

DETROIT, MICH.
C. C. HOWARTH CO.

MONOTROL

Geared Head

LATHES

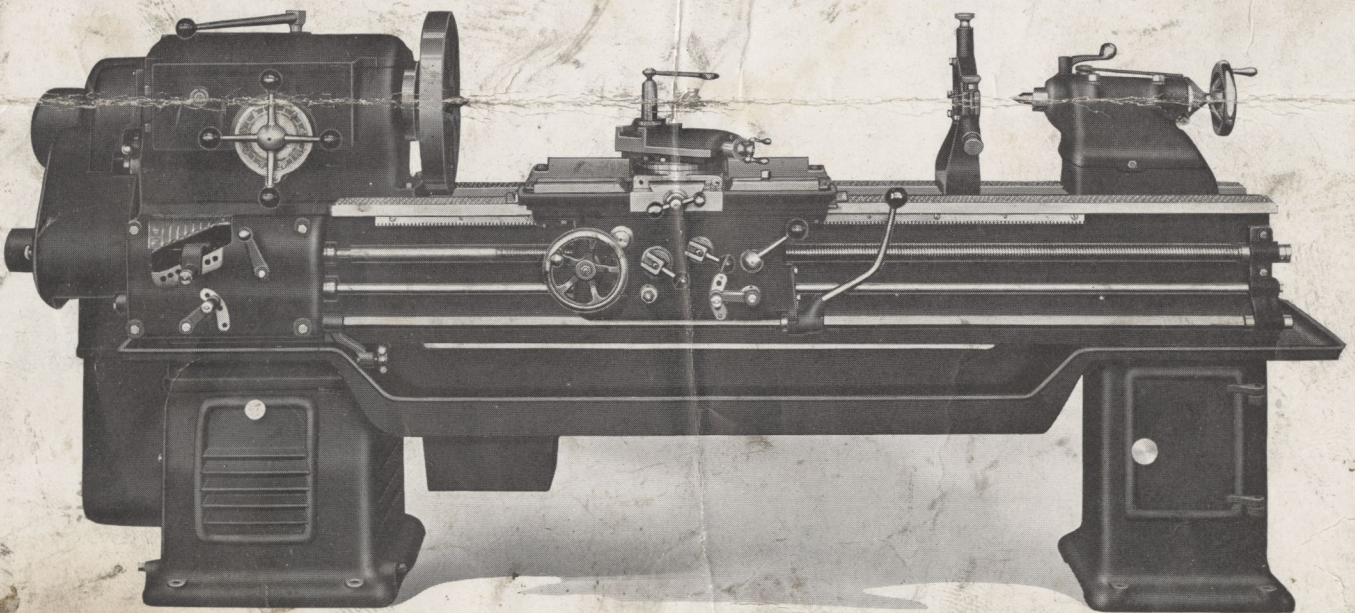
14" - 16" Sizes for Precision Work

featuring

Continuous Tooth Type Constant Mesh Herringbone Gears
and Timken Roller Bearings for Accuracy

A Single Headstock Spindle Control for Ease of Operation

A Wide Range of Spindle Speeds for General Purpose



MONOTROL FEATURES

SAVE TIME, ENERGY *and* PREVENT WASTE

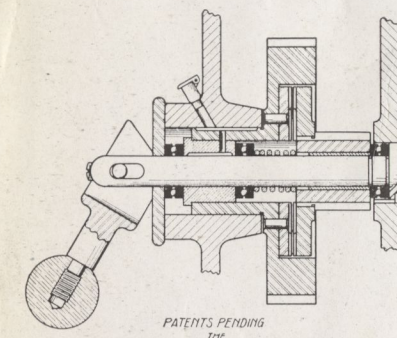
No clashing of gears—no stripping of teeth in Monotrol Geared Head Lathes—because all mechanical speed changes of spindle are secured without shifting any gear in headstock and with all gears constantly in mesh. Elimination of tool marks guaranteed. Furthermore, any or all spindle speed changes are made instantaneously and with ease by simply moving the one lever control on front of headstock. This reduces time required to change spindle speed to exactly one third that required on the usual geared head lathe.

