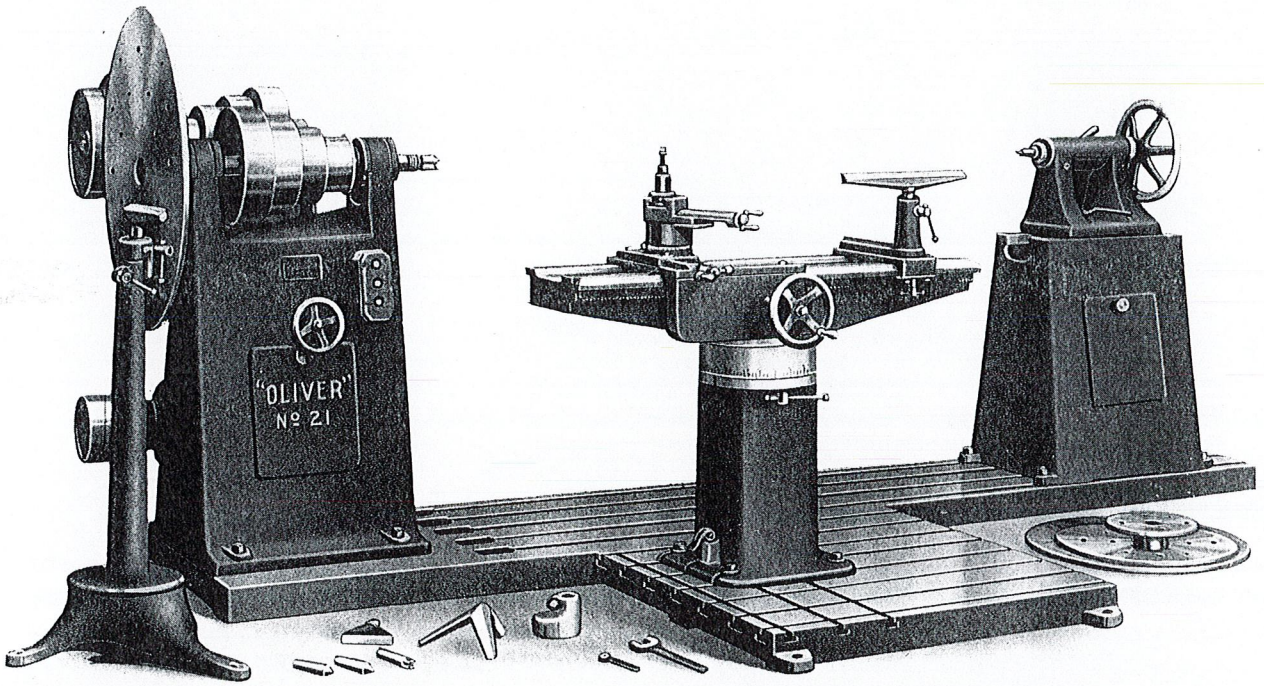
OLIVER

Nos. 21, 22, 23

Large Pattern Lathes



No. 21-AC Combination Pattern Lathe, showing tailstock and long floor plate. An additional floor plate which increases the use of tool post for outside work can be furnished at additional cost. The rest holder shown on right end of carriage is not regular equipment.

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

No. 21 Pattern Lathe Swings 92″ front, 100″ over floor

Capacity

This Lathe swings 92 inches diameter over the sole plate, 100 inches over the floor, and any desired diameter over a pit at the rear of the headstock. A standard machine will turn 6 feet 6 inches long between centers, but it can be made to order to any length advancing by sections of two feet.

Sole Plate

This can be built any length. The various columns supporting the head, tailstock and movable carriage are mounted on it. The sole plate is a heavy casting with T-slots planed both lengthwise and crosswise for proper alignment of tailstock and movable carriage column.

Floor Space

Many ordinary pattern lathes take up too much space. The movable units of the Oliver are compactly grouped near the headstock and its sole plate.

