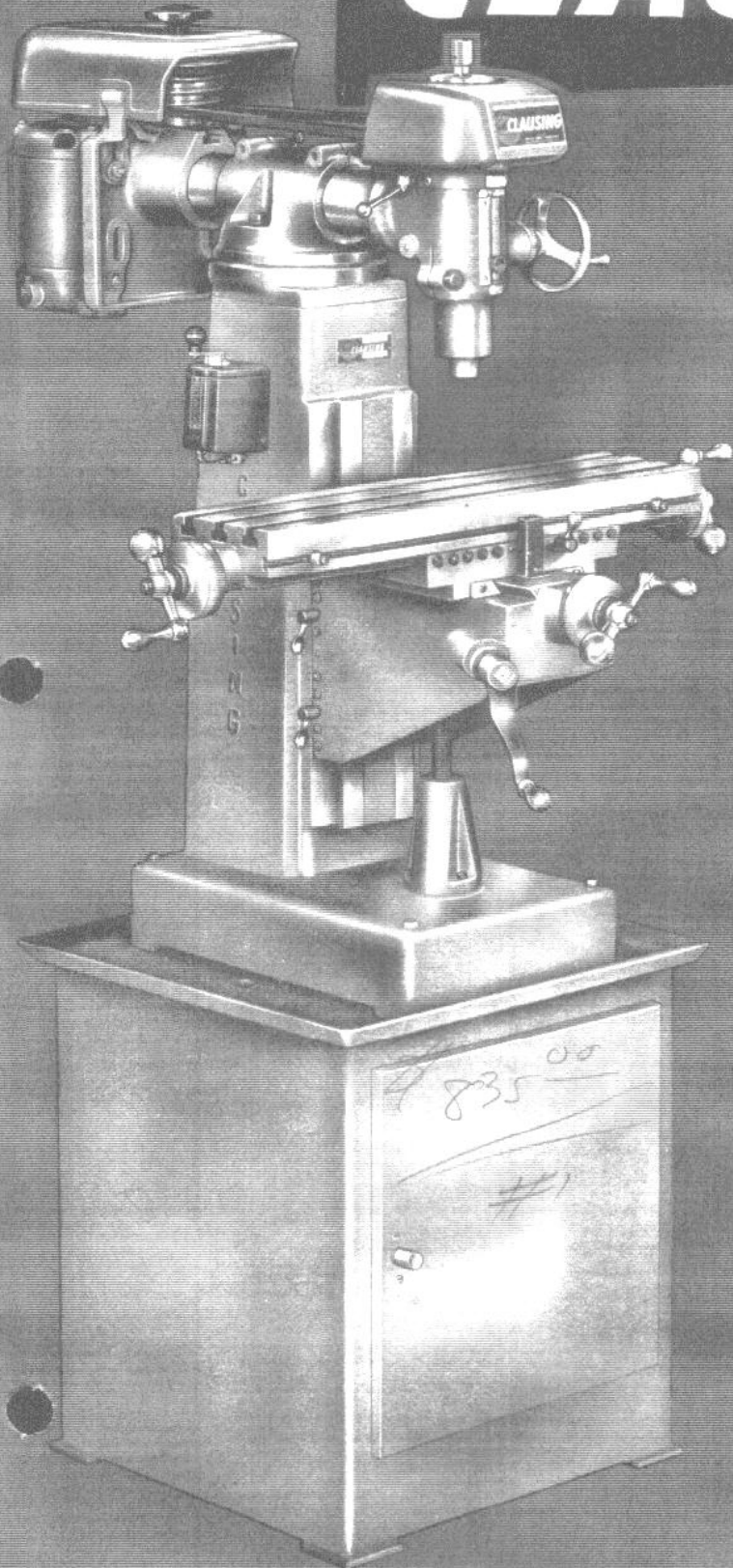
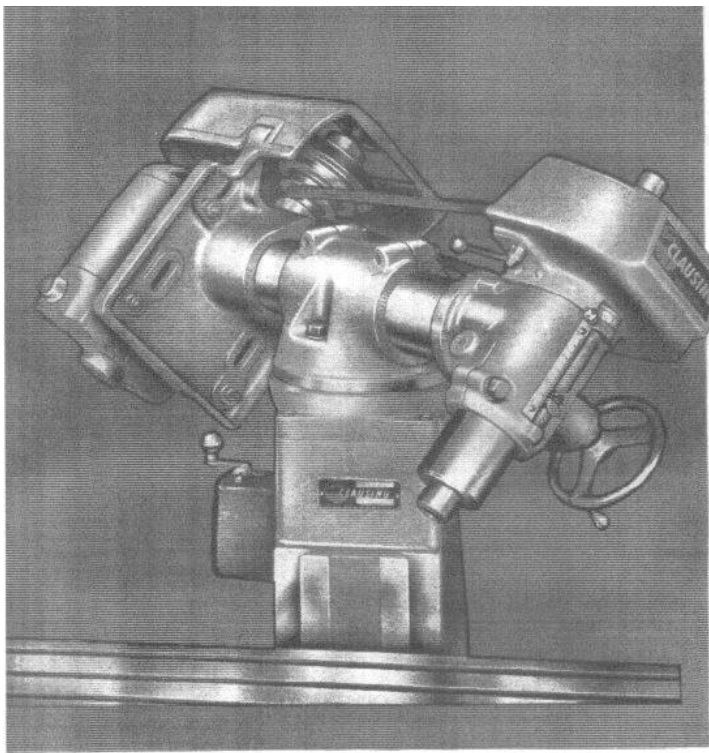


