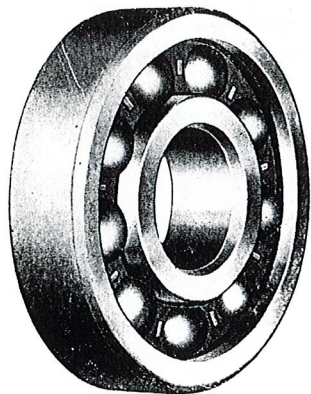
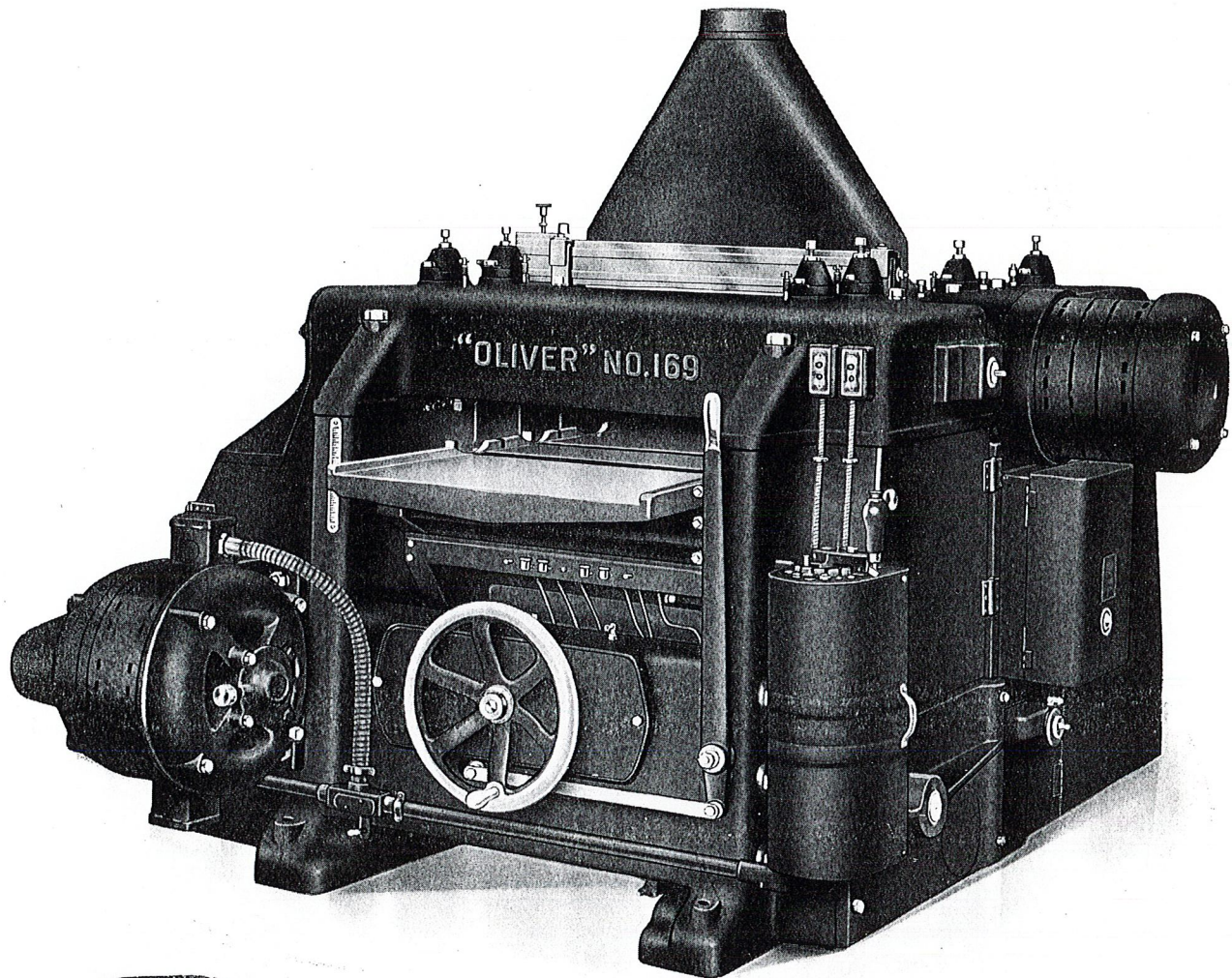




*"Every User
Is a Booster"*

"Oliver" No. 169 Production Double Surfacers

A Sturdy Giant for Smooth Planing



Ball Bearings of the Highest Grade are used for bearings of both top and bottom cylinders and the countershaft; less friction, less power required.

