S	Screw-set—drawba		○ 123D3	Stud—chain gear, 3	
$\bigcirc$ 104 $\mathbf L$	Spring—light draw		<b>☆ 123D2BG</b>	Stud-chain gear, 2	
	(up to 16")		<b>☆ 123D3BG</b>	Stud—chain gear, 3	
104M	Spring—medium d		123MR-BG	Stud—chain gear, m	
	(18" model & abov		○ <b>123E</b>	Screw-set, chain gea	
105	Clip—drawback sp		□ 124-10 □ 124-16	Shield—10" machine	
106N	Screw—drawback.		□ ○ <b>124-16</b>	Shield—16" machine	
<b>○ 110</b>	Twine can—regula		□ <b>124-18</b>	Shield—18" machine	
110JO	Twine can—jumbo	),	□ <b>124-20</b>	Shield—20" machine	
	outside mounting		□ 124-23	Shield—23" machine	
110JU	Twine can—jumbo	, under	□ 124-26	Shield—26" machine	
	machine mounting		<b>○124S</b>	Screw—shield moun	
○ <b>110CL</b>	Cone-wooden, lar		□ 125	Brake—casting	
110CS	Cone-wooden, sm		□ A125	Brake assembly	
○110D	Screw-cone moun	ting	□ ○ <b>A125PO</b>	Brake pad assembly	17

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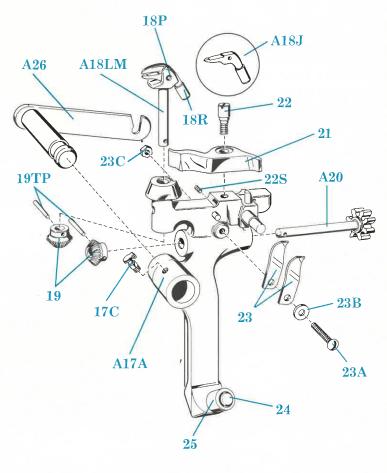
 $<sup>\</sup>bigcirc$  Used in post office models, too. Order may be written with "P.O." appended to part number.  $\square$  Must order with machine serial number.  $\triangle$ Specify twine size used.  $\lang$  Used with backgeared models.

Don't Ma	Description	Illustrated on
Part No.	Description	Page Number
□ 125A	Rod-brake adjusting	17
<b>◯ 125APO</b>	Rod—brake adjusting	
○125BL	Nut-brake adjusting roo	1 17
○ <b>125W</b> L	Washer - brake adjusting	
-	rod	
○ <b>125P</b>	Pivot—brake	
○ 125 Q	Pin-brake pivot cotter.	17
○ <b>126</b>	Plate—motor	
□ ○ <b>126A</b>	Bracket—motor plate	
○ <b>126N</b>	Nut-bracket screw	
○ <b>126R</b>	Riser-motor plate	17
○ <b>126S</b>	Screw-frame	17
$\square \bigcirc 127$	Standard—knotter	
$\bigcirc$ 127 $\dot{\mathbf{S}}$	Screw-knotter standard	17
128	Loop—jumbo twine can	
○ <b>128A</b>	Loop—regular twine can.	17
<b>○128AS</b>	Screw—loop mounting	17
129A	Cord set—regular, 8 ft.	
	with switch	
129B	Cord set—grounded, 8 ft.	
129C	Cord set—3 phase, 8 ft. w	
<b>○129DB</b>	Cord set—post office, 12 f	ît.
	with switch & pilot light	
$\bigcirc$ 129DBL	Light—pilot	
129F	Switch toggle	
$\bigcirc$ 129S	Screw—switch mounting.	. 17
$\bigcirc$ 130	Motor—electric	
	(give information from mo	
1007710	specification plate)	
132E10	Guard—expanded metal,	
132E16	Guard—expanded metal,	
□ ○ 190E1¢DO	machine	17
□ ○ 132E16PO	Guard—expanded metal	10// <b>-  </b>
□ 132E18	Guard—expanded metal,	
□ 132E20 □ 132E23	Guard—expanded metal, 2 Guard—expanded metal, 2	
□ 132S18	Guard—expanded metal, 18" r	
□ 132S20	Guard—strap metal, 20" r	
□ 132S23	Guard—strap metal, 23" n	
□ 132S34	Guard—strap metal, 25 "n Guard—strap metal, 34" r	
□ 132S10MR	Guard—strap metal, 34 I	Hacillie
- IONOTOMILL	10" meat roll machine	
□ 132S16MR	Guard—strap metal,	
_ romorowity	16" meat roll machine	
□ <b>132E</b> 8	Guard—expanded metal,	
	0// = 11 / - 1 1 1	

