



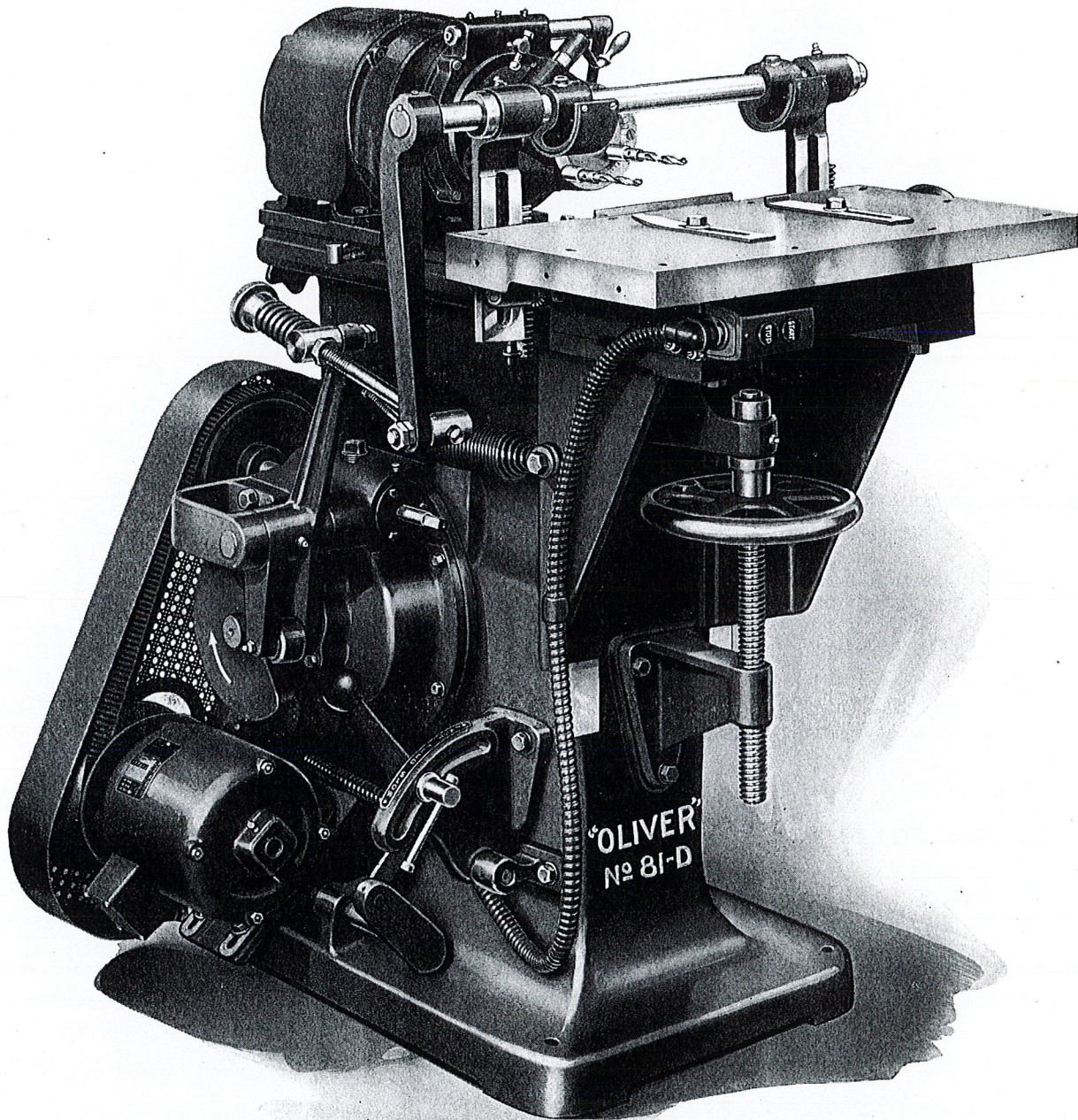
*"Every User
Is a Booster"*

"Oliver" No. 81

Motor Driven Horizontal

Close Center Borer

Furnished With Variable Speed Automatic Feed and Automatic Clamp



"Oliver" No. 81-D Automatic Horizontal Boring Machine.

Everlasting Satisfaction
Uninterrupted Production
Extreme Flexibility

Manufactured by

Oliver Machinery Company

Grand Rapids, Mich., U.S.A.

