

INDEX MILLS



- ★ **FAST**
- ★ **ACCURATE**
- ★ **VERSATILE**

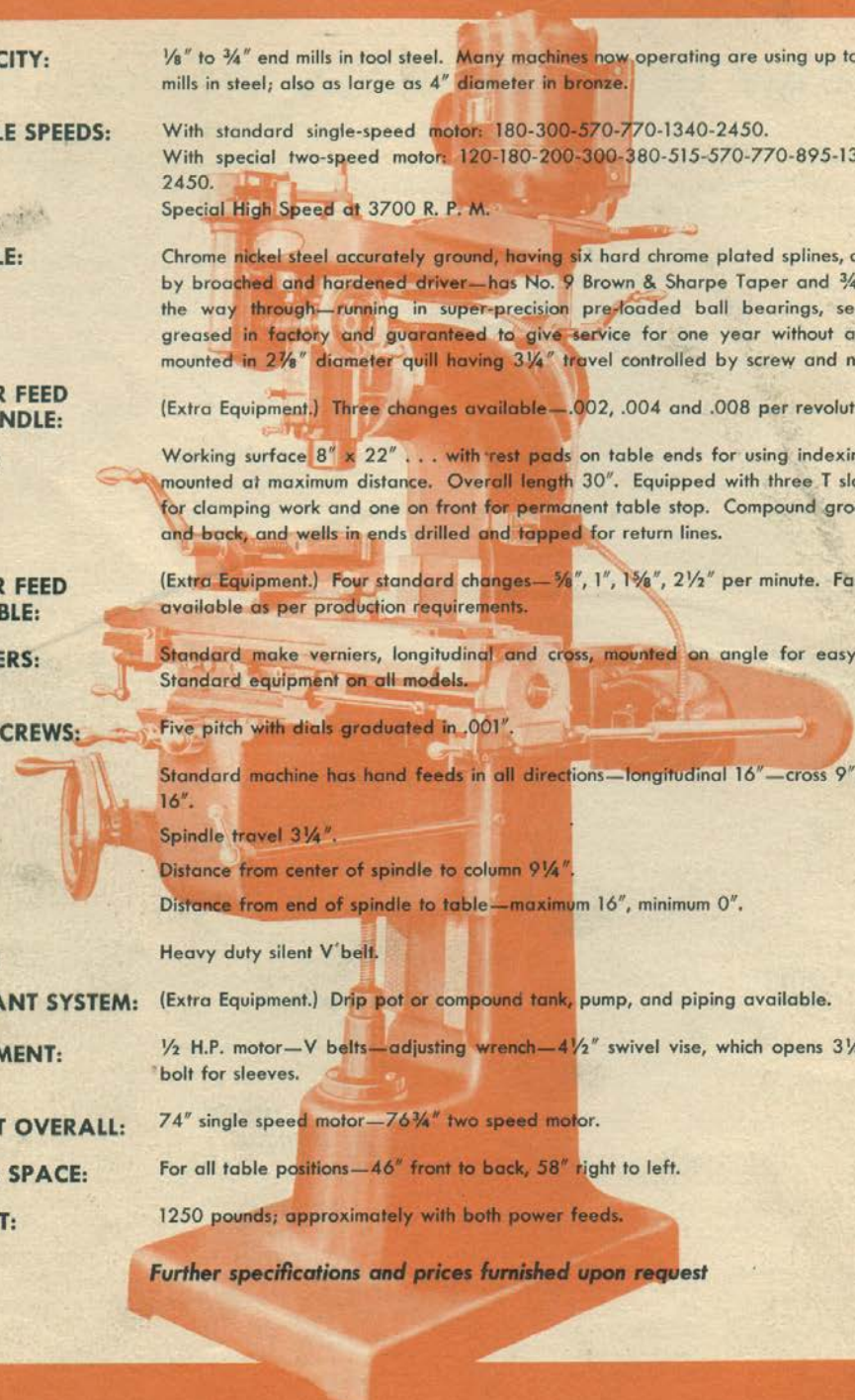
Exclusive Factory Sales Agents

BLANK and BUXTON
MACHINERY CO.

Manufactured by
INDEX MACHINE
and TOOL CO.
JACKSON, MICHIGAN

3100 EAST MICHIGAN AVENUE JACKSON, MICHIGAN

SPECIFICATIONS

- 
- CAPACITY:** $\frac{1}{8}$ " to $\frac{3}{4}$ " end mills in tool steel. Many machines now operating are using up to $1\frac{1}{4}$ " end mills in steel; also as large as 4" diameter in bronze.
- SPINDLE SPEEDS:** With standard single-speed motor: 180-300-570-770-1340-2450.
With special two-speed motor: 120-180-200-300-380-515-570-770-895-1340-1635-2450.
Special High Speed at 3700 R. P. M.
- SPINDLE:** Chrome nickel steel accurately ground, having six hard chrome plated splines, and driven by broached and hardened driver—has No. 9 Brown & Sharpe Taper and $\frac{3}{4}$ " hole all the way through—running in super-precision pre-loaded ball bearings, sealed and greased in factory and guaranteed to give service for one year without attention—mounted in $2\frac{7}{8}$ " diameter quill having $3\frac{1}{4}$ " travel controlled by screw and nut.
- POWER FEED TO SPINDLE:** (Extra Equipment.) Three changes available—.002, .004 and .008 per revolution.
- TABLE:** Working surface 8" x 22" . . . with rest pads on table ends for using indexing centers mounted at maximum distance. Overall length 30". Equipped with three T slots on top for clamping work and one on front for permanent table stop. Compound grooves front and back, and wells in ends drilled and tapped for return lines.
- POWER FEED TO TABLE:** (Extra Equipment.) Four standard changes— $\frac{5}{8}$ ", 1", $1\frac{5}{8}$ ", $2\frac{1}{2}$ " per minute. Faster feeds available as per production requirements.
- VERNIERS:** Standard make verniers, longitudinal and cross, mounted on angle for easy reading. Standard equipment on all models.
- FEED SCREWS:** Five pitch with dials graduated in .001".
- FEEDS:** Standard machine has hand feeds in all directions—longitudinal 16"—cross 9"—vertical 16".
Spindle travel $3\frac{1}{4}$ ".
Distance from center of spindle to column $9\frac{1}{4}$ ".
Distance from end of spindle to table—maximum 16", minimum 0".
- DRIVE:** Heavy duty silent V belt.
- COOLANT SYSTEM:** (Extra Equipment.) Drip pot or compound tank, pump, and piping available.
- EQUIPMENT:** $\frac{1}{2}$ H.P. motor—V belts—adjusting wrench— $4\frac{1}{2}$ " swivel vise, which opens $3\frac{1}{4}$ ". Draw bolt for sleeves.
- HEIGHT OVERALL:** 74" single speed motor— $76\frac{3}{4}$ " two speed motor.
- FLOOR SPACE:** For all table positions—46" front to back, 58" right to left.
- WEIGHT:** 1250 pounds; approximately with both power feeds.

Further specifications and prices furnished upon request

**HEIGHT
INCREASED 4"**
—Floor to Spindle

FIRST announced in 1938 as the little mill with a big future, their reputation has grown from an absolute unknown to an absolute necessity today for all who have had any experience with one of them in a tool room.

Being equipped with especially greased precision ball bearing spindle, having speeds available fast enough for milling with end mills as small as $\frac{1}{8}$ " and slow enough for boring holes up to $3\frac{1}{2}$ " diameter in steel, mounted in a quill with power or hand feed actuated thru screw and nut, all of which is mounted in a housing that can be swiveled 90° right or left, INDEX MILLS give you a milling head equalled only on machines