"OLIVER" NO. 169 PRODUCTION DOUBLE SURFACER
Front Right Side View of Complete Motor Driven Machine.

Manufactured by

Oliver Machinery Co.

Grand Rapids, Michigan, U. S. A.

BRANCH SALES OFFICES:

New York, St. Louis, Minneapolis, Los Angeles, San Francisco,
Chicago, Denver, Salt Lake City, Seattle, Manchester Eng.

Purpose

The “Oliver” No. 169 Production Double Surfacers is the result of a careful study into the requirements for a production surfacer which will give continuous service under high speeds as a finishing cabinet surfacer, as well as a heavy duty high speed roughing surfacer. We recommend it with pride for every woodworking plant which does planing on a production scale. A careful study of the following description will prove this surfacer to be superior to any double surfacer now on the market—free from the faulty points of older double surfacers and possessing new, interesting, exclusive features which assure greater production and finer work at less cost.

Capacity

This machine is built in two sizes to surface simultaneously two sides of work up to 30 or 36 inches wide and up to 8 inches thick, at four rates of feed, namely: 30, 45, 60 or 90 feet per minute, producing a perfect, smooth surface. The top cylinder will take cuts up to $\frac{3}{4}$ -inch thick and the bottom cylinder will take cuts up to $\frac{1}{8}$ -inch thick. Bottom cylinder may be lowered below the bed line, allowing the machine to be used as a single surfacer if desired. Pieces as short as 9 inches when feeding continuously and as short as 21 inches when feeding one at a time may be surfaced without dubbing the ends. Sectional in-feed rolls and sectional chip breaker are regularly furnished with 2-inch sections to enable many narrow strips to be surfaced simultaneously increasing the production of the surfacer many fold. The knives of the top cylinder can be quickly jointed without stopping the machine, assuring greater production hours.