CLAUSING

VERTICAL
MILLING
MACHINE





CLAUSING VERTICAL

The new Clausing Vertical Milling Machine is a heavy duty machine tool that combines versatility and precision to a degree unmatched among milling machines of comparable size. It drills, bores, mills, reams and forms *at any angle* without special fixtures or attachments, and without disturbing work setting. And it is ruggedly and precision built to rigid tolerances for efficient operation and long accuracy life. It is ideal for production shops . . . jig, die and fixture making . . . pattern, experimental and tool room use.

HEAVY DUTY PRECISION HEAD AND TURRET

The spindle head can be swiveled 180° in a vertical plane and set at any angle, and turret head rotated in a horizontal plane making it possible to mill at all angles with one setup.

The head is a rugged thick-walled casting, accurately machined to close tolerances — a massive precision housing for the spindle and drive units.

To assure accurate alignment of spindle and overarm, the head bearing for the overarm is bored and reamed and the quill bearing honed while head is held in a special precision fixture. *Quill bearing is full length* for maximum rigidity and accuracy in every operation.

Turret bearings for overarm are line bored and reamed. Turret base is accurately machined and fitted to the precision ground bearing surface on column. Clamp-type locks anchor overarm in position.

Overarm is a rigid electric furnace grey iron casting, 3 inches in diameter, with $\frac{3}{4}$ " thick wall.

RUGGED, PRECISION SPINDLE, QUILL AND BEARINGS

The spindle is tough chrome nickel steel, hardened and ground. It is $1\frac{5}{16}$ " in diameter, with choice of No. 7 Brown and Sharpe or No. 2 MT bore. Spindle travel is 3 inches.

Steel quill is ground and hard chrome plated for lasting accuracy. It is $2\frac{1}{2}$ " diameter, has $5/16$ " walls. Seats for spindle bearings are accurately machined.

The spindle turns in *three* ball bearings. Upper bearing is a large, floating, radial-type shielded ball bearing. Lower bearing is a double row, angular contact, preloaded ball bearing that absorbs *both* end and radial loads.

Two hand feed controls are furnished for advancing spindle to work — a handwheel for fine feed, a handle for fast. Handle engages steel pinion gear that meshes with rack in quill. Handwheel actuates pinion through train of reduction gears. Accurate machining of gears and rack assure smooth feeding. Quill has positive clamp lock for milling with spindle in fixed position.