Headstock

The headstock is mounted on a heavy column. It carries a strong, machine ground hollow spindle supported in self-oiling bearings. The spindle has a 12-inch flange permanently shrunk on the rear end to center the large face plates which are bolted in place. Large, taper roller bearings carry both radial and thrust loads in either direction. The cast iron cone pulley is machined both inside and out, and adjusted to a running balance.

Tailstock

The tailstock is mounted on a column adjustable to and from the headstock by a rack and pinion controlled by a hand wheel. The top of the column permits some lateral motion of the tailstock. In centering work, it may be necessary to move the tailstock instead of the center. This adjustment is equal to a longer traverse of the tailstock spindle.

Movable Carriage and Tool Post

The design of this unit permits an infinite variety of work. The pillar is aligned by loose keys which fit the slots in the plate. It can be adjusted to operate upon the largest diameters, or set directly under the center of the spindles to act as a bed for hand turning on small work. It can also be set close to the headstock and tailstock, parallel to them, to permit the centers to come together and still have a bed for convenient use on extremely short work that requires two centers.

Carriage

The carriage has a hand feed with steel cut gear and rack. The cross slide and swivel rest have a long traverse. Compound rest is accurately graduated and swivels to any angle. This swivel, with the one shown between carriage slide and top of column, makes it possible to secure all necessary angles in bevel work. In turning large drums the end of the carriage slide can be inserted within the work being turned.

Hand Rest Socket

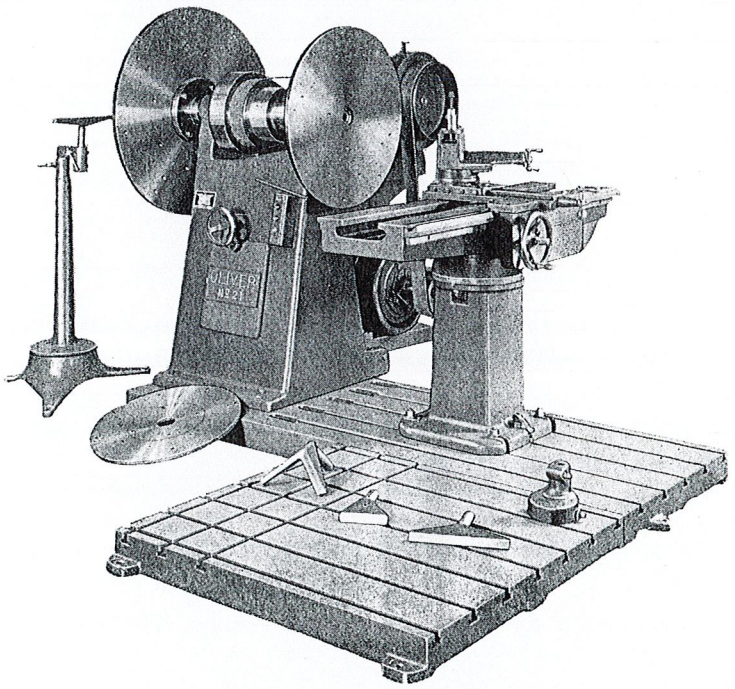
A socket carrying a rest for hand turning is provided. When desired it can be used instead of the compound swivel and tool post.

Motor Drive

The motor is mounted on a hinged bracket that permits proper belt tension. Self-contained countershaft, carried on taper roller bearings, is mounted on a sliding frame acting on bracket in rear of headstock. Alignment is determined by machined seat. An adjusting screw, operated from front of machine, provides correct belt tension, and relieves tension while shifting belt. With alternating current a 5 h.p. two-speed 600 and 1200 r.p.m. motor, and a two-step belt drive between motor and countershaft is used.