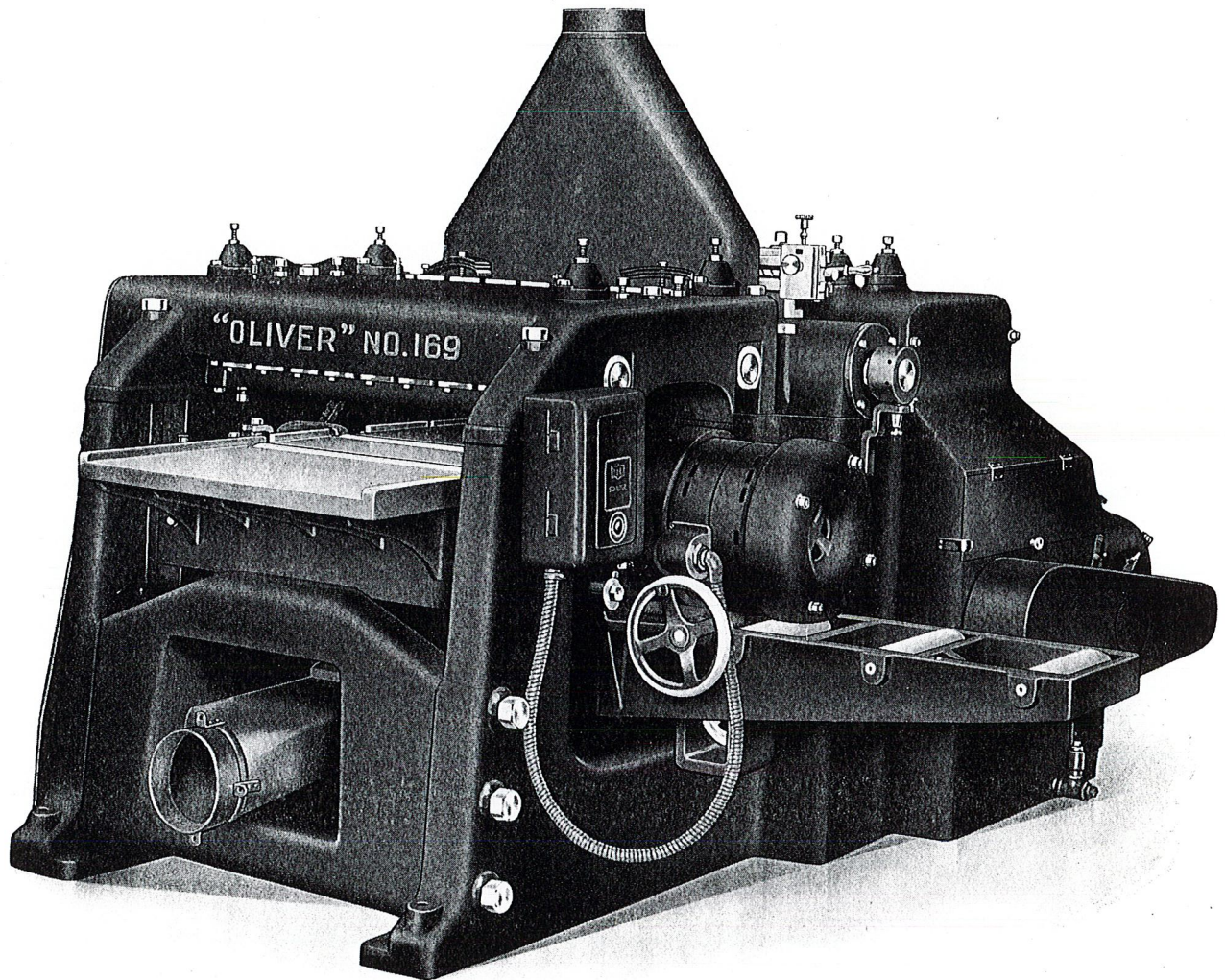
Exclusive Features

The most important exclusive features of this machine are as follows:

- 1—Improved design of the pressure bars and outfeed pressure plate eliminates dubbing the ends of the work or causing wavy cuts and assures uniform thickness of work.
- 2—Extra rigid heavy construction — built for production, assuring long life.
- 3—Feed rolls have powerful downward pull drive.
- 4—Continuous chain drive of feed rolls gives more powerful, durable and silent drive.
- 5—Both the wedge and the bed are one-piece castings, assuring accurate alignment.
- 6—Larger cutting diameter of cylinder gives straight line cut, producing extra smooth finish and has no tendency to pull up the fibre of stock.
- 7—The bearings of the feed system are of special alloy anti-friction bronze, easily replaceable.
- 8—At each end of both top and bottom cylinders ball bearings are used with large lubricating chamber, minimizing friction.
- 9—Alemite system of lubrication for all feed mechanism bearings assures forced, yet easy lubrication of all parts.
- 10—Unit system of construction is used, having all major parts with their accessories assembled together and located in the machine as a unit.
- 11—All moving parts are thoroughly enclosed and guarded.
- 12—Knife setting, jointing and grinding bar for top cylinder has positive constant location. It is never in the way and always ready for use.
- 13—Bottom cylinder housing has self-contained bracket supporting table on which bottom cylinder yoke slides out for quickly setting, jointing and grinding the knives, without removing the cylinder from the machine. Rack and pinion with handwheel makes an easy and effective method for sliding out lower housing.
- 14—Built-in shaving chute directs shavings from the bottom cylinder towards the rear of the machine, providing easy exhaust connection.
- 15—Sectional chip breaker is of the concentric type wherein the bar moves concentric to the cylinder, the toe of each section also moves independently, assuring powerful hold-down.
- 16—Most direct electric motor drive having cutter head motors mounted directly and in a self-contained manner on the end of the cylinders extended and a four-speed feed motor mounted directly on the machine.

OLIVER MACHINERY COMPANY  GRAND RAPIDS, MICHIGAN, U.S.A.

"OLIVER" NO. 169 PRODUCTION DOUBLE SURFACE PLANER



"OLIVER" NO. 169 PRODUCTION DOUBLE PLANER

GUARANTY

We guarantee our machines to be commercially perfect both as to material and workmanship and to perform up to full capacity as represented by our literature, when properly operated, or no sale. We further guarantee to replace free of charge to purchaser any part of any machine that may develop inherent defects during one year after shipment.

Frame

The frame is very massive and rigid, having floor bearing the entire length, with cored sides bolted in finished tongue and groove fittings to the two girts and having top infeed and outfeed roll housings bolted to the top of the slides with vertical bolts, assuring rigid support to the entire machine.

