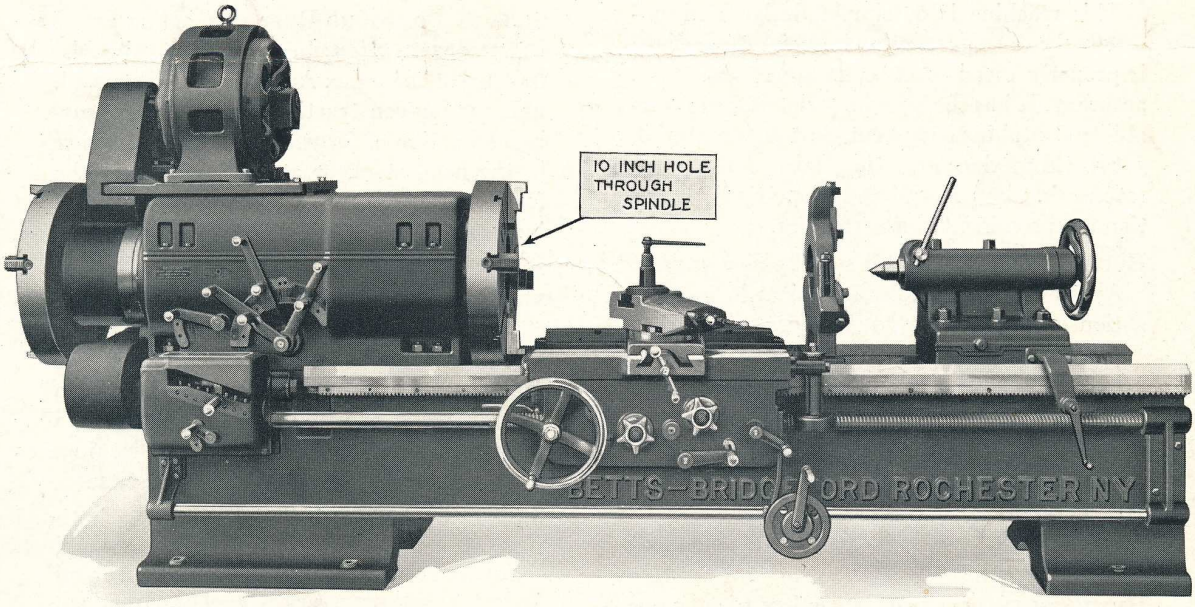
Consolidated Machine Tool Corpn.
Of America,
SAINT LOUIS OFFICE,
RAILWAY EXCHANGE BLDG.
St. Louis, Missouri.

BETTS-BRIDGEFORD

GEARED HEAD OIL COUNTRY LATHE WITH

10 INCH HOLE THROUGH SPINDLE

26-INCH HEAVY DUTY



GENERAL SPECIFICATIONS

Swing over ways	27″
Swing over carriage	17¾″
Distance between centers, 10′ bed	3′
Spindle Speeds	9
Range of spindle speeds R.P.M.	6.5 to 110
Highest gear ratio	51 to 1
32 thread changes (including 11½) Range	1 to 28
32 feed changes	.026 to .370
Front spindle bearing	13″ x 11″
Rear spindle bearing	11½″ x 10½″
Hole through head stock spindle, maximum	10″
Diameter of centers	2½″
Taper of centers	Morse No. 6
Diameter of tail stock spindle	3 11/16
Lead Screw, 2p., diameter	1 15/16
Driving pully, 6½″ face, diameter	18″
H.P. required, motor drive	15
Weight of lathe 10′ bed, approx.	12,900 lbs.
Net weight, each additional 2′ of bed	750 lbs.
Gross weight of lathe, 10′ bed, boxed for export	14,500 lbs.
Gross weight, each additional 2′ of bed, boxed for export	950 lbs.
Cubic feet, lathe 10′ bed, boxed for export	280
Cubic feet, each additional 2′ of bed, boxed for export	20
Code word—Arranged for belt drive	ISUMY
Code word—Arranged for constant speed motor drive without motor	ISUPS
Code word—Arranged for variable speed motor drive without motor	ISUOU

CONSOLIDATED MACHINE TOOL CORPORATION

OF AMERICA

BETTS WORKS ROCHESTER, NEW YORK

DESCRIPTION

A lathe designed for turning, boring or threading long work carried through hole in spindle, making it especially valuable for work in oil tool shops, field shops, etc. The use of a center adapter quickly closes hole in headstock spindle, permitting use of machine as a standard engine lathe for work carried between centers.

This machine is of simple design and unusually heavy construction in which the weight is properly distributed, combining power and accuracy. It has the necessary rigidity and durability for taking heavy cuts in tough material, yet it will produce smoothly finished and accurate work. Convenience and economy in operation are prominent characteristics.

Drive is through constant speed pulley or gear. Apron motor control mechanism in connection with drum type motor controller, provides instant starting, stopping and reversing of spindle directly from carriage. Belt driven machine may be equipped with mechanical clutch and brake mechanism, operated from apron, for quick starting and stopping.

Silent chain or belted motor connection furnished if desired.

Head Stock is of rigid construction, with heavy bronze bearings throughout. All gearing in the head stock is steel, of coarse pitch, cut from the solid, and runs in an oil bath, and all bearings receive a constant, ample supply of oil through automatic chain oiling.

Spindle is of high carbon steel, ground to size, and runs in heavy bronze bearings, scraped to fit. The hole through the head stock spindle can be furnished in various diameters with a maximum of 10″.

Bed is both wide and deep and heavily proportioned and has V ways. It is strongly reenforced with heavy cross ties of box pattern and has longitudinal rib with cast rack running parallel to the walls of the bed. A pawl, hung beneath the tail stock base engages this rack and provides a positive brace for the tail stock in addition to the locking bolts, when the lathe is engaged in extremely heavy work. Beds are furnished in any length desired, in multiples of 2′ at additional cost.

Tail Stock is massive in all proportions and is so shaped as to clear compound rest when turning angular work, and arranged to set over for taper turning. Two heavy binders with four bolts are provided for clamping tail stock in position. Clamping bolts are all operated from the front of lathe.

