Marvel Metal Band Saw No. 8

BALL BEARING

CAPACITY
18" x 18"

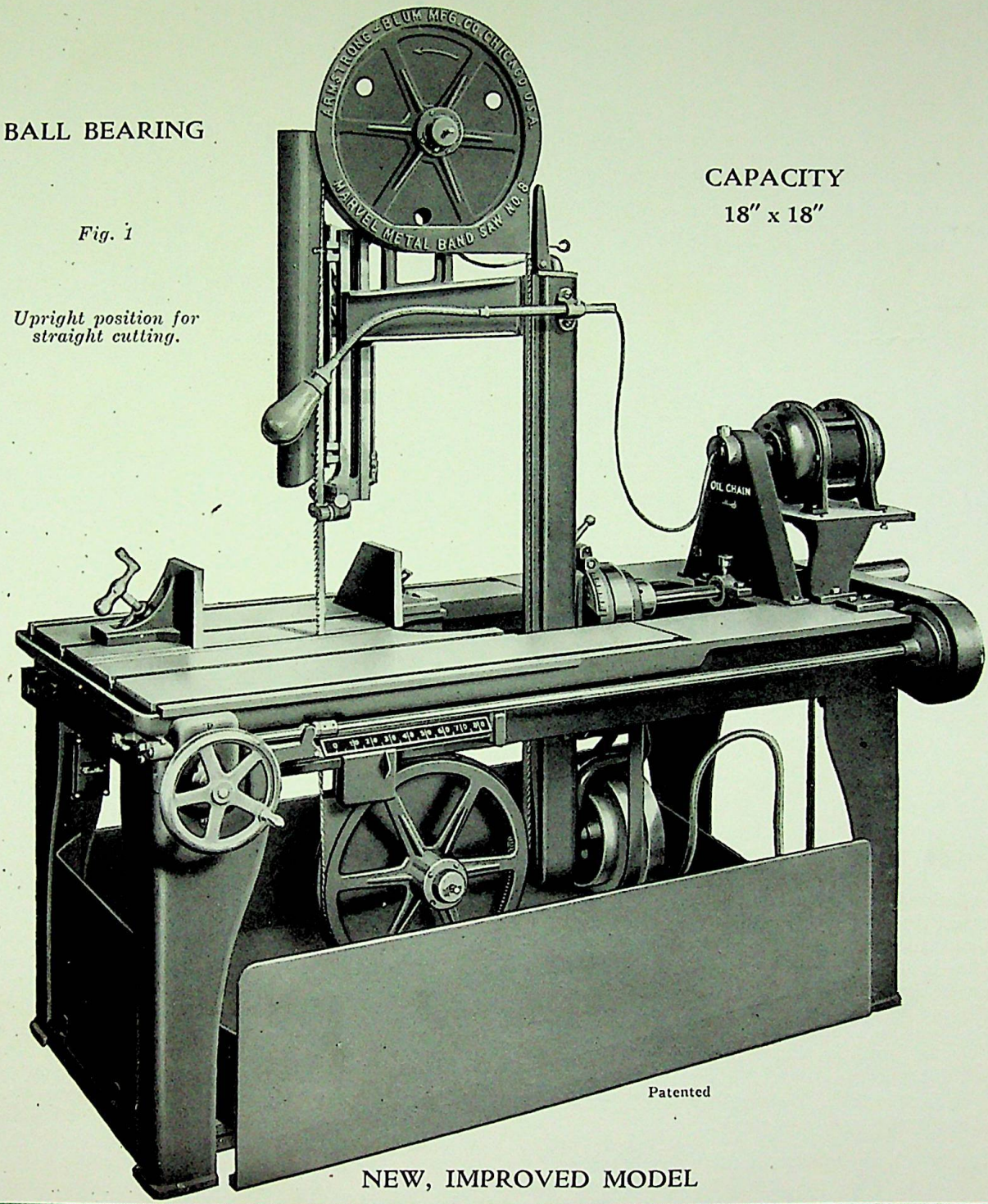


Fig. 1

Upright position for straight cutting.

Patented

NEW, IMPROVED MODEL

A FULLY UNIVERSAL metal cutting band saw that will handle almost every conceivable sawing problem. The largest capacity metal band saw available, yet equally efficient on the smallest, most delicate work. Will cut off bar steel, pipe, tubing, mouldings, structural shapes, etc., with maximum speeds and feeds—will do everything that any other metal saw will do, more conveniently, more accurately; and in addition, a vast variety of work no other metal saw will handle, such as cutting at any angle up to 45 degrees without moving the work, coping, index slotting, etc.