BRANCH SALES OFFICES:

New York, Atlanta, Pittsburgh, Cleveland, Detroit, Chicago,
Indianapolis, St. Louis, Minneapolis, Denver, Salt Lake City,
Seattle, Portland, San Francisco, Los Angeles.

Adaptation

This machine is purposely designed to bore two holes in a horizontal direction and is constantly used by furniture manufacturers. There are countless versatile uses for this “Oliver” machine that bores two holes horizontally $\frac{7}{8}$ -inch centers up to and including $3\frac{1}{2}$ -inch centers in any position using one head. Two spindles each rotating at 3600 r.p.m. The positive automatic feed with a wide range of speeds together with automatic clamping device of stock and the new Universal Head gives this “Oliver” boring machine a decided advantage in the field of modern woodworking production machinery.

Design

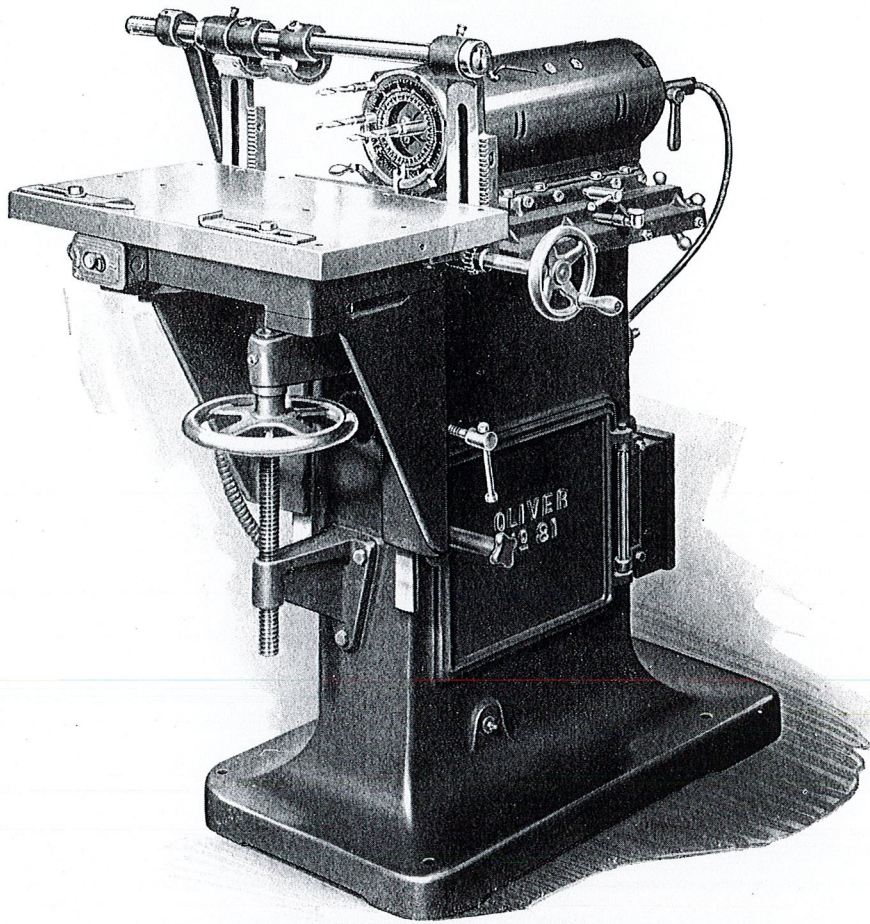
Advanced ideas in machine design with quick setting-up adjustments and the new Universal Head are some of the salient features of this “Oliver” No. 81 Close Center Borer. The turning of a small hand crank is all that is required to change the setting of the spindles. A $3\frac{1}{2}$ -inch diameter circle represents the scope of the head. A large hand wheel easily raises or lowers the table for the different thicknesses of stock. Pulleys give a choice of any speed from 8 to 22 strokes per minute.

Capacity

Stock up to $5\frac{1}{4}$ inches in thickness can be clamped and bored between the table and the automatic clamping device. Standard $\frac{1}{8}$ -inch 14 threads to the inch shank bits, any size diameter up to $\frac{3}{4}$ -inch, will bore two holes in a horizontal direction from $\frac{7}{8}$ -inch centers (for the smaller sizes) or any dimension up to and including $3\frac{1}{2}$ -inch centers in any position in ordinary grades of wood. When boring large holes in hard wood the lower rates of feed of the head should be used. A machine can be furnished using a larger main slide to accommodate extra Universal Heads. This machine will bore four or six holes a considerable distance apart, depending on the length of the slide.

