

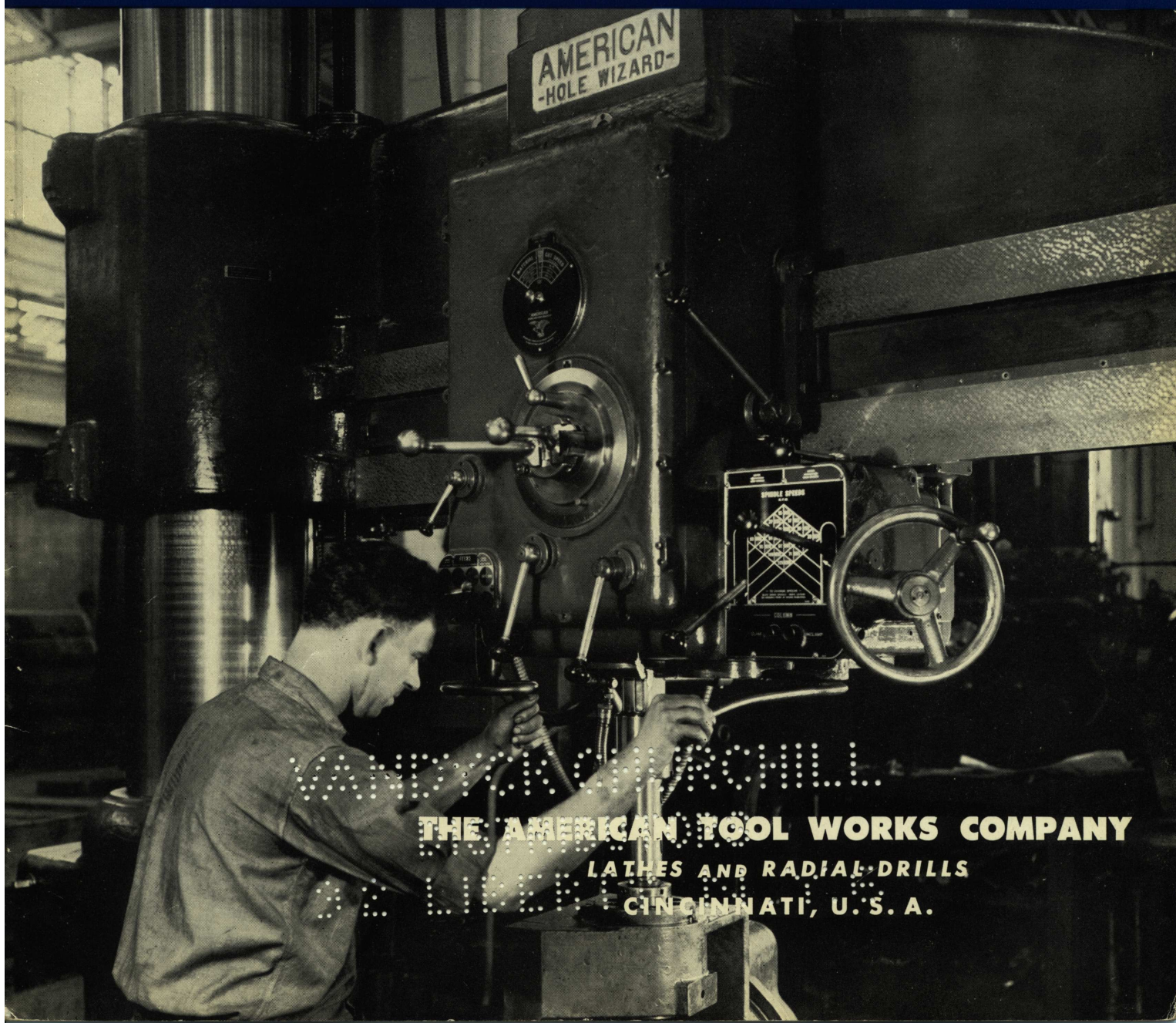


PUT YOUR RADIAL DRILLS TO WORK

for

Greater Profits

THE RADIAL DRILL AS A BORING MACHINE



THE AMERICAN TOOL WORKS COMPANY

LATHES AND RADIAL DRILLS

CINCINNATI, U. S. A.

★ THE NEW TECHNIQUE IN

VARADACH CHIRCHILL
DISTRIBUTORS
LIBERTY N.Y. 10036

BORING AND DRILLING

● ● ● The new technique in boring and drilling, developed and perfected by us, for the production of "American" Lathes and "American" Radial Drills has produced such amazing results that we have decided to offer it to the metal working industry as a means of performing accurate boring operations faster and more economically than they have ever been performed before.

This new method entails the use of STANDARD INDEXING TRUNNION STANDS for supporting the jigs through which all boring, drilling, facing and tapping operations are performed.*

These indexing trunnion stands are made in two standard sizes to accommodate a variety of jig sizes and arranged for mounting on the standard Radial Drill base. An indexing means is provided for indexing the jig which is mounted on the trunnion each 90°. If other indexing increments are required, a supplementary indexing means is provided. When large jigs and heavy work are involved, an outboard support is provided for added stability.

The advantages offered by Radial Drill boring are so overwhelmingly in its favor that they simply can not be denied. As contrasted with the horizontal method of boring, the reduction in machining costs transcends all other factors. Right here in our own plant reductions of 50% to 75% have not been uncommon.

* For dimensions see pages 10 and 11.

The Radial Drill method is so simple and fool proof that an inexperienced operator may quickly acquire the knowledge needed for this type of work. The Radial Drill, which acts as a driver, is simple and easy to operate and provides a wide range of speeds and feeds admirably suited to boring, drilling, facing and tapping operations both large and small. The intricate adjustments and close measurements required in horizontal boring, which only experienced operators are qualified to make, are noticeably lacking.

The accuracy of the work produced is determined by the accuracy of the jig and tools that are used, not by the ability and experience of the operator. This fact alone is one of the strongest recommendations that can be made for this method of boring.

There are also other advantages such as much better chip disposal where the work is done vertically and less manual effort in handling and locating heavy boring bars.

The boring of work through jigs on a Radial Drill is not new to the metal working industry. It has been done successfully and advantageously for many years; however, the use of indexing trunnion stands for mounting the jigs is not generally recognized and is definitely responsible for a mighty advance in the efficiency and effectiveness of Radial Drill operation.

1. The use of indexing trunnion stands brings the work to a comfortable working height for the operator which is seldom the case when stationary base mounted jigs are employed. Thus the operator works at greater ease, his energy is preserved and his efficiency prolonged.
2. When a jig is mounted on a trunnion stand, it is very easy for the operator to swing it from one plane to another, whereas, base mounted jigs must be shifted, rolled or lifted, resulting in the expenditure of infinitely more operator energy and harmful jarring of the work in the jig.
3. Because trunnion stand jigs do not have to be solidly mounted on the machine base, they may be made lighter and much less expensively.
4. By the same token, because trunnion jigs can be made smaller and lighter they require considerably less storage space which at times is at a premium in nearly every plant.
5. We have employed both methods of Radial Drill boring in our plant for many years past and with this experience as a guide, have come to the very definite and unalterable conclusion that the new technique of Radial Drill boring is far superior to any other method.