A CONTINUOUS, ROTARY MOTION machine that uses every tooth of the endless blade regardless of the size of work. Free from the many objectionable characteristics of the large capacity reciprocating saw, and has added universality, range, accuracy, speed, and economy. Simple and easy to operate, with the work in plain sight of the operator, and the power feed under perfect control—by means of a direct reading feed index that is extremely sensitive. Highest grade machine tool design, with totally enclosed ball bearings in carriage ways, band wheels and guides.

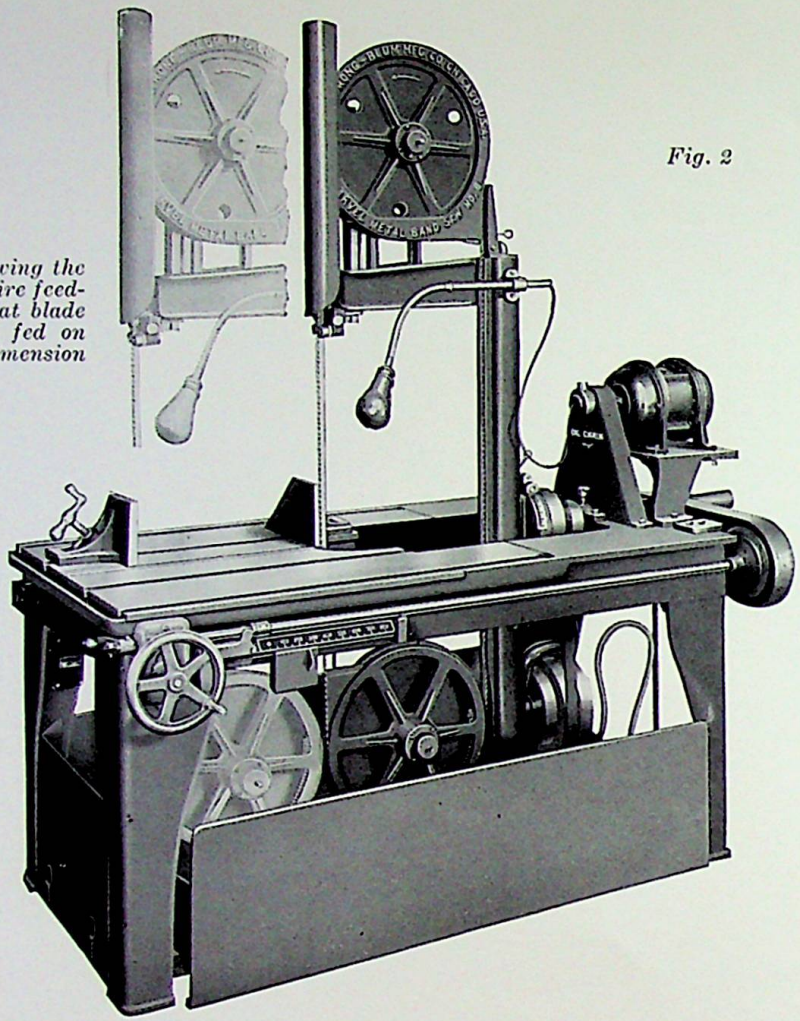


Fig. 2

Double-exposure photograph, showing the blade moved forward through entire feeding travel of 18 inches. Note that blade is always perpendicular, and is fed on a line parallel with the long dimension of the table.

Straight Cutting

The saw blade, on the cutting side or in its downward travel, is twisted one-quarter turn by means of roller bearing blade guides. One pair of guides is fixed to the carriage just below the surface of the table, and the other pair is adjustable for height of work above the table.

Any length bar can therefore be cut in two without interfering with the upright column, since the face or flat side of the blade is always in line with the carriage travel.

The upright that carries the band wheels and blade is mounted in a traveling carriage that travels parallel with the long dimension of the table or bed on four ball bearings that roll in straight ways on the under side of the table.

The feeding mechanism moves this ball bearing carriage, and thus feeds the blade straight through the work.

Both the table and the work, therefore, are fixed and do not move.

The work is clamped to the fixed or rigid table by means of the quick action vise jaws.