**3 CLAMPING
BOLTS on HEAD**
—Formerly 2

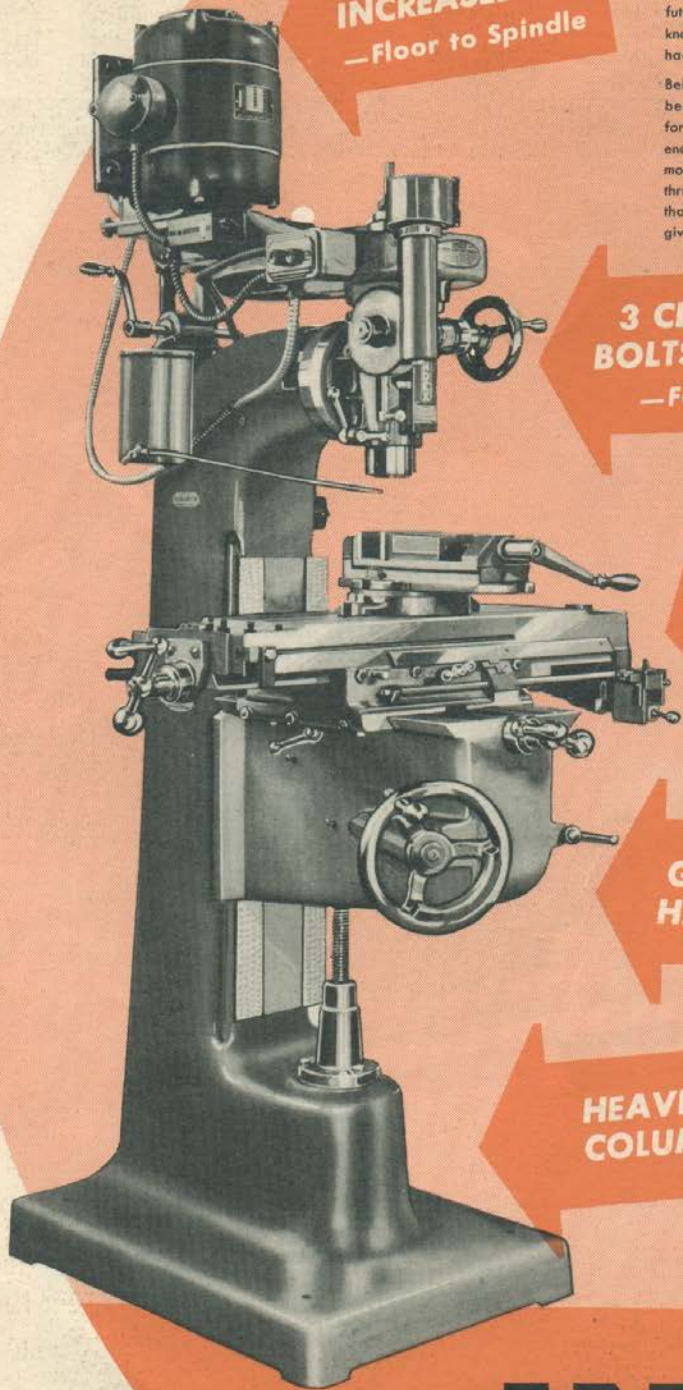
**HEAVIER, KNEE
SADDLE and
TABLE**

**GRADUATED
HAND WHEEL**

**HEAVIER
COLUMN**

ARROWS POINT TO

INDEX



offered at prices from two to four times the cost of an Index.

Another feature offered only on the much higher priced machines is Vernier Precision. INDEX MILLS are equipped with verniers for table locations, longitudinal and cross.

The above features carefully built into a machine light enough for quick and easy manipulation yet heavy enough for rugged milling have caused INDEX MILLS to contribute, way out of proportion to their size, towards the present day undreamed of national rate of production and put them right in the front ranks along with their big brothers in the Victory program.