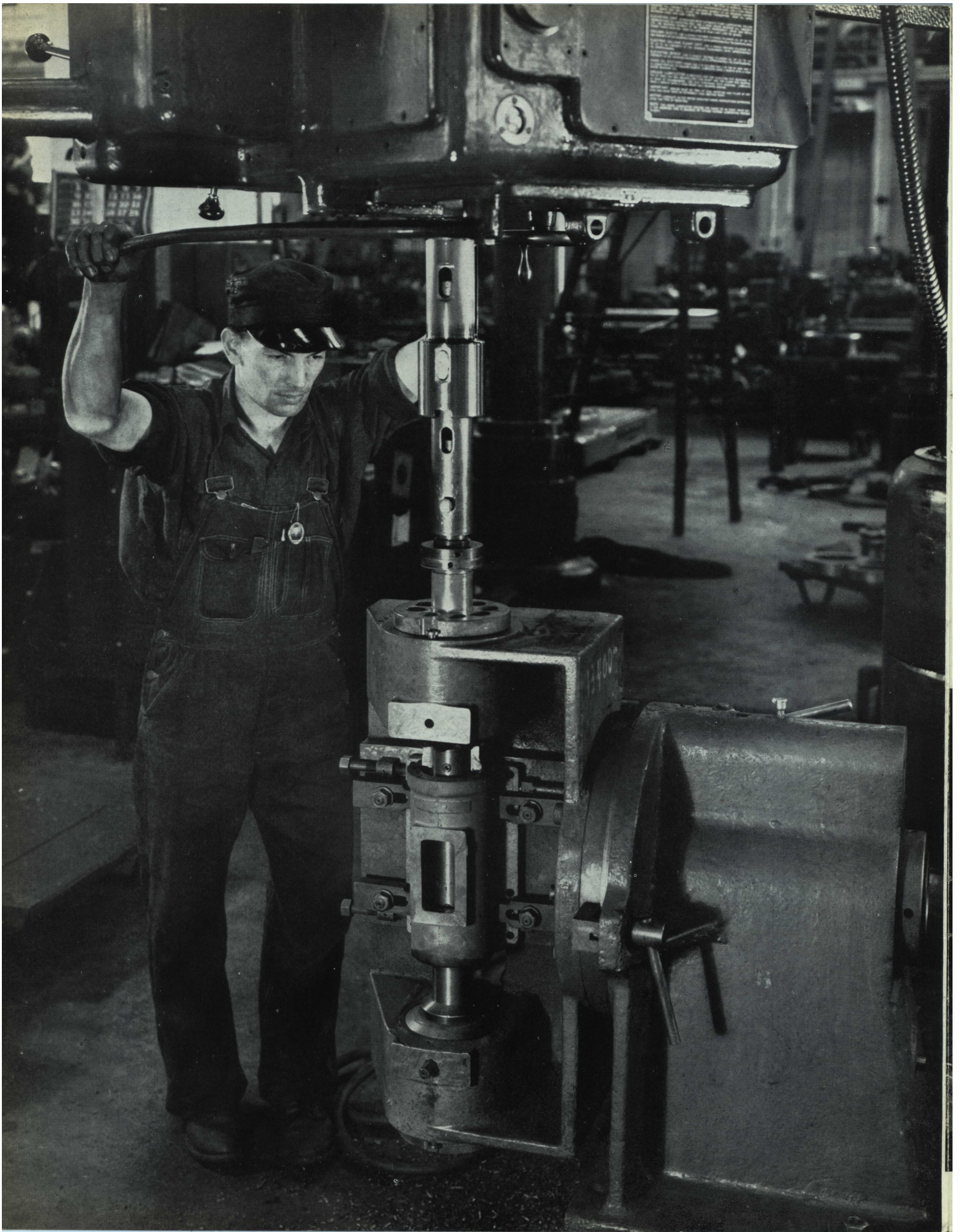
In this pamphlet we have endeavored merely to highlight the outstanding advantages of indexing trunnion stand boring technique. We realize full well that every job has its own peculiarities and must be analyzed and considered individually. We realize also that questions of proper tooling and care of that tooling will frequently arise. We are, therefore, glad to make the services of our Production Engineers available without obligation to those interested in this new technique, asking only that they provide us with complete working data as to the volume required, the accuracy limits to be held, the amount of stock to be removed, the degree of finish desired and the analysis of the materials involved.

It would be amiss, however, to consider a message of this kind without calling attention to the universally recognized advantages of "American" Hole Wizard Radial Drills for boring service. These new "Americans" have been designed for performing a great variety of boring operations as evidenced by the adoption of the patented "Double-Lo-Hung" spindle drive which was developed for the express purpose of providing the smooth, steady and powerful drive essential to good boring. Likewise, the ranges of speeds and feeds have been carefully calculated to suit a wide variety of boring and drilling operations. Ease of manipulation and control are other favorable factors contributing to its success as a boring machine. In short, the "American" Hole Wizard Radial Drill, plus the indexing trunnion stand method of supporting jigs, offers an unexcelled combination for performing boring and drilling operations rapidly, accurately and economically.

In citing these examples it is not our intention to minimize the importance of the Horizontal Boring Mill. We have 16 of these machines operating in our own plant and recognize their advantages on certain classes of work. The purpose of this bulletin is to emphasize the fact that a great deal of work done in the average shop on boring mills could be handled much more quickly and economically on the "American" Hole Wizard Radial.

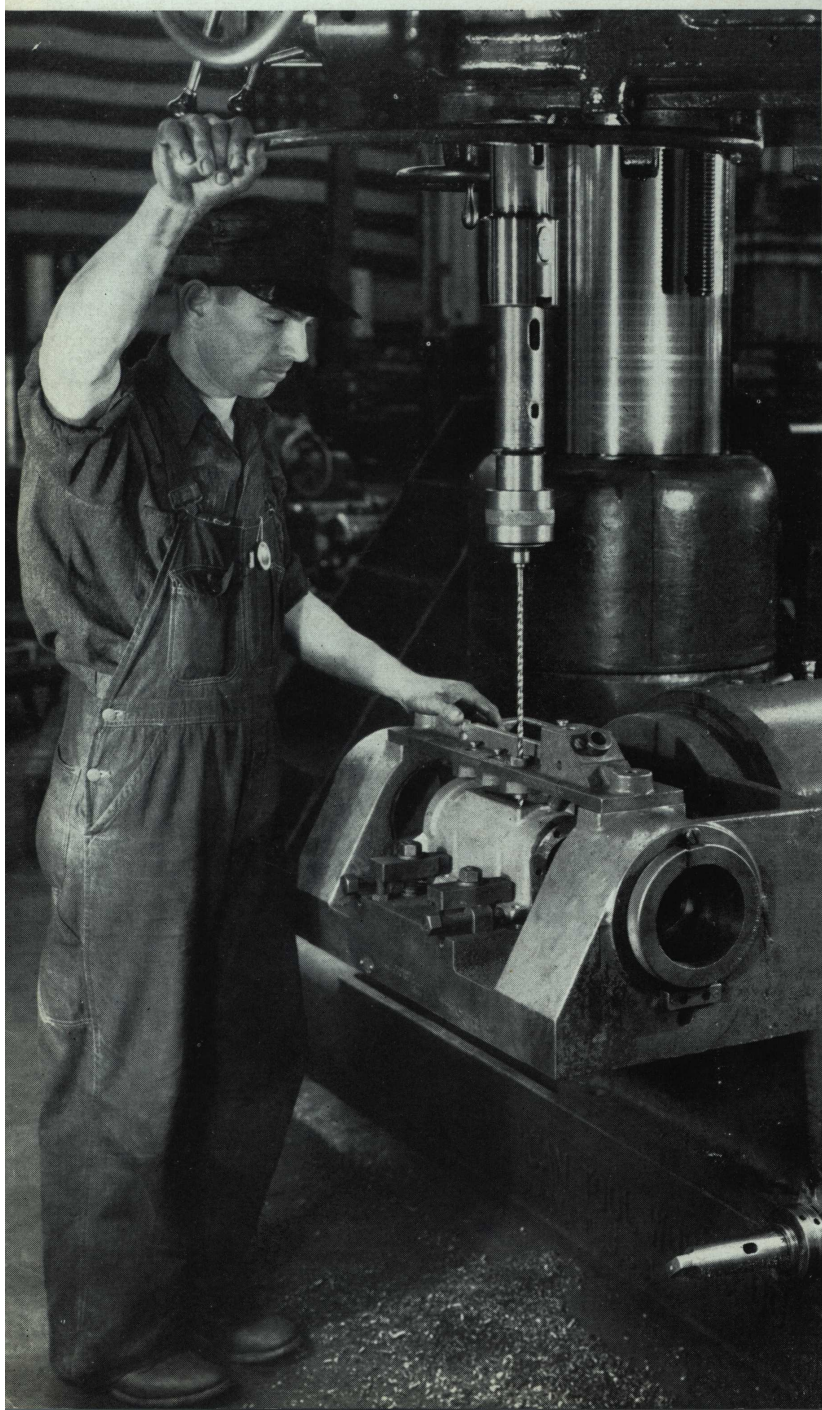
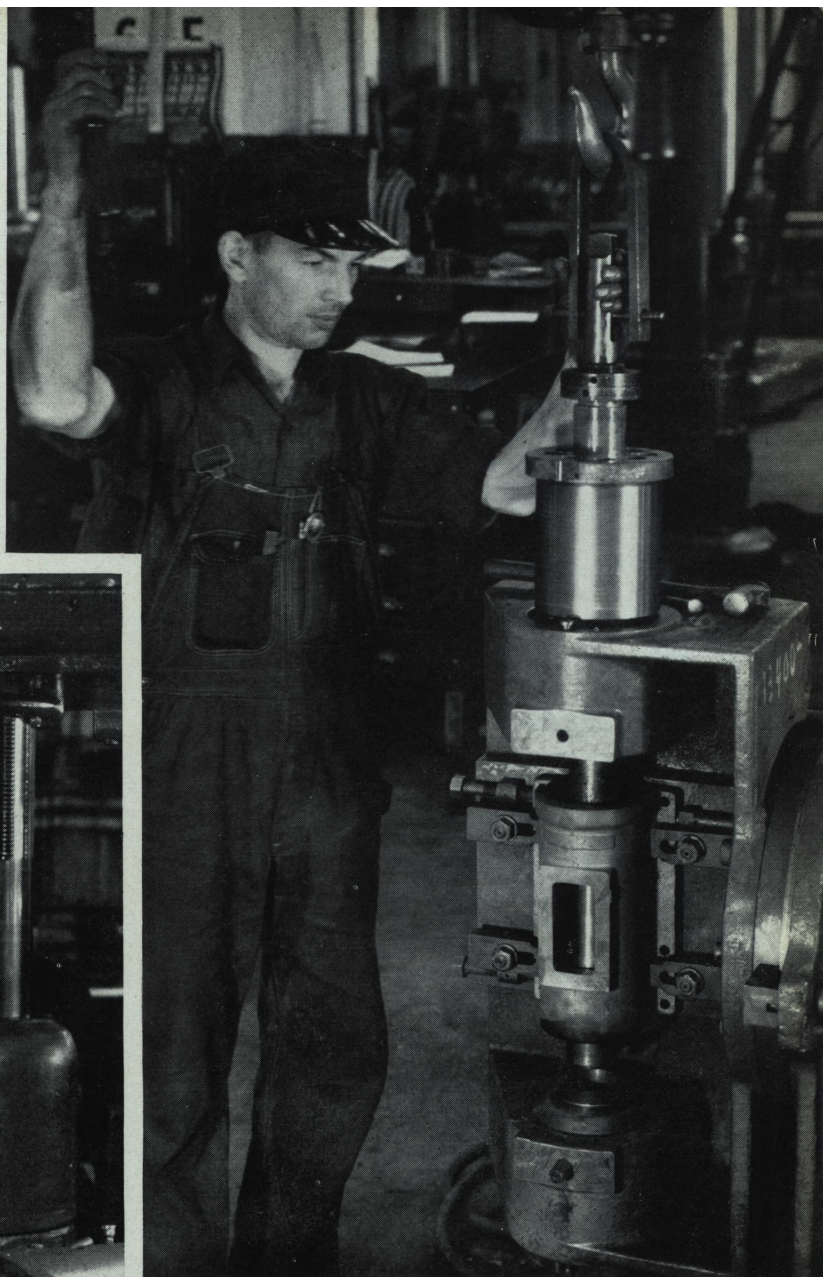
Machine shop practices are constantly changing. New and better methods are being devised. The executive who keeps his eyes open to new developments, who frees his mind from prejudices and who holds himself in readiness to take advantage of better methods, is the one who is sure to lead his shop out of the slough of mediocrity to a place in the front rank of industrial leaders.