Sides

The sides are cored castings planed at the bottom to assure even floor support and planed with vertical and bottom horizontal tongue on the inside to form accurate guides for the wedge and the bed. The right hand side has steel guards encasing the chain feed system. The left hand side has cast-in housing to encase the initial reduction gear system of the feed works. Gears run in totally enclosed bath of oil.

Girts

Both girts are of the cored form with finished wide ends having locating tongue. Front girt supports the mechanism for raising and lowering the bed; the rear girt has cast-in shaving chute to divert the shavings from the bottom cylinder towards the rear of the machine with easy connection for exhaust system.

Wedge

The wedge is of one-piece casting finished on all four sides. The one-piece construction assures permanent alignment; also uniform, rigid support to the bed. The wedge slides horizontally on the right angle finished ways located at the lower inside of the two sides.

Power Hoist

The bed is hoisted by power by sliding the wedge forward by 2 parallel screws propelled by gearing from a friction clutch which is engaged when the operator holds in the conveniently placed lever at his left. A release instantly stops the raising of the bed as soon as the operator releases the hoist lever. The lowering of the bed is easily effected by the large handwheel in the front girt. Scale and pointer at the front indicates thickness of work after top cylinder cut.

Bed or Table

The bed or table is of the inclined wedge type. It is a one-piece casting finished on all sides. It rides on the wedge and is guided vertically by the finished vertical ways of the sides. The top or table part is made up of separate platens or plates located on the finished top of bed in between the feed rolls and the bottom cylinder and at each end. The plate under the top cylinder is hardened and chilled and ground. The chip breaker plate before the bottom cylinder has steel inserted lip. The pressure plate back of the bottom cylinder is hardened and chilled. All of these plates are replaceable, independently finished and bolted in place on the top of bed, giving permanent alignment. The bed supports the bearing boxes of the 4 lower feed rolls, with alignment adjustment for each roll. Toward the rear of the bed, in accurately finished ways is supported the bottom cylinder housing.

Bottom Cylinder Housing

The bottom cylinder housing is a one-piece casting rectangular in shape. The housing contains the bottom cylinder yoke and the bottom outfeed roll. It is carried in a pocket at the rear of the bed and is vertically adjusted on two inclined wedges by means of two screws, spiral gears and a cross shaft operated by hand-wheel on the left side of the machine. It has a total vertical adjustment of $\frac{1}{4}$ -inch with pointer and indicator to show thickness of bottom cylinder cut. At the left hand end of the housing is located the bracket of supporting table to receive the bottom cylinder yoke when same is pulled out for knife setting, jointing or grinding.

Bottom Cylinder Yoke

The bottom cylinder yoke carries the bottom cylinder, the motor and the pressure bar after the cut. It is fitted inside of the bottom cylinder housing in a tongue and groove finished way. Wedge locks on each box securely clamp the yoke in place. Proper stops at the right hand end determine the location of the yoke when in position. The rear pressure bar is also carried in cylinder yoke, hence the cylinder knives can be easily set to this bar and the bar can also be aligned to the cylinder. When the yoke is pulled out for taking care of the knives, the right hand end of the yoke remains in the housing while the balance of the yoke rests on the self-contained bracket which is in line with the bed of the housing.

Top Cylinder Housing

The top cylinder housing consists of the sectional chip breaker, the pressure bar and the two ball bearing housings for the top cylinder. The housings are tongued and grooved and bolted to the top of the sides and have at the inside ends concentric ways to receive the chip-breaker bar at the front and the pressure bar at the rear in an adjustable sliding fit. If necessary, the bolts that secure the ball bearing housings to the sides may be removed and the entire top cylinder yoke removed from the machine.

Top Infeed Housing

This is a one-piece casting with flat finished base to bolt on the two sides and with extensions at both ends to form the covers over the feed works. In this housing are located the two top infeed sectional rolls with their bronze bushed adjustable bearings, and with improved