**1/2 H. P.
MOTOR**

**POWER FEED
TO SPINDLE**

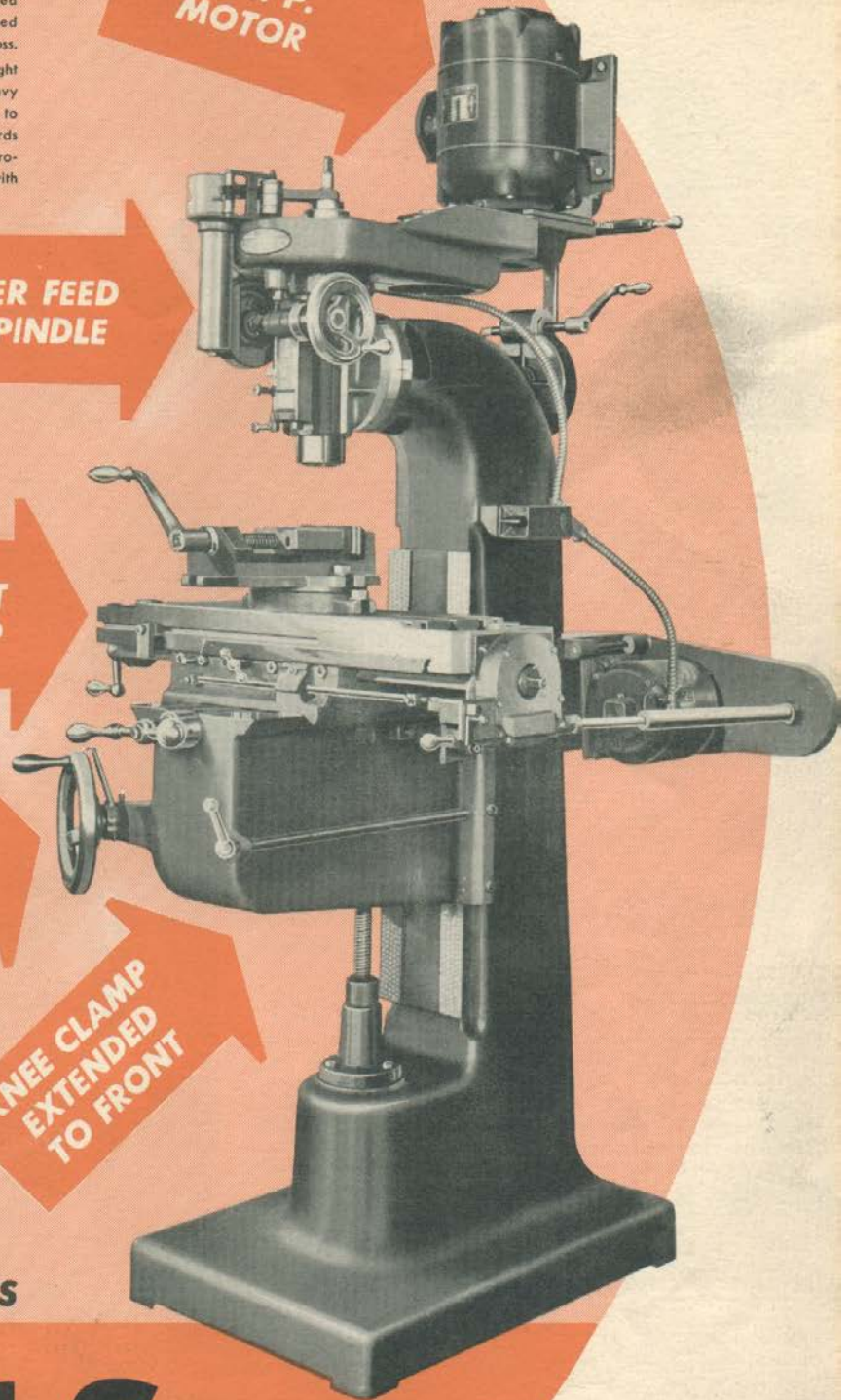
**PERMANENT
TABLE STOP**

**VERNIERS
MOUNTED
ON ANGLE**

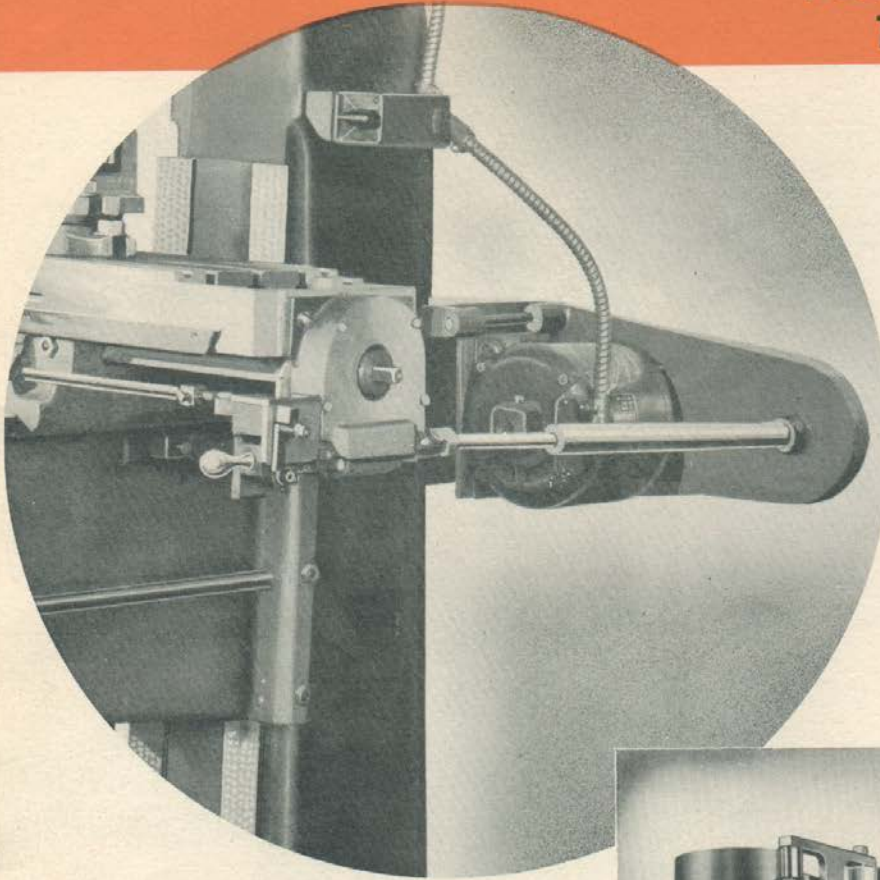
**KNEE CLAMP
EXTENDED
TO FRONT**

RECENT IMPROVEMENTS

MILLS



POWER FEED TO THE TABLE



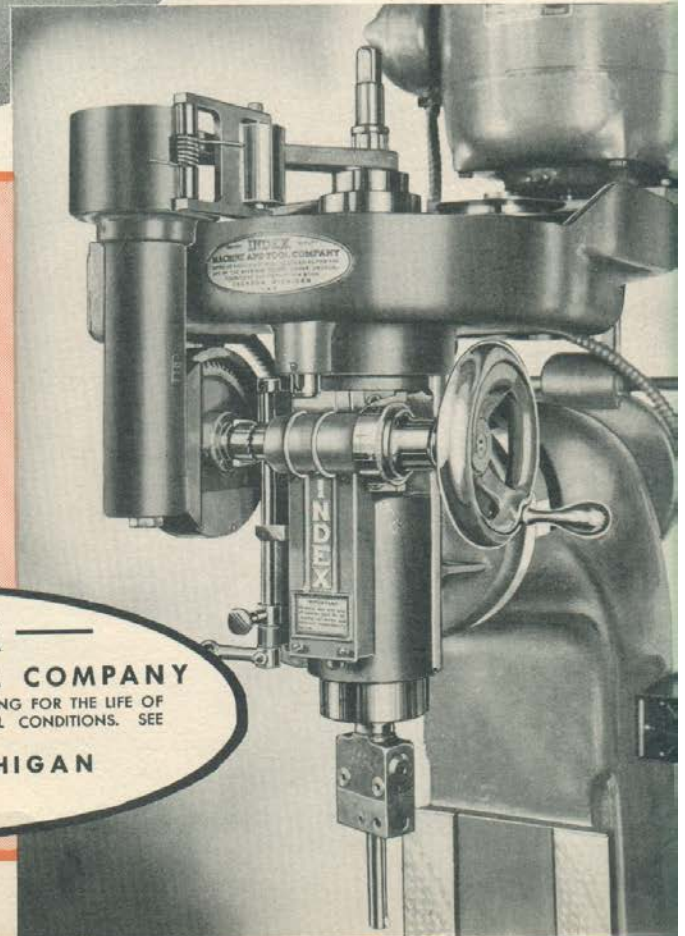
THE power feed to the table is available as extra equipment with four standard feed changes, $\frac{3}{8}$ "—1"— $1\frac{3}{8}$ "— $2\frac{1}{2}$ " per minute. Faster feeds up to 23" per minute available to those whose production requirements demand them.

The $\frac{1}{4}$ H.P. motor with overload protection is mounted on bracket with hinged pulley housing at rear for quick change of desired feed speeds. The reversible table feed switch is mounted within easy reach of operator, in relay with spindle switch so that table feed cannot be turned on without spindle motor running. Automatic cut off at any point by use of adjustable table stop.

POWER FEED TO THE SPINDLE

.002 — .004 — .008 per revolution

This extra feature was added to the machine because of great demand from users, who are using the INDEX MILL for jig boring EXCLUSIVELY. This added equipment is of the same workmanship and quality as the machine itself. The belt tightener roller and vertical shaft runs in ball bearings. This can be controlled manually through easy operating clutch, or automatically through thoroughly dependable adjustable stop. This attachment is designed for mounting at the factory only.



Reproduction
of Decal on
front of Spindle
Housing.

— INDEX —
MACHINE AND TOOL COMPANY

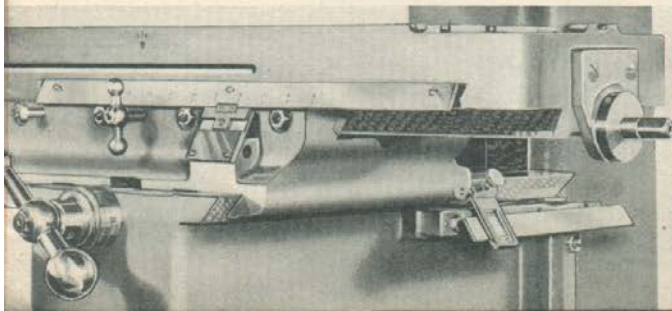
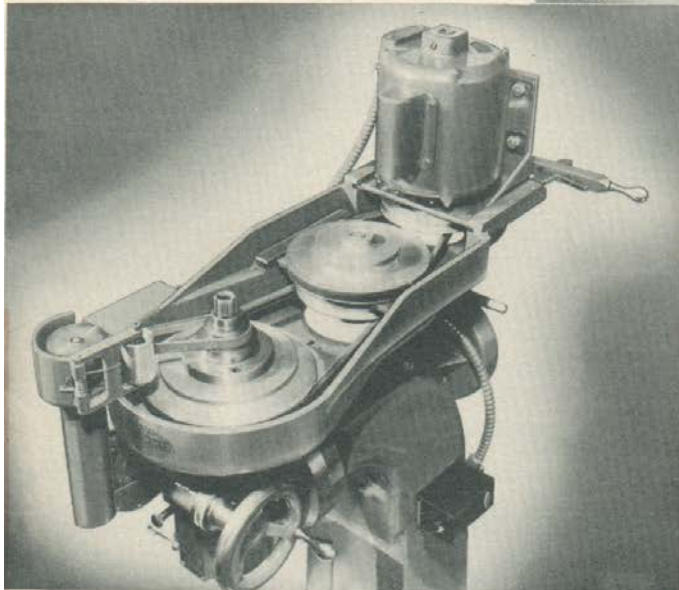
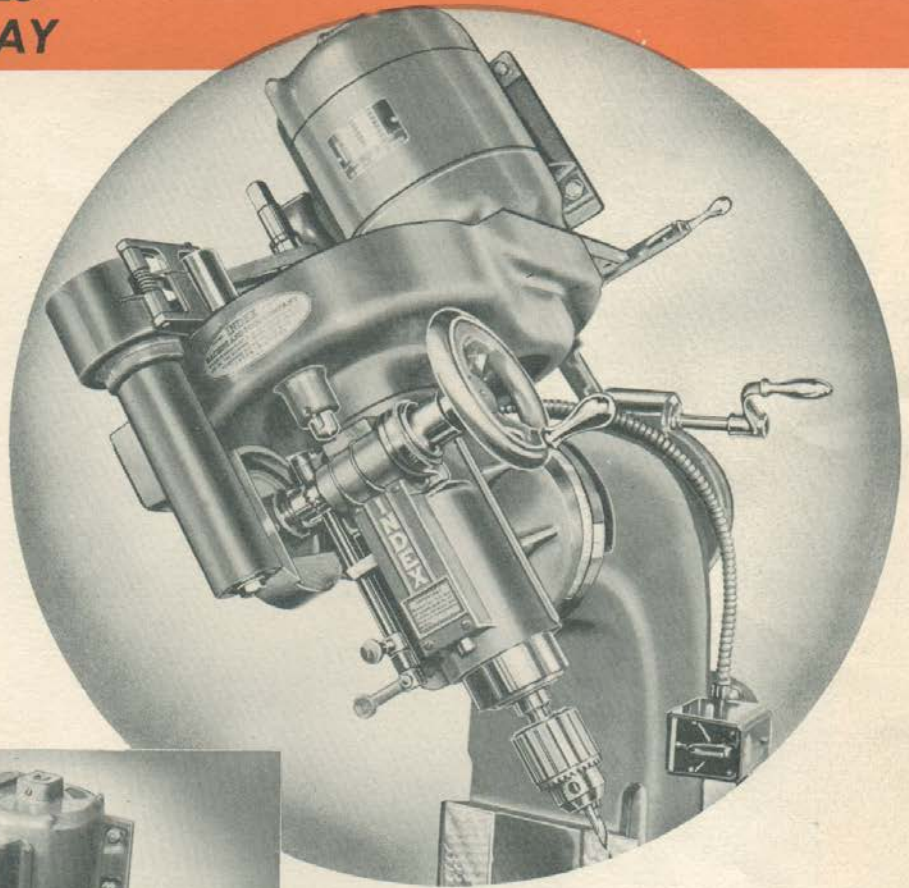
SPINDLES SHOULD NOT REQUIRE GREASING FOR THE LIFE OF THE BEARING EXCEPT UNDER UNUSUAL CONDITIONS. SEE INSTRUCTION BOOK.

**JACKSON, MICHIGAN
U. S. A.**

HEAD INDEXES 90° EITHER WAY

INDEX MILLS give you a milling head equaled only on machines offered at prices from two to four times the cost of an INDEX. The head can be set at any angle from one to ninety degrees either way. This feature eliminates loss of time in resetting work in special fixture for angle work.

The three clamping bolts on column gives extreme rigidity to the head no matter how great the angle. Swivel control is obtained by worm and worm gear mounted at top and rear of column attached to shaft running through column and pinned to head.

