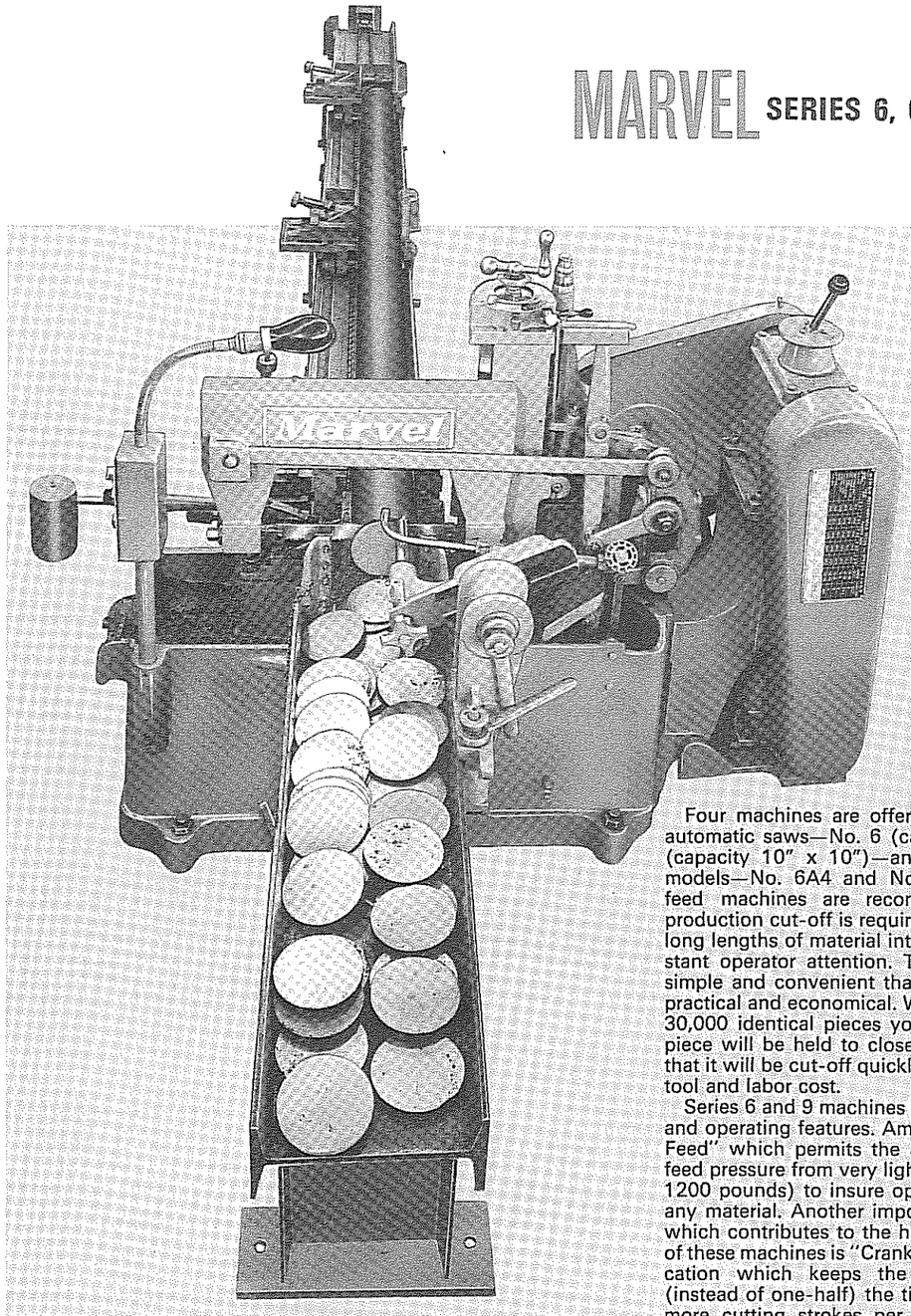
# MARVEL SERIES 6, 6A4, SERIES 9, 9A4



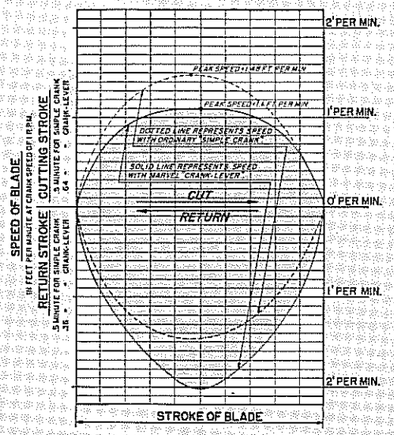

MARVEL Series 6 and 9 Hack Saws offer maximum metal sawing efficiency and lowest possible cut-off costs. Their simple design and heavy duty construction insures easy operation and long service life. Thousands of these machines are in use in plants of every size and type.