Monotrol Headstock Spindles combine the advantages of Sykes Continuous Tooth Type Herringbone gears with the well known advantages of Timken Tapered Roller Precision Bearings. The result is a development of continuous power—smooth and steady even tho the cut is heavy. Sykes Gears are called "The gear with a backbone" due to their ability to neutralize thrust loads from either direction. They possess features which make them superior to other gears. The tooth profile is accurate involute shape; the tooth division, the most accurate obtained in any commercial gear; and the helix angle of 30 degrees insures the best conditions of tooth engagement. Combined with care in manufacture and selection of materials these features ensure the uniform transmission of motion without noise, vibration or undue wear of the gears. Recent tests prove the mechanical efficiency to be between 98.9% and 99.44%.

Timken Tapered Roller Bearings, due to their design, take loads from all directions (radial, thrust and combination radial and thrust) with equal distribution and assures the delivery of the above mechanical efficiency in the form of Accuracy—Speed and Power to the spindle nose without loss.

The Apron construction on Monotrol lathes is another important and exclusive feature. The snap lever action controlling the positive clutch feeding mechanism for longitudinal and cross feed makes it possible for the operator to start and stop his feeds in both directions instantaneously. This is an exclusive Monotrol feature and is not found on any other lathe. This positive clutch feeding mechanism also guarantees a continuous pulling power that is unequalled in any lathe of corresponding size.

Six precision ball thrust bearings take end thrust of positive clutch action and guarantee ease of operation. The stud bearings are bronze bushed and in double plate type of apron in which is used very large bearings in both front and rear.