★ ★ ★ ★ ★ ★



← Boring 40 mm Naval Anti-Aircraft gun worm housings through revolving jig mounted on Size A trunnion stand. First position.


Note use of stop collars for determining depth of counter bores.




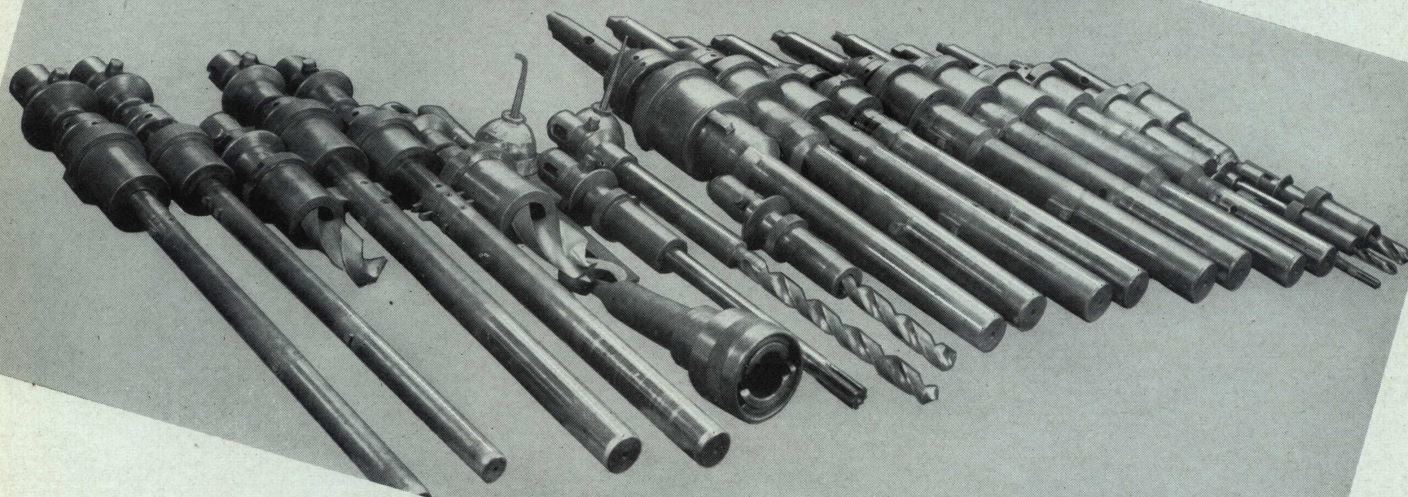
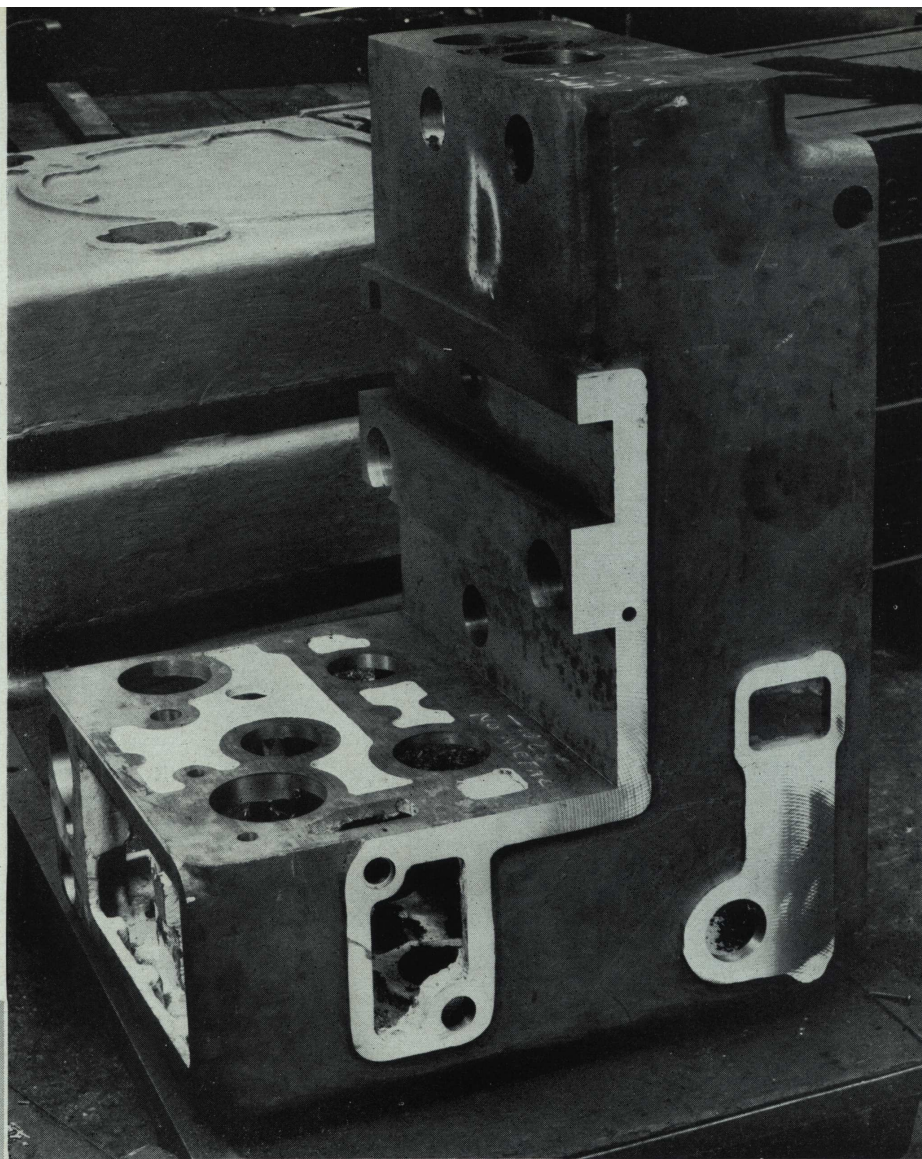
↑ Illustrating the convenience of handling heavy tools by means of an electric hoist.

← Drilling 40 mm Naval Anti-Aircraft gun worm housings through revolving jig mounted on Size A trunnion stand. Second position.




 Boring Hole Wizard Ra-
 dial Drill Head Frame
 through revolving jig
 mounted on Size B trun-
 nion stand with outboard
 support.