Carriage, Compound Rest and Apron are of heavy construction, in proportion with the balance of the lathe. Apron is of double wall, unit casting construction with all steel gearing. Direction of feeds can be changed either in the head stock or at the apron, and the feeds, both lateral and cross are driven by independent frictions. Compound rest top slide is made of steel casting.

Feeds or Leads are obtained through the quick change gear box. The feeds are driven from a spline in the lead screw through pinion to the rack, and the screw cutting obtained from the threads of the lead screw by engaging a shear nut. Feeds and leads are interlocking, so that only one can be in use at one time.

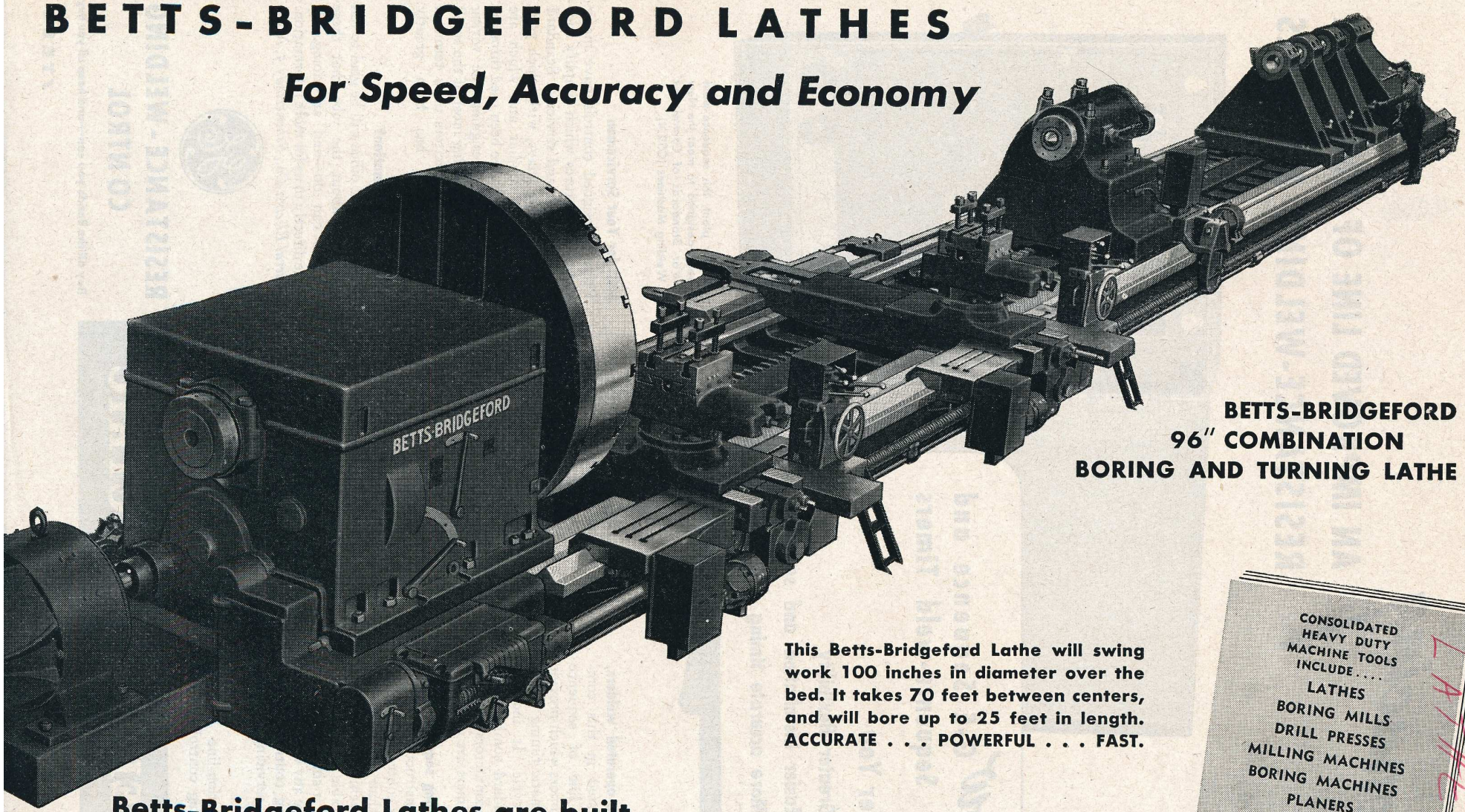
Standard equipment includes arranging both ends of spindle for application of chucks, compound rest, 8″ or 11″ steady rest, thread indicator, and necessary wrenches. American or English type tool post can be furnished as desired.

Extra Attachments will be furnished at additional cost as follows: Full swing rest, center adapter, follower rest, power rapid traverse, special large steady rests, four way turret tool block, automatic leadscrew supports, adapter with center for closing hole in headstock spindle, power feed tailstock or special boring carriage for deep boring.

Taper Attachment can be furnished with the lathe as an extra either in the standard type or "oil country" type as preferred. The standard type taper attachment is bolted to the back of the carriage, and travels with it, always ready for instant engagement. The Bridgeford "oil country" taper attachment is bolted to the rear of the bed and can be moved to any position between centers along the whole length of the bed. Maximum taper 25 degrees (included angle) or 5″ difference in diameter per foot in length. Length of taper (at one setting) 30″.

BETTS-BRIDGEFORD LATHES

For Speed, Accuracy and Economy



BETTS-BRIDGEFORD
96″ COMBINATION
BORING AND TURNING LATHE

This Betts-Bridgeford Lathe will swing work 100 inches in diameter over the bed. It takes 70 feet between centers, and will bore up to 25 feet in length. ACCURATE . . . POWERFUL . . . FAST.