Equipment

Two spur centers, 1 each 1¼-inch and 2-inch diameter. One cut center ¾-inch. Two conical centers 1¼-inch. Four face plates for spindle—12-inch, 24-inch, 30-inch and 38-inch diameter. One rest holder to attach to tool carriage. Three rests—6 inches, 12 inches, 18 inches long. One right angle rest 6 inches long. One portable floor stand with offset rest.



No. 21-BC Lathe is same as No. 21-AC except the tailstock, its portion of the sole plate, and all centers are omitted.

No. 22 Pattern Lathe swings 96″ front, 104″ rear

Design

The heavy construction and unusual capacity of this Lathe permit it to turn large, heavy patterns with ease. It has the advantages of a face lathe with added back gear drive and large tool column and carriage.

Sole Plate

The sole plate is a heavy casting with T-slots planed lengthwise and crosswise for proper alignment of tailstock and movable carriage column. The section that receives the carriage column is extended across the front of the head column to permit use of tool carriage on face work that overhangs the column. The sole plate permits a most compact arrangement of the lathe units. For turning short work the space is limited to that necessary for the actual work.

Headstock

The headstock is mounted on a heavy column bolted to the sole plate. A crucible steel, machine ground hollow spindle is supported in self-oiling taper roller bearings. Has machined cone pulley. Taper roller bearings—opposed—eliminate longitudinal lost motion and compensate for end thrust in either direction.

Back Gear Drive

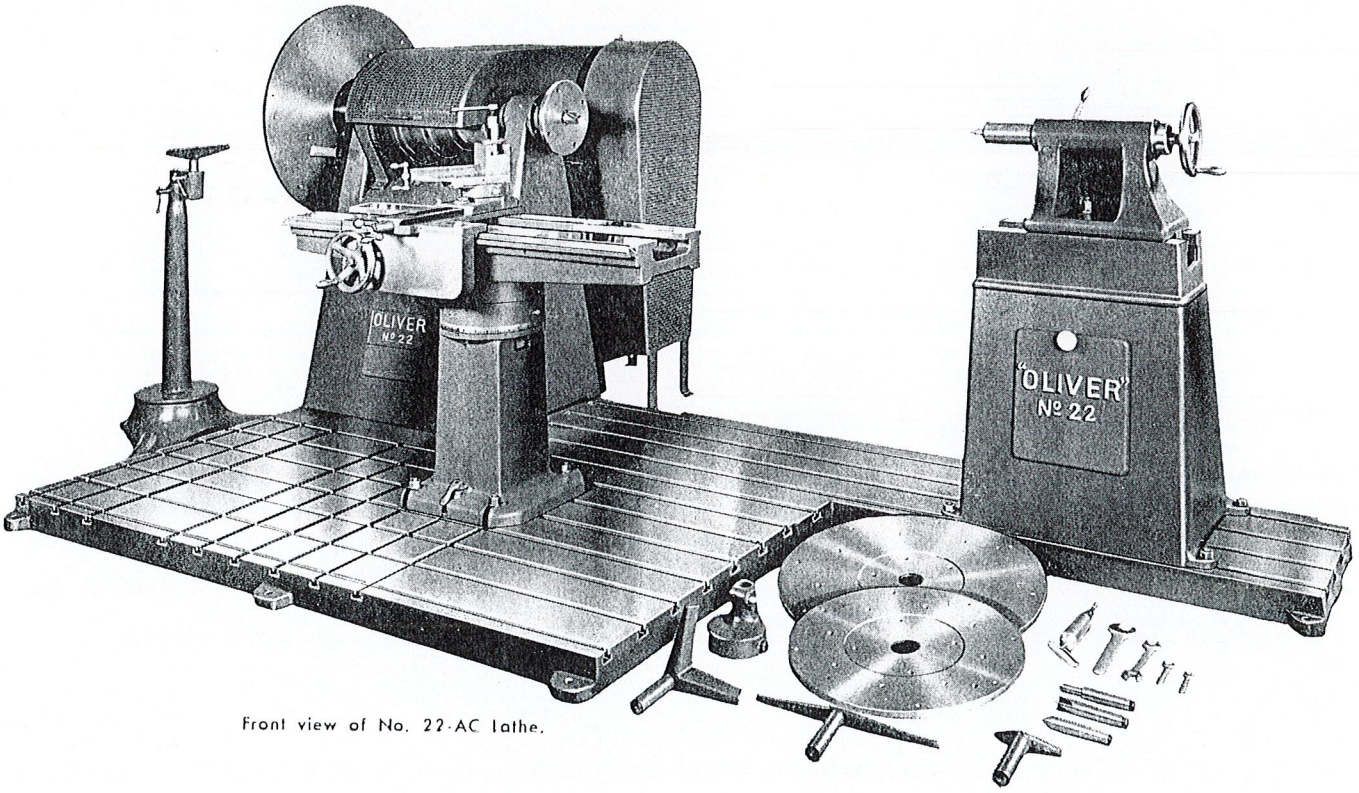
This increases driving power and reduces speed of headstock spindle to a minimum. It simplifies turning of patterns of large diameter using pit at left end of headstock. Its construction is similar to back gearing of regular engine lathe, the ratio being four to one.