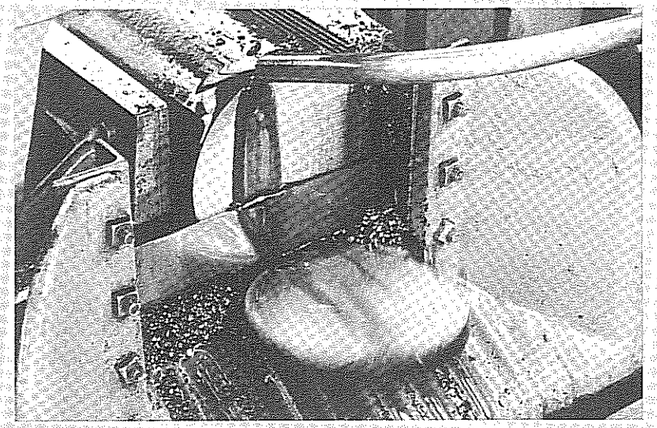
Four machines are offered in the series: two non-automatic saws—No. 6 (capacity 6" x 6") and No. 9 (capacity 10" x 10")—and two automatic bar feed models—No. 6A4 and No. 9A4. The automatic bar feed machines are recommended where repetitive production cut-off is required because they will cut-up long lengths of material into short pieces without constant operator attention. The automatic set-up is so simple and convenient that short runs are completely practical and economical. Whether you are cutting 3 or 30,000 identical pieces you can be certain that each piece will be held to close dimensional tolerances . . . that it will be cut-off quickly and at the lowest possible tool and labor cost.

Series 6 and 9 machines have many exclusive design and operating features. Among them is a "Dual Power Feed" which permits the application of any required feed pressure from very light to extremely heavy (up to 1200 pounds) to insure optimum cutting efficiency in any material. Another important and exclusive feature which contributes to the high speed cut-off capability of these machines is "Crank Lever" blade frame reciprocation which keeps the blade cutting two-thirds (instead of one-half) the time. In effect, this produces more cutting strokes per minute without increasing blade velocity. Particular attention is called to the design of the upright, saddle and blade frame which form a rigid integral unit to provide minimum blade frame reach—one of the secrets of Series 6 and 9 cutting accuracy.

Like all fine machine tools, Series 6 and 9 machines have ball or roller bearings at all load carrying points from motor to blade. J.I.C. electrics, motor, coolant pump and even the machine light are standard equipment.

## 33⅓% MORE CUTTING STROKES PER MINUTE



## QUICK RETURN STROKE

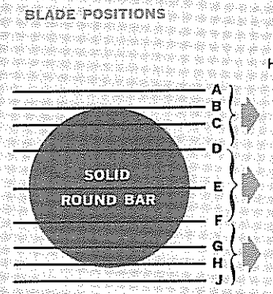
Graph illustrates variation of blade speed in machines reciprocated by "simple-crank" and by MARVEL "Crank-Lever". All blade speeds shown are based on a crank speed of one RPM. Note that the blade driven by a "simple-crank" (dotted line) cuts through 180° of crank revolution and develops a peak speed of 1.48 ft. per minute. The blade driven by the MARVEL "Crank-Lever" (solid line) cuts through 212° and returns through 148° of crank revolution and develops a peak cutting speed of only 1.1 ft. per minute.

As blade wear occurs only during the cutting stroke, the advantage of the crank-lever is obvious. A MARVEL Saw operating at its top speed of 160 strokes per minute, develops a peak blade speed of 176 ft. per minute. A simple-crank machine develops this blade speed at approximately 118 strokes per minute. This means that, in the same period of time and *with no increase in blade speed*, a MARVEL Saw delivers 33⅓% more cutting strokes than a machine reciprocated by ordinary "simple-crank" action.

