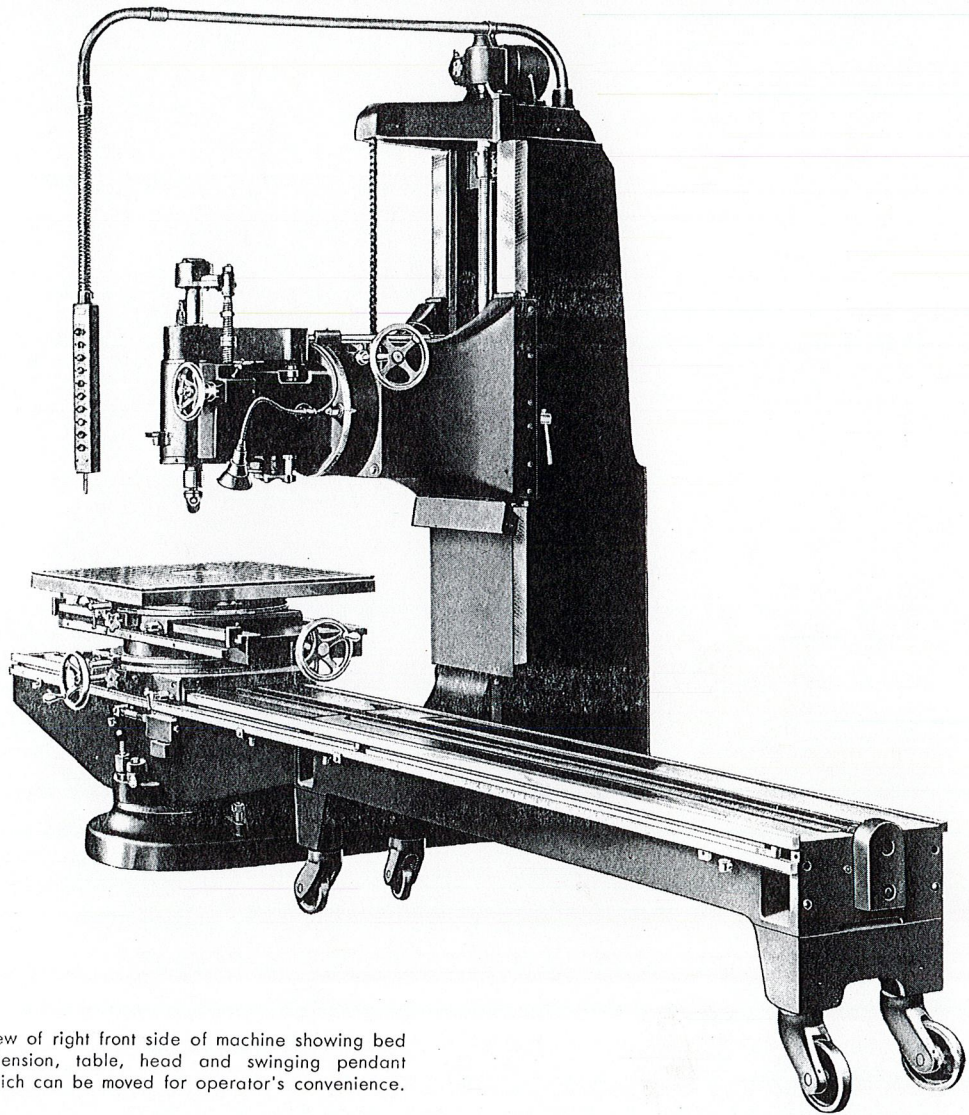




No. 102
PATTERN MILLING MACHINE



View of right front side of machine showing bed extension, table, head and swinging pendant which can be moved for operator's convenience.

OLIVER

OLIVER MACHINERY COMPANY, GRAND RAPIDS, MICH. 49504

This Miller cuts intricate wood, aluminum and soft metal patterns

COLUMN

The column is 96 inches high, 22 inches wide across the face. Overall height of the machine is 128 inches. The column is amply braced to support the main arm and counterweights.

