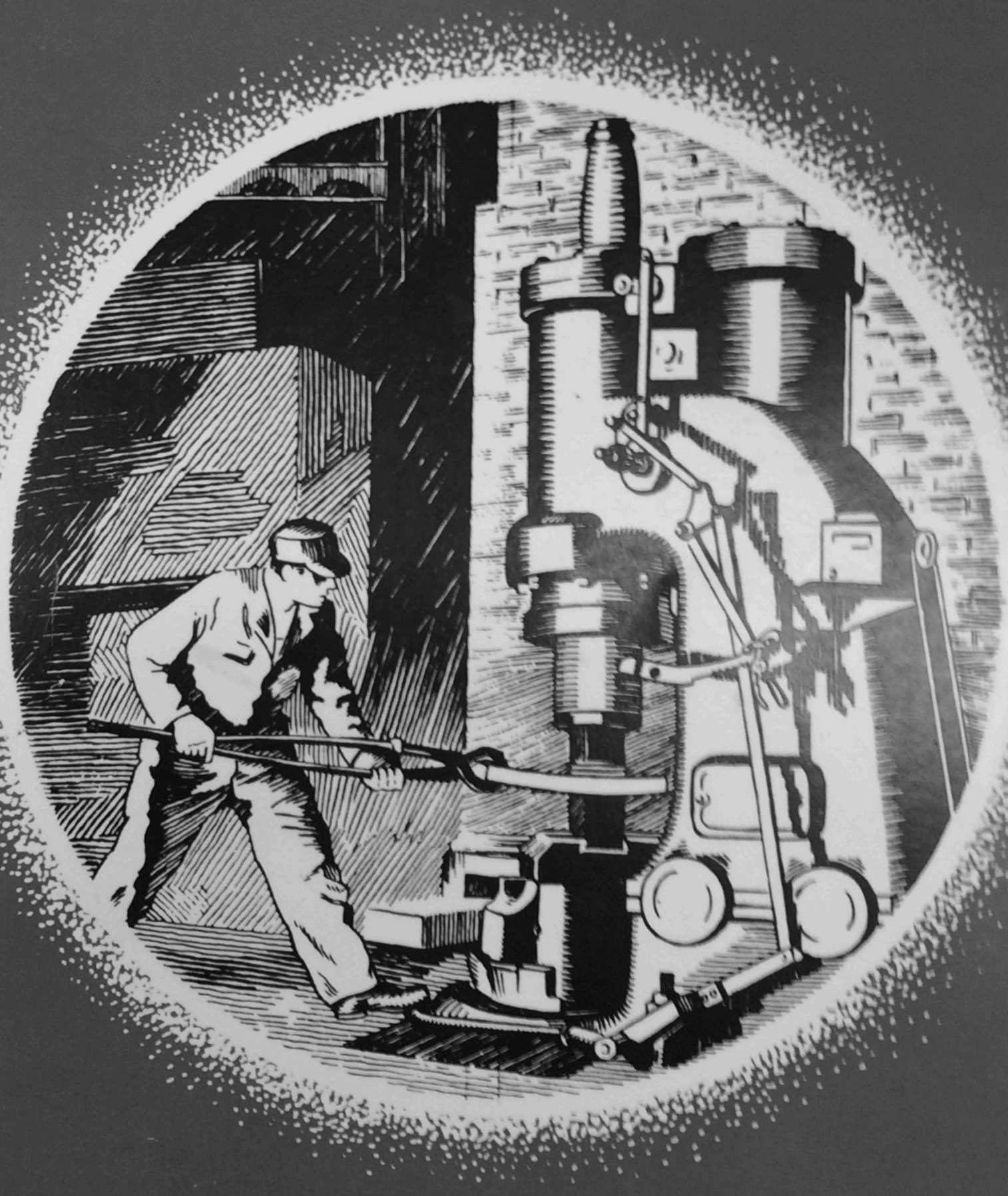