CONSOLIDATED HEAVY DUTY MACHINE TOOLS INCLUDE . . . .
LATHES
BORING MILLS
DRILL PRESSES
MILLING MACHINES
BORING MACHINES
PLANERS
SLOTTERS
SPECIAL MACHINES
RAILROAD SHOP TOOLS

LATHES

Betts-Bridgeford Lathes are built from 26″ up to any requirement

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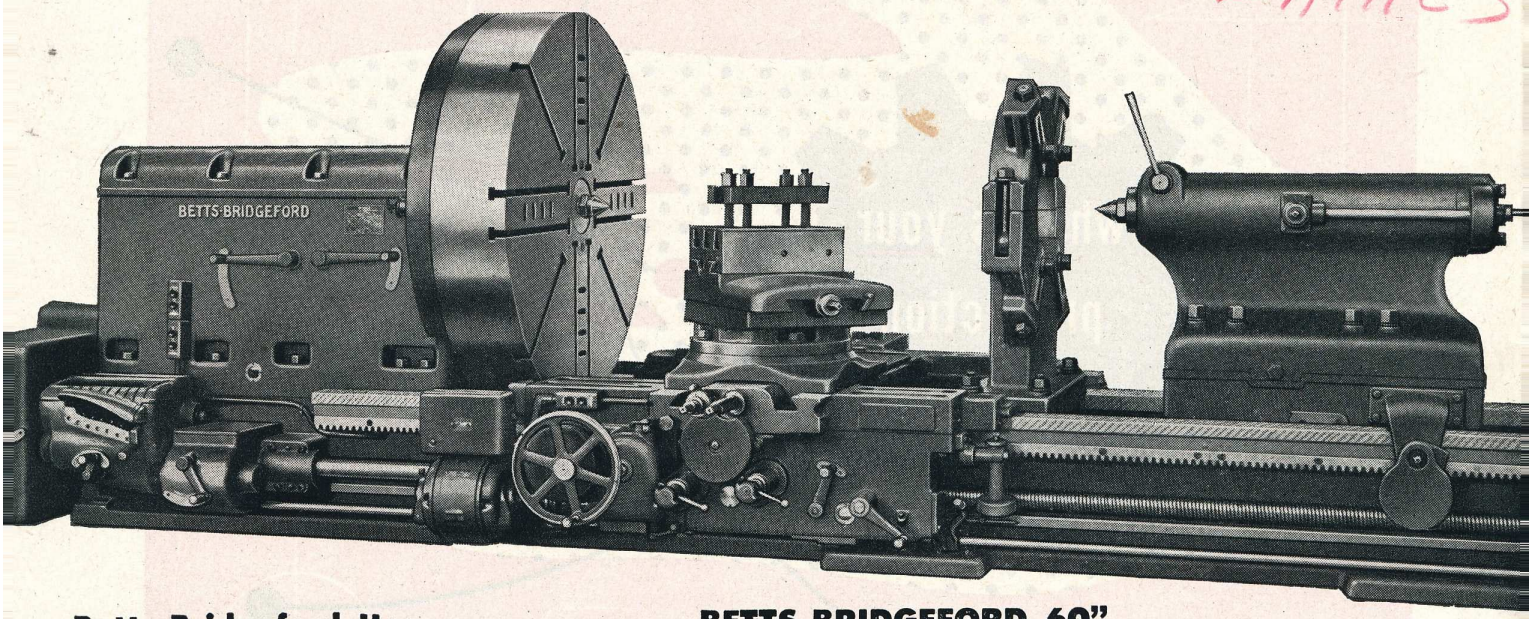
BETTS-BRIDGEFORD
HEAVY DUTY GEARED HEAD
LATHES

LATHES



Betts-Bridgeford Heavy Duty Geared Head Lathes are built from 26" to 144" swing, and larger.

BETTS-BRIDGEFORD 60"
HEAVY DUTY GEARED HEAD LATHE

Among Heavy Machine Tools built by Consolidated are . . . .

LATHES
BORING MILLS
DRILL PRESSES
MILLING MACHINES
BORING MACHINES
COLD SAW MACHINES
PLANERS
SLOTTERS
RAILROAD SHOP TOOLS
AUTOMOTIVE TOOLS
AND OTHER
SPECIAL MACHINES

This lathe has every feature required for modern accuracy and high production.

Send us your lathe inquiries

BUILDERS OF HEAVY DUTY MACHINE TOOLS SINCE 1861

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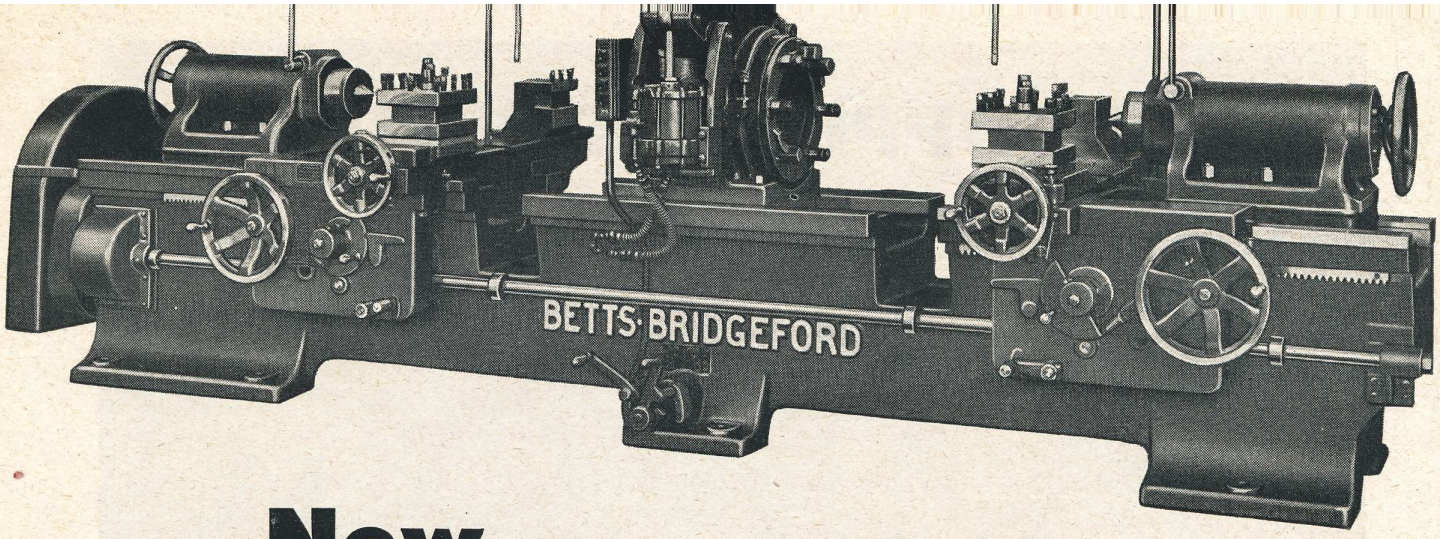
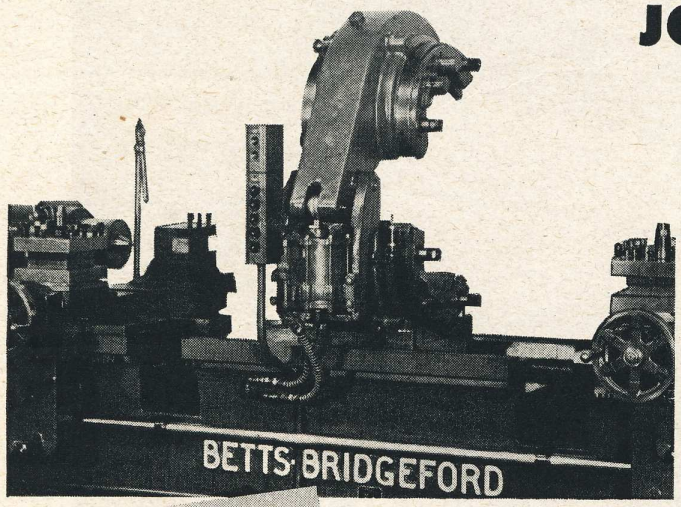
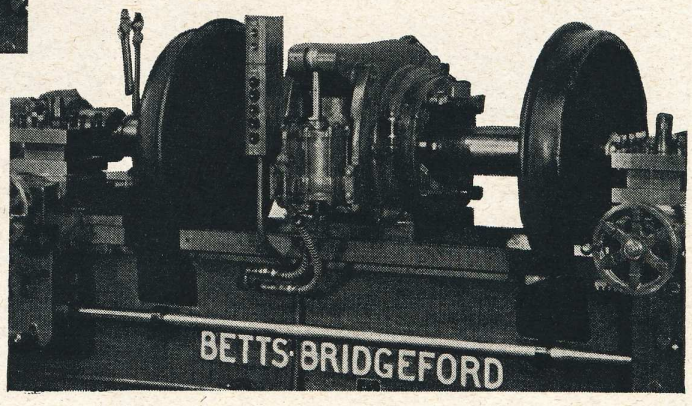