8" roll towel machine

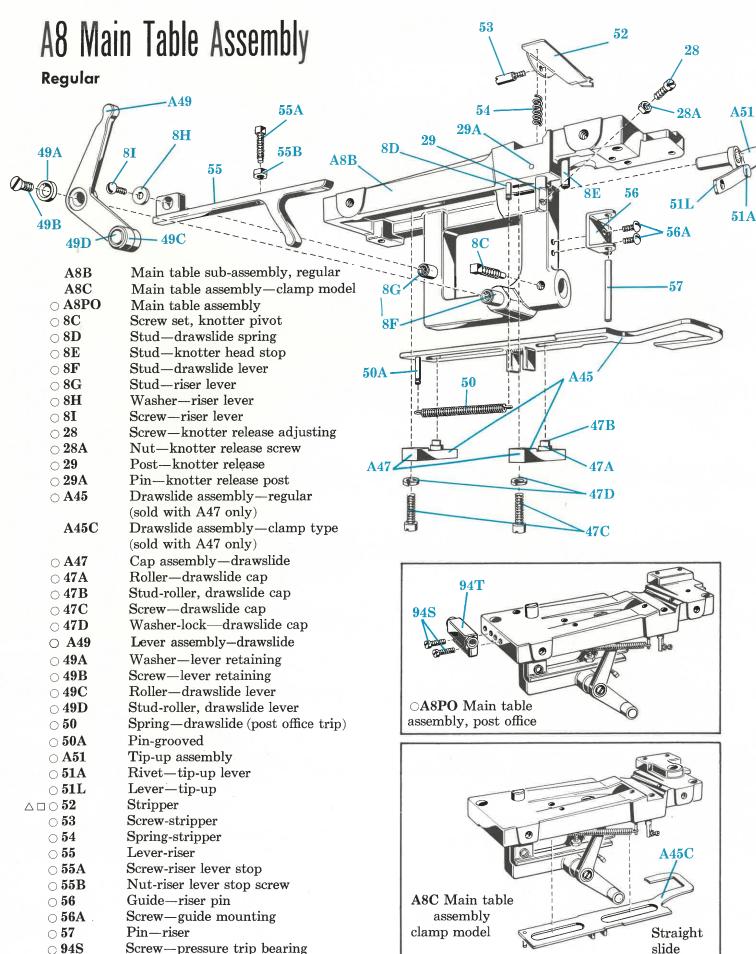
# A17L—Knotter Head Assembly

Light (10 ply and below)



○ <b>A17</b> A	Knotter head sub-assembly
○ <b>17C</b>	Oil cup
$\triangle \bigcirc \mathbf{A18J}$	Knotter-jaw assembly
$\triangle \bigcirc$ A18LM	Knotter body assembly—
	light, with miter gear
○ <b>18P</b>	Pin-knotter jaw
$\bigcirc$ 18 $\mathbf{R}$	Roller-knotter jaw
○ 19	Gear-miter knotter
○ 19TP	Pin-taper, knotter miter gear
○ <b>A20</b>	Star wheel assembly,
	with miter gear
<b>○ 21</b>	Lever-knotter
$\bigcirc$ <b>22</b>	Screw—knotter lever
$\bigcirc$ 22S	Screw-set, knotter lever screw
$\bigcirc$ 23	Spring—knotter flat
○ <b>23A</b>	Screw-knotter flat spring
○ <b>23B</b>	Washer—knotter flat spring
○ <b>23C</b>	Nut—knotter flat spring
$\bigcirc$ <b>24</b>	Stud—knotter head roller
<b>○ 25</b>	Roller—knotter head
○ <b>A26</b>	Pivot assembly—knotter head