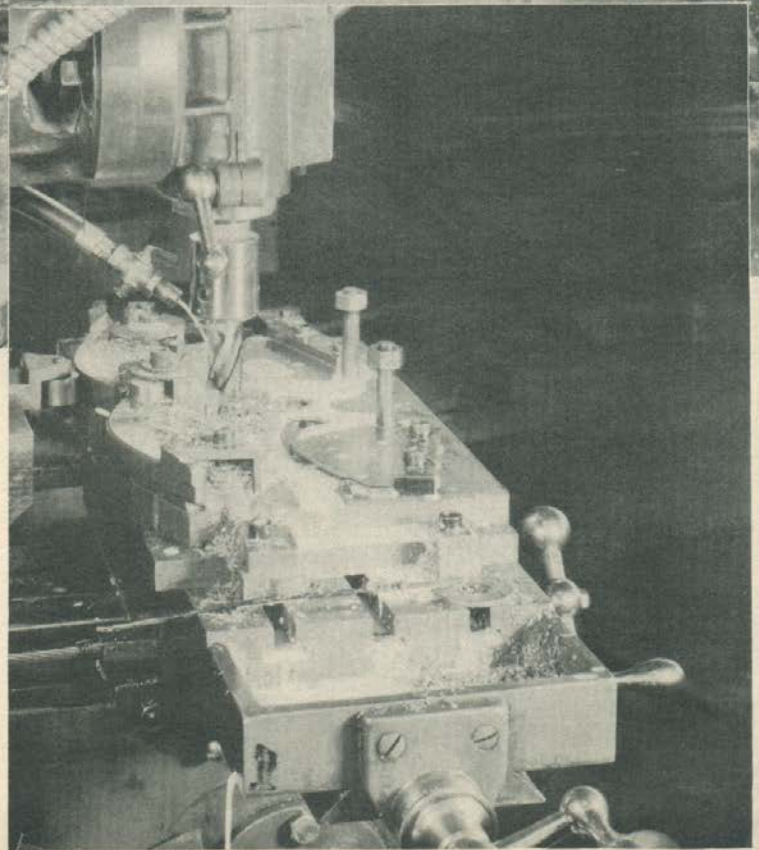


6 and 12 Spindle Speeds

Compound Drive to Spindle through large diameter Vee Belt Pulleys. Quick and easy speed selections obtained through quick acting belt tightener. Twelve Spindle Speeds obtained by supplying two speed motor at slight additional cost. All pulleys are dynamically balanced on the latest type electronic balancing machines.

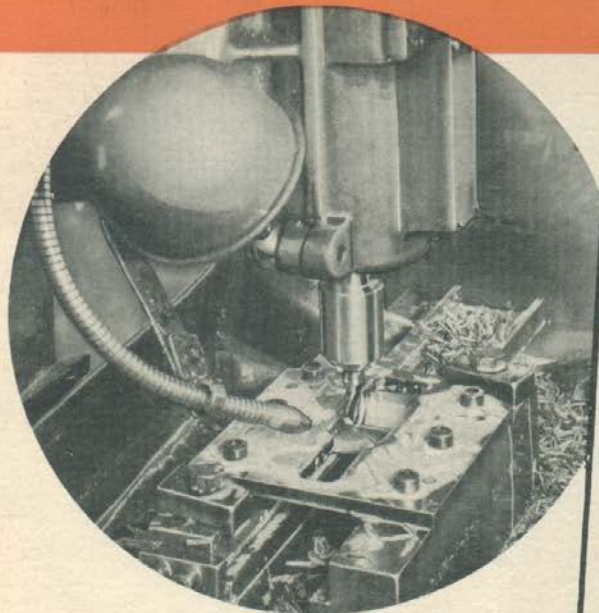
VERNIERS CROSS and LONGITUDINAL

This is a feature offered only on much higher priced machines. These verniers are furnished by one of the oldest standard Precision Tool Co., and are guaranteed accurate. Mounted on angle for easy reading they come as standard equipment on all machines. However if you are doing production, or work where verniers are not required you may purchase the machine less the price of the verniers.



**"AT HOME ON THE
PRODUCTION LINE"**

These photographs were taken in a defense plant and show how INDEX MILLS are used in batteries for production work.



The photograph below shows part of a battery of fifteen machines at Michigan Die Casting Co. The photograph above shows a close-up of one of the parts No. 46-40 prehardened steel Brinnell 300, and chips incidental to the work.

MICHIGAN DIE-CASTING COMPANY

MANUFACTURERS OF
QUALITY DIE CASTINGS

TRADE MICHIGAN MARK

6051 EAST SEVEN MILE RD
DETROIT MICHIGAN

February 19, 1943

Blank and Buxton Machinery Co.
3100 East Michigan Avenue
Jackson, Michigan

Attention: Mr. A. E. Jones

Gentlemen:

At the present time we have fifteen of your Index High Speed Vertical Milling Machines in our plant.

Some of these mills are in production twenty four hours a day on pre-hardened steel parts, being sturdy enough to do a fine job of hogging. The flexibility and accuracy of this machine permit us to do an unbelievable variety of work in our production shop and tool room.

Without reservation, we are pleased to recommend the Index Mill to all users of vertical mills.

Very truly yours,

MICHIGAN DIE CASTING COMPANY

E. Martin Tallberg

E. Martin Tallberg
Vice President

FMT:vd



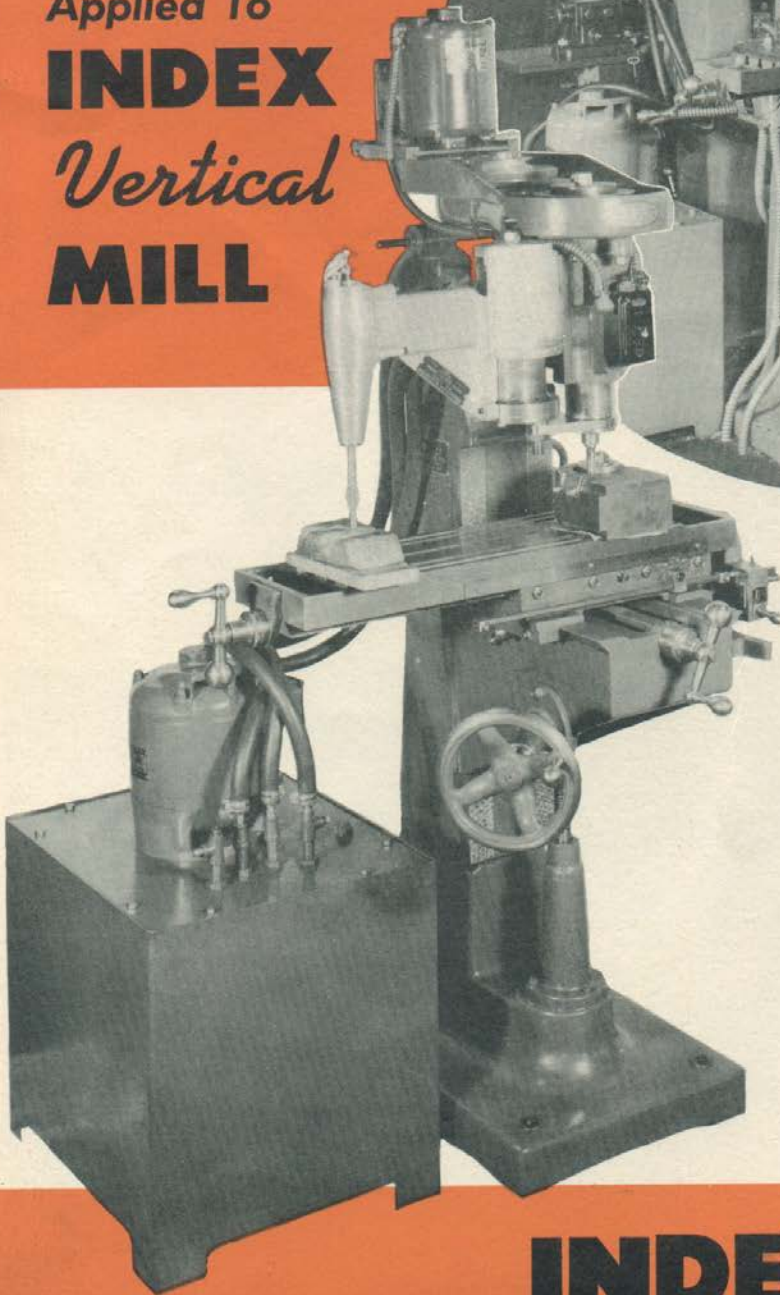
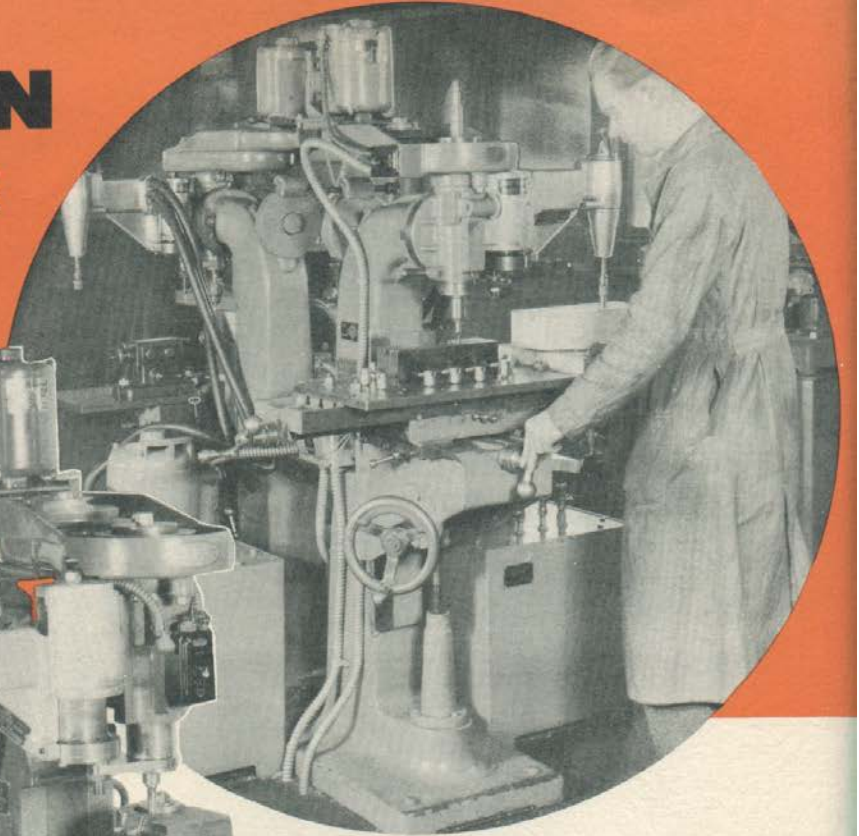
TURCHAN FOLLOWER MACHINE