## MARVEL "DUAL FEED"

Dual Power Feed provides simultaneous control of both minimum positive-depth feed and minimum pressure feed. It automatically adjusts and compensates both pressure and depth of feed correctly in proportion to the number of blade teeth in contact with the work. It therefore either *allows* or *forces the blade to cut as deeply as possible and practical on every stroke, regardless of the changing area of the work being cut*—and thus cut-off the work in the fewest possible number of strokes, which is the prime objective of high speed sawing.

All other hack saws employ hydraulic, gravity or spring-controlled feeds that provide only for pre-setting maximum positive and/or maximum pressure feed. Thus, they prevent the blade from cutting, on many of its strokes, as deeply as it would cut with the MARVEL Dual Feed that pre-sets only the minimum depth per stroke. The MARVEL Dual Feed is the most efficient and most practical feed ever applied to a hack saw. Horizontal lines A, B, C, etc., on diagram indicate various positions of the blade.




COMPARATIVE CUTTING SPEEDS

| | Single Positive Feed or Hydraulic Volume Controlled Machines | Single Friction Hydraulic Pressure Controlled or Gravity Feed Machines | MARVEL Combination Positive and Friction Feeds |
|---|---|---|---|
| A, B, C | SLOW | FAST | FAST (Friction) |
| D, E, F | FAST | SLOW | FAST (Positive) |
| G, H, J | SLOW | FAST | FAST (Friction) |

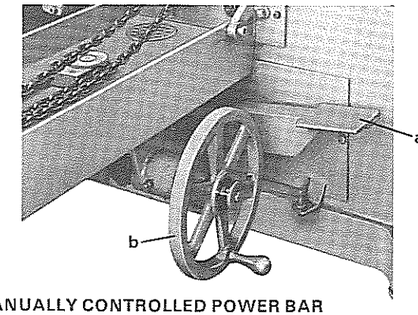
# MARVEL DESIGN FEATURES NO. 6, 6A4, 9, AND 9A4

**A.** VERTICAL V-WAYS in the upright are fitted with reversible and replaceable hardened steel strips. These assure permanent accuracy and smooth performance. The saddle has replaceable gibs and phenolic bearing pads.

**B.** AUTOMATIC MACHINE STOPS (1) when selector switch (at operator's position) is set for "Single Cut Work", blade raises to pre-set height after saw cut, and machine stops. (2) When selector switch is set for "Automatic Work" machine will continue to run until safety stop lever is contacted, or "Stop" button is depressed. Series 6A4 and 9A4 machines will also stop when front dolly contacts "out of stock" switch.

**C.** COOLANT PUMP is simple, direct-connected plunger type, mounted in coolant tank at the rear of the machine base. Coolant is directed to cutting area thru adjustable delivery pipe.

ELECTRICS comply with J.I.C. specifications.