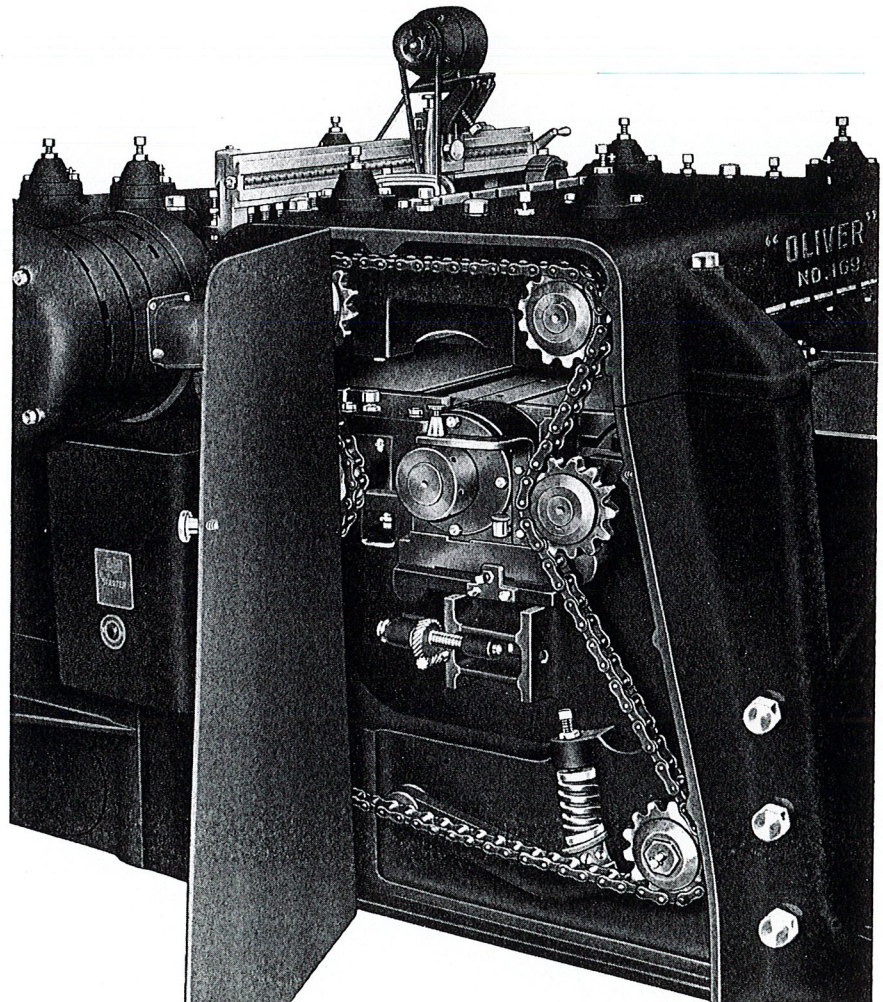
spring pressure yield at each end of the rolls. If necessary, this entire unit may be removed from the machine by removing the bolts which clamp it to the sides.

Top Outfeed Housing

This is a one-piece casting with flat finished base to bolt on the two sides and with extensions at both ends to form the covers over the feed works. In this housing are located the two top outfeed rolls with their bronze bushed adjustable bearings with improved spring pressure yield at each end of the rolls. This housing also carries the chilled and hardened plate over the bottom cylinder, which is adjustable for alignment and pressure. The setting, truing and grinding attachment rail for the top cylinder is bolted to the front end of this housing. If necessary, this entire unit may be removed from machine by removing the bolts which clamp it to the sides.

Feed Works

The feed works are driven by a 4-speed motor through silent chain drive to gear transmission. This enables the operator to easily secure any one of the 4 rates of feed desired, 30, 45, 60 and 90 feet per minute. The gears are used merely for the initial reduction of speed—running in oil—the gears are quiet in operation and their wide faces mean long life. All driving from the feed shaft to the various feed rolls is by a powerful anti-friction continuous roller chain. The sprockets are all cut of the solid steel, keyed to the feed roll journals. The entire feeding mechanism is encased in housings with steel removable guards. The chain drive is more silent than gears, is more powerful than gear drive and requires far less attention to keep in perfect running condition than gear drives. The chain is always in contact with approximately one-half of each sprocket, whereas in any gear drive not more than two teeth are ever in mesh.



Rear Right Side Corner — Door Opened for Inspection.

