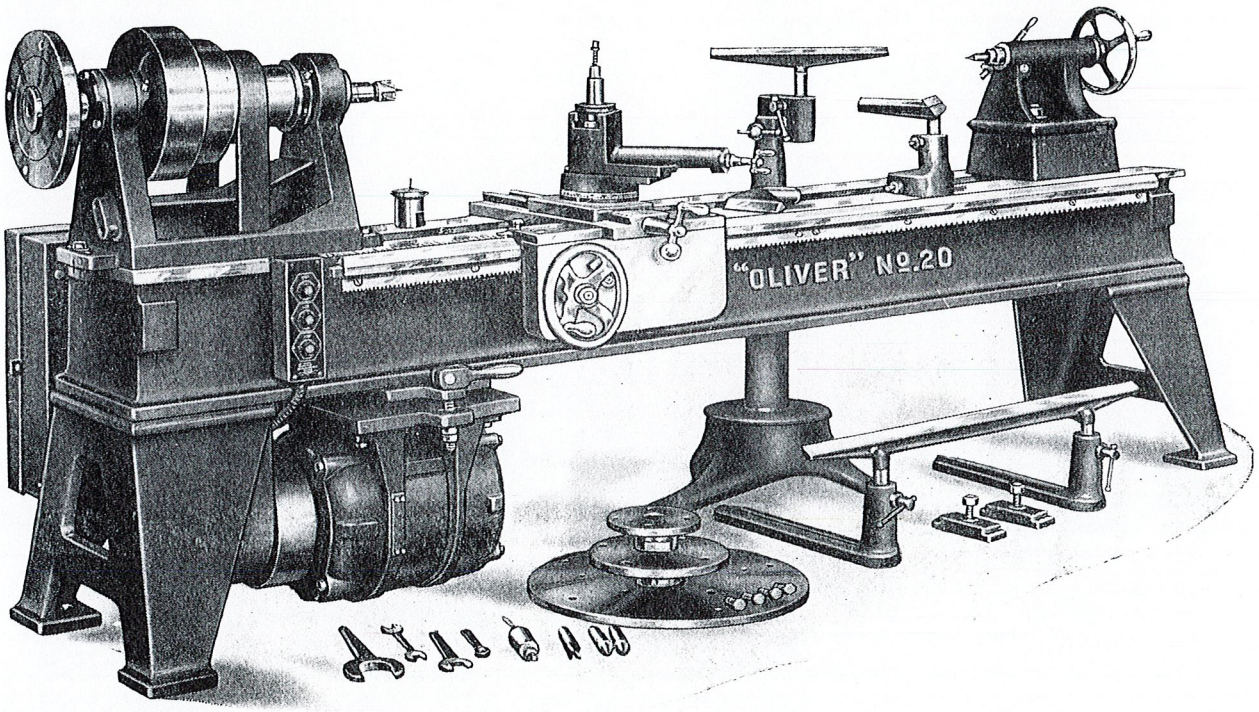
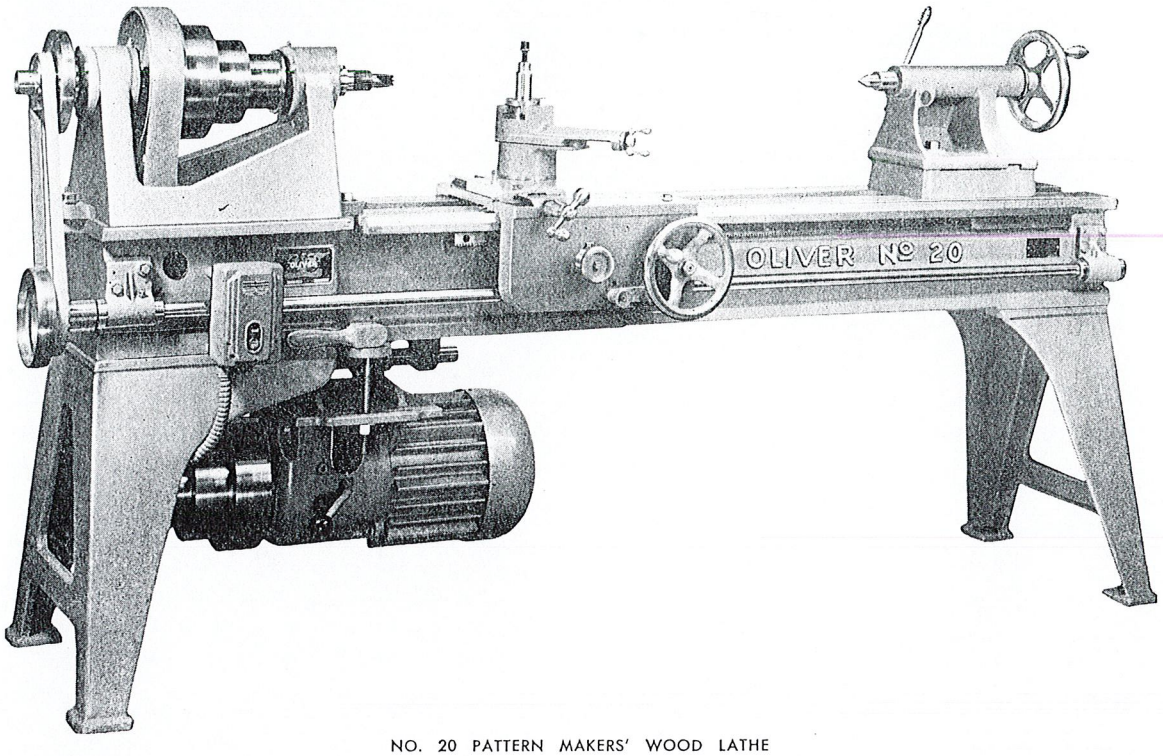
OLIVER
No. 20
PATTERN MAKERS' LATHE