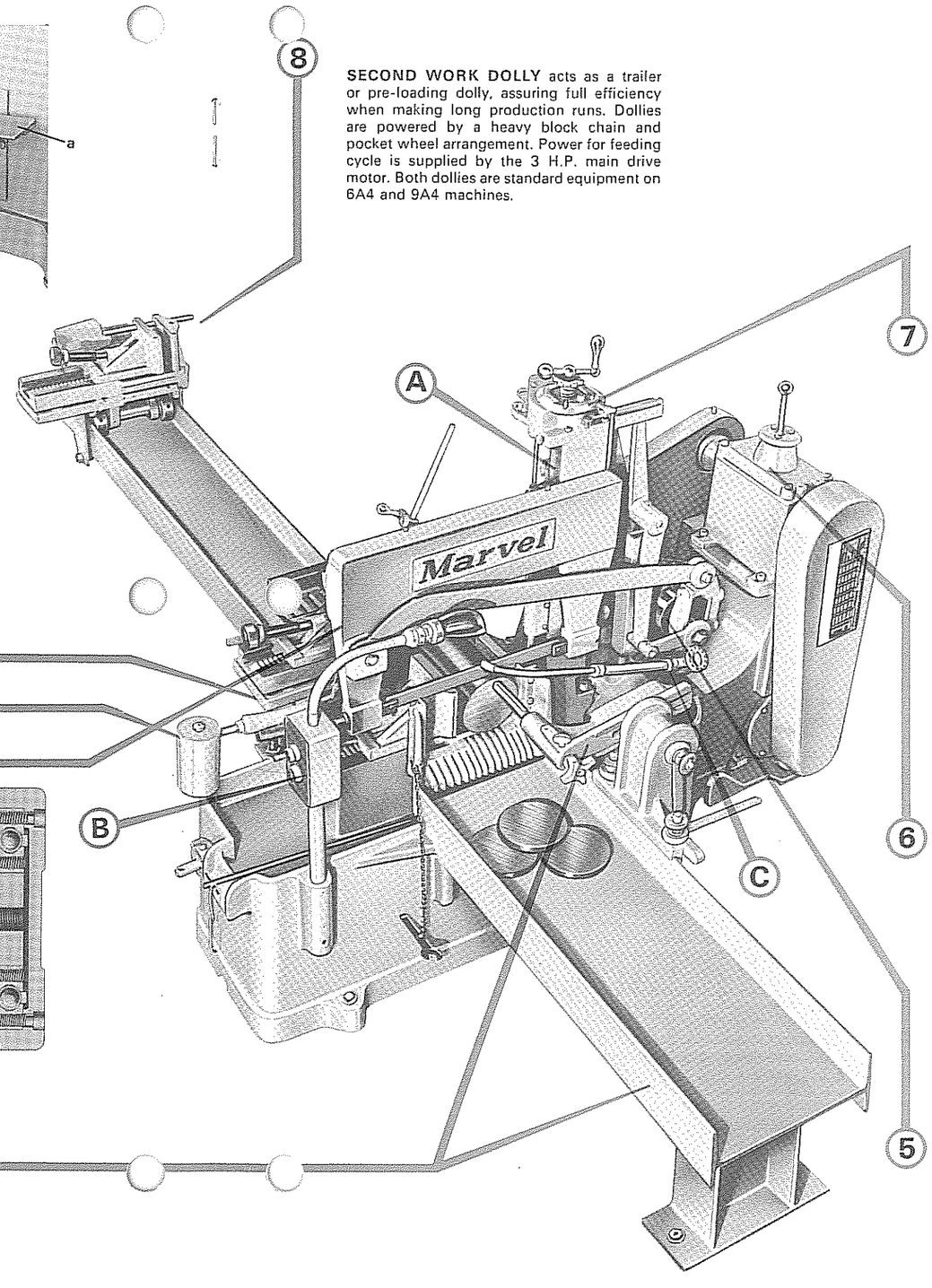

**MANUALLY CONTROLLED POWER BAR FEED**

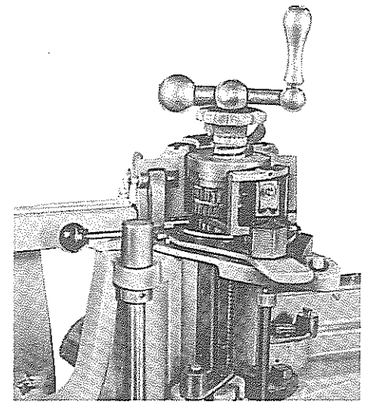
Operator has the option of either full automatic power bar feed or manually controlled power bar feed. The Foot Treadle (a) and the combination Automatic and Geared Hand Crank (b) provide the manual control option.

a The Foot Treadle enables an operator to change his set-up from full automatic bar feed to manual control, permitting long work to be moved through the machine beyond the limit of automatic gauging. It also provides power return of the dollies.

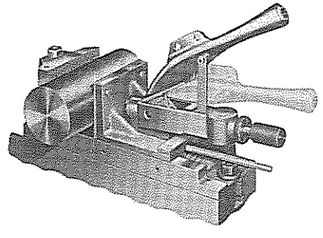
b The Geared Hand Crank enables the operator to move the work forward and backward for fine gauging adjustment. Hand wheel is easily and quickly disengaged. Both of these items are standard equipment on the Series 6A4 and 9A4 machines.