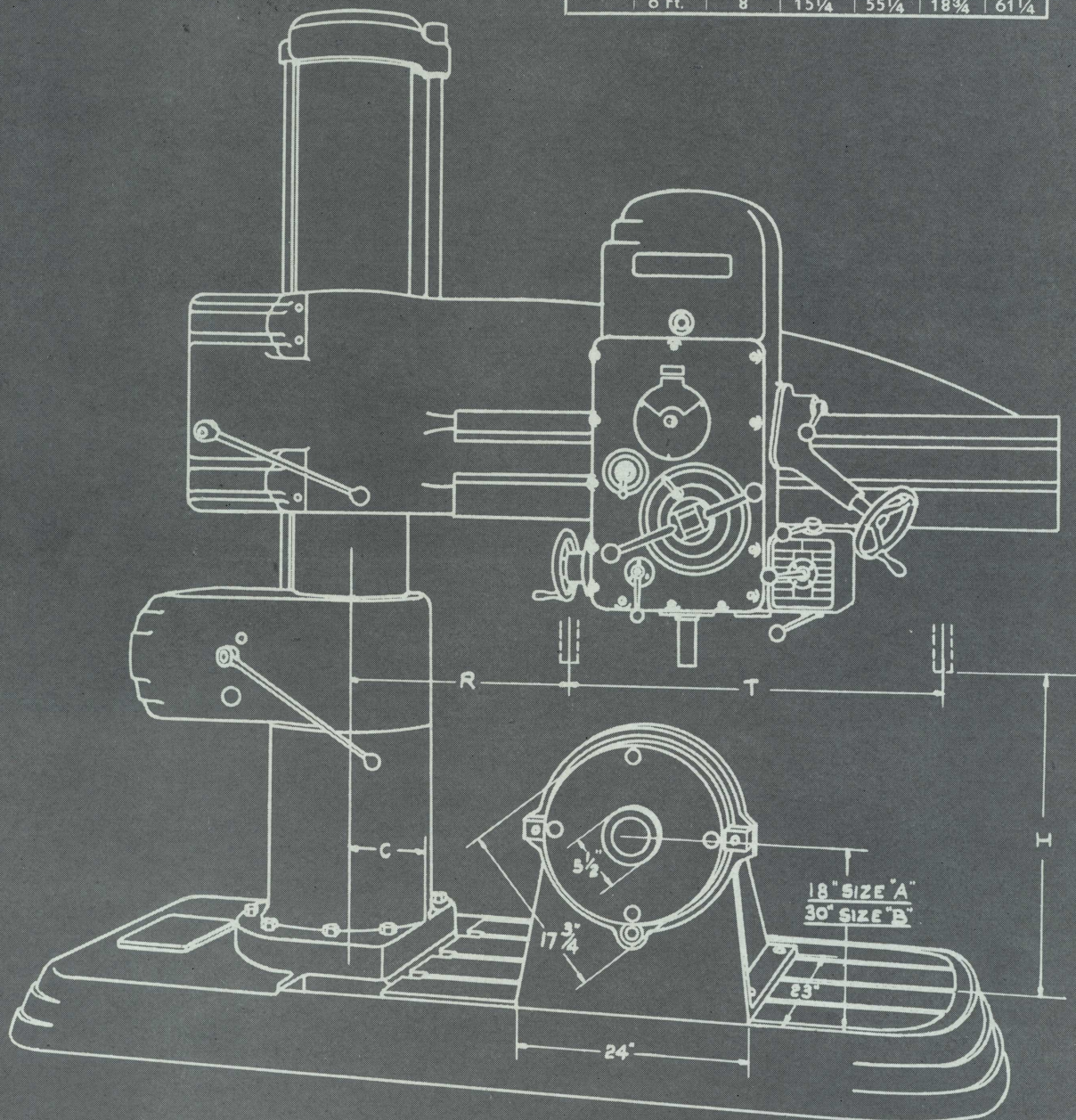
"American" Hole Wizard
 Radial Drill Head Frame,
 showing finished bores.
 



Boring bars, twist drills, reamers,
 facing tools, etc., for machining
 "American" Hole Wizard Radial
 Drill head frames.

CAPACITIES

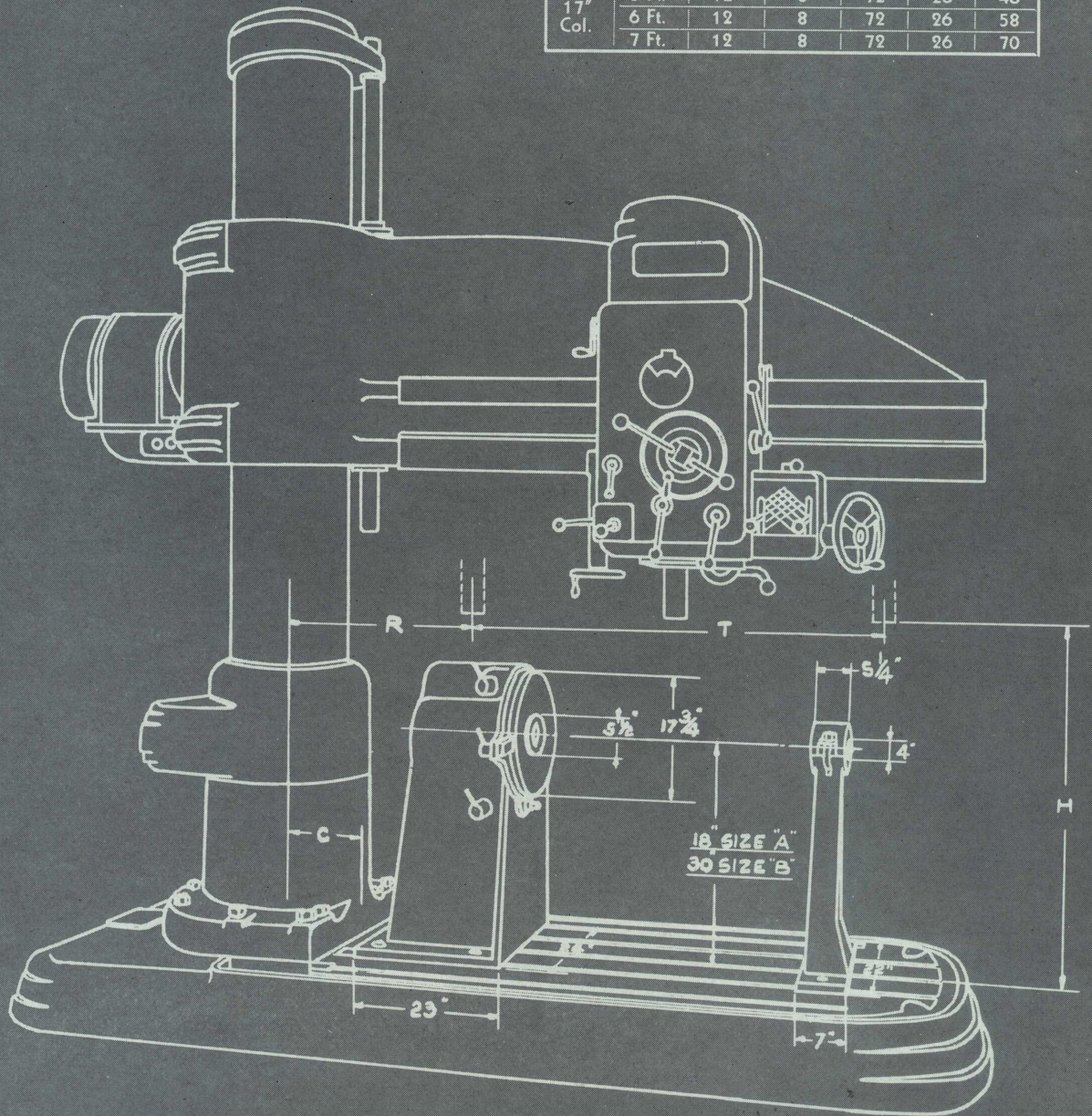
11" Col.	SIZE	C	Min. H Max		R	T
	3 Ft.	8	15 1/4	55 1/4	18 3/4	25 1/4
	4 Ft.	8	15 1/4	55 1/4	18 3/4	37 1/4
	5 Ft.	8	15 1/4	55 1/4	18 3/4	49 1/4
	6 Ft.	8	15 1/4	55 1/4	18 3/4	61 1/4