New....

BETTS-BRIDGEFORD JOURNAL TRUING LATHE



This new improved journal truing lathe now takes its place in the line of Betts-Bridgeford Journal Truing Lathes that have proved themselves for maximum output combined with high quality work over a long period of time.



Among Railroad Tools built by Consolidated are . . .

CAR WHEEL BORERS
BURNISHING LATHES
TIRE MILLS
END DRIVE AXLE LATHES
CENTER DRIVE AXLE LATHES
JOURNAL TRUING LATHES
RADIUS LINK GRINDERS
PROFILE MILLING MACHINES
SLAB MILLING MACHINES
ROD MILLING MACHINES
KEYWAY MILLING MACHINES
CRANK PLANERS
DRILL PRESSES
AND OTHERS

Send for detailed information

BUILDERS OF RAILROAD SHOP TOOLS SINCE 1861

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CONSOLIDATED MACHINE TOOLS

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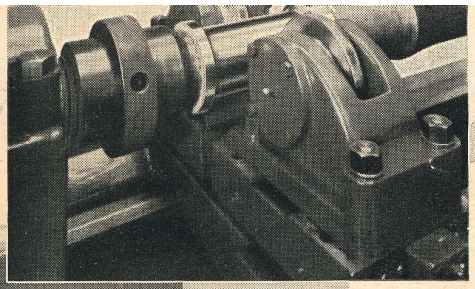
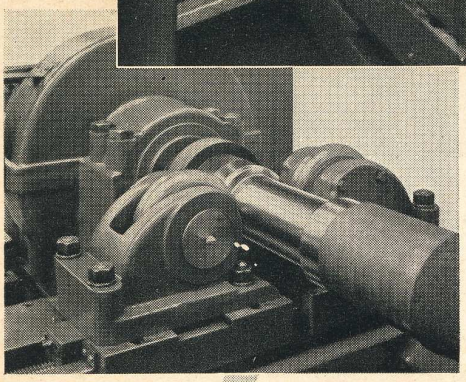
MACHINE TOOL CORPORATION