**SECOND WORK DOLLY** acts as a trailer or pre-loading dolly, assuring full efficiency when making long production runs. Dollies are powered by a heavy block chain and pocket wheel arrangement. Power for feeding cycle is supplied by the 3 H.P. main drive motor. Both dollies are standard equipment on 6A4 and 9A4 machines.

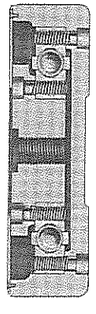


**DUAL FEED MECHANISM** with cover removed. This mechanical feed mechanism has a double square thread feed screw which rotates in bronze bearings in the upright. It is simple, rugged and so nearly automatic that astounding cutting speeds and blade life are realized even though an inexperienced operator may seldom change feed settings, regardless of the varying sizes and types of steel he may cut. (Refer to detailed explanation, Page 3).

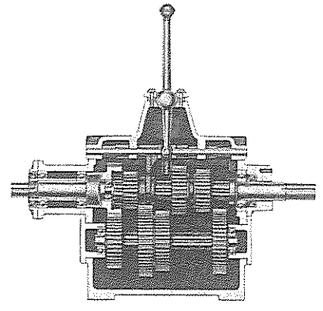


**QUICK ACTION VISE** illustrating toggle clamp arrangement—more powerful, much more convenient. The screw adjusts the toggle while the work is clamped by pressing down the toggle lever, (illustrated in phantom). Work is easily released without change of toggle adjustment by simply raising the lever.

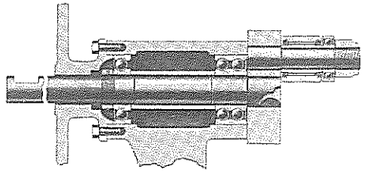


**BLADE FRAME** Enlarged section through blade frame illustrating exclusive ball race design, consisting of eight large balls running in heat treated and ground races. Pre-loaded ball bearings assure permanent, frictionless rigidity.

**DISCHARGE TRACK & LENGTH GAUGE** Heavy duty I-beam type discharge track and "post-type" length gauge are standard equipment on all Series 6/6A4 and 9/9A4 machines.



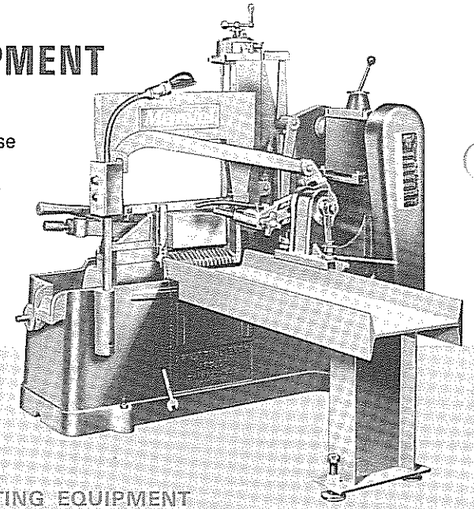
**SECTIONAL VIEW OF FOUR-SPEED SELECTIVE TRANSMISSION.** Gears are 1" face, machine generated and heat treated. The spline shaft is heat treated tool steel. Ball bearings are used throughout.

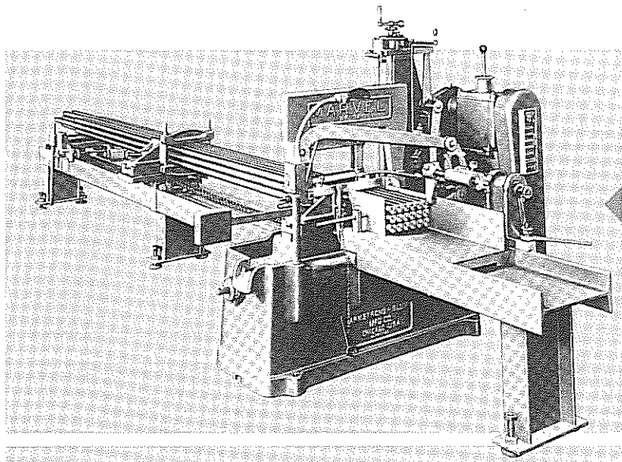


Sectional view of ball bearing one-piece forged crank shaft and roller bearing crank pin. Note that it is fully enclosed and permanently packed with lubricant.