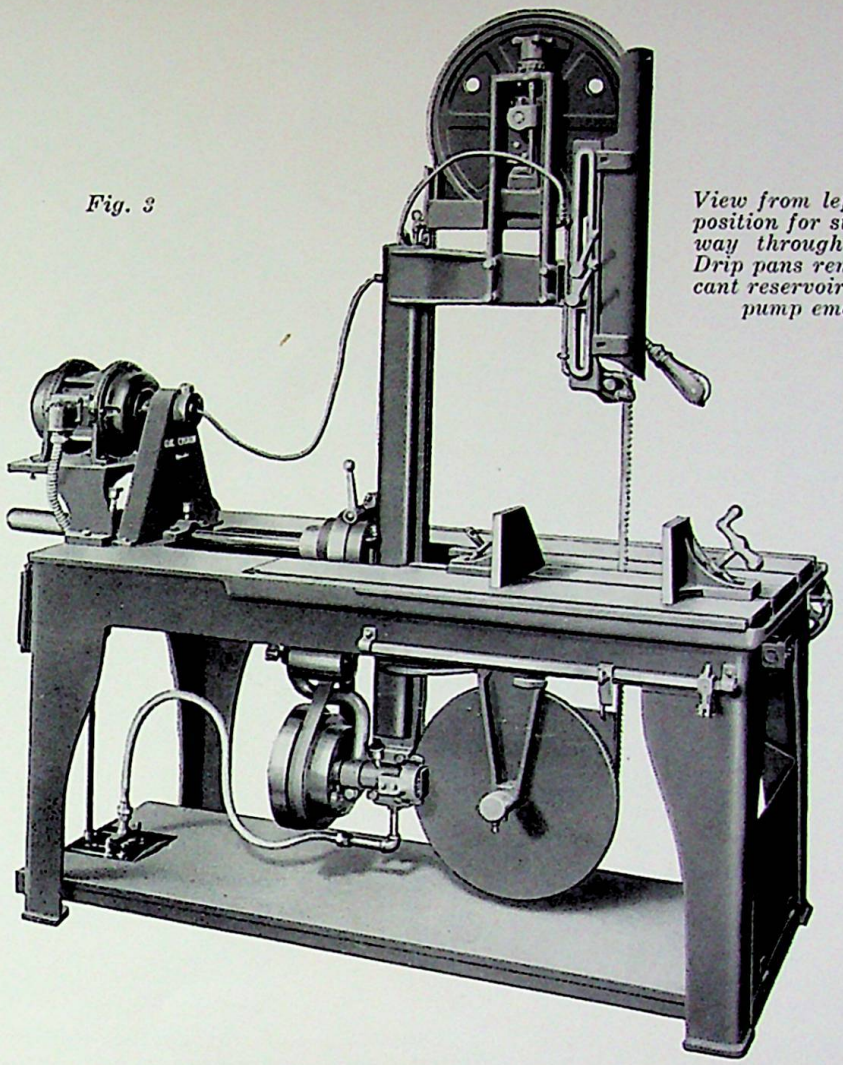
Notching, Coping

Note that the blade is always vertical or perpendicular to the table through its entire feeding travel, and does not "tilt" or change angle when cutting off straight or square. This is a very important feature, making the machine available for notching, coping, slotting, shanking dies, jig work, etc., by making two cuts—by turning the work one-quarter way around after the first cut, and making the second cut to meet the bottom of the first cut, thus removing a square piece of metal from the end of a bar, structural shape, plate, etc.

Automatic Stop

Automatic knock-off or stop is provided, to stop the machine at any required depth of cut; so it is not necessary for the carriage to make its entire 18 inch travel when cutting off small work. The blade can be started to feed at any point, and automatically stopped at any point. The automatic stop dog or cam automatically opens a limit switch that is connected in series with the relay circuit of the motor starter to cut off the line current and stop the motor. The motor therefore never runs idle, and troublesome clutches are eliminated.

Fig. 3



View from left hand side, blade in upright position for straight cutting, the blade halfway through its 18 inch feeding travel. Drip pans removed, to show 12 gallon lubricant reservoir and drain cover, with plunger pump emersed in rear of reservoir.

Power Feed

The new, improved type of feeding mechanism of the latest model machine is extremely sensitive, most convenient, and wear-proof; and eliminates all guesswork as to proper feed for every class of work.

By this new mechanism, power feed or pressure on the blade is effected by means of a direct reading scale balance beam that automatically compensates or offsets the thrust of the feed worm and worm gear. Sliding the indicator along the balance beam or feed index, which is graduated in actual pounds, immediately changes the feed or pressure on the blade. The most inexperienced operator can therefore definitely follow the convenient feed chart attached to the machine, just the same as in milling and automatic drilling operations. The feed can be set or changed instantly, even while the machine is running, from a few ounces up to 80 pounds pressure. With this "pound pressure" method of feeding, the blade will progress only as fast as it can freely remove the metal, and will automatically retard its feeding rate as the vertical length of cut increases or as the blade becomes dull. Similarly, the blade will automatically feed faster—within safe limits—when the vertical length of the cut decreases, and thus effect a very appreciable increase in cutting speed.

Quick Return

After a cut is completed, the blade is quickly returned to starting position by means of the hand wheel at the front or operator's position. This hand wheel also provides convenient hand feed and perfect control for delicate work of notching, slotting, etc. Power feed is engaged or disengaged at any time—either when the machine is cutting or running idle—by simply tripping the thumb lever at the front of the machine.