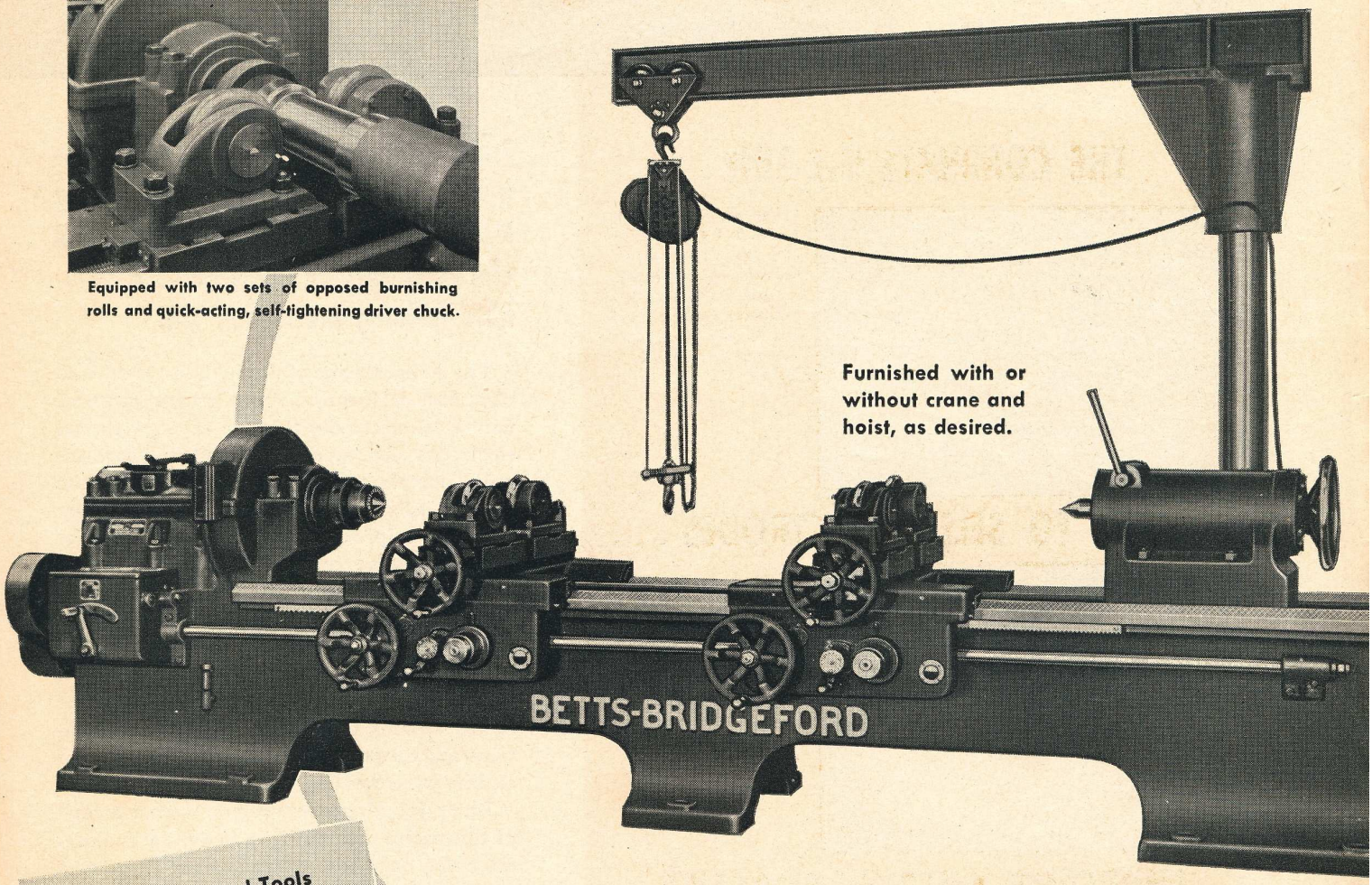
ROCHESTER 10, NEW YORK

BETTS-BRIDGEFORD
CAR AXLE END DRIVE
BURNISHING LATHE





Equipped with two sets of opposed burnishing rolls and quick-acting, self-tightening driver chuck.



Furnished with or without crane and hoist, as desired.

Among Railroad Tools built by Consolidated are . . .

CAR WHEEL BORERS
BURNISHING LATHES
TIRE MILLS
END DRIVE AXLE LATHES
CENTER DRIVE AXLE LATHES
JOURNAL TRUING LATHES
RADIUS LINK GRINDERS
PROFILE MILLING MACHINES
SLAB MILLING MACHINES
ROD MILLING MACHINES
KEYWAY MILLING MACHINES
CRANK PLANERS
DRILL PRESSES
AND OTHERS

The new Betts-Bridgeford Car Axle End Drive Burnishing Lathe is a single purpose machine designed especially to burnish the journals, dust guard seats, and end collars of standard AAR car axles in sizes from 4¼″ x 8″ to 6½″ x 12″ inclusive.

Advanced, simplified design is combined with heavy, rugged construction providing a machine that renders long, dependable productive service with minimum upkeep cost. The elimination of complicated mechanisms make it easy and convenient to operate and control.

For full information send for Bulletin No. 1500.

BUILDERS OF RAILROAD SHOP TOOLS SINCE 1861

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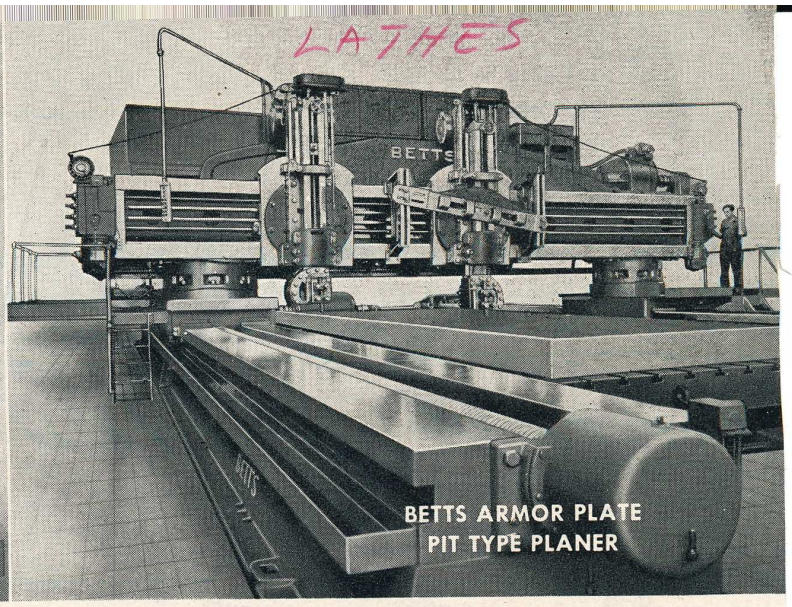
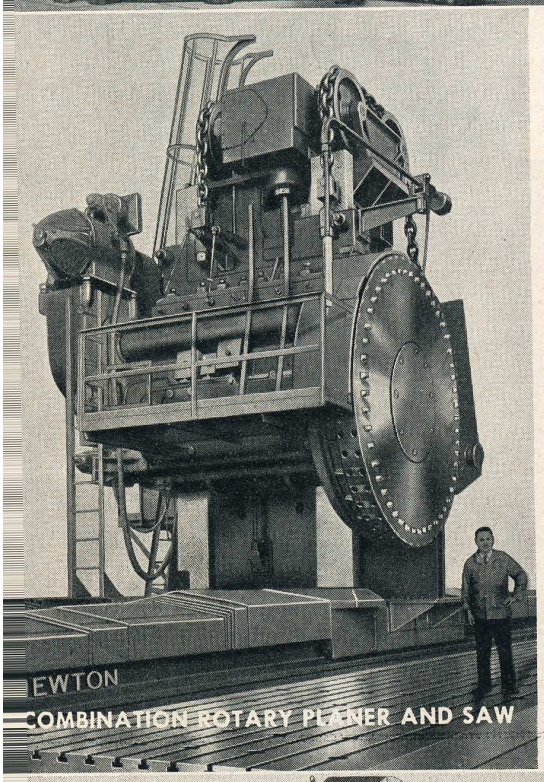
LATHES

BETTS 20' BORING MILL



BETTS ARMOR PLATE
PIT TYPE PLANER



EWTON
COMBINATION ROTARY PLANER AND SAW

BIG MACHINES FOR BIG JOBS!