Column

Is a single casting of semi-steel with cored center and a large flanged base 20 x 35 inches, making an exceptionally sturdy, rigid support for the entire mechanism. Dovetailed gibbed ways are cast into the front of this column to allow the table to be raised or lowered in vertical directions, to accommodate different thicknesses of stock. In the center of this column is a cam and rocker arm



“Oliver” No. 81-DF Borer with UN-F Head for Boring Centers from $\frac{7}{8}$ " to 6".

mechanism which moves the main slide. In the right side of this column is a large opening for inspection or oiling of the rocker arm mechanism and is easily accessible.

Table

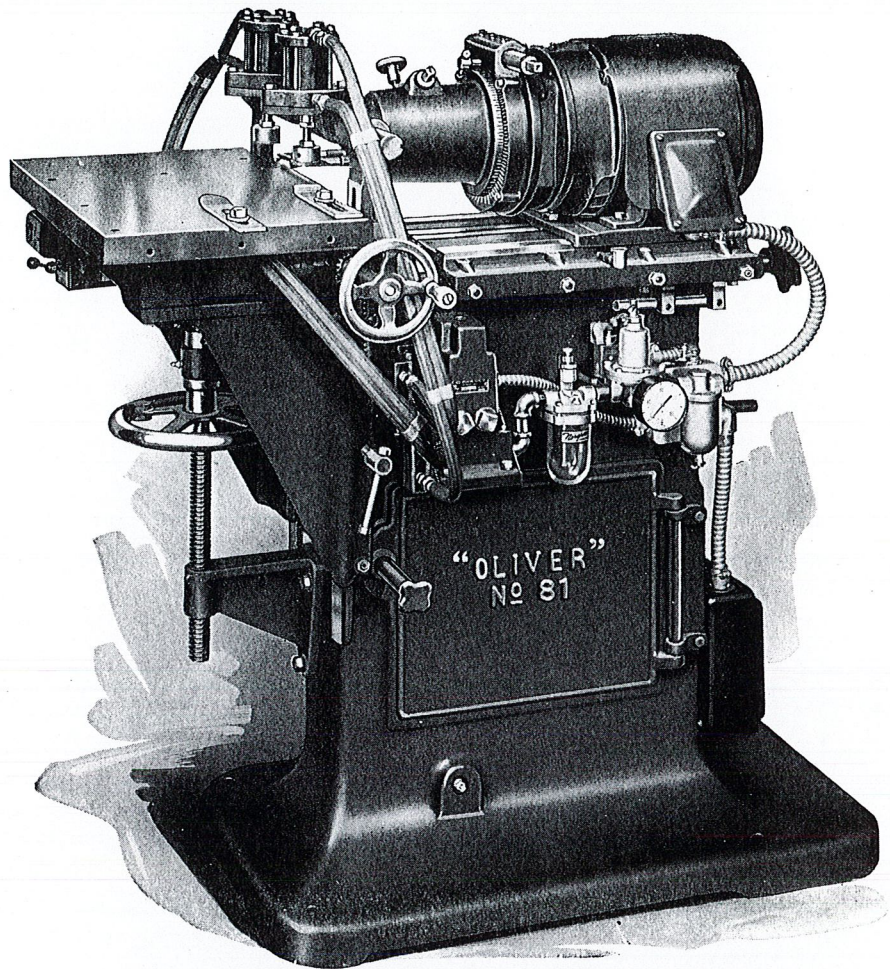
Size, 15 x 24 inches, made of semi-steel, accurately machined top and sides with square ribbed cross sections underneath, tapped holes on the top accommodate all set-ups. At each end of the table there are tapped holes for fastening extensions. In a horizontal position at the back of the table is a shaft extending the width of the machine, for automatic clamping of stock. To this shaft are fastened two eccentric clamps with leather faces having a keyway cut the full length. The shaft is adjusted by means of a hand wheel which raises or lowers the stock clamping device. There is an adjustment by which this clamping bar is kept parallel with the table. At the extreme left end of the keywayed shaft

is attached a lever that moves the eccentric clamps, automatically clamping the stock to the table, releasing as soon as the holes are bored. On the operator's right, within easy reach, is a locking device for holding the table firmly at the desired height. Two side stops and one loose stop assist in clamping the stock to the table.