Headstock Cone

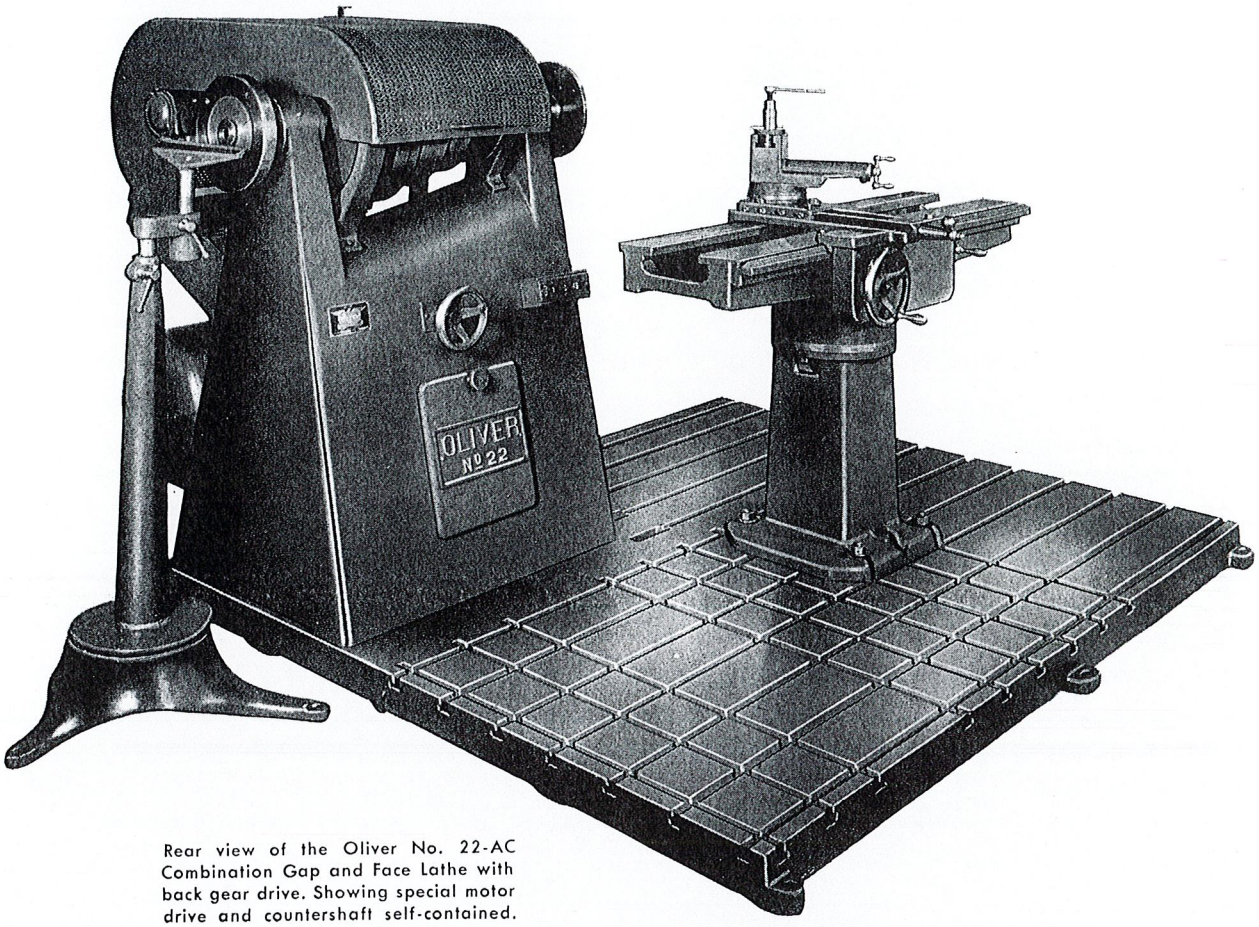
This four-step cone is mounted on self-oiling bronze sleeves that revolve on spindle. At each end of cone are four driving gears—one rear end is keyed to spindle. At high speeds this gear is connected to cone by a spring plunger, and back or connecting gears displaced. Gear at opposite end is keyed permanently to cone, and through it power is applied to back gear driving mechanism.