Whenever there are really big jobs to be done, Consolidated machine tools can be depended upon to do them. Shipyards, arsenals, tank factories and industrial plants are using Consolidated machines to do the heavy work so essential to the production of war material.

So well has Consolidated done its job that the Army-Navy "E" with three stars—denoting 18 months of outstanding production—proudly floats from the Consolidated flagstaff.

Some of the big Consolidated machines now doing valiant service in America's battle for ever increasing production are illustrated on this page. Consolidated has helped many a plant lick a production problem with specialized machine tools. If you have such a problem, we will be glad to work with you on its solution.

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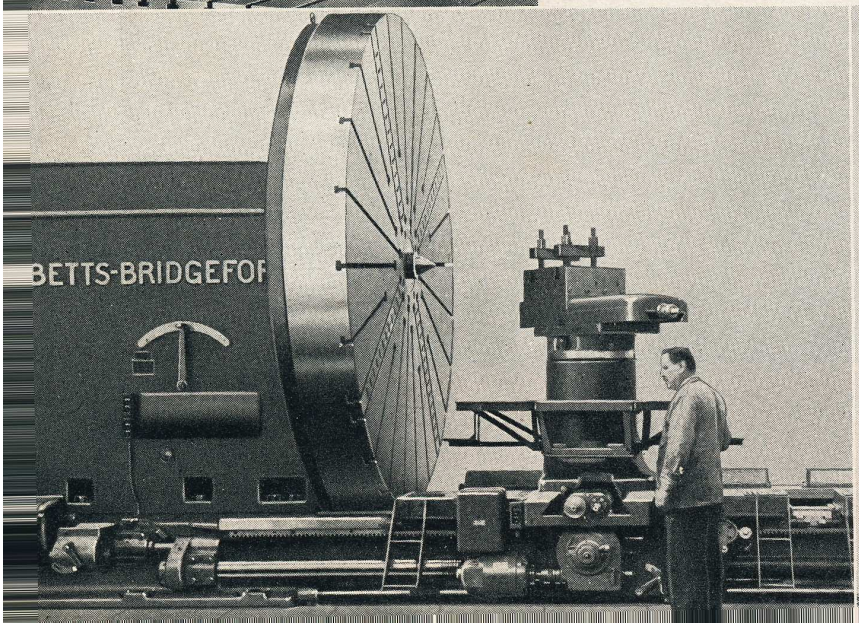
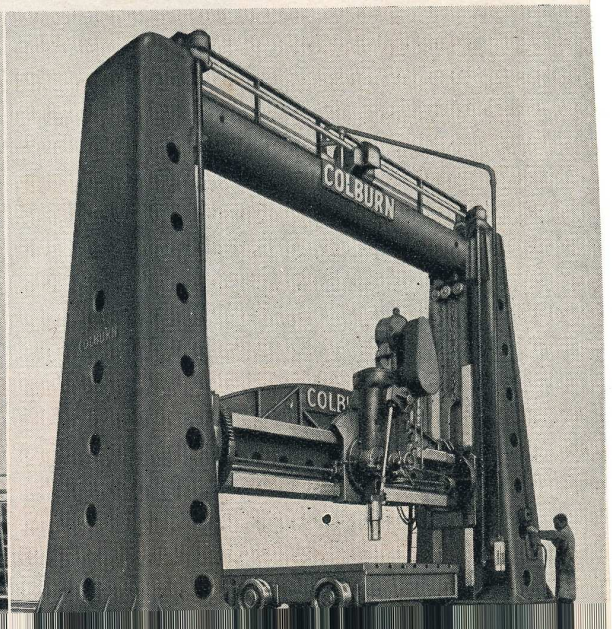
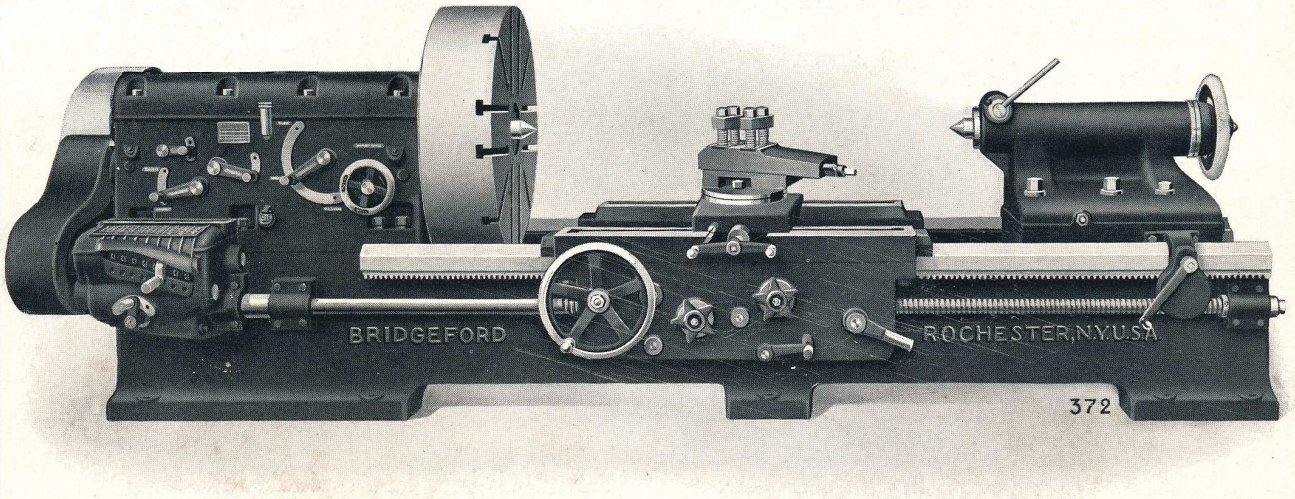
MACHINE TOOL CORPORATION
ROCHESTER 10, NEW YORK