Applied To

INDEX

Vertical

MILL



As you can readily see from the above photo this combination enables the reproduction of small die casting dies, rubber, plastic and glass mold work, which is done as easily as milling flat surfaces.

The Turchan Follower Machine as applied to the INDEX VERTICAL MILL. This application, picture at the right is one dimension, controlling the movement of the quill up and down. Two and Three dimensional followers are also available. Three dimensional milling as done with the Turchan Follower leaves nothing for the imagination.

The operator is kept busy loading and unloading the machine. If you already have an INDEX MILL and would care to have this attachment applied, you may do so by sending the head to us.

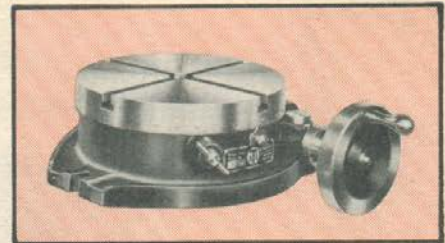
We are prepared to give engineering advice and estimates for installation of Turchan Followers where heavy models are desired on any machine tool where a duplicator is practical.

INDEX MILLS

ROTARY TABLES

MODEL BH-9

Turntable diameter.....	9"
Height over all.....	3-9/16"
Hole in center, plug fit.....	1"
T-slot size.....	1/2"
For T-bolt size.....	3/8"
Tongue strip, removable.....	1/2"
Ratio worm to worm wheel.....	90:1
Net weight.....	39 lbs.



Boxed weight.....	55 lbs.
Box contents.....	0.9 cu. ft.
Price.....	\$97.00 net



MODEL BH-12

Net weight.....	120 lbs.
Boxed weight.....	145 lbs.

Turntable diameter.....	12"
Height over all.....	5-1/4"
Hole in center, plug fit.....	1-3/8"
T-slot size.....	9/16"
For T-bolt size.....	1/2"
Tongue strip, removable.....	11/16"
Ratio worm to worm wheel.....	90:1
Box contents.....	2.0 cu. ft.
Price.....	\$160.00 net

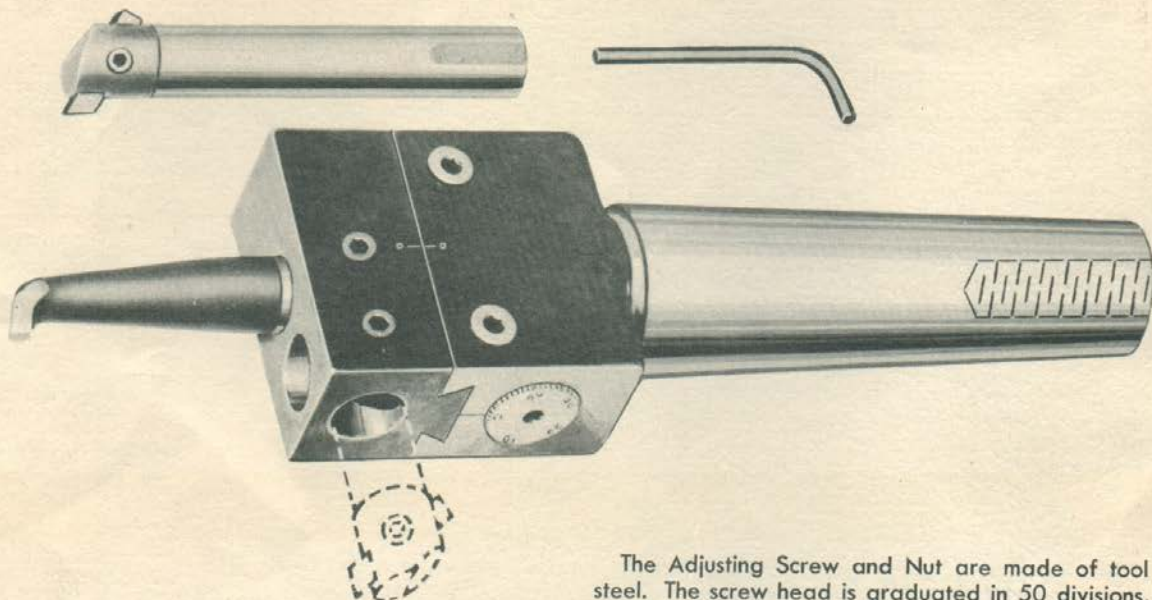
On each model the worm may be easily disengaged.
Re-engaging does not throw it out of adjustment.

ATTACHMENT DA-15

Fits Model BH-12 only.
Divisions: All numbers from 2 to 50. All divisible by 2 or 5 from 50 to 100 and several hundred above that.
Price, \$35.00 net.



MASTUR PRECISION BORING HEAD



UNCONDITIONALLY GUARANTEED

The MASTUR PRECISION BORING HEAD is the last word in Boring Tools, not large and cumbersome, but small, compact and rigid, with an exceptionally large boring capacity, made possible by our construction.

The Body and Block are made of alloy steel heat treated. The tool block is dove-tailed into the body on a 30° angle. Ground. The body is split between the tool block and adjusting screw hole, making it possible to get any degree of tension, through the medium of two lock screws.

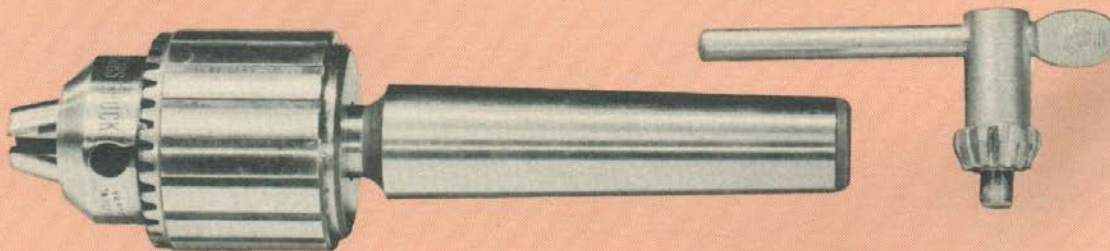
The Adjusting Screw and Nut are made of tool steel. The screw head is graduated in 50 divisions, giving a reading in thousandths, and in addition the Body is graduated giving a vernier reading in two-tenths of a thousandth.

No gib, perfect adjustment, direct reading in thousandths, vernier reading in two-tenths of a thousandth. Every working part adjustable for wear.

No. 5—7" capacity; size of body 1" thick, 2" wide, 2½" long, with No. 9 Brown & Sharpe taper shank and threaded for draw bar, for use on Index Mills. Price of Boring Head with ½" forged H. S. bit and alloy steel bar with square bit, complete, \$37.50.

Two larger sizes available for use on machines larger than Index Mills. Circulars and prices on request.