Gear Support

Back gears are supported on large hollow shaft through which eccentric shaft extends. Lever for throwing mechanism in or out of gear is attached to shaft. Back gears are well guarded.



Front view of No. 22-AC lathe.



Rear view of the Oliver No. 22-AC Combination Gap and Face Lathe with back gear drive. Showing special motor drive and countershaft self-contained.

Movable Carriage and Post

This device can be quickly located in any position on the sole plate. Alignment of pillar is made by keys in the slots, and can be adjusted to operate upon largest diameters. Or pillar can be set under center of spindles as a bed for hand turning small work. Or it can be set close and parallel to headstock and tailstock to permit centers to come together and still have a bed for convenient use upon short work requiring two centers.

Hand Rest Socket

A socket carrying rest for hand turning is provided. It may be substituted for the compound swivel and tool post when desired.

Hand Feeding Carriage

This is actuated by a cut gear and rack. Cross slide and compound rest mounted on it, have long traverse. Accurately graduated rest swivels to any angle. This swivel, with one shown between carriage slide and top of column, makes it possible to secure all necessary angles in bevel work. In turning large drums, end of carriage slide can be inserted within the work being turned.

Tailstock

This is mounted on column adjustable to and from headstock by rack and pinion at its base. Top of column permits some lateral motion of tailstock. To center work, tailstock instead of center can be moved. This adjustment equals a longer traverse of tailstock spindle. Tailstock of open side design has eccentric clamp to lock sleeve.

Motor Drive

Motor is mounted on hinged bracke that permits correct belt tension. Sel contained countershaft, carried c taper roller bearings, is mounted c sliding frame acting on bracket i rear of headstock. Machined seat d termines alignment. Adjusting scre operated from front of machine, pr vides correct belt tension and releas tension while shifting belt. With a ternating current a 5 h.p. two-spe 600 and 1200 r.p.m. motor of consta horsepower, and a two-step belt dri motor and countershaft is used.

Capacity

No. 22 Lathe swings 96 inches ov base, 104 inches at rear of headstoc Turns 6 feet 6 inches between cente of standard length machine. Ext length sole plate and capacity to swi larger diameters can be furnished.

No. 23 Pattern Lathe swings 92″ front and rear

Capacity

This Lathe swings 92 inches diameter at front and rear of headstock, and any diameter over pit at rear of headstock.