BETTS MACHINE COMPANY



BETTS-BRIDGEFORD

36-inch Extra Heavy Geared Head Engine Lathe

Swing over ways	38″
Swing over carriage	23″
Distance between centers 12′ bed	4′
Spindle speeds	9
Range of spindle speeds, R. P. M	3.9 to 100
Highest gear ratio	63 to 1
Range of threads, per inch	1 to 14
Front spindle bearing	8″ x 13″
Rear spindle bearing	5½″ x 8″
Hole through head stock spindle	2⅛″
Diameter of centers	2½″
Taper of centers	Morse, No. 6
Diameter of tail spindle	$4\frac{15}{16}$″
Lead screw, 2 p., diameter	$2\frac{7}{16}$″
Rack, 4 p., face	2″
Driving pulley, 8½″ Face, diameter	24″
H. P. required, motor drive	35
Net weight of lathe 12′ bed, approximate	17,900 lbs.
Net weight, each additional 2′ of bed	1,000 lbs.

Gross weights and cubic contents, boxed for export

Gross weight of lathe 12′ bed	19,700 lbs.
Gross weight each additional 2′ of bed	1,100 lbs.
Cubic feet, lathe 12′ bed	500
Cubic feet each additional 2′ of bed	31

CODE WORDS 36-INCH EXTRA HEAVY GEARED HEAD ENGINE LATHE

Arranged for Belt Drive	CUOCY	Arranged for Variable Speed Motor Drive Without Motor	CUODO	Arranged for Constant Speed Motor Drive Without Motor	CUOJE

When ordering always specify length bed

See opposite side for description.

36-inch Extra Heavy Geared Head Engine Lathe

A heavy duty lathe of simple design and extremely rigid construction in which the weight is properly distributed, combining power and accuracy, well adapted to either heavy cutting or fine finishing. Convenience and economy in operation are prominent characteristics of this lathe.

Drive is through constant speed clutch pulley, providing for starting and stopping, conveniently controlled from the operating position at the carriage. There are nine spindle speeds in geometric progression obtained through hardened steel gearing and positive clutches located in the base of the head stock, operating in an oil bath, and controlled by conveniently located levers at the front of the head stock. The design is such that no two speeds can be engaged at the same time.

Head Stock is of rigid construction, triple back geared with heavy bronze bearings throughout. All gearing in the head block is of steel, of coarse pitch, cut from the solid, and runs in an oil bath. All bearings receive a constant, ample supply of oil through special pump,gravity and splash systems.

Spindle is a high carbon steel forging ground to size, and runs in heavy bronze bearings, scraped to fit. It is provided with $2\frac{1}{8}''$ hole through the center.

Face Plate is provided with internal gear and is keyed and pressed on spindle and arranged with parallel T slots for chuck jaws.

Bed is both wide and deep and heavily proportioned. It is strongly reinforced with heavy cross ties of box pattern and has a longitudinal rib with cast rack running parallel to the walls of the bed. A pawl hung beneath the tail stock base engages this rack, and provides a positive brace for the tail stock in addition to the locking bolts, when the lathe is engaged in extremely heavy work. Beds are furnished in any length desired, in multiples of 2′ at additional cost.

Tail Stock is massive in all proportions and is so shaped as to clear compound rest when turning angular work, and arranged to set over for taper turning. Two heavy binders with four bolts are provided for clamping tail stock in position.

Carriage, compound rest and apron are of heavy construction, in proportion with the balance of the lathe. The carriage has a long bearing on V ways. Apron is of double wall, unit-casting construction with **all steel gearing.** Direction of feeds is changed at the apron, and the feeds, both lateral and cross, are driven by independent frictions.

Feeds or **Leads** are obtained through the quick change gear box. The feeds are driven from a spline in the lead screw through pinion to the rack, and the screw cutting obtained from the threads of the lead screw by engaging a shear nut. Feeds and leads are interlocked, so that only one can be in use at one time.

Standard equipment includes compound rest, steady rest, thread indicator, quick change gear box and necessary wrenches. American or English type tool post can be furnished as desired.

Extra attachments will be furnished at additional cost as follows: Full swing rest, follower rest, taper attachment, power rapid traverse, power angular feed to compound, special large steady rests, or four way turret tool block. Machine can be arranged for motor drive.

Taper attachment can be furnished with the lathe as an extra. The Bridgeford standard type taper attachment is bolted to the back of the carriage, and travels with it, always ready for instant engagement. Maximum taper 25° (included angle) or 5″ difference in diameter per foot in length. Length of taper (at one setting) 42″.

BETTS MACHINE COMPANY

GENERAL OFFICES AND WORKS **ROCHESTER, N. Y., U. S. A.**

Bulletin No. 1200-36EH—3-15-20

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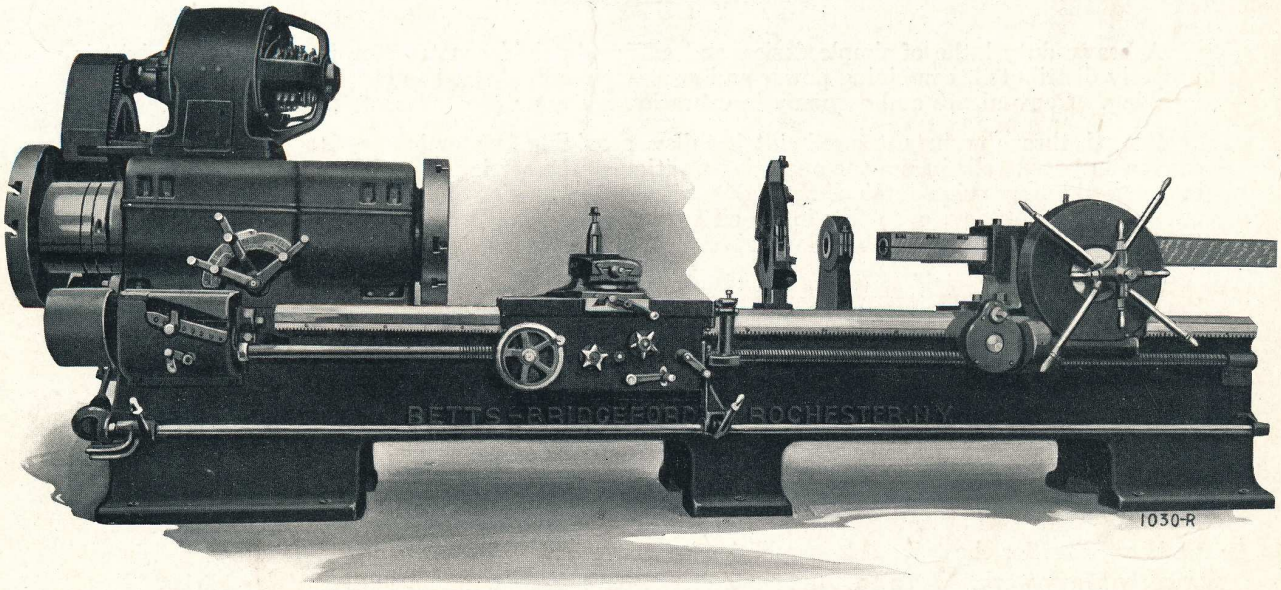