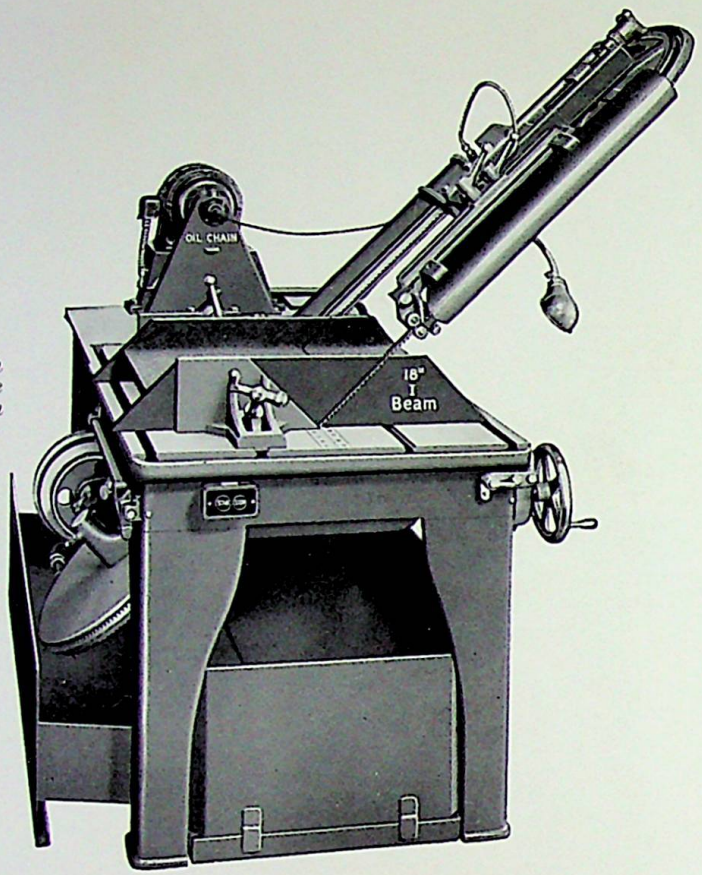
Hand Feed

Feeding can also be done entirely by hand, if desired, by means of the convenient hand wheel, which places the machine under the perfect control of the operator when doing fine, delicate work, such as in jig, tool, and die making, pattern work, etc.

Guide Rollers

Saw blade guide rollers are dirt-proof roller bearings. There are two pairs of guide rollers, one pair just below the surface of the table, and one pair above the table. The upper pair is mounted on a sliding head so that it can be brought down close to the work.

Fig. 4



View from same position as Fig. 5, but with upright and blade tilted to 45 degrees, the blade just finishing a MITRE cut through an 18 inch I-beam.

Cutting Angles

The upright column and blade can be tipped or tilted to any angle up to 45 degrees to either right or left for cutting at an angle or mitre—an exclusive feature not to be found in any other metal band saw. The photograph on this page is a view from the front or operator's position, showing the blade just finishing a 45 degree cut through an 18 inch I-beam.

To cut at an angle or mitre, the upright column is simply swung or rotated around the driving shaft and is locked with the blade at the desired angle to the table surface by means of a quick action ball handle and clamp ring.

Note that for angular cutting, the work is held stationary and in the same position as for straight cutting, and that the action of the blade when cutting angles is just the same as when cutting straight, or square. The blade therefore strikes the work squarely and there is no tendency for the blade to "run off" to one side when starting an angular cut as there is with other machines in which it is necessary to turn the work at an angle to the blade. This angle tilting feature also saves a great deal of room in the shop, as it is not necessary to swing long bars at a clumsy angle to the machine table.

Convenient degree graduations on the clamp ring give instant setting of the desired angle without lay-out.

Perfect Mitres

The machine will cut perfect mitres in formed sheet metal, pressed steel, or cast iron mouldings as well as in heavy structural shapes and steel bars, with little or no appreciable burr. Ornamental and structural iron workers, sheet metal contractors, tool makers, and factory maintenance departments will find this the handiest machine in the shop because of the exclusive angle tilting feature and universal application. Those who may have little or no use for the angle tilting feature will not be inconvenienced by it, because the angle tilting feature does not in any way affect the convenience and efficiency of this tool on straight cutting or coping work.

Chuck

Vise or chuck jaws are machined accurately, 6 inches high by 12 inches wide, and are of special quick-acting type. They are secured in planed T-slots of the machine table by means of ratchet dogs. Both jaws can be moved forward or back, will open 21 inches, can be shifted to either side of the blade for cutting on either the left or right-hand side, and are reversible to bring the angular sides close to the blade when mitering either right or left. Can also be removed entirely, leaving the machine table clear to fasten fixtures or work of irregular shapes.