# MARVEL SUPPLEMENTARY EQUIPMENT

Supplementary Equipment is offered to increase utility, convenience of operation and/or to cover a specific range of work. Your MARVEL Field Sales Engineer will help analyze your sawing needs, and recommend only the equipment needed.



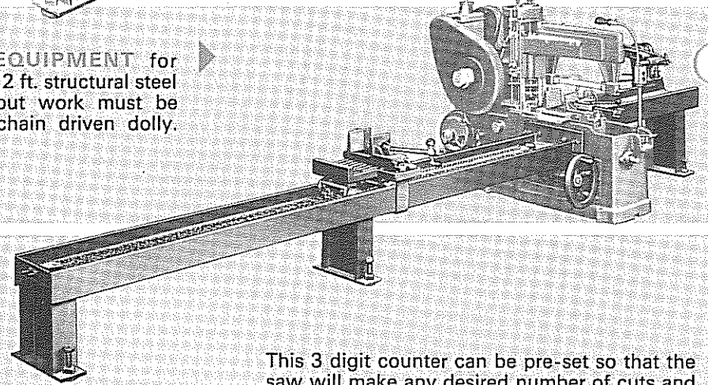


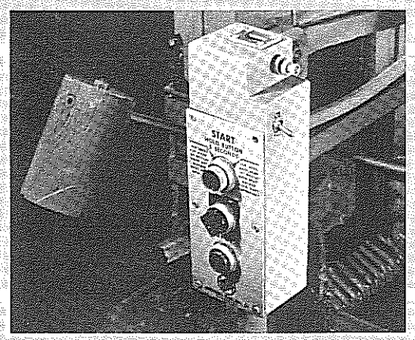
NESTING EQUIPMENT

When a job requires that more than one piece be cut at the same time, they can be "nested" in one group and efficiently handled with our nesting equipment. The nesting equipment provides a downward pressure, preventing the center pieces from raising. Included is a roller nesting clamp for the machine vise, a dolly nesting clamp, extension gauge finger and discharge pan. (Supplementary Equipment E3)



HEAVY DUTY WORK HANDLING EQUIPMENT for No. 6 and 9 non-automatic machines. The 12 ft. structural steel track is similar to the automatic track, but work must be moved manually by a hand wheel and chain driven dolly. (Supplementary Equipment E1)





AUTOMATIC COUNTER

This 3 digit counter can be pre-set so that the saw will make any desired number of cuts and automatically shut-off the entire machine when job is completed. (Supplementary Equipment E16).

SWIVEL JAW VISE for convenient miter cutting. Calibrations in increments of 5° indicate the jaw angle from 0° to 45°. Not available for automatic bar feed machines. (Supplementary Equipment E11)

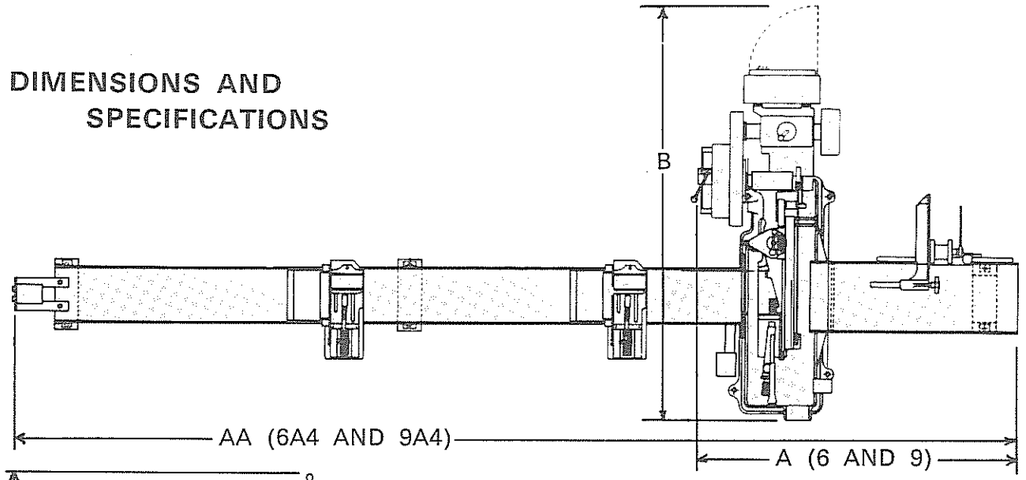
ALTERNATE LONG DISCHARGE TRACK. Eight foot long I-beam type heavy duty discharge track instead of standard 44" length. Length gauge setting up to 78". (Supplementary Equipment E7)