Feed Rolls

There are four infeed rolls and four outfeed rolls, making eight in all. Each roll is 8 inches diameter with accurately ground steel journals $2\frac{1}{2}$ inches diameter, $7\frac{1}{2}$ inches long, running in replaceable, thick wall, special alloy, anti-friction bronze bearings with Alemite forced lubrication. These bronze bearings are pressed in rectangular cast iron boxes with finished sides supported in vertical finished ways, having adjusting screws for alignment. Pressure on the stock is obtained by two large coil springs acting on each roll with tension adjusting screw and lock nut, easily controlling the amount of pressure at the ends of each roll. The four infeed rolls are power driven at both ends by means of steel sprockets and continuous anti-friction roller chain. The outfeed rolls are driven at the right hand end with steel sprockets and continuous anti-friction roller chain.

Sectional Rolls

The 2 upper infeed rolls are sectional. The driving spider, or core, of these rolls have 6 radial driving plates of ground steel keyed to a high carbon steel shaft having ground journals $2\frac{1}{2}$ inches diameter, $7\frac{1}{2}$ inches long. On this core are superimposed the sections, packed in grease, which are corrugated and 2 inches wide; each section has 6 radial concentric driving lugs for power and 6 uniform tension radial springs yielding concentrically to the center of the shaft. Each section has $\frac{3}{16}$ -inch independent yield and each sectional roll as a whole, has a yield of $\frac{3}{4}$ -inch. The large size of these rolls (8-inch diameter), the sectional arrangement of the two upper infeed rolls and the powerful downward chain drive at each end of these rolls make them very popular with operators who require production and quality.

Bearings

All feed works bearings are lubricated by Alemite system of forced feed lubrication, which is dust-proof, easily accessible, very clean and decidedly efficient. The bearings of the top and bottom cylinders are ball bearing type lubricated by filtered oil; all feed works bearings are of the replaceable bronze bushed type; and all thrust bearings are of the ball bearing type.

Cylinder

Both top and bottom cylinders are made of high carbon steel forgings, with shaftless motors mounted directly on one end. When belt driven, the top cylinder is double belted and the

bottom cylinder is single belted from the left end. Pneumatic type pulleys are used, 7 x 7-inch x 3600 r.p.m. Cylinders are finished $7\frac{1}{4}$ inches cutting diameter, having perfectly ground journals $3\frac{3}{8}$ inches diameter. The bearings are of the ball bearing type as described above. Each cylinder is fitted with 6 super-Tungsten thin high speed knives with hard steel chip breakers clamped in place by hardened double end screws exerting direct pressure between the body of the cylinder and the chip breaker. A hand wheel knife puller for setting the knives makes it very convenient to move the knife forward as desired before final clamping. The body of these cylinders is massive and because of its extreme weight and large cross sectional area eliminates any tendency for vibration of the cylinder or flutter of the knives. The large cutting diameter assures a straight line, smooth cut, with no pick up of fibre of the stock or any chance of dubbing the ends.

Chip Breakers

The chip breaker is sectional, having 2-inch sections with $\frac{3}{8}$ -inch independent yield. The chip breaker as a whole slides concentric to the center of the cylinder and has $\frac{3}{4}$ -inch yield. The cast steel ends of the chip breaker bar ride in turned ways on the inner side of the ball bearing housings of the top cylinder. This concentric action of the sectional chip breaker gives more pressure to the hold down of the stock passing through the machine, which helps to overcome wavy cuts and dubbing of the ends. The lower chip breaker is chilled bar faced with steel inserted lip.

Pressure Bars

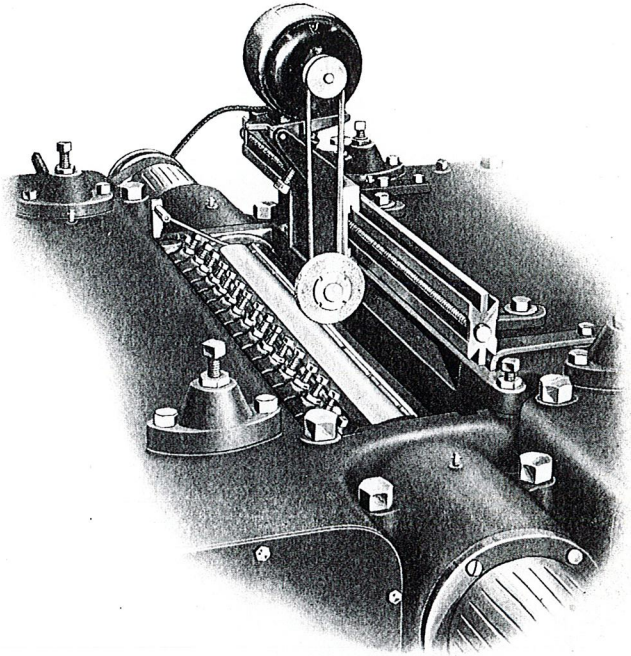
The top pressure bar is a solid bar of chilled semi-steel sliding vertical ways on the inner side of the cylinder bearings. This bar is $1\frac{5}{8}$ inches thick with a face 4 inches wide and is slightly relieved so as to obtain maximum pressure as close to the cut of the knives as possible. It has screw for adjusting for height and alignment and has variable spring hold-down pressure to suit the kind of work at hand. The bar after the lower cylinder is a solid bar of semi-steel chilled, having adjusting screws for alignment with the bottom cylinder.