Headstock

Headstock is mounted on heavy column. Carries strong, machine ground hollow spindle supported in self-oiling bearings. Spindle has 12-inch flange permanently shrunk on rear end to center large face plates which are bolted in place. Large, self-lubricated, taper roller bearings—opposed—eliminate longitudinal lost motion and carry radical and thrust loads in either direction. Cast iron cone pulley is machined inside and out, and adjusted to a running balance.

Movable Carriage and Tool Post

This new idea permits an infinite variety of work. Pillar is aligned by loose keys in slots of sole plate. It can be adjusted to operate on largest diameters, or set directly under center of spindles to act as a bed for hand turning small work. Or it can be set parallel and close to tailstock to permit centers coming together and still have a bed for convenient use on extremely short work requiring two centers.

Carriage

This has hand feed with steel cut gear and rack. Cross slide and swivel rest have long traverse. Compound rest is accurately graduated and swivels to any angle. This swivel, with the one between the carriage slide and the top of column, makes it possible to secure all the angles necessary in various bevel work. In the turning of large drums the end of the carriage slide may be inserted within the work being turned.

Hand Rest Socket

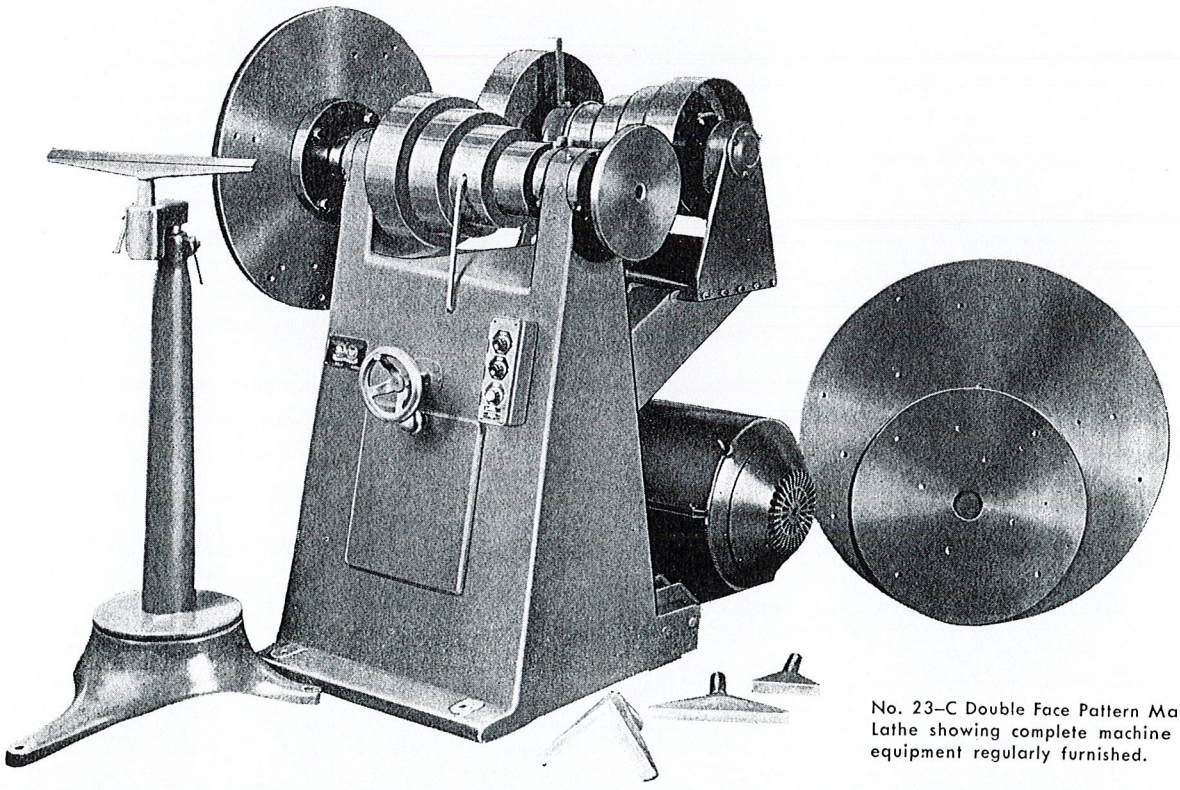
A socket carrying a rest for hand turning is provided and may be substituted for the compound swivel and tool post when desired.