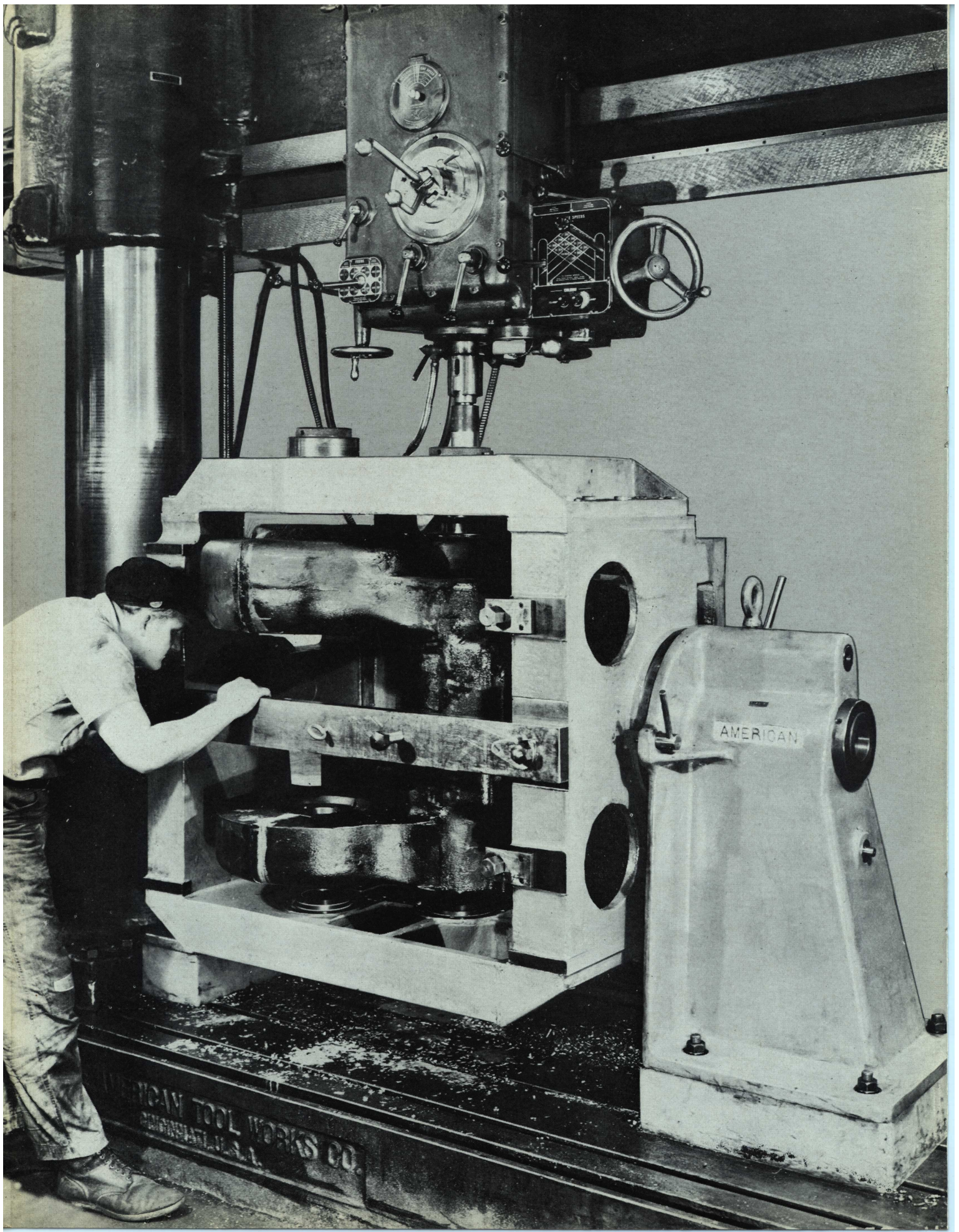
Indexing Trunnion Stand, Size A.....Price
 Outboard Support..... “

CAPACITIES

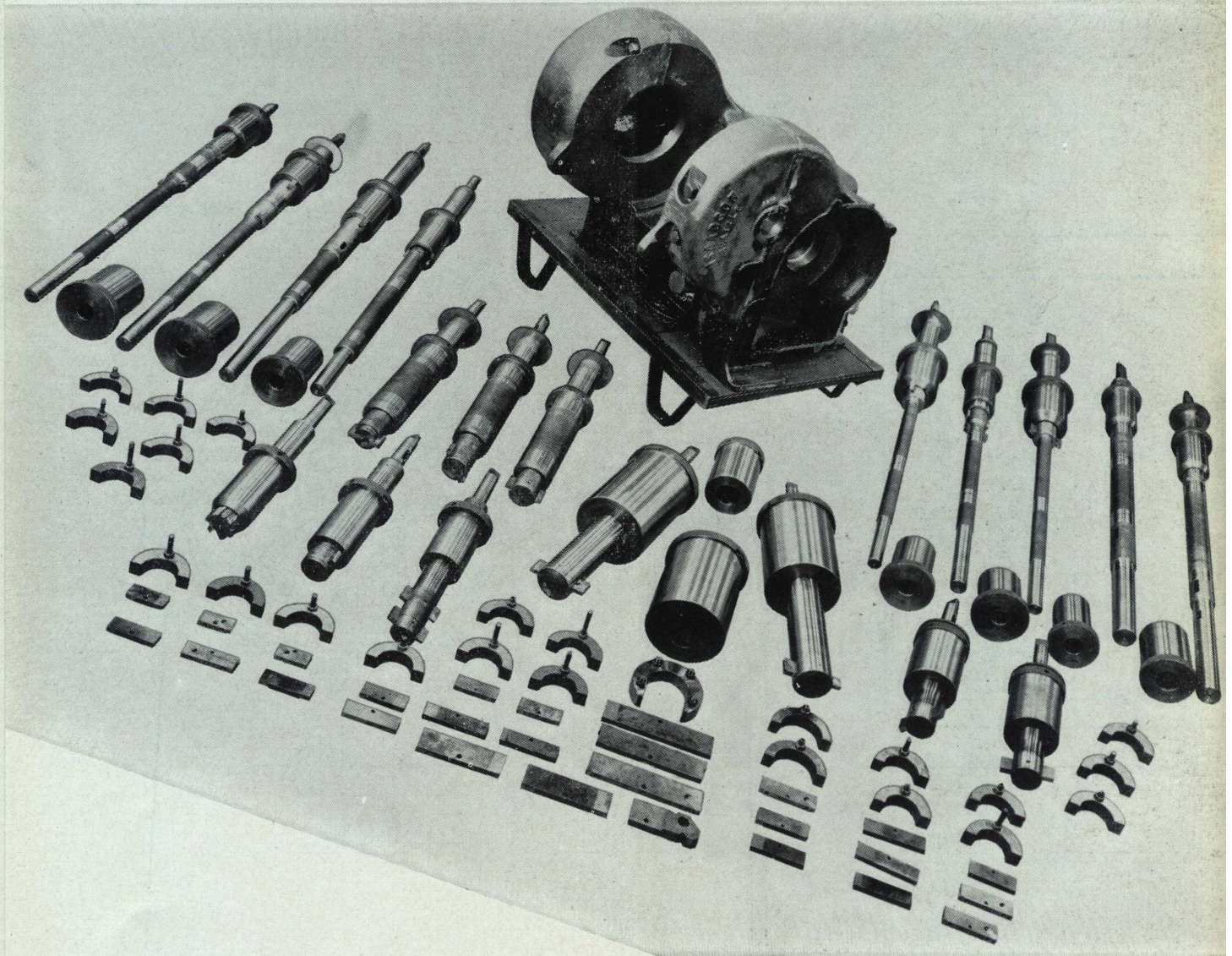
SIZE		C	Min.	H	Max.	R	T
13" Col.	4 Ft.	10	6	60	23	35	
	5 Ft.	10	6	60	23	47	
15" Col.	4 Ft.	11¼	6	66	24½	34¾	
	5 Ft.	11¼	6	66	24½	46¾	
	6 Ft.	11¼	6	66	24½	58¾	
17" Col.	5 Ft.	12	8	72	26	46	
	6 Ft.	12	8	72	26	58	
	7 Ft.	12	8	72	26	70	



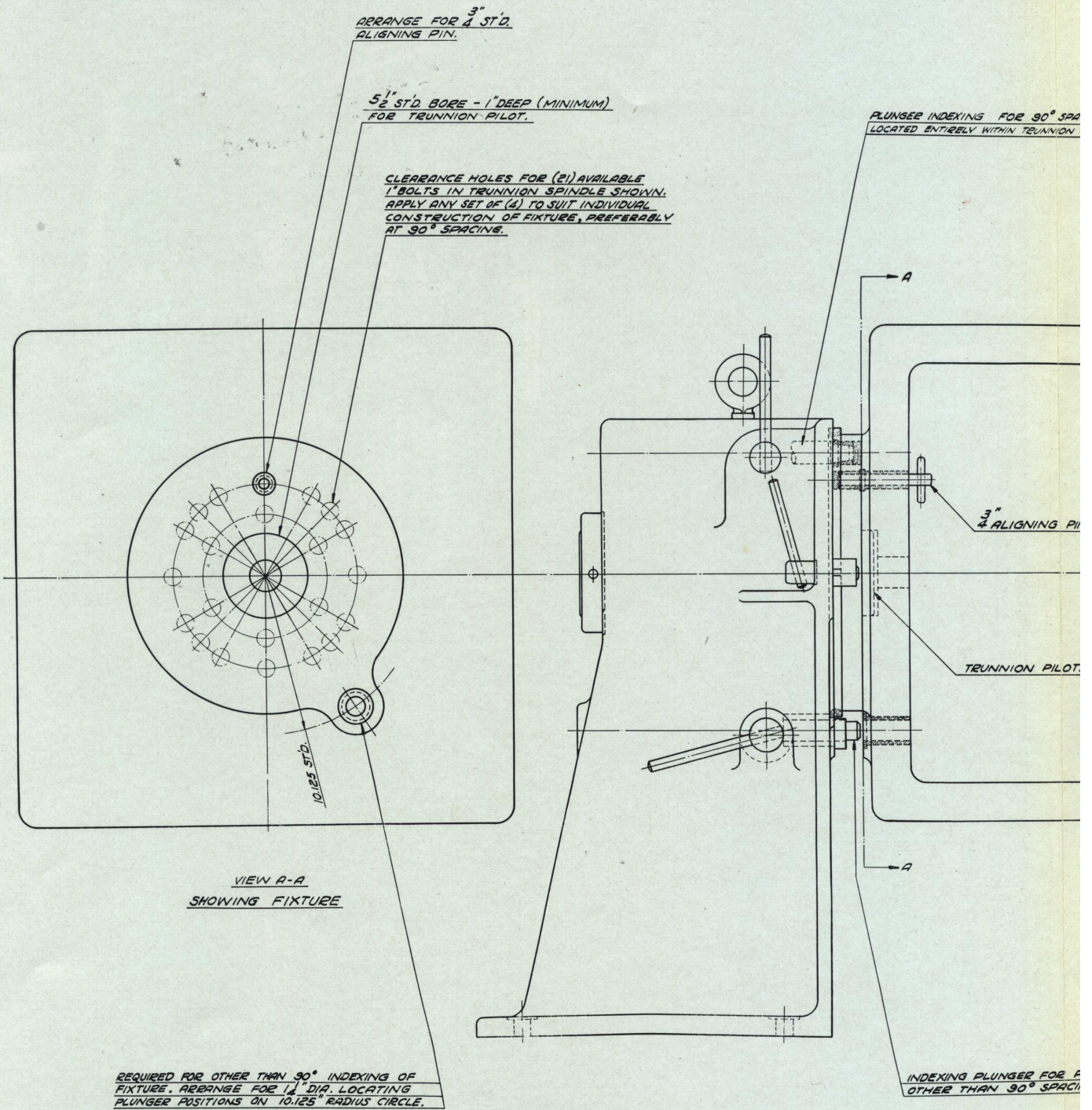
Indexing Trunnion Stand, Size B.....Price
 Outboard Support..... " "