BETTS-BRIDGEFORD

26-inch Heavy Duty Geared Head Engine Lathe With Large Hollow Spindle and Plain Power Feed Tail Stock

Swing over ways	27″
Swing over carriage	17¾″
Distance between centers 10′ bed	3′
Spindle speeds	9
Range of spindle speeds, R. P. M	4.9 to 84
Highest gear ratio	51 to 1
32 thread changes, (including 11½) Range	1 to 14
32 feed changes	.026 to .370
Front spindle bearing	13″ x 11″
Rear spindle bearing	11½″ x 10½″
Hole through head stock spindle, maximum	10″
Face plates, diameter	26″
Diameter of centers	2½″
Taper of centers	Morse, No. 6
Lead screw, 2 p., diameter	1 15/16″
Driving pulley, 6½″ face, diameter	16″
H. P. required, motor drive	15
Weight of lathe 10′ bed, approximate	13,900 lbs.
Net weight, each additional 2′ of bed	650 lbs.

Gross weights and cubic contents boxed for export

Gross weight of lathe 10′ bed	15,500 lbs.
Gross weight, each additional 2′ of bed	850 lbs.
Cubic feet, lathe 10′ bed	280
Cubic feet, each additional 2′ of bed	20

CODE WORDS—26-INCH HEAVY DUTY GEARED HEAD HOLLOW SPINDLE ENGINE LATHE

Arranged for Belt Drive	ISVAA	Arranged for Variable Speed Motor Drive Without Motor	ISVES	Arranged for Constant Speed Motor Drive Without Motor	ISVIK

When ordering always specify length bed

See opposite side for description.

26-inch Hollow Spindle Geared Head Engine Lathe With Plain Power Feed Tail Stock

HEAVY DUTY TYPE

A heavy duty lathe of simple design and extremely rigid construction in which the weight is properly distributed, combining power and accuracy, well adapted to either heavy cutting or fine finishing. Convenience and economy in operation are prominent characteristics of this lathe.

Drive is through constant speed clutch pulley, providing for starting and stopping through brake conveniently controlled from the operating position at the carriage. There are nine spindle speeds in geometric progression obtained through hardened steel gearing and positive clutches located in the base of the head stock, operating in an oil bath, and controlled by conveniently located levers at the front of the head stock. The design is such that no two speeds can be engaged at the same time.

Head Stock is of rigid construction, with heavy bronze bearings throughout. All gearing in the head stock is steel, of coarse pitch, cut from the solid, and runs in an oil bath, and all bearings receive a constant, ample supply of oil through special pump, gravity and splash systems.

Spindle is of high carbon steel, ground to size, and runs in heavy bronze bearings, scraped to fit. The hole through the head stock spindle can be furnished in various diameters with a maximum of 10″.

Bed is both wide and deep and heavily proportioned and has V ways. It is strongly reinforced with heavy cross ties of box pattern and has a longitudinal rib with cast rack running parallel to the walls of the bed. A pawl hung beneath the tail stock base engages this rack and provides a positive brace for the tail stock in addition to the locking bolts, when the lathe is engaged in extremely heavy work. Beds are furnished in any length desired, in multiples of 2′ at additional cost.

The Plain Power Feed Tail Stock performs straight boring only.

The power for operating the bar feed is taken from spline in the lead screw and transmitted through worm and worm gearing to rack pinion which engages in bar rack. In addition to the power feed there is a large hand wheel whereby the bar can be quickly traversed by hand.

The bar is made from forged steel 5¼″ square, bored and reamed for No. 6 Morse Taper and has a travel of 5′ unless otherwise specified. Lateral adjustment of the tail stock along the bed is provided for.

The rack cut in the bar is 2½″ face and 5 pitch.

Carriage, Compound Rest and Apron are of heavy construction, in proportion with the balance of the lathe. Apron is of double wall, unit-casting construction with **all steel gearing.** Direction of feeds can be changed either in the head stock or at the apron, and the feeds, both lateral and cross, are driven by independent frictions.

Feeds or **Leads** are obtained through the quick change gear box. The feeds are driven from a spline in the lead screw through pinion to the rack, and the screw cutting obtained from the threads of the lead screw by engaging a shear nut. Feeds and leads are interlocking, so that only one can be in use at one time.

Standard equipment includes front and rear face plates, compound rest, plain power feed tail stock, boring bar steady rest, 7″ or 11″ steady rest, thread indicator, and necessary wrenches. American or English type tool post can be furnished as desired.

Extra Attachments will be furnished at additional cost as follows: Full swing rest, center adapters, follower rest, power rapid traverse, special large steady rests, oil pan, turning tail stock, and four way turret tool block. Machine can be arranged for motor drive.

Taper Attachment can be furnished with the lathe as an extra either in the standard type or "oil country" type as preferred. The standard type taper attachment is bolted to the back of the carriage, and travels with it, always ready for instant engagement. The Bridgeford "oil country" taper attachment is bolted to the rear of the bed and can be moved to any position between centers along the whole length of the bed. Maximum taper 25° (included angle) or 5″ difference in diameter per foot in length. Length of taper (at one setting) 30.″

BETTS MACHINE COMPANY

GENERAL OFFICES AND WORKS ROCHESTER, N. Y., U. S. A.