NO. 20 PATTERN MAKERS' WOOD TURNING LATHE

Made in four sizes to swing 16, 20, 24 and 30-inch. Particularly suitable for alternating current motors. Lathe illustrated is 24-inch swing, 10-foot bed size, with hand feeding carriage.

OLIVER MACHINERY COMPANY, GRAND RAPIDS 2, MICHIGAN, U.S.A.



NO. 20 PATTERN MAKERS' WOOD LATHE
Front View of No. 20-B 20-inch Swing Lathe with 8-foot Bed Fitted with Power Feeding Carriage.
Other sizes are similar in design.

INTRODUCTION

To successfully meet the demand for a self-contained lathe that can be driven by an A.C. motor, we have furnished the machine as shown and described herewith. We recommend it as capable of proving absolutely satisfactory.

METAL TURNING AND SPINNING

The No. 20 Lathe can be used for turning light non - ferrous metals and can be furnished in a modified design for metal spinning work.

MOTOR DRIVE

Usually an alternating current two speeds, 600/1200 r.p.m. motor is used, giving eight speeds to spindle. Single speed or multi-speed motors may be used and we invite special correspondence giving kind of work expected. Motor is supported under the lathe bed and fitted with a four-step cone pulley accurately balanced. This location of the motor gives it added protection from dirt and abuse. A vertical adjustment serves to keep the belt taut. Direct current motor may be used if desired. Motor cone pulley is carefully balanced and is mounted directly on motor shaft.

HEAD STOCK

Made from a cored casting of proper strength and rigidity and well proportioned. Base is widened to permit passing driving belt through it down to the cone on motor shaft. Unit can be pivoted 5° in either direction for cutting tapers. Power feed carriage cannot be operated when head stock is pivoted. Belt must be removed.

HEAD SPINDLE

Of special high carbon steel, large in diameter, threaded at front end to receive face plates and at rear end has a large flange shrunk on the spindle and finished all over to receive the large face plates which are held securely by four stud bolts. This method of holding rear end face plates is used on "Oliver" Lathes only; it saves time and avoids face plates getting "stuck." Spindle has a hole through it to assist in removing centers, is accurately ground and absolutely true in the journals.