JACOB CHUCK



No. 34—½" Jacob Chuck, equipped with No. 9 Brown & Sharpe Taper Shank threaded for draw bar.....\$12.75 net

**High-Speed End Mills With Hollow Ground RH Cut RH Spiral Are Listed Below
In Sizes Most Commonly Used; Other Sizes and Lengths Are Available**

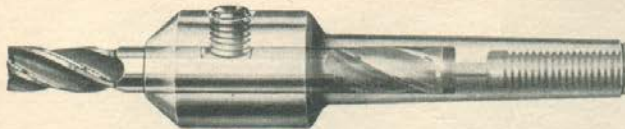


FOUR-FLUTE DOUBLE-END MILLS

TWO-FLUTE DOUBLE-END MILLS

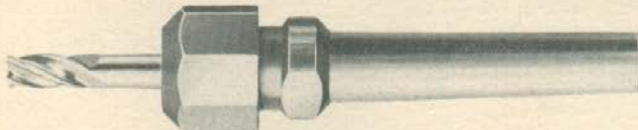
Order by This No.	Diam. of Mill	Diam. of Shank	Length of Flutes	Whole Length	Price Each	Order by This No.	Diam. of Mill	Diam. of Shank	Length of Flutes	Whole Length	Price Each
A- 8	1/8	3/8	3/8	3-1/8	\$2.75	B- 3	1/16	3/16	7/32	2-1/4	\$2.25
A- 8X	5/32	3/8	7/16	3-1/8	2.75	B- 4	3/32	3/16	5/16	2-1/4	2.25
A- 9	3/16	3/8	1/2	3-1/8	2.75	B- 5	1/8	3/16	3/8	2-1/4	2.25
A- 9X	7/32	3/8	9/16	3-1/4	2.75	B- 6	5/32	3/16	7/16	2-1/4	2.25
A-10	1/4	3/8	5/8	3-3/8	2.75	B- 7	3/16	3/16	1/2	2-1/4	2.25
A-10X	9/32	3/8	11/16	3-3/8	2.75	B- 8	1/8	3/8	3/8	3	2.75
A-11	5/16	3/8	3/4	3-3/8	2.75	B- 9	3/16	3/8	7/16	3	2.75
A-11X	11/32	3/8	3/4	3-3/8	2.75	B-10	1/4	3/8	1/2	3	2.75
A-12	3/8	3/8	3/4	3-3/8	2.75	B-11	5/16	3/8	9/16	3	2.75
A-12X	13/32	1/2	1	4-1/8	3.50	B-12	3/8	3/8	9/16	3	2.75
A-13	7/16	1/2	1	4-1/4	3.50	B-13	7/16	1/2	13/16	3-7/8	3.50
A-13X	15/32	1/2	1	4-1/8	3.50	B-14	1/2	1/2	13/16	3-7/8	3.50
A-14	1/2	1/2	1	4-1/4	3.50	B-15	9/16	5/8	1-1/8	4-1/2	4.30
A-15	9/16	5/8	1-3/8	5	4.30	B-16	5/8	5/8	1-1/8	4-1/2	4.30
A-16	5/8	5/8	1-3/8	5	4.30	B-17	11/16	3/4	1-5/16	5	5.25
A-17	11/16	3/4	1-5/8	5-5/8	5.25	B-18	3/4	3/4	1-5/16	5	5.25
A-18	3/4	3/4	1-5/8	5-5/8	5.25						

End Mill Holders with No. 9 Brown & Sharpe Taper Shank Threaded for Draw Bar



For Shanks 3/16" — 3/8" and 1/2"
diameter.....\$11.00

Type-Y Collet Type Holder with No. 9 B & S Taper Threaded for Draw Bar

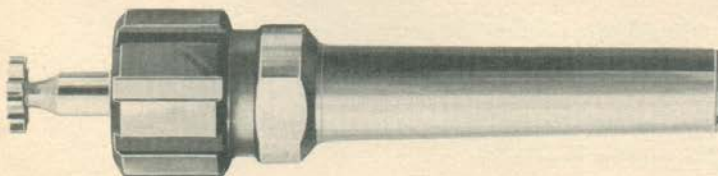


Capacity 3/16" to 1/2"\$7.00

COLLETS FOR TYPE-Y HOLDER

Standard collets for any letter, number or fractional drill size within 3/16" to 1/2"\$1.25 each
Popular sizes 3/16", 1/4", 5/16", 3/8", 7/16" and 1/2".
Will grip .002" over size to .005" under size. Special sizes \$1.00 extra for set-up.

Type-Z Collet Type Holder with No. 9 B & S Taper Threaded for Draw Bar



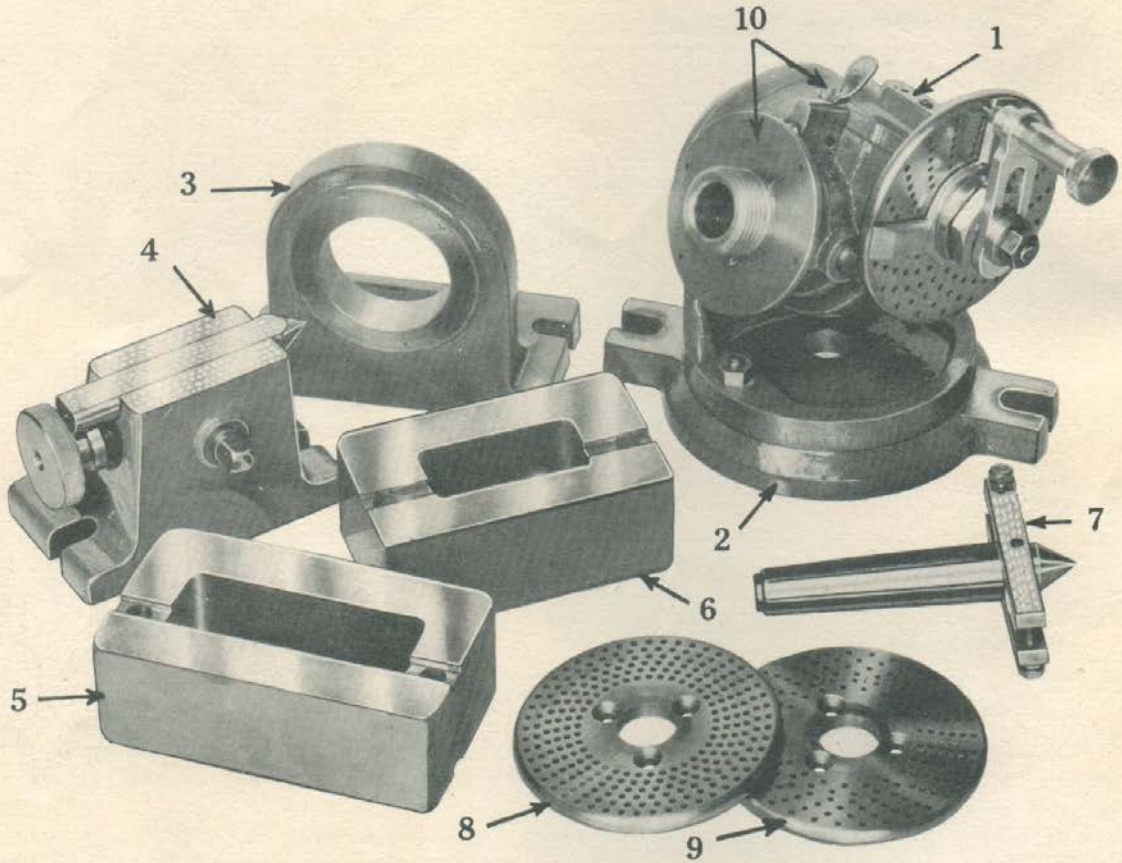
(WITH SPANNER WRENCH)
Capacity 3/8" to 3/4"\$9.25

COLLETS FOR TYPE-Z HOLDER

Standard collets for above, any letter, number or fractional drill size within 3/8" to 3/4" ..\$1.50 each
Popular sizes 3/8", 7/16", 1/2", 9/16", 5/8", 11/16" and 3/4".
Will grip .002" over size to .005" under size. Special sizes \$1.00 extra for set-up.

DOUBLE-SWIVEL DIVIDING HEAD

With Interchangeable Swivel and Regular Base



THREE TOOLS IN ONE

6½" Precision Dividing Head featuring, quick change from 40 to 1 ratio precision dividing (up to 400 divisions) to quick or direct indexing for production use, and life time No Back Lash adjustment of worm and worm gear.