Safety Guards

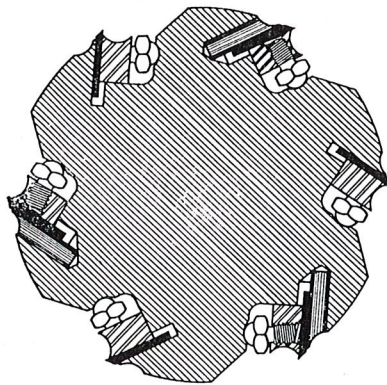
All running parts are thoroughly guarded either by cast iron or steel guards. The feed rolls are completely housed in. The bottom cylinder has stops to prevent being moved too far out or in. All in all, this is the most thoroughly safeguarded double surfacer obtainable.

Knife Setting, Jointing and Grinding Attachment

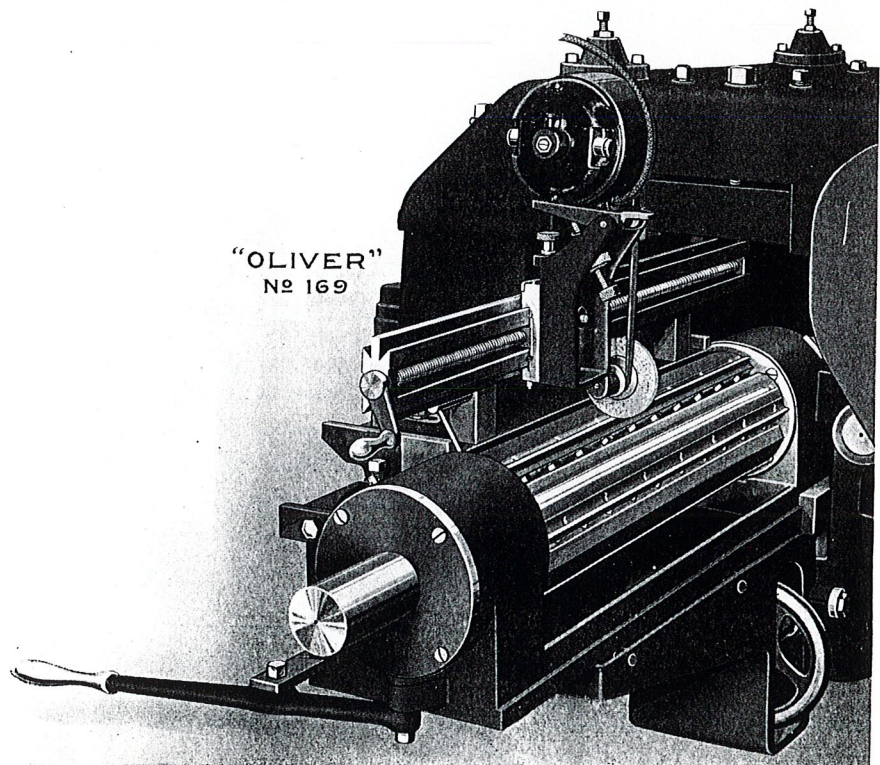
In the natural position of the top cylinder and by merely pulling the bottom cylinder out on the self-contained bracket, the knives can be easily set, jointed and ground in a comparatively very short time. The same bar receives the knife setting gauge the jointing attachment or the motor knife grinding head. This arrangement economizes the operator's time and assures more production hours per day.



View of Top Cylinder Housing, showing Knives being ground right on the cylinder.



Cross sectional view of top and bottom cylinders which have $7\frac{1}{4}$ -inch cutting diameter and are fitted with six knives with hard steel chip breaker for each knife.