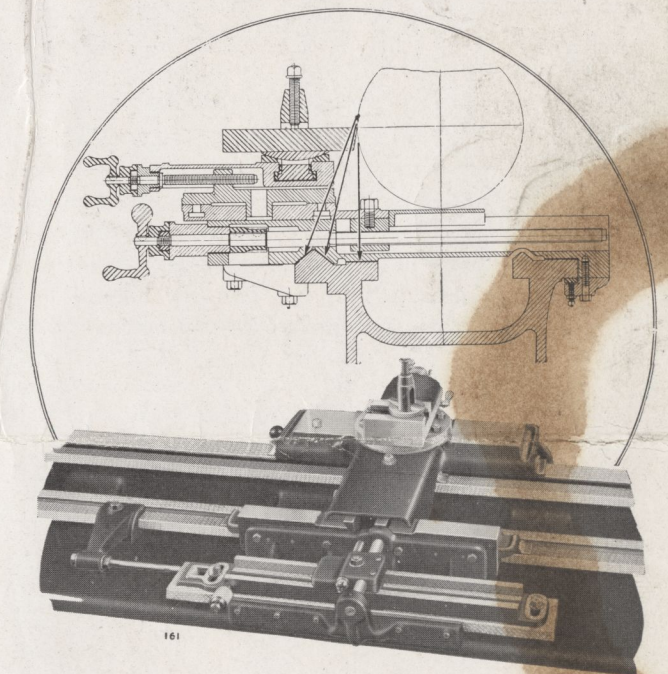
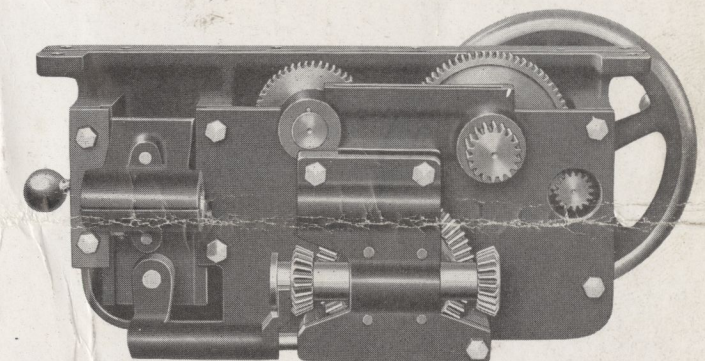
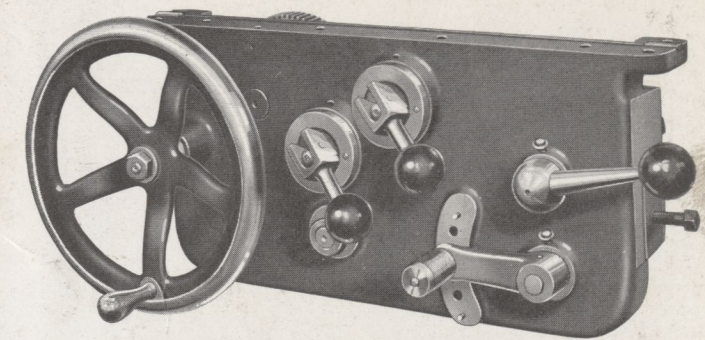
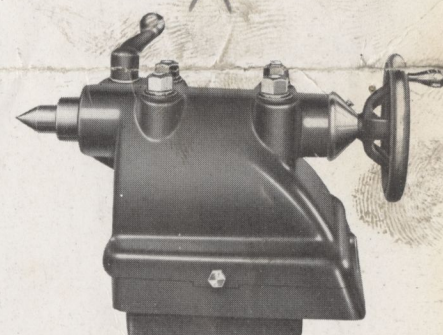
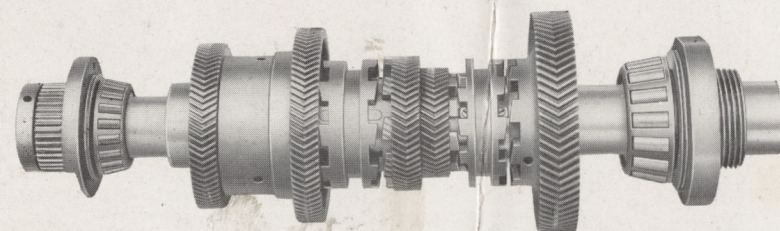
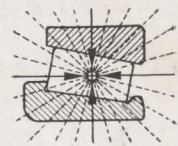
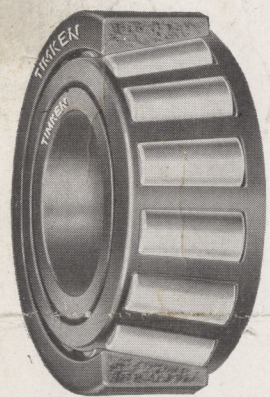
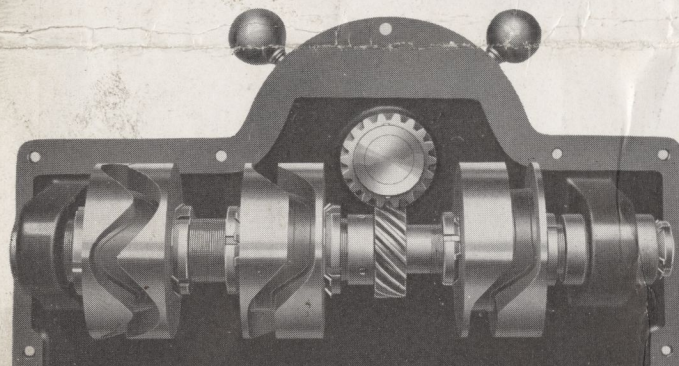
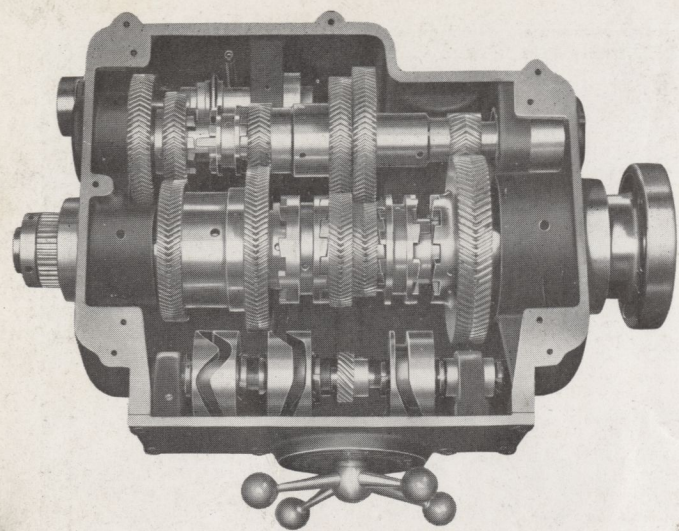
Oil reservoir in rear plate assures constant lubrication of rear stud bearings.