BASE

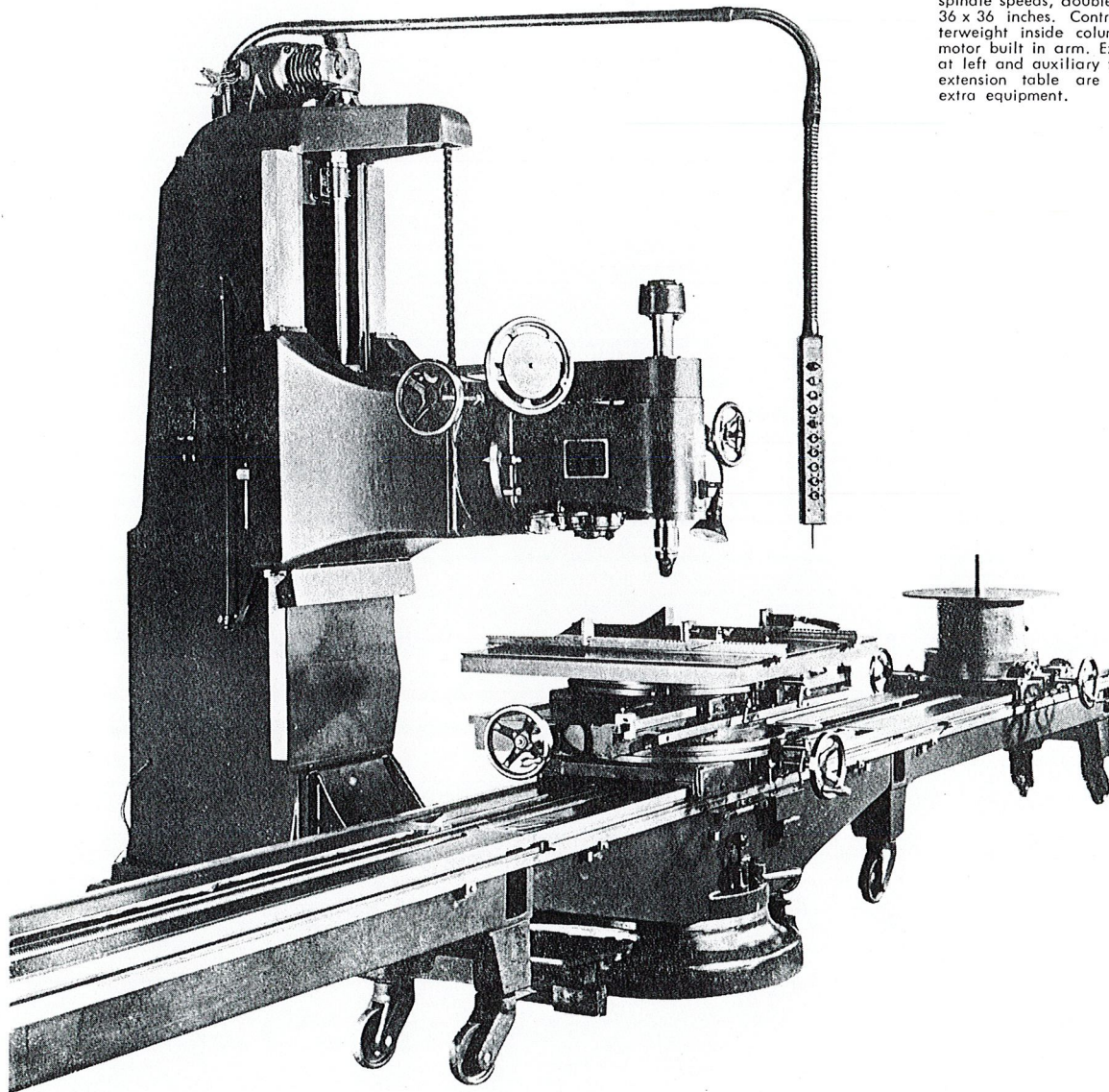
The base is 90 inches long, 43 inches wide and 7 inches high. It is heavily flanged to form a firm floor support. Seven leveling screws establish and maintain accurate alignment.

MAIN ARM

The arm is gibbed to the face of the column and has a vertical adjustment of 42 inches controlled by power feed. The head motor is built into the main arm.

HEAD

The Miller's head swivels 90 degrees to the right, 45 degrees to the left. It is accurately graduated to cover this range.



View of left front side, showing complete new design, including six spindle speeds, double swivel table, 36 x 36 inches. Control and counterweight inside column and head motor built in arm. Extension table at left and auxiliary table on right extension table are available as extra equipment.

SPINDLE

The spindle is 2½ inches diameter in the sleeve, and 3 inches diameter where cutter holders are attached. It has a 6-inch vertical movement controlled by a handwheel. Distance from spindle to face of column is 48 inches, and from table to spindle when raised to extreme height, 34 inches. When spindle is horizontal it is 43 inches to table.

TABLE

The main work table is 36 x 36 inches, graduated in 1-inch squares to facilitate centering of work. Top of table is drilled and tapped for No. 616 General Purpose Clamps, and has dovetailed grooves on four sides for No. 626-A Work Clamps. A wooden table 36 x 48 inches, 2 inches thick, is regularly furnished with the machine. This wooden table mounts and centers by means of a centering plate in the top of the main table. Directly under the top of the main table is a large ball bearing swivel. Below the swivel is a secondary table track which permits the table to travel 18 inches each side of center. Below the secondary track is a second ball bearing swivel supported by the main slide. The main slide travels by power or handwheel on the main bed of the machine.