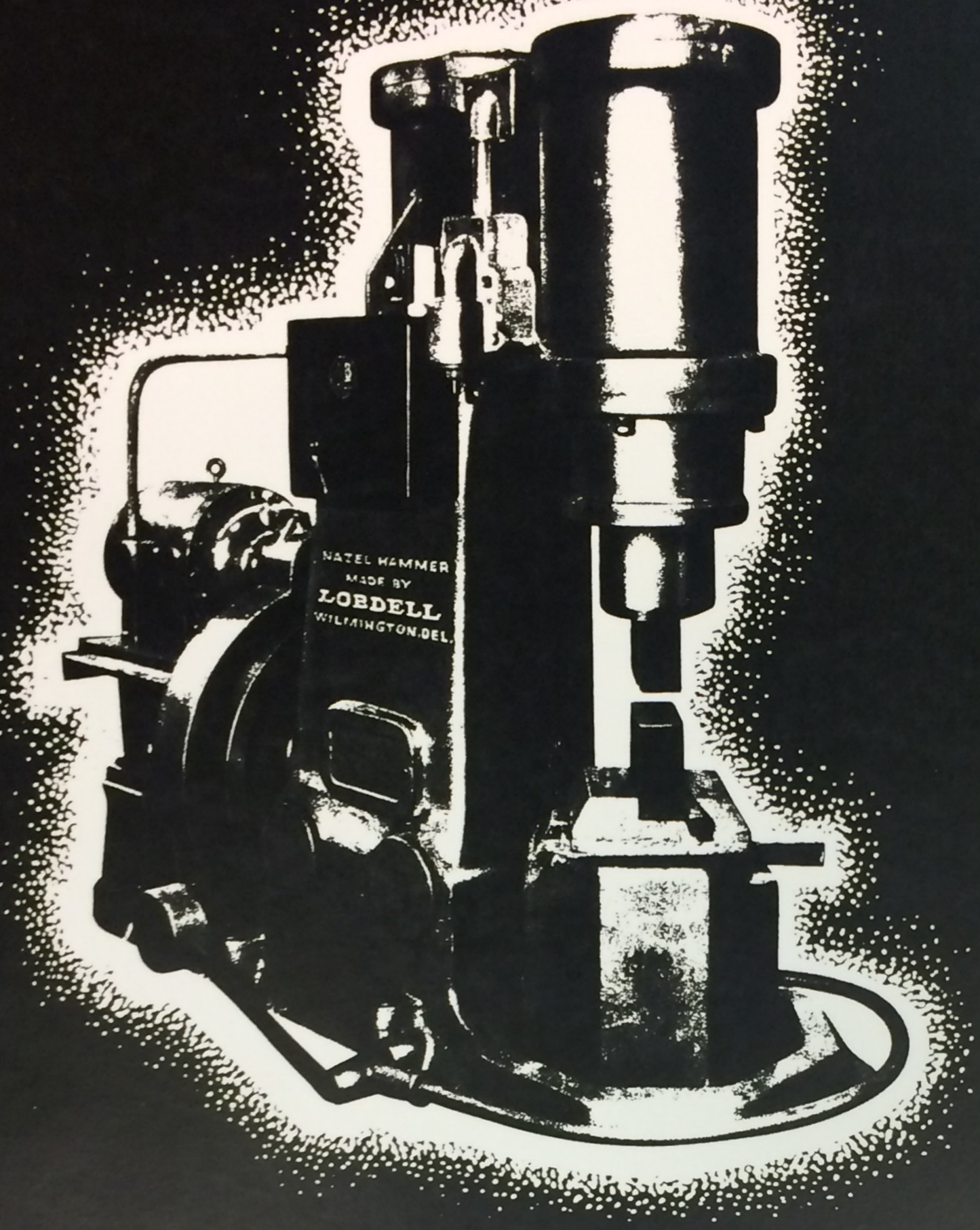
LOBDELL NAZEL