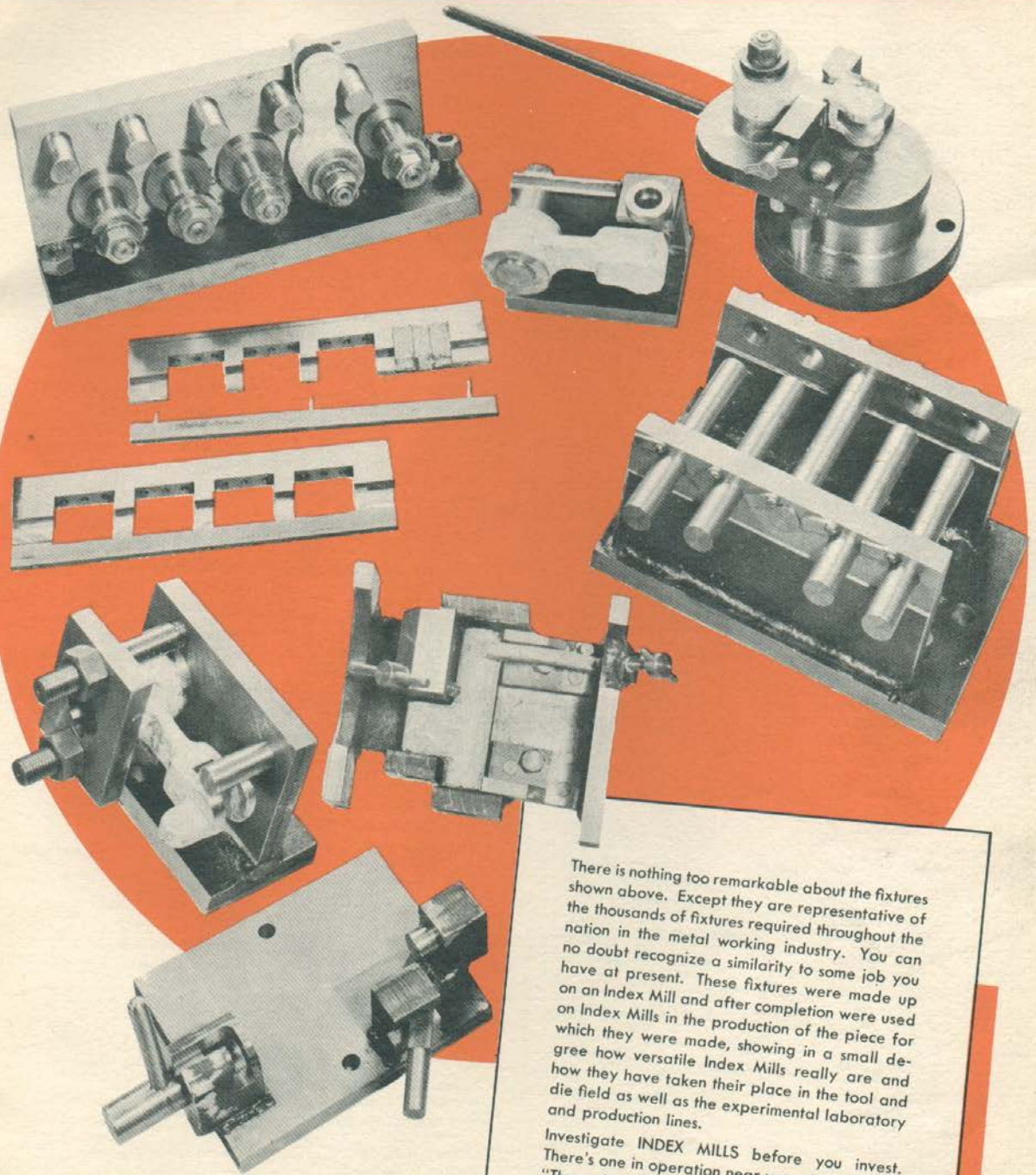
All angle, double-swivel dividing head complete as shown above \$255.00

Plain dividing head No. 1 (without quick index unit No. 10) mounted on base No. 3, tail stock No. 4, center and driver No. 7, loose index plates No. 8—No. 9 \$154.00

Quick indexing unit shown at No. 10 includes two index plates (one drilled for six equal spaces and one left blank to be drilled by user as desired) \$ 20.00

Riser blocks No. 5—No. 6 making 11" swing \$ 11.00

TYPICAL EXAMPLES OF SHOP FIXTURES THROUGHOUT THE UNITED STATES



There is nothing too remarkable about the fixtures shown above. Except they are representative of the thousands of fixtures required throughout the nation in the metal working industry. You can have at present. These fixtures were made up on an Index Mill and after completion were used on Index Mills in the production of the piece for which they were made, showing in a small degree how versatile Index Mills really are and how they have taken their place in the tool and die field as well as the experimental laboratory and production lines.

Investigate INDEX MILLS before you invest. There's one in operation near you. Ask the user. "Those that's got 'em, like 'em."

INDEX MILLS ARE USED THRO

DETROIT—Contd

Norton Gauge & Tool Co.,
(Highland Park, Mich.)

Odel Tool & Die Co.

Oregon Die & Machine Co.

Paslin Tool & Eng. Co.

Peerless Gage Co. (2)

Peninsular Tool & Die Co.

Perfex Gage & Tool Co.

Person Tool & Die Co.

Pinecrest Engineering Co.

Plymouth Machine Products

Popular Tool & Machine Co.

Porter, Behrens Co.

Precision Gage Co.

Production Tool Co. of America

Progressive Industries Co.

Quality Engineering, Inc.

Quarnstrom Tool Co.

R. S. Tool & Gage Co.

Rameco Products

Raymond Tool & Die Co.

Raywick Tool Co.

Redford Tool & Die Co. (5)
(Redford, Mich.)

Republic Gage Co.

Rhoades Machine Works
(Berkley, Michigan)

Ring Tool & Die Co. (2)

River Rouge High School Machine Shop

Roy Tool & Engineering Co.

Ruckstell-Burkhart Eng. Co.

Ryan Tool & Die Co.

S & B Machine Shop (6)
(Wayne, Mich.)

S & S Tool & Mfg. Co. (12)

Saarmann Pattern Works

Salvo Tool & Engineering Co.
(Roseville, Mich.)

Savway Tool & Machine Co. (2)

Saylor-Beall Mfg. Co.

Schauer Tool & Die Co.

Schneider & Makowski Mfg. Co.

R. F. Schwarz

Screw Machine Tool Co.

Selector Tool & Gage Co.

Shores Machine & Tool
(St. Claire Shores, Mich.)

Shwayder Bros., Inc.

Claude Sintz, Inc. (3)

Smith-Morris Co.
(Ferndale, Michigan)

Springfield Detail & Machine Parts

Squiers Gage Company
(Berkley, Mich.)

Steel Materials Corp.

Alfred F. Steiner Co.

Sterling Gauge Co.

Stotts & Murphy Machine Products

Super Tool Co. (2)

DETROIT—Contd

Supreme Industries

Swiss Tool & Die Co.

Teppert Tool & Die Co.

Trinity Tool Co. (Berkley, Mich.)

Tri-State Tool & Gauge Co.

True Tool & Die Co.

Trylon Tool & Mfg. Co. (2)

V. S. Tool & Machine Co.

Vermont Tool & Mfg. Co.

Vickers Broach & Gage Co.

Victory Forging Die & Machine Corp.

Victory Gage & Tool Co.

Victory Tool & Stamping Co.

Vulcan Engineering Service

Vulcan Gage Co.

Walker Tool & Die Co.

Welch Industries, Inc.

Westool Mfg. Co.

Wickman Corporation

Willey's Carbide Tool Co.

Wilson Machine Products

L. A. Young Spring & Wire Corp.

Zenith Mfg. Company

DOWAGIAC

The Rudy Furnace Co.

FENTON

Genesee Tool Co.

FLINT

Genesee Tool Works

U. S. Government

Northern Tool & Die Eng.

GRAND RAPIDS

Brochu & Hass Corp. (3)

Grand Rapids Die & Tool Co.

Lear Avia, Inc. (2)

McInerney Plastics Co. (2)

Modern Pattern & Model Works

Nelson Machine Tool Co.

United Machine & Tool Co.

U. S. Government (2)

GRANDVILLE

Winters & Crampton Corp.

GREENVILLE

Gibson Refrigerator Co. (2)

HOLLAND

W. E. Dunn Mfg. Co.

HOUGHTON

U. S. Government

IMLAY CITY

Imlay City Machine & Tool Co.

INKSTER

Schneider & Makowski Mfg. Co.

JACKSON

Acme Industries, Inc. (2)

Aeroquip Corporation

Blank & Buxton Machinery Co. (2)

Casalbi Company

Central Machine Co.

Crippen Machine & Tool Co.

Filltex Corporation (2)

Hancock Mfg. Co. (2)

Handley Brown Heater Co.

Hayes Industries, Inc. (8)

Hinckley-Myers Co. (3)

Index Machine & Tool Co.

Industrial Tool Co.

Jackson Crankshaft Division

Jackson Motorshaft

Jackson High School (2)

Jackson Technical School

Lake State Products Co. (2)

Lundberg Mfg. Co.

Mechanical Products, Inc. (4)

Miller Machine & Tool Co. (2)

Potts Machine Co.

R. A. Manufacturing Co.
(Jackson Mfg. Co.)

Seiden Pneumatic Tool Co.

Teer-Wickwire & Co.