Each ball bearing swivel is graduated the full 360 degrees. Each swivel is provided with two adjustable stops to permit a swivel of the table within any predetermined number of degrees. A tapered plunger locks each ball bearing swivel at increments of every 15 degrees. Each ball bearing swivel is secured by a hold-down thrust bearing.

OFFSET HEAD No. 668

The single offset head regularly furnished combines the functions of two sizes of heads found in earlier Millers. This quiet-running off-set head is driven by V-belts, entirely enclosed. One driven head is arranged to carry expanding cutter arms

Nos. 647-3 or 648 for core boxes from 8 to 15 inches diameter. A second driven head is arranged to carry disk cutter holders of the Nos. 666 and 667 series to cut core boxes from 15 to 36 inches. The cutters and holders are not included in regular equipment.

OPTIONAL EXTRA EQUIPMENT

POWER-REVOLVING TABLE

This table includes a fractional horsepower motor with gear drive capable of turning table in either direction 0 to 4 r.p.m. Drive can be disengaged for manual turning of table. Stop and direction buttons are mounted in pendant station with inch or run feature.

OFF-SET HEAD No. 740

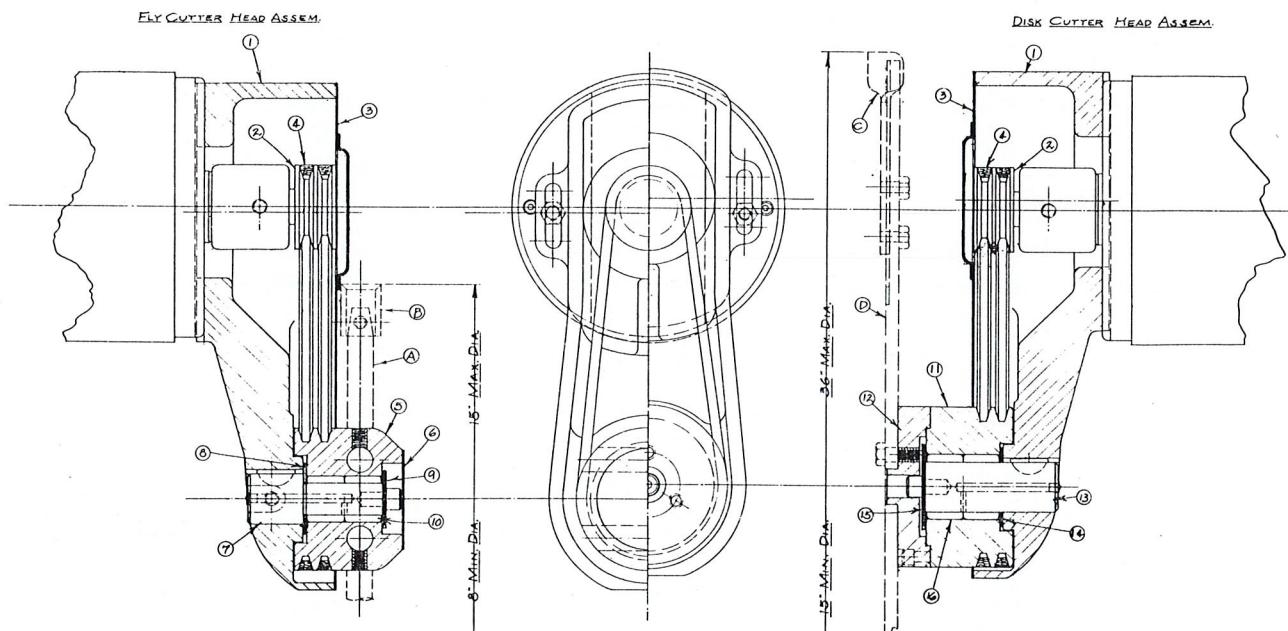
This special head is for core box work from 2 to 8 inches diameter, and is operated by a chain from the spindle. Unit can be adjusted to take up the slack in the chain. The cutterhead rides in oilite bearings. Standard size cutter is 2 to 3½ inches diameter, but larger cutters are available on special order.

AUXILIARY TABLE

An auxiliary table with plate and pivot shaft can be provided to support long work or to be used as a center pivot for extra large circular work. Either power feed or hand feed can be used. The pivot plate rotates on ball bearings.