HEAVY DUTY PRECISION DRIVE

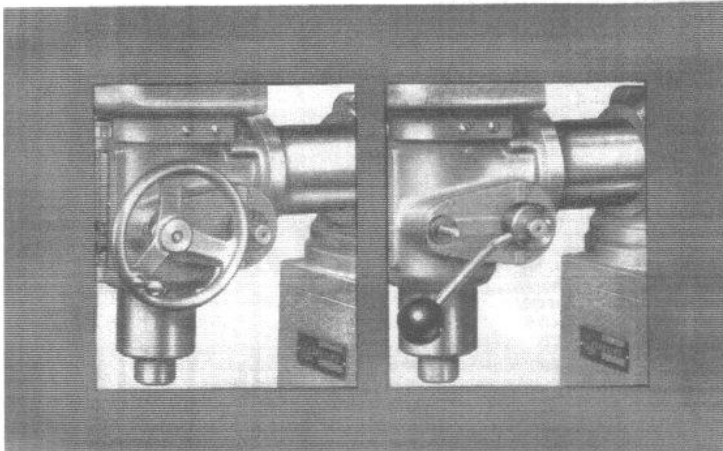
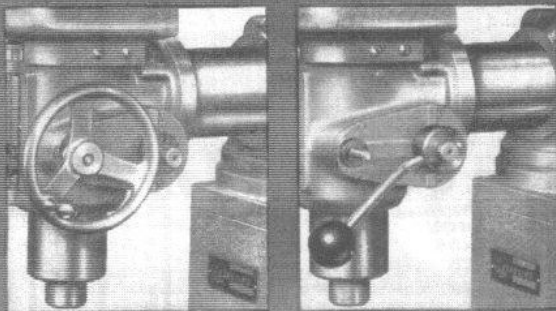
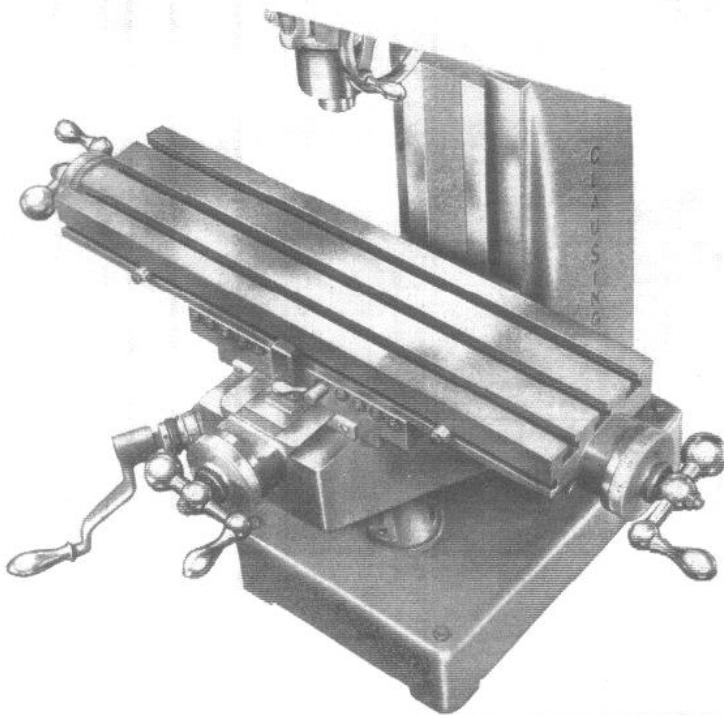
Turning power is transmitted to spindle through a 5-step idler pulley, and a 4-step spindle pulley screwed and doweled to an internally splined steel driver. Spindle pulley turns on two ball bearings. Bearings are mounted on a ground steel support that is anchored to head.

Idler pulley also turns on two ball bearings — *there are seven ball bearings in the Clausing's heavy-duty precision drive and spindle!* Idler pulley slides in T-slot in motor support casting, and motor support moves laterally on overarm, making belt position changes a quick easy job. Large handwheel locks pulley in desired position. Motor mount has lever controlled lock.

Pulleys are cast aluminum, machined and carefully balanced. Motor and idler pulley guard is cast aluminum, hinged for easy access to belts.

SPINDLE BRAKE, COLLET EJECTION CAP AND VERNIER DEPTH STOP

Brake, controlled by lever on side of head, stops spindle *alm* instantly . . . saves time and simplifies changing of tools. Draw-*bar* has exclusive automatic collet ejection mechanism — another



MILLING MACHINE

time saver. Positive depth stop with graduated dial and easy-to-read scale provides depth control accurate to .001", improving accuracy and saving setup time.