View of Bottom Cylinder Yoke pulled out on the Self-contained Bracket and the Knives being sharpened, by the Motor Knife Grinding attachment, right on the cylinder.

Motor Drive

The most direct power application is used in driving this machine. A 20 h.p., 3600 r.p.m. motor is mounted directly on the right hand end of the top cylinder, a 15 h.p., 3600 r.p.m. motor is mounted directly on the left hand end of the bottom cylinder, and a 4-speed feed motor rated at 3½, 5½, 7½ and 10 h.p. at the corresponding speeds of motor, is mounted on the main frame of the machine in a self-contained manner, and is direct chain driven to the initial power shaft of the feed works. The push button magnetic remote control having low voltage protection and overload relay is mounted on the machine in the most convenient location for driving the top and bottom head motors.

A four-speed drum type controller is conveniently located for operating the feed motor. All wiring from the controllers to the motors and from the push buttons to the controllers are included in conduits, making the machine electrically complete ready for use as soon as main power line wires are connected. Complete detailed information must be given for the type of electric current on which the machine is expected to be used. The standard electric current for which motors are now in stock are for 3 phase, 60 cycle, 440 volts. However, the machine can be furnished to meet other voltage, cycle and type of current requirements.

Horse Power

We regularly furnish 20 h.p. motor, to drive the top head, 15 h.p. motor to drive the bottom head and a four-speed motor listed at 3½, 5½, 7½ and 10 h.p. to drive the feed works. With this equipment all general requirements of this machine can be very nicely taken care of. We are, however, prepared to change size of motors as the special requirements of the customer may dictate.

Hopper or Endless Bed Feed

When so ordered, an endless bed type of continuous hopper feed is furnished. This consists of an endless leather belt running over two drums—a power drum and an idler drum and a table. The power drum is fixed in the bed close to the feed rolls and is driven from the feed works by a silent anti-friction roller

chain through a slip clutch. This clutch has a quick stop lever located at the left side of the machine. The idler drum has take-up to compensate for any stretch of the belt. No adjustments are necessary to handle the various lengths of stock, as the travel of the belt is faster than the speed of feed rolls. The hopper gives a steady, continuous feed of stock towards the machine either in a straight line or diagonally as desired. Hopper feed can be detached from the surfacer bed for renewing the endless belt.

Floor Space

30-inch size surfacer requires 5 feet 4 inches x 8 feet actual floor space. Over-all measurement of 30-inch surfacer is 7 feet wide x 8 feet long. Total height, all sizes, 57 inches. Floor space of other sizes differs in width only.

Countershaft

The countershaft, in case of belt drive, consists of the main countershaft having tight and loose pulleys and two driving pulleys each belted to the two ends of the top cylinder and the driving pulley which belts to a jack shaft from which a belt runs to the bottom cylinder. All bearings of the countershaft, the jack shaft and the loose pulley are of the ball bearing type. Tight and loose pulley 14 inches diameter, 8-inch face and run at 1200 r.p.m.

Exhaust Hoods

The top cylinder housing presents a rectangular top opening on which is mounted a galvanized iron exhaust hood. The bottom cylinder exhausts into the built-in exhaust outlet in the rear end girt, for which is furnished a galvanized iron connection. Exhaust piping should be 8 inches diameter for each cylinder.

Equipment

Sectional infeed rolls, sectional chip breaker, 6-knife circular cylinders, including knives, power hoist to table, motor knife grinding, setting and jointing attachments, top and bottom head exhaust hoods, hand-wheel knife puller, necessary wrenches, grease gun for pressure lubricating system and shaftless electric motors with proper controls for motor drive or countershaft for belt drive.

CODE, WEIGHT, ETC.

| CODE | MACHINE DESCRIPTION | WEIGHT IN POUNDS | | CUBIC FEET |
|-------|---|------------------|--------|------------|
| | | CRATED | BOXED | |
| Didab | No. 169-AD—Double Planer, 30-inch wide, motor driven..... | 19,500 | 22,000 | 505 |
| Didad | No. 169-BD—Double Planer, 36-inch wide, motor driven..... | 21,000 | 24,000 | 610 |

EXTRAS

| | | | | |
|-------|--|-------|-------|-------|
| Didel | Hopper Feed Attachment of endless bed type, 30-inch..... | | | |
| Didem | Hopper Feed Attachment of endless bed type, 36-inch..... | | | |