MAIN SWIVEL BED

The bed is 86 inches long and 19 inches wide. Permits main



Assembly diagram for No. 668-V Offset Head showing arrangement for using fly cutters and disk cutter. Illustration on page 4 shows head mounted on machine.

table travel of 58 inches. It swivels through a complete circle on a graduated ball bearing base. A feed screw is controlled by hand or power, and is fitted with an automatic stop. Front edge of bed is graduated in inches and $\frac{1}{8}$ -inch fractions.

POWER FEED

The main carriage slide has a power feed screw located in center of main bed actuated by horizontal and vertical shafts, powered by 1 h.p., 2-speed, totally enclosed geared head motor with unibrake. Adjustable limit switches provide protection at ends of travel. Table feed rates are $12\frac{1}{2}$ and 25 inches per minute.

EXTENSION BED

The bed is $88\frac{1}{2}$ inches long, and is mounted on casters with vertical adjusting screws. The extension is fitted with power feed shaft and screw. With the extension attached to the right hand end of main swivel it gives a carriage travel of 9 feet 7 inches. For large radius work and long core boxes, the extension bed is absolutely necessary. Two extension beds can be mounted at right hand end to give carriage travel of 17 feet from vertical spindle.

BEARINGS

The main spindle and its motor have the finest ball bearings. The off-set head has roller bearings.

MOTOR DRIVE

For driving the main spindle we furnish a $5\frac{1}{2}$ h.p. reversible 3-phase, 50 or 60 cycle, 220 or 440 volt A.C. motor giving six spindle speeds from 900 to 4400 R.P.M. readily obtained by the two-speed motor and cone V-belt sheaves.

For raising and lowering the head, a $\frac{3}{4}$ h.p. geared reversing motor is used, located on the top of the column. For power feed to table, a two-speed 1 h.p. totally enclosed 900 to 1800 r.p.m. reversing motor with unibrake is furnished. This motor is located on back of the main swivel bed and drives the feed screw mechanism by a roller chain.

PENDANT STATION

For operator's convenience, a single pendant station is mounted on a swinging arm supported on the main column. It has the push buttons properly marked for controlling all motors at proper speeds both forward and reverse, up or down, right or left hand direction as required. The push buttons are of the Safety Type so that a direct push is necessary to start any motor.

CONTROL

For accessibility and compactness the controls are located in a large control panel at the rear of the column. A large sheet steel door seals this opening from dirt and shavings that may affect the proper function of the controls. The machine is pro-

vided with full magnetic control having overload and low voltage protection. All leads are brought out at the left rear side for easy connection to the power line.

SAFETY

The pendant station has a "wobble stick" extending below, and if pushed in any direction all motors are stopped immediately. A limit switch provides protection against raising or lowering the head beyond its proper limits. All motors are protected by overload and low voltage contactors. One Safety Stop Button will stop the head motor. This button has a lock ring to prevent accidental starting of the motor.

EQUIPMENT

The regular equipment furnished with the No. 102 Pattern Milling Machine includes main swivel bed, one extension bed, universal double swivel table with power feed, No. 668 off-set head, pair of special ratchet clamps No. 626-A, wood adapter table 36×48 inches to permit screwing down of work, motors and controllers for 3-phase, 50 or 60 cycle, 220 or 440 volt A.C. It is customary for one of our engineers to study the customer's pattern requirements and select an assortment of tools consisting of cutters, cutter holders, gauges, and special attachments, all developed especially for rapid production of patterns. A special pamphlet illustrates these tools, cutters and attachments.

A Tool Cabinet is a desirable adjunct to the care of the tools, permitting quick selection by the operator. This cabinet is offered as an extra, but if a certain minimum value of tools is purchased for shipment with the machine, this cabinet will be furnished without extra charge.

SPECIFICATIONS

TABLE DATA

Table size: $36'' \times 36''$.

Table top travel on auxiliary slide: $18''$ each side of center.

Table Unit travel on bed (table center over swivel center):

To left of vertical spindle, $28''$;

To right of vertical spindle, $28''$ plus $87''$ with regular bed extension.

Table feed rates: $12\frac{1}{2}''$ and $25''$ per minute.

GENERAL DATA

Spindle to column: $48''$.

Table to vertical spindle: maximum $34''$.

Table to horizontal spindle: maximum $42''$.

Height of table from floor: $39''$.

Spindle speeds (6): 900 to 4400 r.p.m.

MOTORS

Head Motor 5 h.p., 2-speed: 1800 and 3600 r.p.m. — T.E.F.C.

Table Feed 1 h.p., 2-speed with Unibrake: T.E.

Arm Hoist $\frac{3}{4}$ h.p., geared head

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