Guards

Substantial guards are provided at all essential places.

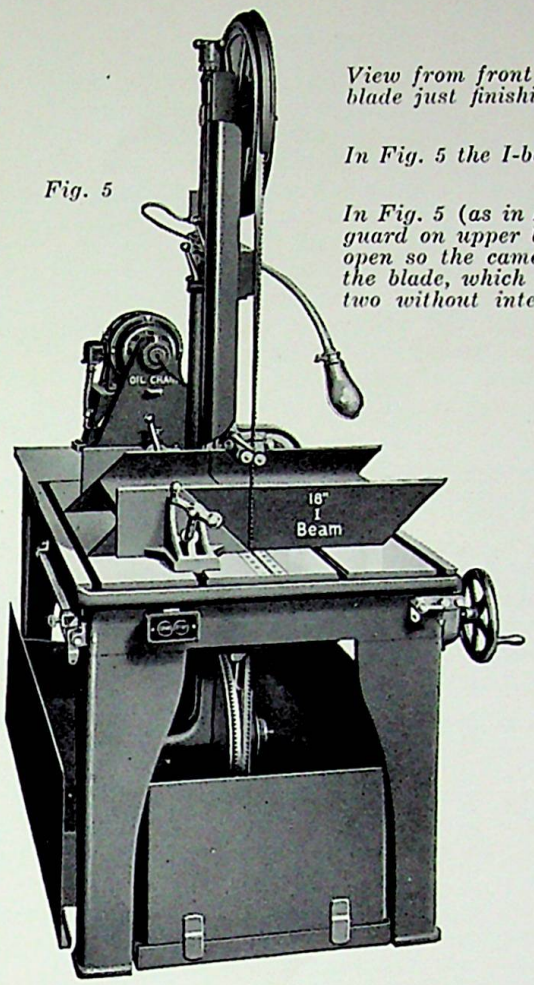


Fig. 5

View from front or operator's position, showing the blade just finishing a SQUARE cut through an 18 inch I-beam.

In Fig. 5 the I-beam is cut flat; and in Fig. 6 it is cut upright.

In Fig. 5 (as in Fig. 1), the hinged aluminum head guard on upper blade guide holder has been swung open so the camera will show the quarter twist in the blade, which allows any length bar to be cut in two without interfering with the upright column.

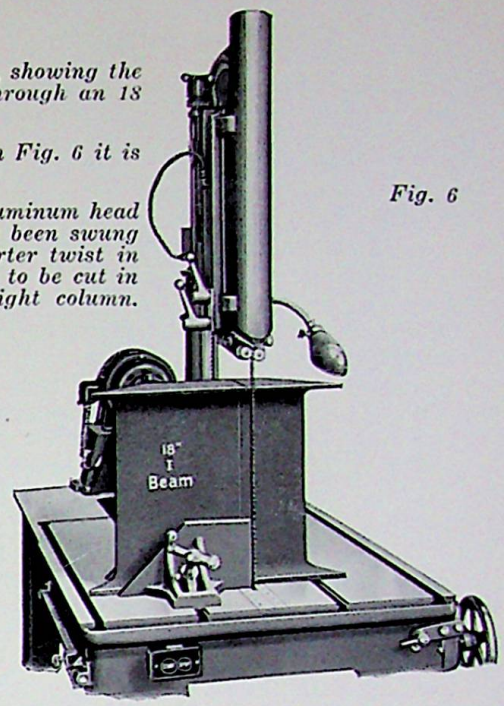


Fig. 6

Table

The saw table is surfaced, unusually large and heavy and free from obstruction, being 32 inches wide by 5 feet long. Has four ¾ inch T-slots, the two center ones machined and notched to hold the vise or chuck jaws. Both outer edges and center T-slots are machined straight-edges in exact parallel with the carriage travel, which are very convenient for laying-out special work such as double angles, setting gauges and angle plates, etc.

Pump and Coolant System

New, improved *Plunger* type lubricant pump, of a patented double-acting design, direct connected without belts or gears, dependably delivers a steady stream of cutting oil to the blade at the point of cutting. A convenient stop-cock is provided to shut off the coolant-lubricant, for dry cutting.

Coolant reservoir is full length of machine, and simply rests on floor. (See Fig. 3). It can be quickly slid out from under machine for thorough and convenient cleaning. It is heavy welded steel (No. 10 gauge), and has 12 gallon capacity.

Plunger pump is bolted in reservoir, and can be quickly detached for cleaning.

Side drip pans and front splash guard are exceptionally heavy and indestructible, being formed and welded No. 12 gauge steel. Drip pans rest on floor and reservoir cover, and can be quickly slid out for thorough cleaning. (See Fig. 4). Drip pans drain into reservoir, to return all surplus oil.