This section of the Monotrol apron clutch and control shows how the snap lever is shouldered solidly against the apron face when the feed is in. This construction is used on both longitudinal and cross feed. The operator can disengage this feed with one finger even when taking a feed as heavy as .150.

Ordinarily but two points of bed support are afforded the engine lathe carriage—but here too Monotrol is ahead in design. Absolute rigidity is assured by *three* bearing surfaces correctly placed. This additional bearing surface assures an even distribution of all cutting forces developed by the tremendous pulling power of Monotrol Head and Apron. The diagram shows the direction of these forces and how the additional surface back of front "V" takes a load that would be otherwise transferred to some other part of the bed.

Four large clamping bolts hold the compound rest rigidly in place. The bottom slide is graduated for all angles up to 90 degree, and offset angular compound rest can be furnished for special jobs—quoted on application.

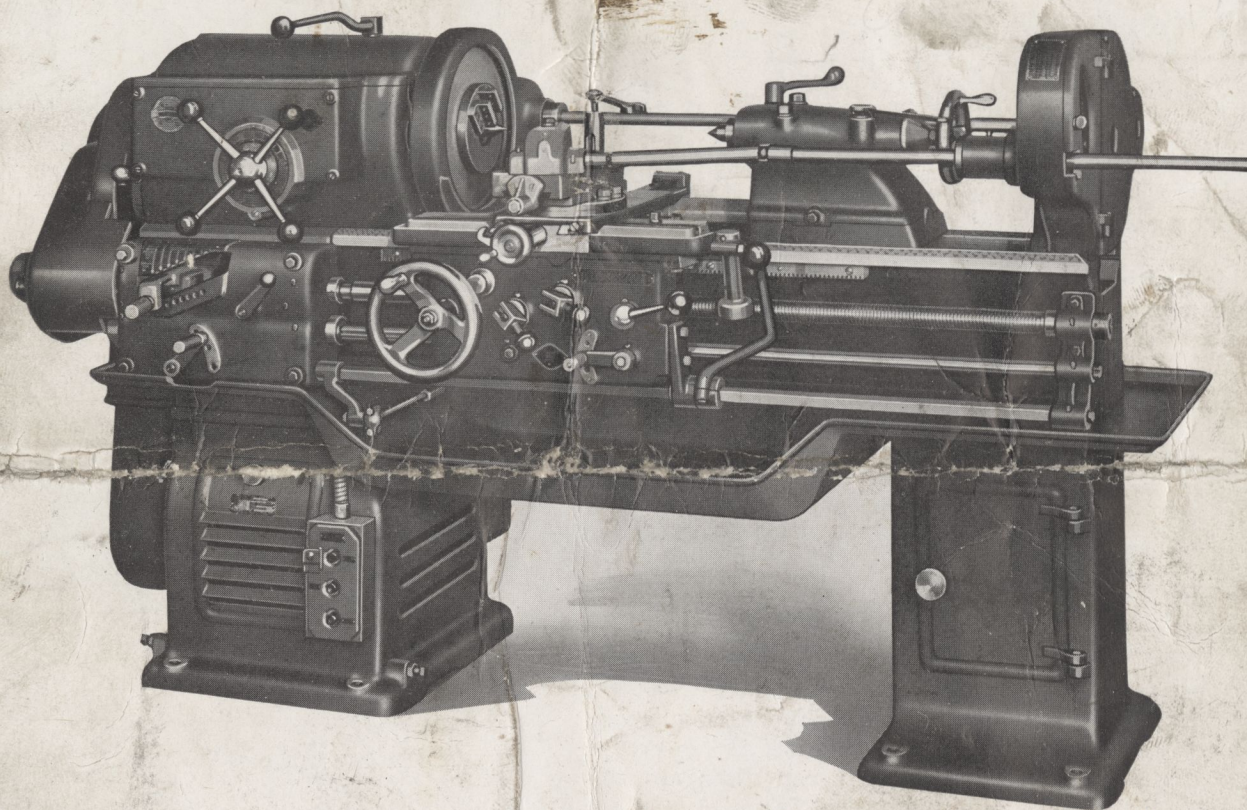
The Monotrol Tailstock is built in direct proportion to the balance of the machine. This heavy duty tailstock is equipped with four heavy clamping bolts guaranteeing positive rigidity. No. 5 Morse Tapers are standard on headstock and tailstock—unusually heavy for this size lathe—but entirely in keeping with the strength and power of Monotrol construction. The design of tailstock is such that angular cuts can be made without carriage interference.