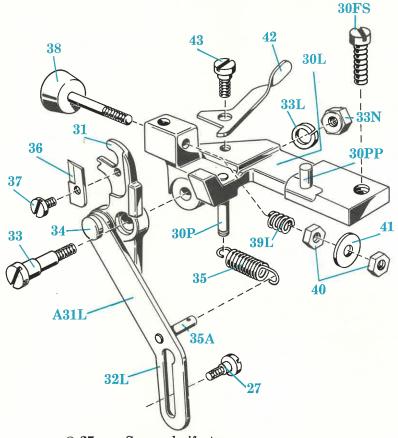


Bearing—pressure trip

O 94T

# A30L — Stringholder Assembly

Light, Regular (Post Office)
10 Ply Twine and Under



_
Screw-knife trap
Screw-stringholder mounting
Stringholder sub-assembly—
light, regular
Pin—spring perch
Pin—stringholder locating
Knife trap assembly, long lever
Knife trap
Lever—long, knife trap
Screw—knife trap pivot
Washer-lock, pivot screw
Nut—pivot screw
Rivet—knife trap
Spring—knife trap
Stud-knife trap spring
Knife
Screw—knife mounting
Button—stringholder
Spring—light, stringholder button
(for 10 ply and below)
Nut—stringholder button
Washer—stringholder button
Lever-release, stringholder button

Screw-release lever

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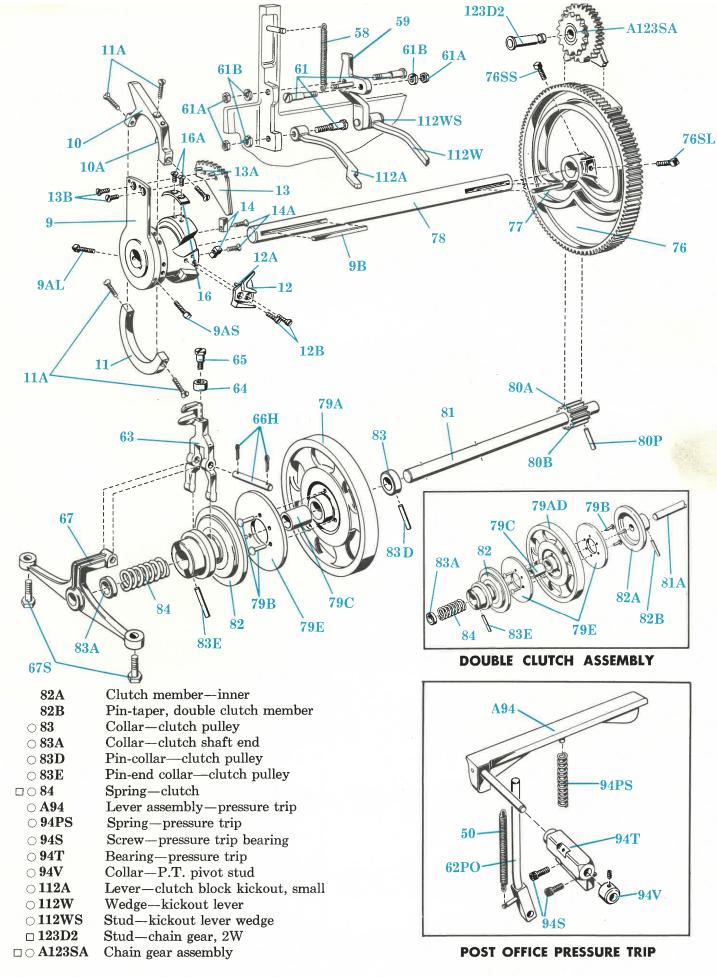
 $\bigcirc$  43