MASSIVE COLUMN, KNEE, SADDLE AND TABLE

Column, knee, saddle and table are heavy normalized iron castings — a rigid foundation for accurate work.

Column is a massive thick-walled casting with 2-inch deep ribs spaced three inches apart. Vee ways for knee bearings are cast integrally with column and are precision ground.

Knee is supported by 8 $\frac{1}{4}$ " long bearings on column ways, and by the elevation screw. Bearing surfaces for column and saddle are precision ground — have full length gibs for lasting accuracy.

Elevation screw is $\frac{7}{8}$ " diameter Stressproof steel with 10-pitch precision ground Acme threads. Nut is cast bearing bronze, for long accurate service. Screw turns on ball thrust bearing. Control handle shaft turns on two more ball bearings, operates screw through steel bevel gears.

Thick, heavy saddle has 6" long ground dovetail bearings on knee and 10 $\frac{3}{4}$ " ground dovetail bearings on table — a rigid precision support for table. Feed screw is 11/16" diameter Stressproof steel with ground threads, turns on *two* ball bearings for smooth, easy action. Cross travel is 5".

Table is a massive, precision, work support — a 6" x 1 $\frac{7}{8}$ " x 24" casting, precision ground on top, sides and dovetails. Has three 9/16" T-slots in top . . . T-slot in front for the positive adjustable stops . . . full length gib for long accurate service. Feed screw is $\frac{7}{8}$ " diameter Stressproof steel, with ground threads. Feed screw turns on *three* ball bearings. Large feed nut is bearing bronze.

Ball cranks control cross and longitudinal table travel. Feed screw dials are 3-3/16" diameter, micrometer-graduated in .001", for easy accurate feeding. Vertical table travel is controlled by large crank . . . dial is graduated in .001". Gib locks on knee, table and saddle anchor table securely in desired position.

Heavy duty reversing switch, furnished, is conveniently located within easy reach on left side of column.

Cabinet is heavy steel, a rigid mounting for the machine. Shelf, easily accessible through door in left side, provides ample space for storage of tools and accessories. Top is flanged, has outlet for removal of oil.

For versatility, accuracy, economy and efficiency, the new Clausing Vertical Milling Machine has more plus value features than have ever before been available in a miller at or near its price.