SPINDLE BEARINGS AND CONES

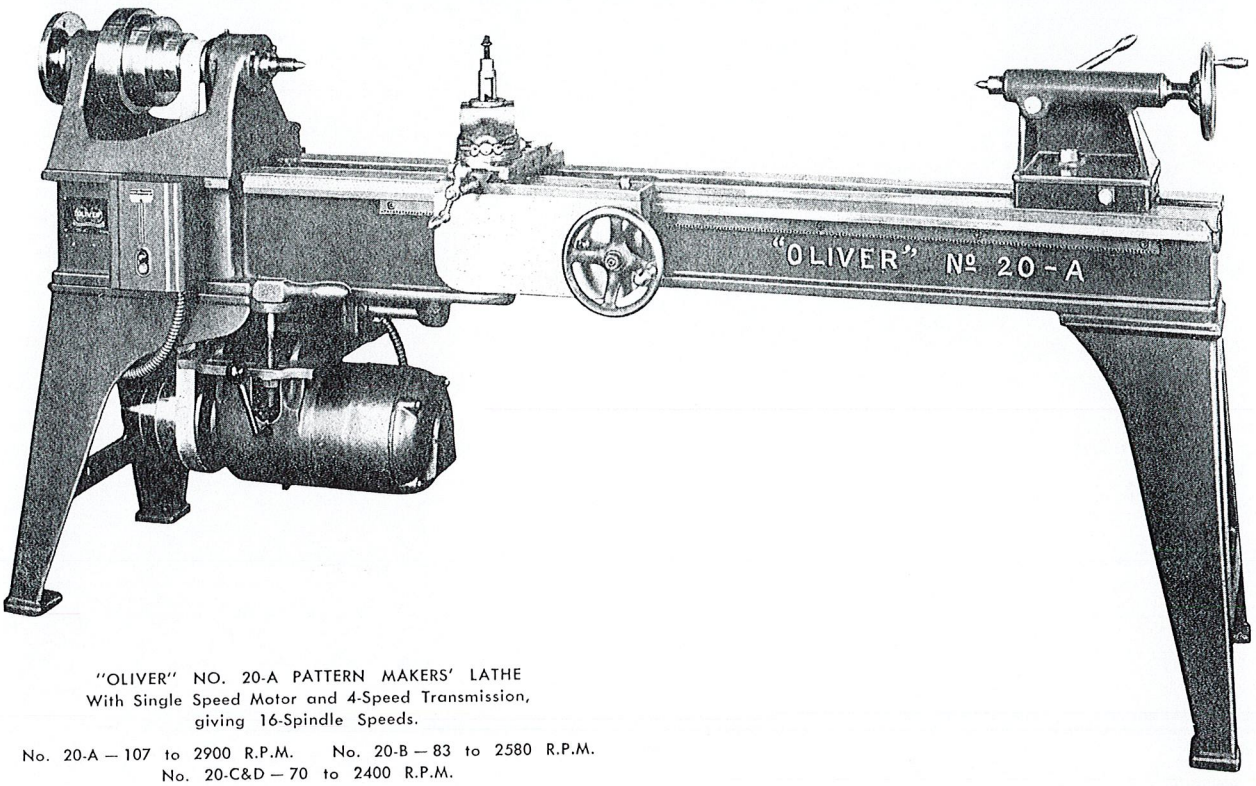
All head stocks are provided with Taper roller bearings, adjustable to wear, and are fitted with chambers for self-lubrication. Spindle cone made of cast iron, has four steps, machined all over and adjusted to a running balance.

END THRUST

Is taken care of by means of a thrust nut threaded to the spindle, taking up any play that may develop in the taper roller bearings.

TAIL STOCK

Constructed in the open side design. Cutting tools may be brought close to centers. Has set-over device for turning taper work



"OLIVER" NO. 20-A PATTERN MAKERS' LATHE
With Single Speed Motor and 4-Speed Transmission, giving 16-Spindle Speeds.