Tooling Equipment for Machining Cast Steel Winch Hoist Housing
Shown on Platform

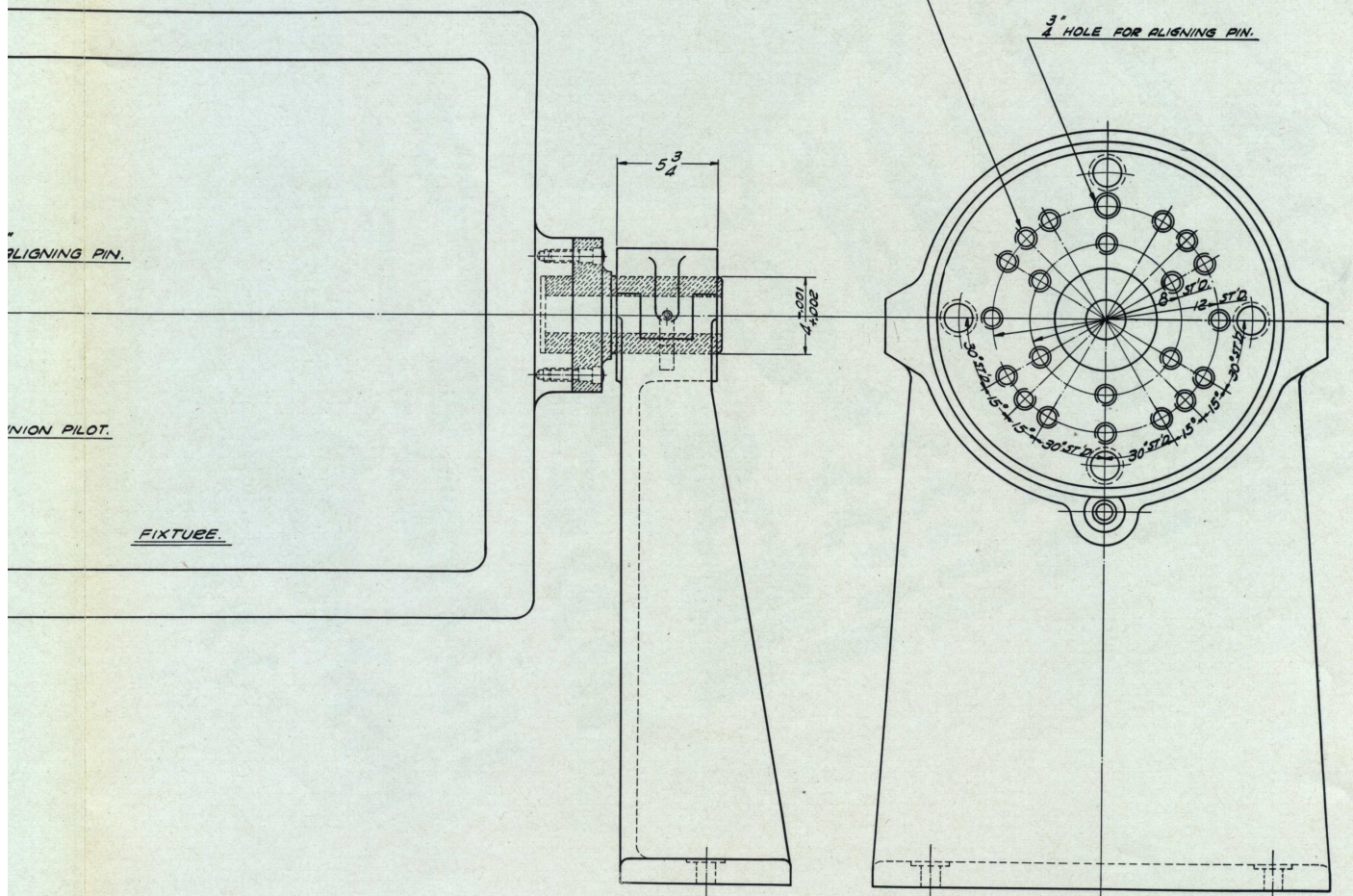


← Machining Cast Steel Winch Hoist Housings
using revolving jig mounted on size B trun-
nion stand with outboard support.



INSTRUCTIONAL LAYOUT OF FIXTURE TRUNNION STAND AND

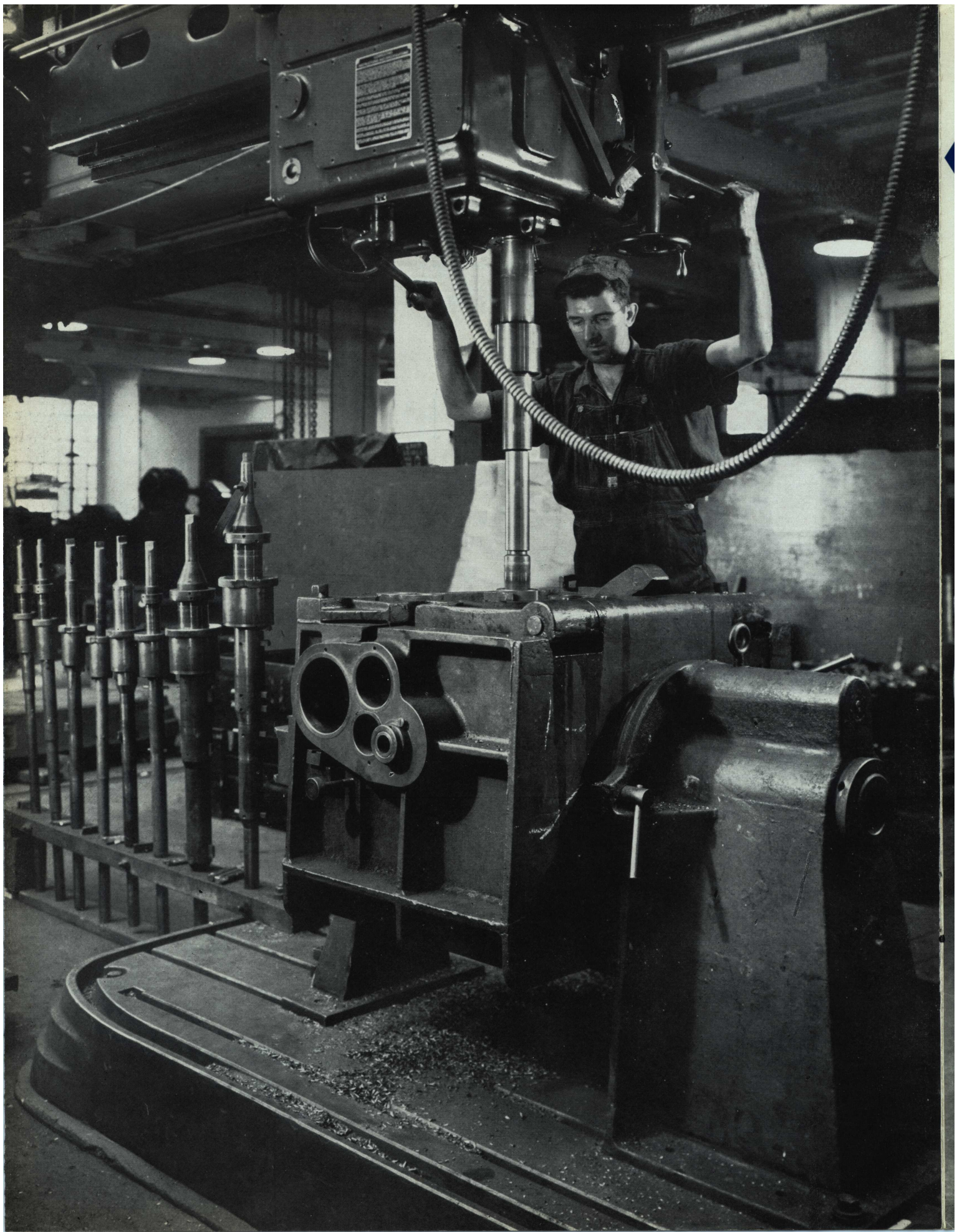
FOR 90° SPACING
THIN TRUNNION STAND.