Hammer Book



LOBDELL COMPANY WILMINGTON 99 DELAWARE



LOBDELL NAZEL

THE MODERN HAMMER ~

a Standard of Comparison for 37 years!

LOBDELL-NAZEL . . .

ELECTRO-PNEUMATIC FORGING HAMMERS

Begun in 1830 by Jonathan Bonney, an experienced iron founder and machinist, and continued by his nephew, George G. Lobdell, and his two sons, William W. and George G. Lobdell, Jr., for over one hundred years, the experience and resources of the LOBDELL COMPANY have steadily grown in ability and strength. Starting in a single small building near the banks of the Christiana River in the then small town of Wilmington, Delaware, the growth of the business has three times made necessary the relocation and expansion of its plant. Today, located at the confluence of the Christiana and Delaware

Rivers, about two miles from the business center of the thriving industrial city of Wilmington and immediately adjacent to the deep water shipping facilities of the Wilmington Marine Terminal, the plant covers a 26-acre plot of ground served by three trunk-line railroads — the P. R. R., Reading and B. & O. — and consists of large and modernly equipped pattern shop, foundry and machine shop departments.

About 1909, Mr. John Nazel, a machinist of unusual talent, began the manufacture of a line of pneumatic forging hammers in Philadelphia under license of the German firm of Beche & Grohs. In 1939 this well-established business was purchased by the Lobdell Company, thus merging two businesses which had been built upon the maintenance of the highest standards of quality and workmanship.

For well over a third of a century the NAZEL HAMMER has been proving its ability to handle the most difficult forging jobs more rapidly, efficiently and economically than any other type of hammer. This fact is unquestionably demonstrated by more than 1100 satisfied users in over 70 industries. As the more exacting demands of mass production and of special alloy steels have arisen, new types, and improvements in existing types are constantly being developed.

In the following pages we have endeavored to describe the basic operating principles and design of the LOBDELL-NAZEL HAMMER and to give such details and specifications as will enable the prospective user to make a wise selection. Believing that actual performance is much better evidence of superior quality than any amount of unsupported claims might be, this book has been given over largely to illustrations of installations of producing machines. One of the first NAZEL hammers built, still in daily use at the Fletcher Works in Philadelphia, is illustrated on page 22. This hammer "has given constant satisfaction for more than 30 years with practically no maintenance expense."

LOBDELL COMPANY

LOBDELL-NAZEL FORGING HAMMERS

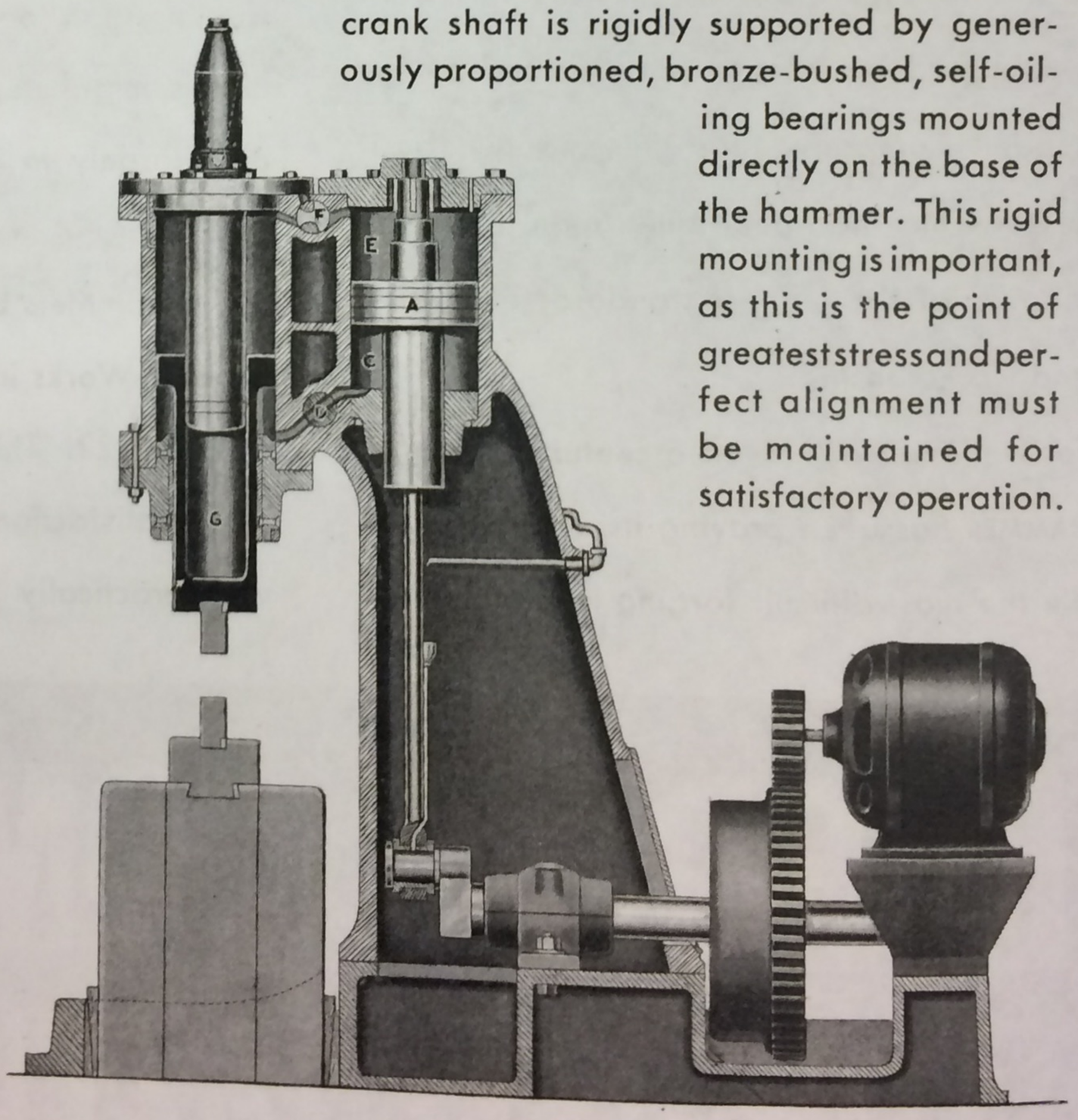
ESTAB. 1836 WILMINGTON 99, DEL.