# Cam Wheel, Clutch & Chain Gear Assemblies

Oliulii C	dai Mocolliblico
$\square \bigcirc 9$	Cam wheel
$\bigcirc$ 9AL	Screw—set, long, cam wheel
○ <b>9AS</b>	Screw—set, short, cam wheel
○ <b>9B</b>	Key—cam wheel
	Cam—drawslide, regular—
10 & 11	(sold in pairs only)
<b>○10A</b>	Pin-dowell, drawslide cam
○ 10A ○ 11A	Screw—drawslide cam
-	Switch—knotter head cam
	Pin—switch
□ ○ 12A	
□ ○ 12B	Screw—switch
$\bigcirc$ 13	Rack—knotter
○ <b>13A</b>	Pin—knotter rack
○ <b>13B</b>	Screw—knotter rack
<b>○14</b>	Kick-out, clutch, regular
○ 14A	Screw—clutch kick-out
$\Box \bigcirc 16$	Cam riser
○ <b>16A</b>	Screw—riser cam
<b>50</b>	Spring—drawslide
	(post office trip)
<b>5</b> 8	Spring—trip
○ 59	Bell crank—trip
<b>○ 61</b>	Screw—pivot
○ <b>61A</b>	Nut—pivot screw
○ <b>61B</b>	Washer—lock, pivot screw
<b>○ 62PO</b>	Rod-trip
○ <b>63</b>	Fork—clutch
○ <b>64</b>	Roller—clutch fork
○ <b>65</b>	Screw—clutch fork roller
○ <b>66H</b>	Pin—clutch fork pivot
0 0011	(includes cotter pins)
<b>○ 67</b>	Bearing—lower
○ <b>67S</b>	Screw—lower bearing
□ <b>76</b>	Gear—main
○ <b>76SL</b>	
○ <b>76SS</b>	Screw-set, long, main cam gear
	Screw-set, short, main cam gear
○ <b>77</b>	Key—main cam gear
□ ○ <b>78</b>	Shaft—main
□ <b>○ 79A</b>	Pulley assembly—single clutch,
- 70 A D	small (8¼ diam.)
□ <b>79AD</b>	Pulley assembly—double clutch,
FOD	small (8¼ diam.)
○ <b>79B</b>	Rivet—clutch disc
○ <b>79C</b>	Bearing—clutch
○ <b>79E</b>	Disc—clutch
○ <b>80A</b>	Pinion—clutch shaft, 1-cut
80B	Pinion—clutch shaft, 2-cut
$\bigcirc$ 80P	Pin—taper, pinion
$\square \bigcirc 81$	Shaft—single clutch
□ <b>81A</b>	Shaft—double clutch
○ <b>82</b>	Clutch member—outer

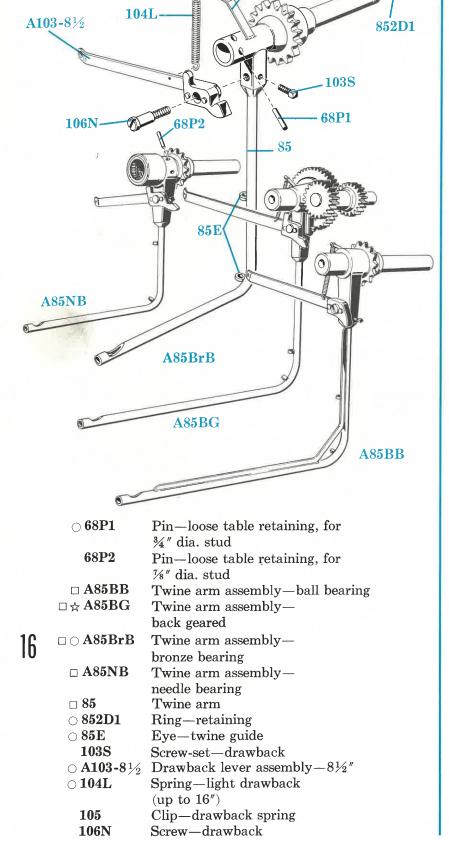
OUsed in post office models, too. Order may be written with "P.O." appended to part number.

 $<sup>\</sup>square$  Must order with machine serial number.  $\triangle$ Specify twine size used.  $\Leftrightarrow$  Used with backgeared models.