ANGER FOR POSITIONS
90° SPACING.

VIEW SHOWING HOLES IN TRUNNION SPINDLE

FIXTURE MOUNTED ON INDEXING
AND OUTBOARD SUPPORT



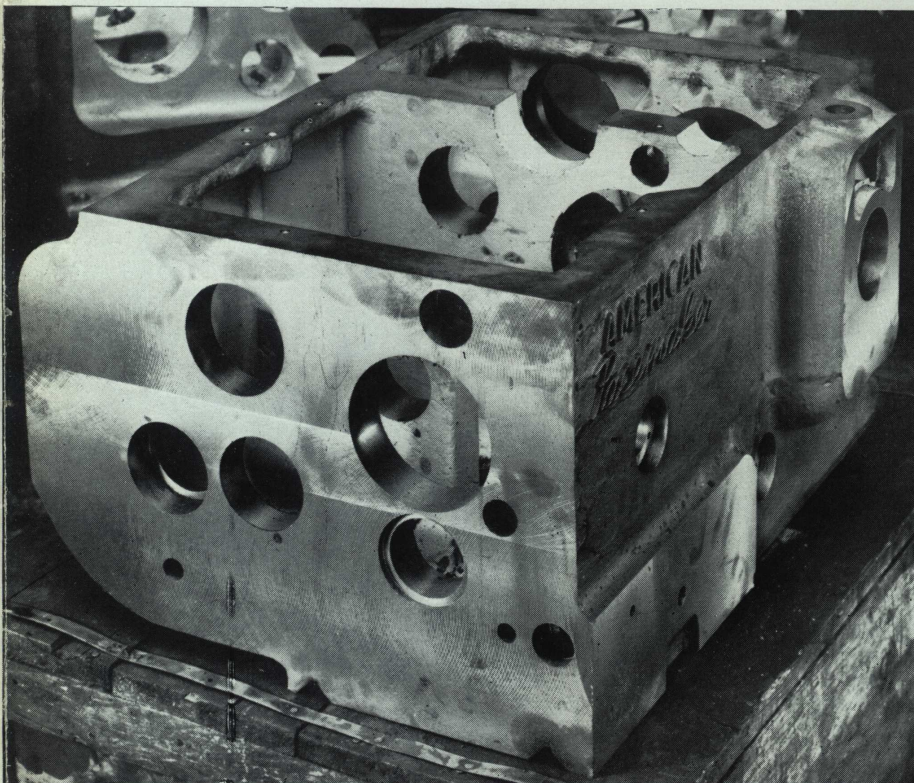
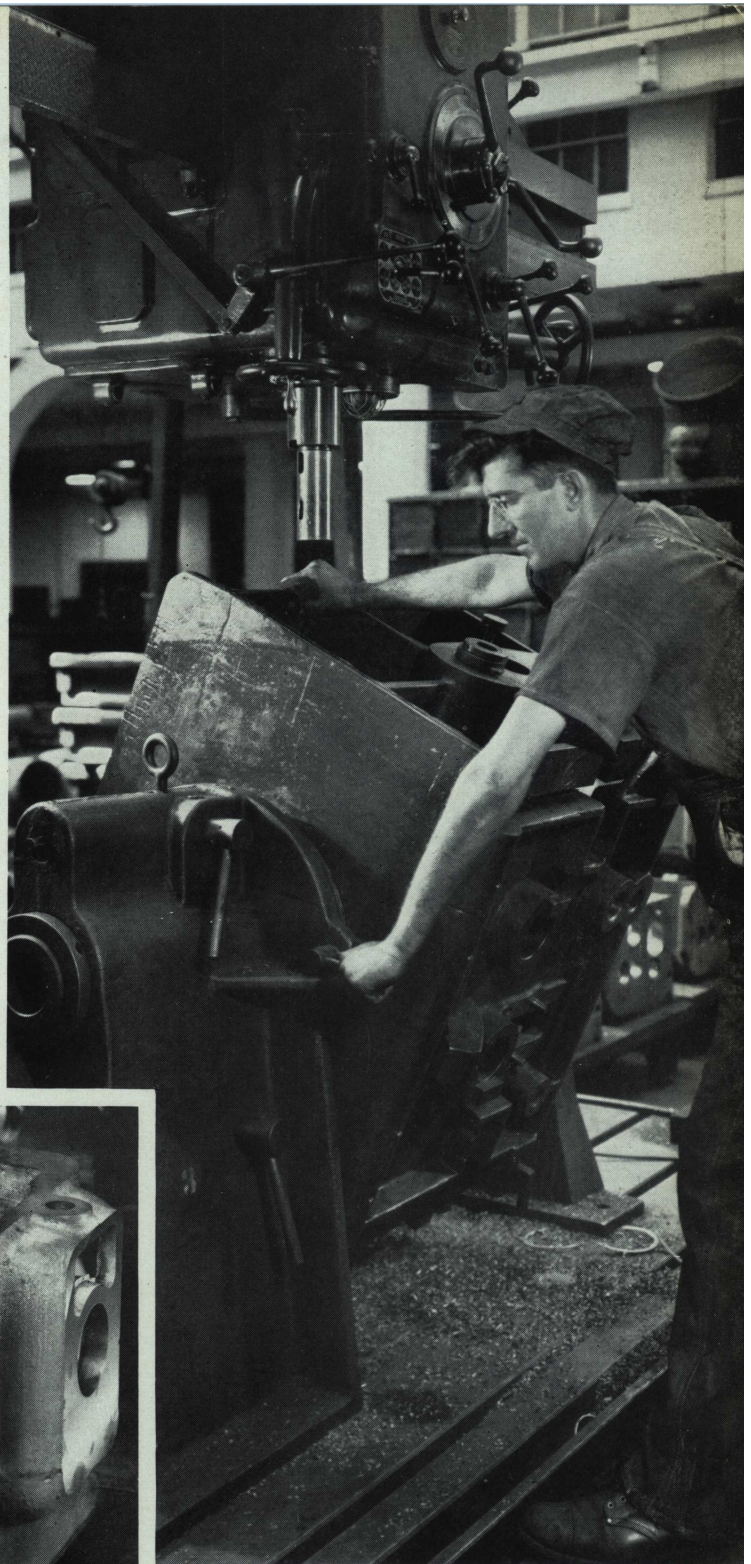
← Boring "American" Pacemaker Lathe Headstock frames through revolving jig mounted on Size B trunnion stand with outboard support.