Speeds—Standard 3-Speed Machine

Unless otherwise specified, Standard 3-Speed Machine will be furnished, providing three blade speeds of 80-115-200 blade feet per minute, obtainable by means of 3-step cone pulleys on machine proper. (See Fig 3).

Speeds—Special 6-Speed Machine

Special 6-Speed Motor Driven Machine will be furnished on special quotations, providing six blade speeds of 40-58-80-100-115-200 blade feet per minute, accomplished by the use of special 2-speed double-winding motor 1800/900 R.P.M. By simply throwing over the 2-speed switch mounted on the special 2-speed motor, the motor will run at either 900 or 1800 R.P.M., thus providing a "quick-change" of machine speeds in two-to-one ratio for each step of the 3-step cone pulleys.

Special 6-speed machine is very highly recommended, especially for installations in tool rooms and steel stock rooms, where slow speeds are so often desired for the cutting of exceptionally hard materials, such as die steels, treated steels, stainless steels, etc., without sacrifice of the same three high speeds provided in standard 3-speed machine which are highly desired for softer alloy and mild steel work.

Exclusive Features

1. Largest capacity metal band saw on the market, yet equally efficient on the smallest, most delicate work.
2. Most universal metal saw available. No work too large, none too small; cuts straight and cuts at 45 degree angles without moving the work.
3. The only metal band saw that will satisfactorily cut angles and mitres.
4. Every tooth of the blade does the same amount of work, no matter what size work is being cut—in contrast to large capacity reciprocating saws that use only a few teeth on average work.
5. All smooth, continuous, rotary motions. No "jerky" reciprocating actions.
6. Power feed controlled by means of direct reading feed index, instantly set or changed even while machine is running.
7. Perfect hand control or hand feed for delicate, accurate work.
8. Blade is always perpendicular so that notching, coping, and slotting can be done conveniently.
9. Automatic blade tension device applies correct tension to the blade, prevents blade breakage from over-strain, and assures proper tension for accurate work.
10. Three blade speeds provided by means of trouble-free cone pulleys.
11. Large, roomy table, with removable chuck, and four T-slots for holding special fixtures, gauges, and work of irregular shapes.
12. Chuck is quick action type with reversible jaws, and can be used on either side of the blade.
13. New, improved double-action patented *Plunger* type pump, direct connected without belts or gears, dependably delivers a steady stream of cutting oil directly to the blade at the point of cutting. Surplus lubricant returns to reservoir.
14. Convenient operator's lighting fixture that travels with the carriage.
15. Motor driven machines equipped with automatic magnetic motor starter, remote control start-and-stop push button station, and limit switch for automatic stop that cuts off the line current and stops the motor at any desired depth of cut—thus eliminating troublesome clutches.

Improvements

The following valuable refinements and improvements in design and construction have made the present *new* model No. 8 *Marvel* Metal Band Saw the finest universal metal saw built—a strictly first class machine tool in every respect. Although older model No. 8 *Marvel* Band Saws, many of which are still in use after eighteen years of hard service, have always been wholly satisfactory and considered highly efficient in their time, the *new* model completely outclasses all older types; and the improvements listed below have unquestionably increased the efficiency and usefulness of the machine at least 100%.

1. Hardened high speed steel replaceable inserts in blade slot of table.
2. New, improved *plunger* type lubricant pump, direct connected without belts or gears. Ability of new model machine to handle cutting oil (instead of water coolants) assures at least double blade life and at least 100% increased speed.
3. New design, indestructible, exceptionally heavy No. 12 gauge steel drip pans.
4. Larger capacity (12 gallon) No. 10 gauge welded steel lubricant reservoir.
5. Heavier upright column casting.
6. Heavier, new style blade guide roller holders (heads) provide more positive roller adjustments, increased blade life, heavier feeds, faster cutting, finer accuracy of work.
7. Improved *roller bearing* blade guides will far outwear all previous designs.
8. Hardened roller chains and cut steel sprockets to effect carriage traverse (instead of old style cables) are absolutely trouble-free and effect a much finer sensitivity of feed.
9. Improved ball bearing band wheels and ball bearing carriage.
10. High carbon hardened bevel driving pinion and all other gears and sprockets are precision machine-cut in gear generating equipment.
11. Feed worm and worm gear now enclosed and run in oil.
12. Extremely sensitive pressure feed mechanism, instantly regulated by simply sliding the feed indicator along the direct-reading scale beam, has removed all "guess" as to actual feed and allows operator to definitely follow recommended feed chart.
13. More complete blade guarding.
14. High grade, precision workmanship thruout.
15. Built under a complete system of special jigs, tools, and gauges, all parts are interchangeable.