No. 20-A — 107 to 2900 R.P.M. No. 20-B — 83 to 2580 R.P.M.
No. 20-C&D — 70 to 2400 R.P.M.

and an eccentric lever for locking it in any desired position. Tail spindle is of correct diameter bored to Morse tapers. Is held in position by means of a strong clamp. The tail center may be removed by simply backing the screw.

THE BED

It is of iron of proportionate dimensions to suit the size of the lathe fitted to it. It can be supplied in any length, calculating by advances of two feet, but 8- and 10-foot beds are standard. It has a broad top, made flat so that operator's tools will not work off. When furnished to receive a tool carriage the ways for same are cast to the side. The part under the head stock is widened to permit the belt to pass through.

POWER FEEDING CARRIAGE

All sizes of lathes may be provided with a power feeding carriage, when so ordered. The carriage receives its power through a belt from a two-step cone on the lathe spindle to a cone on a feed shaft the length of the bed, giving two speeds to the feed shaft. When using the lathe at the overhanging end for the face turning on large diameters the cone pulley may be instantly removed.

CARRIAGE GRADUATIONS

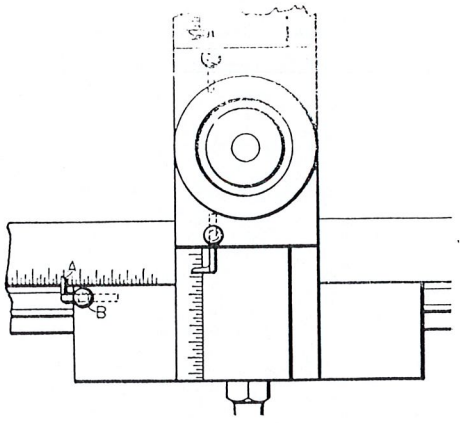
Are placed on the machine to enable an operator to turn a definite length or depth without having to "fit and try." They are located on the top of the bed at the front and on the ways for the carriage cross slide. "A" is a finger adjustably set in the carriage slide and clamped by means of a screw, "B."

SPECIAL HAND REST SOCKET

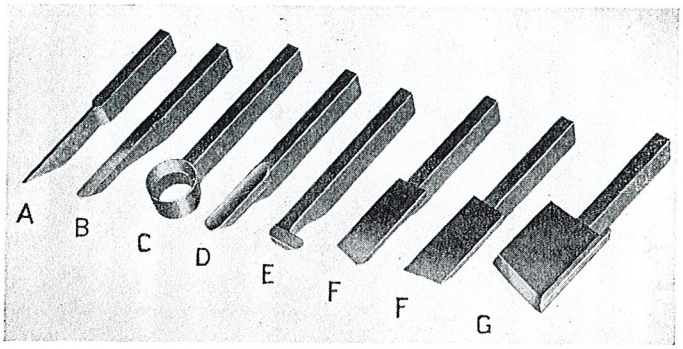
This device provides an effective hand tool rest mounted on the cross slide of the carriage. It consists of a rest socket machined to fit the slide and held firmly.

HAND FEEDING CARRIAGE

It is furnished with any size of machine. Is correctly proportioned and constructed with a compound swivel rest. The apron has a wide support on the front side of bed. A hand wheel engages steel cut rack and pinion and operates freely in either direction.



Carriage Graduations



Group C Tool Post Tools for use in tool post of carriage of wood lathes.

Set of standard Group A wood turning tools.