Shift One Lever



Obtain Any Spindle Speed



Tool Rooms—due to the very nature of the work—demand lathes that are accurate to the smallest fraction of an inch—and with this precision, must be speed, ease of control, and absolute dependability in order that the operator may center all of his attention on the work at hand. It is only natural then, that the largest and best equipped tool rooms in the country should be using Monotrol Lathes—for due to their construction, Mono-

trol, as the name implies, is operated by shifting but *one lever* to obtain any spindle speed with the spindle in motion.

This saving of time and ease of control is possible only with a Monotrol Geared Head Lathe. Many other exclusive features, some of which are illustrated and described here are reasons why the Monotrol 14" and 16" sizes are particularly adapted to tool room work.

SPECIFICATIONS

	14-Inch	16-Inch		14-Inch	16-Inch
Swing over bed	15 1/4 inches	17 1/4 inches	Tailstock base length	12 inches	12 inches
Swing over carriage	9 3/4 inches	11 3/4 inches	Tailstock spindle diameter	2 3/8 inches	2 3/8 inches
Swing over taper attachment yoke	9 3/4 inches	11 3/4 inches	Tailstock spindle travel	6 1/4 inches	6 1/4 inches
Hole through spindle	1 1/16 inches	1 1/16 inches	Tailstock spindle set-over	1 inch	1 inch
Front spindle bearing	Timken 5 7/8" O.D.	Timken 5 7/8" O.D.	Steady rest opening	4 1/2 inches	4 1/2 inches
Rear spindle bearing	Timken 4 7/8" O.D.	Timken 4 7/8" O.D.	Carriage length on bed	24 inches	27 inches
Taper of centers	No. 4 Morse	No. 4 Morse	Carriage bridge width	7 1/2 inches	7 3/4 inches
Spindle nose diameter	3 1/2 inches	3 1/2 inches	Compound rest top slide travel	4 1/2 inches	4 1/2 inches
Spindle nose threads per inch	5 U.S.F.	5 U.S.F.	Size of lathe tool	5/8" x 1 1/4"	5/8" x 1 1/4"
Leadscrew diameter	1 1/16 inches	1 1/16 inches	Width of bed	12 1/4 inches	15 inches
Leadscrew threads per inch	4 Acme	4 Acme	Depth of bed	11 1/2 inches	11 1/2 inches
Range of threads per inch	2 to 56	2 to 56	Weight of 6' bed	3300 lbs.	3500 lbs.
Range of feeds per inch	.005 to .150	.005 to .150	Weight each additional 2'	250 lbs.	300 lbs.
Number of thread and feed changes	40	40	Driving pulley	10" x 4"	10" x 4"
Headstock base length	23 1/2 inches	23 1/2 inches	Speed of driving pulley	600 R.P.M.	600 R.P.M.

EQUIPMENT

Standard equipment includes large and small face plates, steady rest, thread chasing dial, thread chasing stop, mechanical apron control, two hardened and ground centers and complete set of wrenches.

MONOTROL LATHES are built in 14" - 16" - 18" - 20" - 22" and 24" sizes.

Specifications on 18" - 20" - 22" - 24" furnished on request.

THE SIDNEY MACHINE TOOL COMPANY, Sidney, Ohio

MONOTROL

Printed in U. S. A.