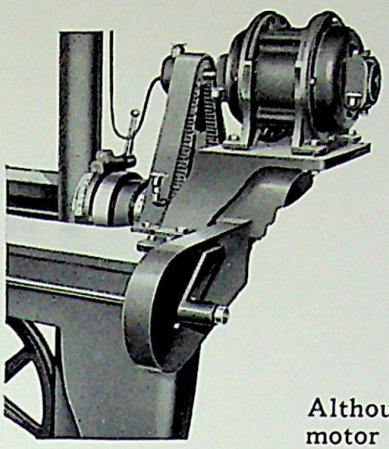


Fig. 7
Motor Drive

Motor Drive

Motor is direct connected to the main drive shaft of the machine by means of silent chain and sprockets, covered with a cast iron guard. Automatic magnetic type motor starter is mounted on back of machine below the motor, and is connected with start-and-stop push button station conveniently located at the front or operator's position.

Belt Drive

Although practically all customers prefer motor driven machines, belt driven machine can be furnished, driven by 10 inch diameter tight and loose pulleys for 2 inch leather belt. Belt shifter attached as shown in figure 8. Speed of machine pulleys, 400 R.P.M.

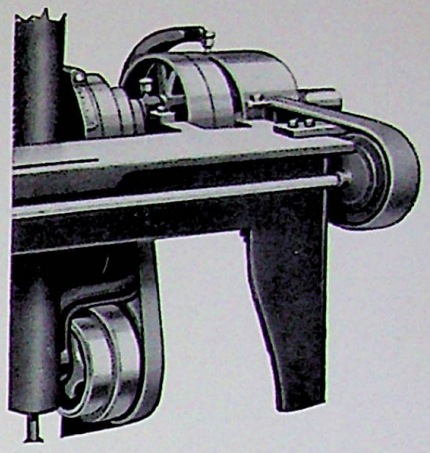


Fig. 8
Belt Drive

SPECIFICATIONS

NORMAL CAPACITY	18″x18″
MAXIMUM CAPACITY (Throat) WITH BLADE VERTICAL	Height 21″, Depth 18½″
MAXIMUM CAPACITY (Throat) WITH BLADE AT 45 degrees	Height 14¼″, Depth 18½″
FEED OR TRAVEL OF CARRIAGE AND BLADE (Traverse)	18½″
DIAMETER OF BAND WHEELS	18″
HEIGHT OF TABLE FROM FLOOR	32″
HEIGHT OVERALL	84″
FLOOR SPACE REQUIRED	36″x78″
TABLE SURFACE	32″x60″
NUMBER OF T-SLOTS IN TABLE	4
SIZE OF T-SLOTS IN TABLE	¾″
FACE OF CHUCK JAWS	12″x6″
OPENING OF CHUCK	21″
CAPACITY OF LUBRICANT RESERVOIR, gallons	12
MAXIMUM SWING OF COLUMN AND BLADE from vertical	45 degrees
BLADE SPEEDS, feet per minute, STANDARD 3-SPEED MACHINE	80-115-200
BLADE SPEEDS, feet per minute, SPECIAL 6-SPEED MACHINE	40-58-80-100-115-200
POWER REQUIRED, horsepower	1
SHIPPING WT., STANDARD 3-SPEED MOTOR DRIVEN, crated	2280 pounds
SHIPPING WT., SPECIAL 6-SPEED MOTOR DRIVEN, crated	2310 pounds
SHIPPING WT., BELT DRIVEN, 3-SPEED, crated	2125 pounds
BLADE DIMENSIONS, endless metal cutting band saw blade	14′ 8″ x ¾″ x .032″
NUMBER OF BLADES FURNISHED WITH MACHINE	3

STANDARD ELECTRICAL EQUIPMENT

MOTOR: 1 H.P. Ball Bearing, General Electric or Westinghouse, 1800 RPM for 60 cycle, 30 cycle, and D.C. 1500 RPM for 50 cycle and 25 cycle.

MOTOR STARTER: For A.C. motors, Allen-Bradley No. 709 automatic starter with separate push button station. For D.C. motors, Allen-Bradley No. 265 automatic starter with separate push button station.

LIMIT SWITCH: (Provides automatic stop) Industrial Controller class 9007-H-1.

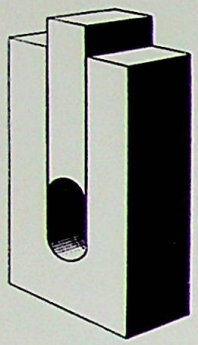
SPECIAL 2-SPEED MOTOR FOR 6-SPEED MACHINES: Louis Allis Co. special 2-speed double-winding ball bearing motor, 1800/900 RPM, 1½ H.P. at 1800 RPM, ¾ H.P. at 900 RPM, with special 2-speed throw-over switch. The same motor starter and limit switch as above specified for standard machines are also furnished.