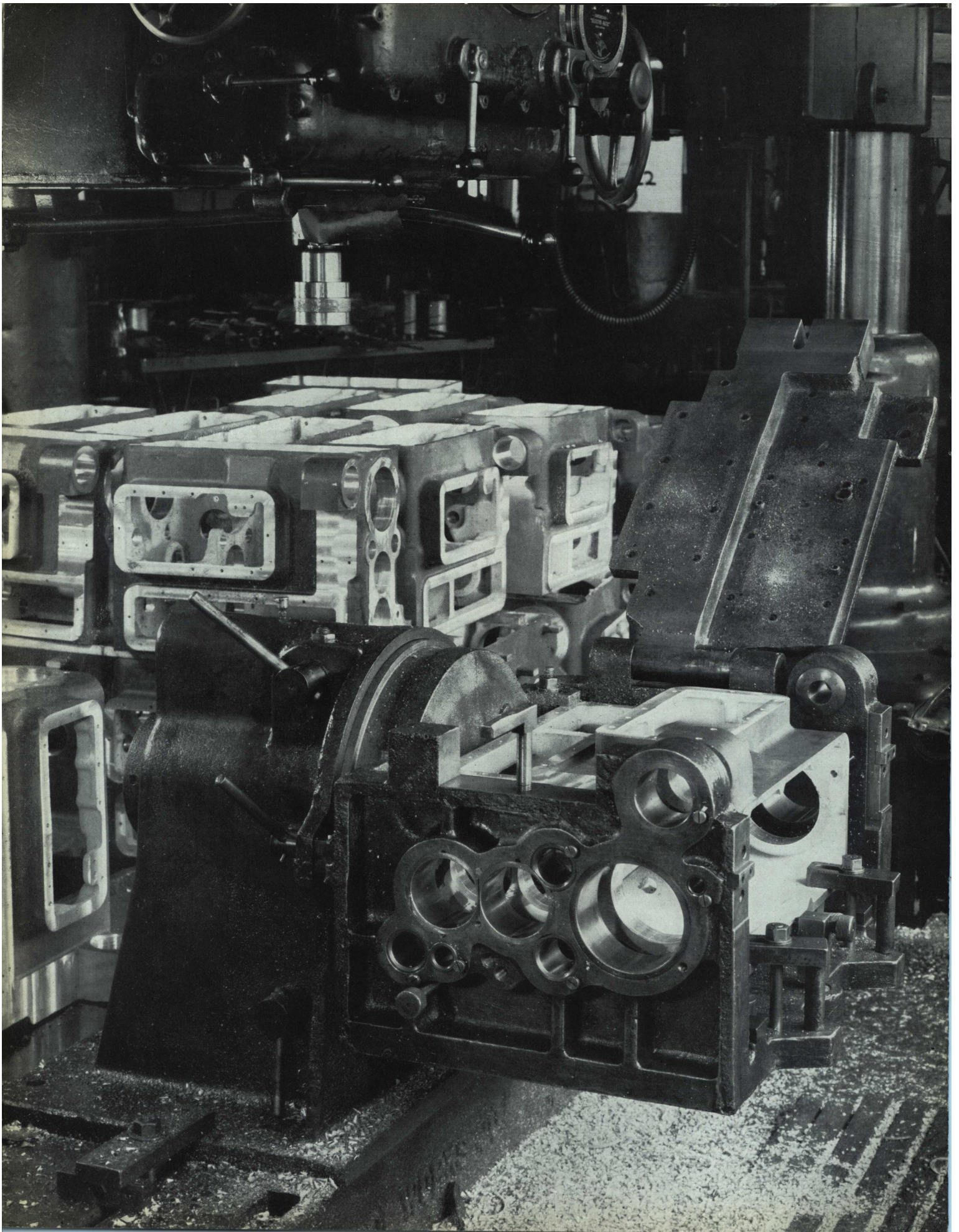
Some of the tools used for this operation are shown mounted in tool rack at the side.

Operator manually revolving jig for second position in boring Lathe head frames; illustrating the ease of positioning these heavy pieces when mounted on trunnion stands. →

"American" Pacemaker Lathe Head Frame which is being machined in the accompanying illustrations.

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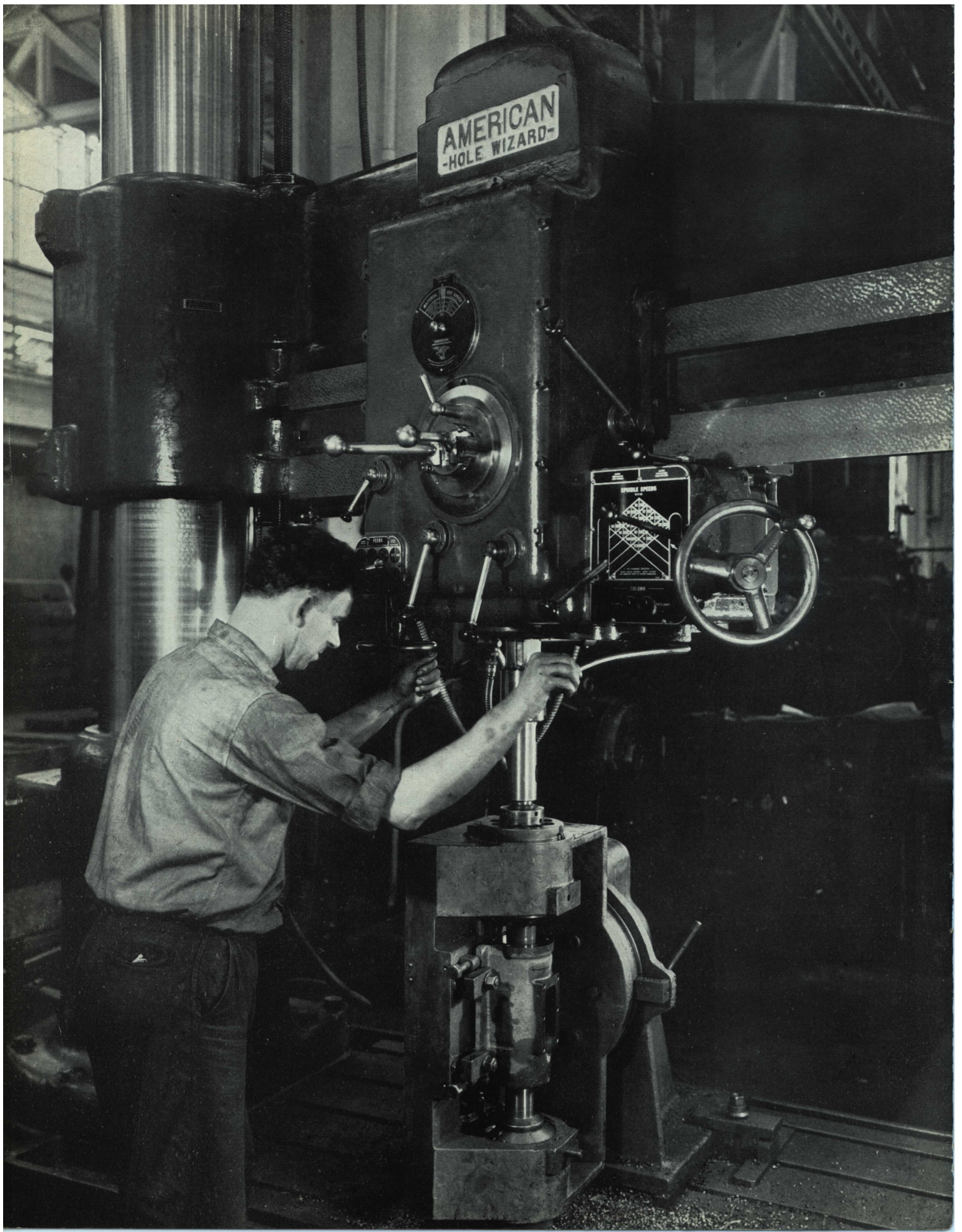




Assortment of tools for boring
transmission cases.



Hinged cover jig mounted on Size A
trunnion stand for boring and drill-
ing aluminum alloy transmission
cases; showing finished piece about
to be removed from jig.



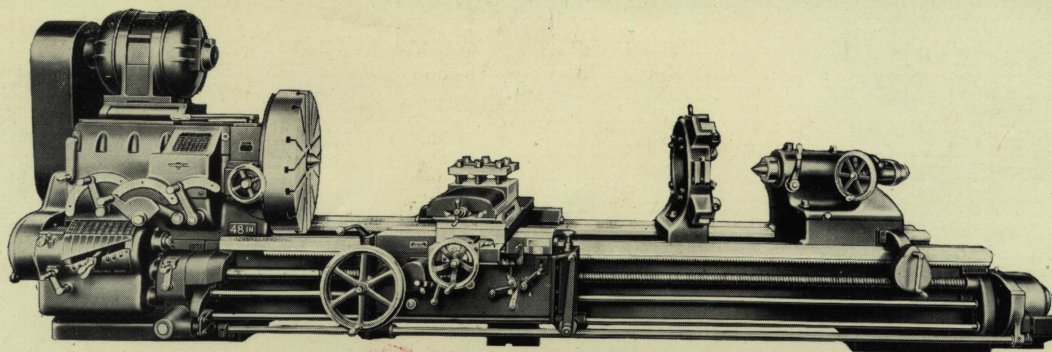


Naval Anti-Aircraft gun parts being
bored through revolving jig mounted
on Size A trunnion stand.

THE AMERICAN TOOL WORKS CO.

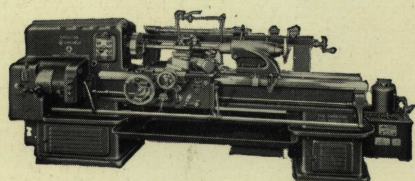
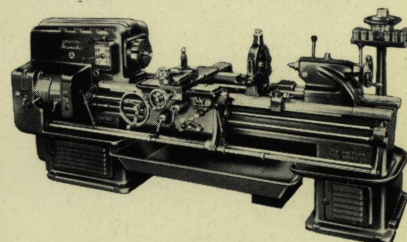
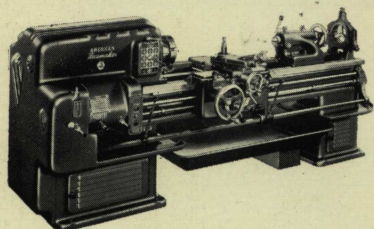
Lathes and Radial Drills

Cincinnati, Ohio U.S.A.



“AMERICAN”

THE AMERICAN TOOL WORKS CO.
CINCINNATI, OHIO, U. S. A.



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RADIAL DRILLS**