Universal Head

This head unit is securely bolted to the main slide. The head adapter is fastened to the motor flange and the head bolts to the adapter. Near the top of the adapter is a short shaft to which a small hand crank can be attached for the purpose of rotating the head through a worm and worm gear arrangement having a hand lever locking device. On the face of the flange of this adapter is a series of $\frac{1}{8}$ -inch graduations that line up with similar graduations on the head. A worm and worm gear imparts a circular movement to both

spindles in a complete circle. The separate revolving of the inner spindle is accomplished by similar mechanism, only the design is smaller and turns only the inner spindle unit from $\frac{7}{8}$ -inch to $3\frac{1}{2}$ -inch center distance, spindle to spindle. A ring, with accurate $\frac{1}{8}$ -inch graduations, is attached to the face of the outer spindle casing and shows the amount of movement the inner spindle makes when the hand crank is turned. Facing the spindles the $\frac{1}{8}$ -inch divisions on the rim of the head adapter are in the horizontal directions to the left; and in the vertical directions to the right of the perpendicular center. Ball bearings are used throughout the driving mechanism of the head unit, with the exception of the chuck end of the spindles, which are equipped with high speed bronze bushings easily replaced, which makes it possible to build this Universal head with a minimum distance of the $\frac{7}{8}$ of an inch between spindle centers. Master mechanics use micrometers and dial indicators previous to stamping all graduations on the heads, assuring absolute accuracy. All spindles rotate at 3600 r.p.m. and are designed to hold standard $\frac{7}{8}$ -inch 14 threads to the inch screw shank bits. Lubrication of all bearings is accomplished by means of a central chamber filled with grease from high pressure grease gun fittings. Any type of ball bearing motor can be applied to the boring head by modification of the motor adapter.



No. 81 "Oliver" Close Center Borer with Automatic Feed and Air Clamps.

Saving

Comparative figures compiled by one of the foremost woodworking factories in the country, using this "Oliver" Boring Machine, shows an actual saving of 40 per cent on any set-up and a 50 per cent on any of production applying to any type or work within the scope of this machine.

Main Slide

Directly back of the table is the main slide which supports the head units. A cam, roller and rocker arm mechanism attached to the under side of the main slide causes it to move in horizontal directions; the slide carries the head towards the stock and recedes after the holes are bored. This slide is cast of semi-steel with dovetailed ways, carefully hand scraped, one side equipped with set screws and lock nuts for correct sliding adjustment. Near the back of this slide is a threaded shaft with a knobbed hand wheel adjustment having a locking device for controlling the movement of the head unit. Two large oil cups supply

lubrication for the ways. A larger slide can be made to accommodate two or more Universal Head units making a much larger capacity machine; the distance between centers being limited to the desired length of the slide.

Feed Mechanism

The feed motor is held in place by an adjustable bracket that hinges on bosses cast integral with the column. Mounted directly on the feed motor is a variable speed pulley which gives the operator a choice of any speed from 8 to 22 strokes per minute to the head unit. The worm shaft rotates on two ball bearings and turns a worm gear rotating on roller bearings. Attached to the worm gear is an eccentric cam that rides on a steel roller attached to a long rocker arm in the center of the column. The lower end of this arm is stationary, being held by a steel pin driven

through two cast bosses inside the base of the column; the other end is held by a trunnion pin driven into cast lugs in the center and on the under side of the main slide. A large powerful spiral spring, fastened to the middle of this lever, keeps the beam in tension and supplies the return movement of the head unit. To the outer end of the worm gear shaft is another eccentric cam which moves a steel roller attached to a rocker arm; the opposite end of this arm has an adjustable shaft passing through it. One end of this shaft is threaded, having a hand nut to regulate the tension on the clamping cams. A spring adjustment with lock nuts holds this rocker arm in the desired position. The opposite end of this threaded shaft is attached to a lever that operates the clamping cams that hold the stock securely in place on the table. Provision is made in the top of the worm gear housing by means of a large pipe plug, for filling with heavy oil which constantly bathes the gear mechanism.