BAND SAW BLADES

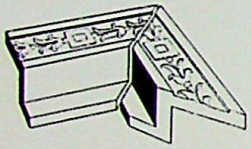
For best results, insist that your tool supplier always furnish you with genuine MARVEL Metal Cutting Band Saw Blades, which are always available in all tooth pitches, 6, 8, 10, 12, 14, and 18 teeth per inch. For universal, miscellaneous, all-around work, use 12 tooth blade; for moderate size work, use 10 tooth blade for faster cutting; for very heavy work, use 8 tooth blade; for very light structural shapes, etc., use 14 tooth blade; and for extremely thin sections such as sheet metal use 18 tooth blade.

Uses—The Work It Will Do

The Marvel Metal Band Saw No. 8 will cut off bar steel, pipe, tubing, structural shapes, etc., with a fine degree of accuracy, with maximum speed, with strict economy—will do everything that any other metal saw will do, and do a better job. In addition, a vast variety of work can be done, not possible on any other metal saw of ordinary type. The sketches below suggest only a few of many practical operations that make this machine a truly universal machine tool that will never be idle in any metal working shop.

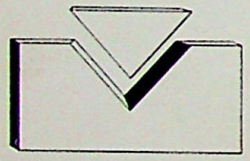


Just drill a hole and saw down to the hole to make a clamp or holding fixture quickly. The machine is always ready for work such as this. No special tools or special set-up required.

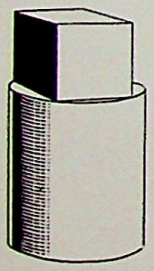


For mitering mouldings of cast iron, steel, sheet metal, copper, etc., the Marvel Band Saw cannot be equalled. Perfect miters are sawed without any lay-out or special equipment. The smallest window sash moulding and large structural shapes are mitered with the same ease and accuracy.

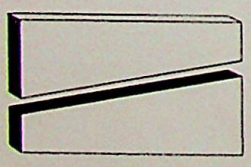
Example of roughing out tools, using dividing head and chuck. Similar operations will eliminate a great deal of expensive shaping and milling in the tool room.



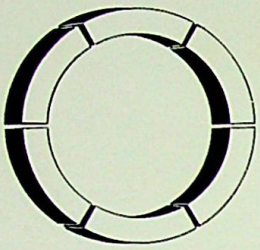
Sawing double angles and saving the piece cut out. This job would have required four difficult milling operations, but was done on the Marvel Band Saw with only two cuts, easily and quickly.



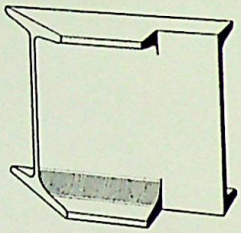
The end of this round bar has been squared by making eight saw cuts. This operation can be done in about one-quarter the time required to mill it.



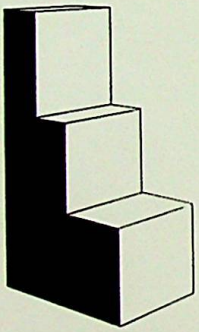
Shear blades, etc., can be cut from double width bars, then sawed in two at any angle desired, thus saving a great deal of metal and labor.



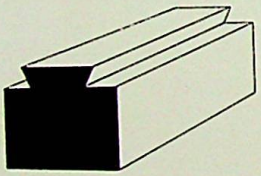
Index cutting. Large rings of almost unlimited diameter can be sawed into equal segments. Special indexing fixtures for this sort of index work are easily attached to the large work table of the machine.



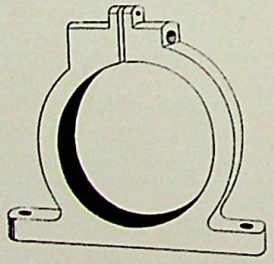
An I beam, mitered at one end, coped at the other end. The MARVEL Band Saw is truly indispensable in the ornamental and structural iron shops where this sort of work is a daily occurrence. The machine will cut off square, miter, and cope any bar shape from the smallest moulding to 18 inch I beams.



Use up your scrap steel. When you want an odd sized piece of steel, just cut it out of a piece of your scrap, or from a large billet.



The shanks can be sawed on drop forge dies, etc. Quicker and cheaper than planing, and saves pieces sawed out that make good tool steel stock for punches, shear blades, etc.



Splitting clamp rings, connecting rods, bushings, collets, etc., is a simple operation on the Marvel Metal Band Saw. Perfect control of the machine, quick chucking facilities, accuracy and speed are features that especially adapt this machine to work of this class.

Manufactured by

ARMSTRONG-BLUM MANUFACTURING CO.

"The Hack Saw People"

5700 W. Bloomingdale Ave. Chicago, Ill., U.S.A.

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