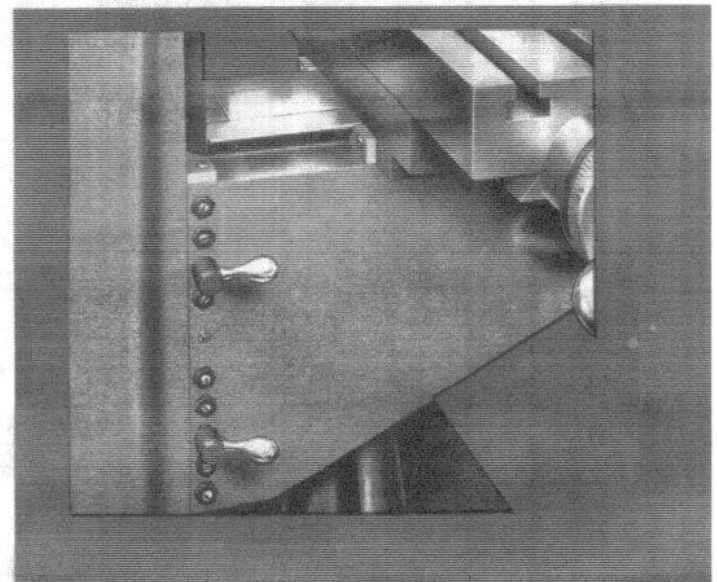
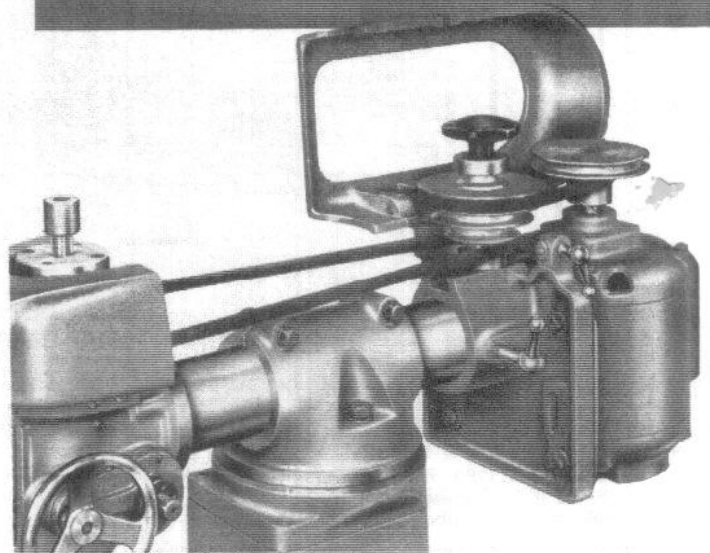
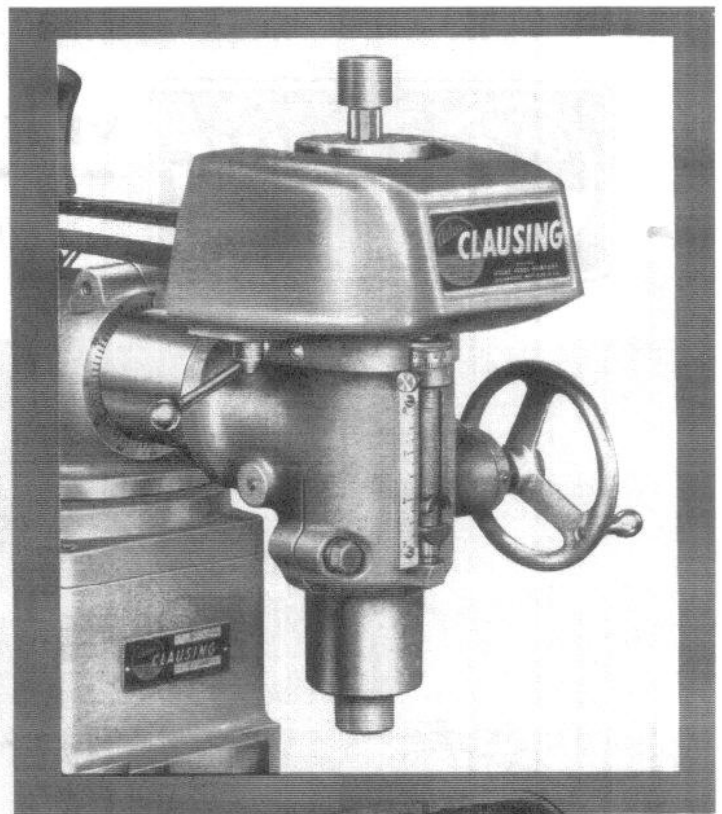
No. 8520 CLAUSING VERTICAL MILLING MACHINE with No. 2 MT spindle, less motor. 650 lb.

No. 8525 CLAUSING VERTICAL MILLING MACHINE with No. 7 Brown & Sharpe spindle, less motor. 650 lb.

Floor cabinet and reversing switch (with switch cord) to accommodate both single and 3-phase motors are furnished with both models.