‘ ‘ O L I V E R ’ ’ N O . 8 1 A U T O M A T I C C L O S E C E N T E R B O R E R

Motors

All motors are ball bearing. The rating of the feed motor is $\frac{3}{4}$ h.p., 1800 r.p.m. and the head motor is $1\frac{1}{2}$ h.p., 1800 r.p.m., A.C. or D.C. current 220-440 volts. Pressure gun grease fittings are used to lubricate the motor bearings.

Electrical Control

Conveniently located at the left of the table is a push button with remote control having overload and undervoltage protection. All wiring is enclosed in flexible conduit.

Equipment

Regular equipment includes one Universal two spindle head unit, automatic hold down clamping device, feed motor, push button remote

control, two brad point dowel bits $\frac{3}{8}$ -inch diameter.

Floor Space

The base requires 20 inches wide x 35 inches long; to the width allowance add approximately 12 inches for feed motor, making 32 inches x 35 inches.

Method of Operation

This ‘ ‘ Oliver ’ ’ No. 81-D Close Center Borer is a most convenient and simple machine to operate, speeding up all boring operations, depending upon the ability of the operator to handle the stock. Being entirely automatic, an unskilled operator easily grasps the principles governing the placing of the stock upon the table to the removal of the same after the holes are bored. All that is required of him is to place the

stock in position next to the forms which are bolted to the table. The automatic clamping cams hold the stock in the correct position while the main slide carries the head unit (with the revolving bits) forward, boring the holes, then receding. The clamps instantly release the stock, which is removed by the operator, who places another one in position, the operations being repeated.

Guaranty

We guarantee the ‘ ‘ Oliver ’ ’ No. 81 Automatic Close Center Borer to be commercially perfect both as to material and workmanship, also to perform up to full capacity as represented by this literature, when properly operated. We further guarantee to replace, free of charge to purchaser, any part of these machines that may develop inherent defects during one year after shipment.

‘ ‘ Oliver ’ ’ Features

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| <ol style="list-style-type: none"> 1. Automatic clamping of stock, quick release. Mechanical or air. 2. Rack and pinion adjustment for clamping bar unit. 3. Easy adjusting hand wheel for table elevations. 4. Automatic power feed. 5. Adjustable feed for boring head unit. | <ol style="list-style-type: none"> 6. Single push button control with overload and undervoltage protection. 7. Spindles have quiet gear drive from head motor. 8. New Universal head, self-contained, noiseless, very efficient. 9. Large adjustable table with provisions for extensions. 10. Simultaneous boring of two holes | <ol style="list-style-type: none"> 11. Special Head Units may be furnished. 12. All movable parts accessible and interchangeable. 13. Hand crank instantly adjusts inner or outer spindle. 14. New operators easily learn to run this machine. |
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CODE, WEIGHT, ETC.

CODE	MACHINE DESCRIPTION	WEIGHT IN POUNDS CRATED	BOXED	CUBIC FEET
Explosu	No. 81-D — ‘ ‘ Oliver ’ ’ Automatic Horizontal Close Center Borer, with $1\frac{1}{2}$ h.p., 1800 r.p.m., A.C., 3 phase, 60 cycle, 220-440 volt head motor and one Universal Head unit with adjustable twin spindles boring holes as close as $\frac{7}{8}$ -inch centers and including $3\frac{1}{2}$ -inch centers any point on a circle of same diameter. One feed motor $\frac{3}{4}$ h.p., 1800 r.p.m., A.C., 3 phase, 60 cycle, 220-440 volts, for variable feed rate, push button safety switch, necessary wiring	1250	1550	70

EXTRAS

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| Explosug | Fixed center two spindle boring heads, either $\frac{1}{2}$, $\frac{5}{8}$, or $\frac{3}{4}$ -inch center to center, to mount on the motor in place of the Universal Head. |
| Explov | Air Clamps in place of regular mechanical cam clamps. Complete assembly of quick acting heavy duty air clamps, adjustable vertically and horizontally. With automatic control for air valve and including air filter, pressure regulator, pressure gauge and air lubricator all mounted, wired and ready for connection to 60 pound minimum pressure air line. |
| Explok | Reversing and Inching Switch and Wiring for feed motor. |
| Explosut | Single Bit Adaptor for mounting on motor shaft in place of Universal Heads UN-A to UN-E, to take large diameter bit with $\frac{1}{2}$ " straight shank, also to have reversing switch for correct direction of rotation — all wired with motor. |