GENERAL DIMENSIONS

HEAD STOCK

Swing in Inches	16″	20″	24″	30″
Diameter of Spindle Nose	1¼″	1⅜″	1⅜″	1⅜″
Diameter of Front Spindle Bearing Seat	1½″	2⅛″	2⅛″	2⅛″
Diameter of Rear Spindle Bearing Seat	1⅝″	2¼″	2¼″	2¼″
Size of Morse Taper by No.	2	4	4	4
Steps of Cone — Diameter	3½″	4½″	5″	5″
	5″	6¾″	7⅜″	7⅜″
	7⅜″	9″	9⅝″	9⅝″
	9″	11¼″	12″	12″
Steps of Cone — Width	2¼″	2⅞″	3¼″	3¼″
Width of Belt Used	1¾″	2½″	3″	3″
Approximate Spindle Speeds, assuming the use of a two-speed motor, 600 and 1200 r.p.m.	Eight Speeds 233 to 3086	Eight Speeds 180 to 2700	Eight Speeds 160 to 2520	Eight Speeds 160 to 2520

TAIL STOCK

Diameter of Spindle	1½″	1⅞″	1⅞″	3″
Traverse of Spindle	4½″	6″	6″	8″
Length of Spindle Bearings	10¼″	12″	12″	14″
Size of Morse Taper by No.	2	4	4	4
Adjusting Screw — No. Threads to Inch	8	6	6	4

HORSE POWER

H. P. Recommended	1½-2	2-3	3-5	3-5

BED

Swing in Inches	16″	20″	24″	30″
Standard Length in Feet	8′	8′	10′	10′
Width Inside of the Carriage Way	9½″	11¾″	15¼″	15¼″
Depth	7″	9¾″	11″	11″
Height from Floor	34″	32″	30″	30″

CARRIAGE

Traverse of Cross Feed	8″	11″	13″	12″
Traverse of Compound Feed	5″	6″	7″	7″
Travel of Carriage on the Standard Length of Bed	5′ 3″	4′ 7″	6′ 3″	6′
Length of Way Bearing	17″	17″	20″	20″
Length of Slot in Tool Post	2″	2″	2″	2″
Width of Slot in Tool Post	¾″	¾″	¾″	¾″

EQUIPMENT

Single Shank Rests, Length	6&18″	6&18″	6&18″	6&18″
Double Shank Rests, Length	30″	30″	48″	48″
Rest Holders, Quantity	2	2	2	2
Head (Spurs) Centers, Sizes	¾&1¼″	¾&1¼″	1¼&2″	1¼&2″
Tail (Cup) Centers, Sizes	¾″	¾″	¾″	¾″
Conical Centers	pair	pair	pair	pair
Front Face Plates, Diam.	8&12″	8&12″	8&12″	8&12″
Rear Face Plates, Diameter	20″	20″	24″	24″
Screw (Rosette) Chuck, Diameters	3½″	3½″	3½″	3½″
Right Angle Rest, size	6″	6″	6″	6″
Floor Stand with Off-set Rest Holder	1	1	1	1
Hand Tool Rest Socket for use on Carriage	1	1	1	1

CODE, CAPACITY, WEIGHT, ETC.

CODE	DESCRIPTION	SWING BED	OVER CARRIAGE	SWING AT REAR END	LGTH. STAND BED	TURNS BET. CENTERS	WEIGHT IN LBS. CRATED	BOXED	CU. FT.
Duke	No. 20-A with Hand Feeding Carriage	16″	13″	84″	8′	61″	1900	2500	110
Dumb	No. 20-B with Hand Feeding Carriage	20″	17″	84″	8′	56″	2500	3150	127
Dumpy	No. 20-C with Hand Feeding Carriage	24″	20″	84″	10′	75″	3600	4000	160
Dunker	No. 20-D with Hand Feeding Carriage	30″	26″	84″	10′	73″	4000	4600	170

NOTE — Power Feeding Carriage may be furnished instead of regular hand feeding carriage when so ordered. Bed lengths may be increased or diminished from the standard by 2′ lengths.

OLIVER MACHINERY COMPANY
Grand Rapids 2, Michigan, U.S.A.

BRANCH SALES OFFICES
NEW YORK ATLANTA PITTSBURGH COLUMBUS, O. CLEVELAND DETROIT CHICAGO NEW ALBANY, IND. ST. LOUIS MINNEAPOLIS DENVER SALT LAKE CITY SEATTLE PORTLAND SAN FRANCISCO LOS ANGELES