Motor Drive

The motor is mounted on a hinged motor bracket and permits maintenance of proper belt tension. A self-contained taper roller bearing countershaft is mounted on sliding frame acting on bracket in rear of headstock. Alignment is determined a machined seat. And adjusting screw, operated from the front of the machine, provides correct belt tension, and relieves tension while shifting belt. When alternating current is employed it is customary to use a 5 h.p. two-speed 600 and 1200 r.p.m. motor constant horsepower, and a two-step belt drive between motor and self-contained countershaft.

Equipment

Four face plates for spindle—12-inch, 24-inch, 30-inch, and 38-inch diameter. One rest holder arranged to attach to tool carriage. Three rests,—6 inches, 12 inches, and 18 inches long. One right angle rest 6 inches long. One portable floor stand with offset rest.



No. 23–C Double Face Pattern Makers' Lathe showing complete machine with equipment regularly furnished.

Specifications of the five lathes...

HEADSTOCK

	# 21-AC	# 21-BC	# 22-AC	# 22-BC	# 23-C
Swing in inches (front)	92"	92"	96"	96"	92"
Swing in inches (rear)	100"	100"	104"	104"	92"
Dia. of spindle nose	2¼"	2¼"	2⅝"	2⅝"	2¼"
Size of Morse taper	4	4	4	4	4
Radial load capacity of front					
bearing at 500 RPM	5390 lbs.	5390 lbs.	5580 lbs.	5580 lbs.	5390 lbs.
bearing at 100 RPM	8720 lbs.	8720 lbs.	9050 lbs.	9050 lbs.	8720 lbs.
Length of spindle	36"	36"	46¼"	46¼"	36"
16 spindle speeds with 5 h.p.					
2-speed 600-1200 motor	64 to 1570	64 to 1570	29 to 1384	29 to 1384	64 to 1570

TAILSTOCK

Dia. of spindle	3"	none	3"	none	none
Traverse of spindle	8"	none	8"	none	none
Size of Morse taper	4	none	4	none	none

CARRIAGE

Length of bed	57"	57"	57"	57"	none
Height from base	36"	36"	38"	38"	none
Traverse of cross-feed	11"	11"	11"	11"	none
Traverse of cross-feed on					
compound rest	6"	6"	6"	6"	none
Carriage travel on bed	44"	44"	44"	44"	none

SOLE PLATE

Length	11'7"	7'10"	12'7"	7'10"	none
Width at headstock	35½"	35½	38"	38"	none
Width at center	32½"	32¼"	33½	33½"	none
Width at tailstock	24"	none	24"	none	none
Carriage plate—depth	42¾"	42¾"	44"	44"	none
Carriage plate—width	47"	47"	7'11"	7'11"	none
Thickness	4"	4"	4"	4"	none

CODE, WEIGHT, ETC.

CODE	MACHINE DESCRIPTION	WEIGHT IN POUNDS CRATED	BOXED	CUBIC FEET
Dowdy	No. 21-AC Lathe with Tailstock and Sole Plate	7500	8600	220
Dower	No. 21-BC Lathe without Tailstock, its portion of Sole Plate and Centers	5500	6550	175
Dough	No. 22-AC Pattern Maker's Lathe complete with Tailstock	10100	12000	320
Douma	No. 22-BC Lathe as above except Tailstock and its Sole Plate omitted	9000	10400	210
Dozve	No. 23-C Pattern Maker's Double Face Lathe	2500	2680	75

OLIVER

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

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