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## Twine Arm Assemblies

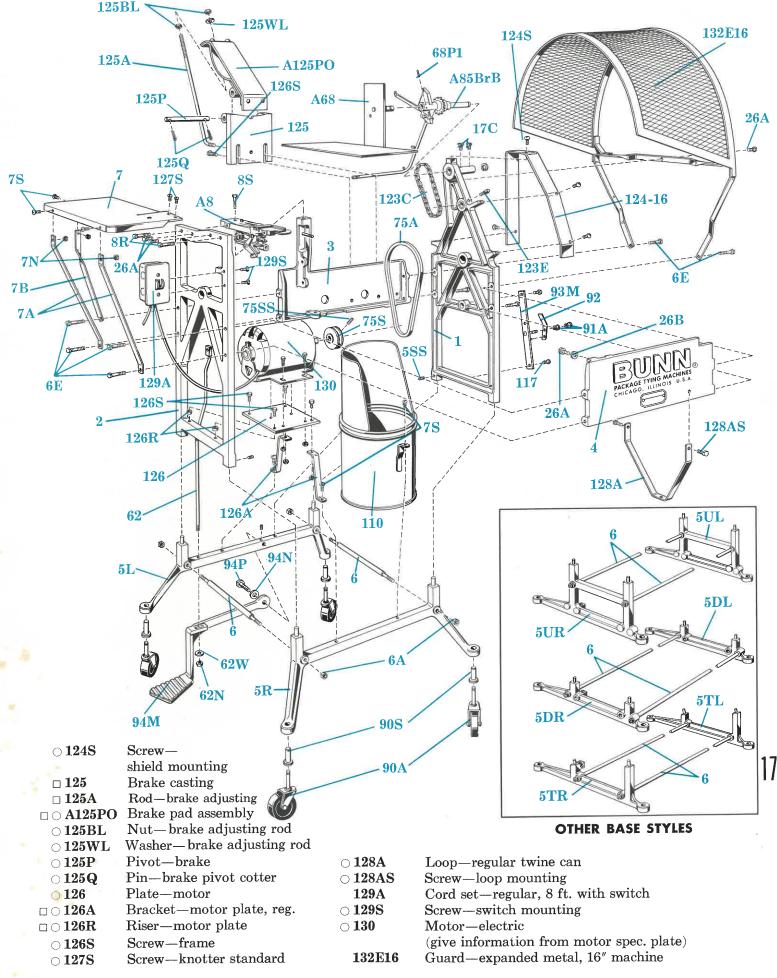


### Base Parts

$\Box \bigcirc 1$	Frame—left end (tent)
$\bigcirc 2$	Frame—front end (square)
$\square \bigcirc 3$	Frame—near side, long
$\square \bigcirc 4$	Frame—far side, long
5L	Base—left side, long, regular
5R	Base—right side, long, regular
○ 5LPO	Base—left side, long
$\circ$ 5RPO	Base—right side, long
5DL	Base—left side, low
5DR	Base—right side, low
5UL	Base—left side, high
5UR	Base—right side, high
5TL	Base—left side, tilted
5TR	Base—right side, tilted
5SS	Screw—socket set, base
○ <b>6A</b>	Nut-base tie-rod
$\Box \bigcirc 6$	Tie-rod-base (specify length
	measure shoulder to shoulder)
<b>6E</b>	Screw—hex. hd. cap
□ <b>7</b>	Trough—split type
□ ○ 7A	Bracket—trough, front
□ 7B	Bracket
○ 7N	Nut-bracket screw
○ 7N ○ 7S	Screw—bracket
A8	Main table assembly, regular
○ 8R	Screw—hex. hd., main table mtg.
○ 8S	Screw—fil. hd., main table mtg.
○ <b>17C</b>	Oil cup
○ 17 C ○ 26A	Screw—pivot assembly lock
○ 26B	Washer—pivot assembly lock screw
□ <b>62</b>	Rod-trip
□ 62N	Nut-trip rod
62W	Washer-trip rod
□ <b>A6</b> 8	Loose table assembly
□ A08 ○ 68P1	Pin—loose table retaining, for
0 0011	<sup>3</sup> 4" diam. stud
75 A	'V' Belt
□ ○ <b>75A</b> · □ <b>75S</b>	
□ 75S ○ 75SS	Pinions—motor Screw—set, motor sheave
$\Box \bigcirc A85BrB$	
□ ○ AooDID	bearing
90A	Caster—2½" plastic, regular
90A ○90S	Sleeve—caster
○ 90S ○ 91A	Nut-Knurled tension—small
○ 91A ○ 92	Spring—tension—sman
⊖ 92 93M	Bracket—large tension holder
93M □ 94M	Lever-trip, model 'M'
□ 94N1 94N	Washer-trip lever pivot
94N 94P	Screw-trip lever pivot
94F ○110	Twine can—regular
○ 110 ○ 117	Screw—assembly mounting
□ ○ <b>123C</b>	Chain-roller
○ 123E	Screw-set, chain gear stud
□ ○ 123E	Shield—16" machine
□ ○ 124-10	MILLIA IO IIIAVIIIIO

OUsed in post office models, too. Order may be written with "P.O." appended to part number.

 $<sup>\</sup>square$  Must order with machine serial number.  $\triangle$ Specify twine size used.  $\lang$ XUsed with backgeared models.

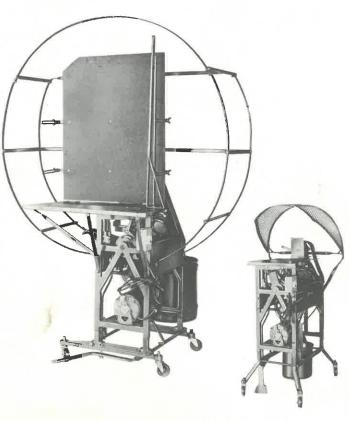


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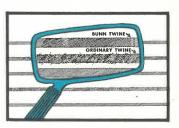
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