Thorrez-Maes Mfg. Co.

Tamkins-Johnson Co.

Unique Iron Works

United States Government (2)

Viking Mfg. Co.

Walker Michigan Division

Yardmap, Inc.

JONESVILLE

Kiddie Brush & Toy Co.

KALAMAZOO

American Tool & Die

Shakespeare Product Co.

U. S. Government

H. W. Waber

LANSING

Abrams Instrument Co. (9)

Federal Drop Forge

Kamm & Smith

Lansing Central High School
Machine Shop

Lansing Drop Forge Co. (2)

Lansing Stamping Co.

Melling Forge Co.

Michigan State College

Nash-Kelvinator Corp.

Oldsmobile Division, General
Motors Corp. (3)

Olofsson Tool & Die Co. (2)

Precision Boring Tool Co.

LANSING—Contd

Reo Motors, Inc. (3)

Teeter Machine & Tool Co.

U. S. Government

MIDDLEVILLE

White Products Corporation

MONROE

Manron Tool Mfg. Co.

MT. CLEMENS

Copeland Mfg. Co.

Fiehn Mfg. Co.

Victory Tool Engineering Co.

MT. PLEASANT

Mt. Pleasant Metal Products

MUSKEGON

Agerstrand Corporation

Economy Tool & Machinery Co.

Sargent Specialty & Machine Co.
(3)

NORTH IRONWOOD

U. S. Government

PONTIAC

Industrial Tool & Machine Co.

High School Machine Shop

Superior Die & Stamping Co.

PORT HURON

Port Huron Tool & Die Co. (3)

RIVER ROUGE

Board of Education

SAGINAW

Eaton Mfg. Co., Wilcox-Rich
Division

Mitts & Merrill, Inc.

Saginaw Plating & Specialty Co.

U. S. Government (2)

ST. JOSEPH

Auto Specialties Mfg. Co. (2)

STURGIS

Laughlin Tool & Engineering Co.

Scovill Manufacturing Co.

Wade Electric Co. (2)

TECUMSEH

Tecumseh Products Co.

TRAVERSE CITY

United States Government (3)

YPSILANTI

Central Specialty Co. (4)

Motor State Products Co.

*Number after a company name indicates that they have more than one machine.

UGHOUGHT THE UNITED STATES

MICHIGAN USERS OF INDEX VERTICAL MILLS

Index Mills are used universally throughout the United States, in tool rooms, on production lines, experimental rooms, laboratories, industrial plants, large and small, including practically every aircraft manufacturer. Below is a partial users' list of the State of Michigan—space does not permit us to print a complete list of all the satisfied users in the United States, but if you are particularly interested, we will be pleased to name a few of your neighbors who are users:

ADRIAN

Bohn Aluminum & Brass Corp. (2)

ALBION

Union Steel Products Co.

ALPENA

Besser Mfg. Co.

ANN ARBOR

American Broach & Machine Co. (3)
Buhr Machine Tool Co. (3)
Crobalt, Inc.
International Industries, Inc. (2)
Woods Mfg. Co.

BATTLE CREEK

The Duplex Printing Press Co.
Oliver Farm Equipment Co.

BELDING

Belding Tool & Machine Co.

BELLEVILLE

Walton Die & Mold

BENTON HARBOR

U. S. Government (Twin City Airport)

BRIDGEPORT

Boeltcher & Sons Tool Co.
S & E Machine Products Co.

BRONSON

L. A. Darling Co.

CARO

Caro Products

CLAWSON

Clawson Mfg. Co.
Miniature Tool Co.

COOPERSVILLE

Air Control Products Co.

DETROIT

A & A Tool & Gage Co.
A. B. Gauge Co.
Accurate Tool Co.

DETROIT—Contd.

Ace Tool & Die Co. (2)
Aetna Tool Co. (Baseline, Mich)
Allan Young Mfg. Co.
Anchor Tool & Die Co., Inc. (2)
Apex Metal Specialties, Inc. (2)
(Farmington, Mich.)
Argo Tool & Engineering Co.
Arrow Metal Products Co. (4)
A. Tool & Gauge Co.
Automotive Stamping & Mfg. Co.

B & B Gauge & Tool Co.
B & B Tool & Die Co.
Barnes-Gibson-Raymond Division (2)
Beacon Engineering Co.
Binkins Tool & Mfg. Co.
Bradley Machinery Co. (4)
Brooks Tool & Die Co.
Bundy Tubing Co.
Burton Tool & Eng. Co. (3)

Cadillac Gage Co.
Cadillac Pattern Works
Caille Motor Co.
Capitol Tool Co.
Carboloy Company, Inc. (4)
Carbon Machine Shop
Central Pattern & Mfg. Co.
Central Tool & Die Co.
Chalmers Tool & Die Mfg. Co.
Charlevoix Tool & Eng. Co.
Chaso Tool Co., Inc.
(Royal Oak, Mich.)
Chevrolet Laboratory
Chrysler Corporation
Chrysler-Dodge Plant (2)
Chrysler Corp.—DeSoto Plant
Clyde Tool Co. (Hazel Park, Mich.)
Cohagen Tool & Gage Co.

D & P Tool & Machine Co.
Dawson Carbide Industries
Deakin Tool & Eng. Co.
Dearborn Industrial Engineering Co.
DeLuxe Die Works
Denmire Experimental Engineering Co. (2)
DeSoto Tool Co.
Detroit Aluminum & Brass Corp.
Detroit Plastic Eng. Co.
Detroit Steel Products Co.
Detroit Tap & Tool Co. (2)
Detroit Tool & Mfg. Co.

DETROIT—Contd.

Detrola Corporation
Dettary Engineering Co.
Harry W. Deitert Co. (2)
Don Gauge Co.
Donnelly Pattern & Eng. Co.
Duncan Tool & Gauge Co. (3)

Eaton Mfg. Co.
Elkman & Sons Tool & Die Works
(Dearborn, Mich.)
Eico Tool & Gage
Elgin Tool & Gauge Co.
Elite Tool Co.
Elkin Tool Co.
Embassy Industrial Eng. Co.
Esco Engineering & Sales Co., Inc.
Evans Tool & Eng. Co.
Excelsior Machinery & Equipment Corp.

F & R Tool & Gauge Co.
Falcon Thread Grinding Co.
Farmington Gage & Tool Co.,
(Farmington, Mich.)
Ferndale Gage Co. (Ferndale, Mich.)
Ferro Stamping & Mfg. Co.
Fisher Body Detroit Division,
General Motors Corp. (4)
Fisher Body Die & Machine Unit (3)
Franz Tool Co.

Gar Wood Industries, Inc.
Gelatin Products Co.
Gemmer Mfg. Co.
General Machine Tool & Die Co.
General Magnetic Corp.
Gillian Mfg. Co.
Glenvale Products Corporation (2)
Goddard & Goddard Co.
P. J. Grad Co.
Greidner Machine Tool & Die Co. (2)

H. S. Tool & Mfg. Co.
Hamill Mfg. Co.
Hanson & Co., Inc.
Henze Machine & Tool Co.
Herculese Tool Co.
Hirsch Tool & Mfg. Co.
Holley Carburetor Co. (4)
Holzbaugh Engineering Products
Havis Screwlock Co.
Hubbell Tool & Die Co.
Hudson Tool & Machine Co.
Hydraulic Machinery, Inc.

DETROIT—Contd.

Industrial Economy Tool Co.
Industrial Wire Cloth Products (2)
(Wayne, Michigan)
Intricate Tool & Gage Co.

J. C. Stamping & Machine Co.
J. H. Tool & Machine Works
Jackson Products (2)

Kasper Mfg. Co.
Kellner Tool & Machine Co.
Kelsey Hayes Wheel
The Kettlewell Co.

L & R Tool & Die Co.
Lahser Tool & Die Co.
Lauer Tool & Gauge Co.
Leisner Eng. Co.
The Lelock Corporation
Lemay Template Service
Lester Tool & Eng. Co. (2)
Lewiston Tool & Eng. Co.
Liberty Tool & Die Co. (2)
Lincoln Products Co.
Lyon, Inc.

Majestic Stamping Co.
Major Tool Co.
(Grosse Pointe Park, Mich.)
Master Gauge Co.
Mr. Glen McGunegill
(Grosse Pointe, Mich.)
Mechanical Specialties
Meldrum Tool & Mfg. Co.
Michigan Collapsible Tube Co.
Michigan Die Casting Corporation
(13)

Mid-West Hydro-Pierce, Inc.
Miller Tool & Mfg. Co.
Miniature Tool Co.
Modern Collet & Machine Co.
Modern Industrial Engineering
Monarch Tool & Die Co.
Moran Standard Parts Co.
Morlan-Braun Engineering Co.
Munn Engineering Co.

N & W Tool & Gauge Co.
National Stamping Co.
United States Government (3)
Neuhold Tool & Machine Co.
(Roseville, Mich.)
Northern Engineering Works
Northfield Eng. Co.

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