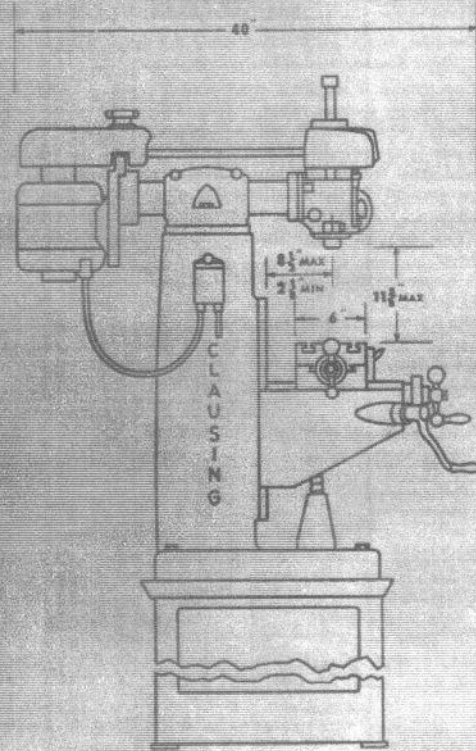
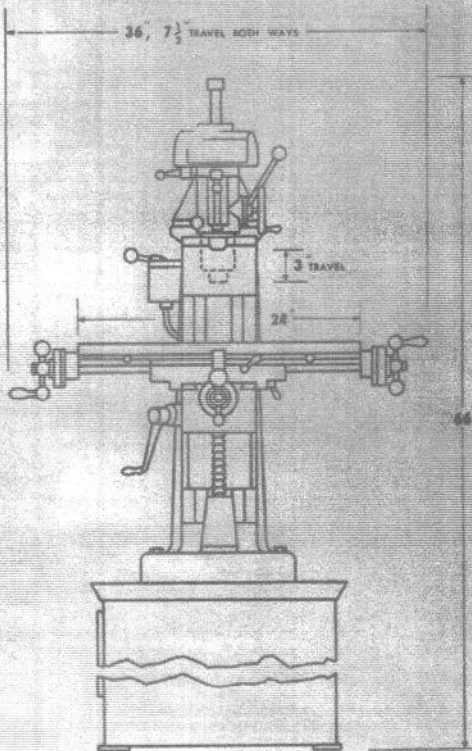
SPECIFICATIONS

Table Size	6" x 24"
Longitudinal Table Travel	15"
Cross Table Travel	5"
Vertical Table Travel	11 $\frac{5}{8}$ "
Maximum Distance Spindle to Table	11 $\frac{5}{8}$ "
Maximum Distance Spindle to Column	8 $\frac{3}{4}$ "
T-slot, Top of Table	9/16"
T-slot, Side of Table	1/4"
Six Spindle Speeds	180, 350, 600, 1000, 1900, 3250 RPM
Spindle Nose	No. 7 Brown and Sharpe or No. 2 MT
Motor Recommended	1/2 or 3/4 HP, 1725 RPM
Overall Dimensions	36" x 40" x 66" high





VERTICAL MILLING MACHINE



JACOBS CHUCK

No. 8615 JACOBS BALL BEARING CHUCK, capacity No. 70 drill to 1/2". Furnished with key type wrench and 1/2" straight shank arbor. 2 1/2 lb.

MOTORS

Single Phase Motors

No.	HP	Volts	Cycle	RPM	Shaft Diam.	Wt. Lbs.
2720	1/2	115/230	60	1725	5/8"	38
2790	3/4	115/230	60	1725	3/4"	50

Three Phase Motors

No.	HP	Volts	Cycle	RPM	Shaft Diam.	Wt. Lbs.
2821	1/2	220/440	50/60	1425/1725	5/8"	35
2840	3/4	220/440	50/60	1425/1725	3/4"	48

All motors listed above are ball bearing equipped, have single end shaft with 3/16" x 3/32" keyway — do not have switch, cord or plug.

NOTE: All motors listed above will operate satisfactorily on a 10% voltage variation. Other voltages and cycles available — information sent on request.

SPLIT HOLDING COLLETS

Collet tool steel, heat treated, ground inside and outside, and threaded for 3/8" - 16 draw bar. Handle round shank tools with diameters between 1/8" to 1/2" in increments of 1/16".

For No. 2 MT Spindle

No. 8601	1/8" Collet 1 lb.	No. 8605	3/8" Collet 1 lb.
No. 8602	3/16" Collet 1 lb.	No. 8606	7/16" Collet 1 lb.
No. 8603	1/4" Collet 1 lb.	No. 8607	1/2" Collet 1 lb.
No. 8604	5/16" Collet 1 lb.		

For No. 7 Brown & Sharpe Spindle

No. 8608	1/8" Collet 1 lb.	No. 8612	3/8" Collet 1 lb.
No. 8609	3/16" Collet 1 lb.	No. 8613	7/16" Collet 1 lb.
No. 8610	1/4" Collet 1 lb.	No. 8614	1/2" Collet 1 lb.
No. 8611	5/16" Collet 1 lb.		

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