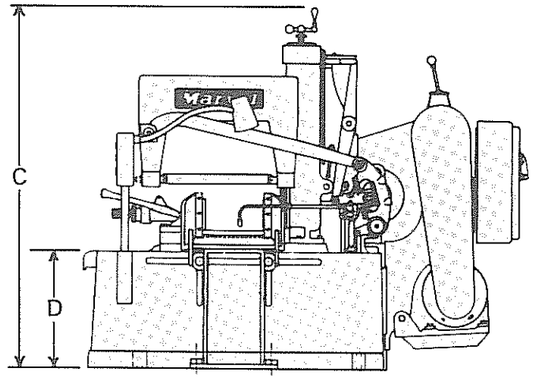
EXTENSION TO LOADING TRACK. Extra section of I-beam loading track 12' long, complete with track stand and extra length dolly drive chain. (Supplementary Equipment E5). A third work dolly (Supplementary Equipment E13) complete with ductile iron vise is recommended when ordering the Extension to Loading Track.





## DIMENSIONS AND SPECIFICATIONS




### DIMENSIONS

| | |
|---|---|
| WIDTH A | |
| MODEL 6 | 70¼" |
| MODEL 9 | 70¼" |
| WIDTH AA | |
| MODEL 6A4 | 17'6½" |
| MODEL 9A4 | 17'7½" |
| LENGTH B | |
| MODEL 6 AND 6A4 | 82" |
| MODEL 9 AND 9A4 | 88" |
| HEIGHT C | |
| MODEL 6 AND 6A4 | 51⅝" |
| MODEL 9 AND 9A4 | 59" |
| VISE HEIGHT D | |
| MODEL 6 AND 6A4 | 22⅛" |
| MODEL 9 AND 9A4 | 22¾" |

### SPECIFICATIONS

| | No. 6 | No. 9 |
|---|---|---|
| *CAPACITY*: Nominal | 6" x 6" | 10" x 10" |
| Maximum—Round | 6¾" | 10" |
| Square | 6⅛" | 10" |
| *BLADE LENGTH*: Standard | 14" | 17" or 18" |
| *LENGTH OF STROKE* | 5½" | 5½" |
| *VISE OPENS* (Maximum) | 6¾" | 10¼" |
| *DEPTH OF THROAT* (Maximum) | 6¾" | 10¼" |
| SPEEDS—Strokes per minute | | |
| Standard | 160—128—99—80 | |
| With 2 speed motor | 160—128—99—80<br>80— 64—50—40<br>Other Optional Speed Ranges are Available | |
| MOTOR (60 cycle) 1800 RPM | 3 H.P. | 3 H.P. |
| DISCHARGE TRACK with POST TYPE END GAUGE | Standard 44" | Standard 44" |
| *ELECTRICS* J.I.C. | Standard | Standard |
| DOMESTIC SHIPPING WEIGHT (Pounds) | 2250 | 2545 |

| | No. 6A4 | No. 9A4 |
|---|---|---|
| LOADING TRACK: LENGTH | | |
| STANDARD | 144" | 144" |
| Extension (optional) | 144" | 144" |
| *DISCHARGE TRACK* with Post Type End Gauge (standard) | 44" long | 44" long |
| *ALTERNATE* (optional) | 96" | 96" |
| *WILL PUSH-UP BARS:* Single | 6" x 6" | 9" x 9" |
| Nested | 6" x 4" | 10" x 5¼" |
| Weight in pounds | 3000 | 3000 |
| *MAXIMUM GAUGING LENGTH* | | |
| Standard 44" Discharge track | 26" | 26" |
| Alternate 96" Discharge track | 78" | 78" |
| LENGTH OF BAR ENDS | 12" | 13" |
| DOMESTIC SHIPPING WEIGHT (Lbs.) | 3585 | 3985 |