Operating Principle

The LOBDELL-NAZEL HAMMER is a completely self-contained unit. It is essentially a double-acting compressor driven by a direct connected motor (or it may be belt-driven if preferred) exhausting through two rotary type valves into the ram or working cylinder. The rotary type valves are connected by suitable linkage to the control handle (and to the control treadle in the smaller sizes) placing the operation of the hammer under the instant control of the smith or helper in much the same way as on the steam hammer. Power is applied by the push of the button of the magnetic control switch. As soon as the motor attains its full speed, the valves being in the closed (or off) position, the ram elevates and remains in a suspended position permitting the work to be placed on the anvil (or lower die). As the valves are opened by the control handle (or treadle) the ram commences to oscillate at a uniform rate equal to the reciprocations of the compressor piston. By opening the valves slowly the ram can be made to strike the work with very light blows. Increasing the opening increases the force of the blows. By opening the valves suddenly a quick, hard blow can be struck. When opened at full port the force of the blow is very great and has a "squeezing" effect. By the release of a simple latch on the control handle the ram can be brought to the "hold-down" position for bending and similar operations.

DETAILED Operating Explanation

By referring to the accompanying sectional view the forces acting upon the ram and die may be more clearly understood. The piston is raised and lowered in its cylinder by the single-throw crank and connecting rod, driven directly by the motor through the motor pinion and fly-wheel gear. Notice that the crank shaft is rigidly supported by generously proportioned, bronze-bushed, self-oiling bearings mounted directly on the base of the hammer. This rigid mounting is important, as this is the point of greatest stress and perfect alignment must be maintained for satisfactory operation.



The LOBDELL-NAZEL HAMMER is ready to operate immediately when power is turned on. There is no workout of condensation or waiting for maximum power. It strikes the same number of blows per minute whether hitting light, medium or heavy blows. This cadence or rhythm is a vital factor in the maintenance of high production and only to be found in the LOBDELL-NAZEL type hammer.

LOBDELL-NAZEL HAMMERS are completely self-contained. No compressor, accumulator or piping are required.

As the piston (A) descends, air is compressed in the lower cylinder (C) passing through the lower control valve (D) into the ram cylinder forcing the ram (B) upward. Simultaneously, a vacuum is created in the upper cylinder (E) withdrawing the air through the upper valve (F) from above the ram. Thus the ram is raised by the pressure beneath and the vacuum above. As the ram nears the top of the stroke its upward movement is cushioned by the compression of air trapped in the chamber (G) in the body of the ram.

As the piston reverses its motion and ascends air is compressed in the upper cylinder and exhausted from the lower cylinder. These two forces are augmented by the expansion of the air that was compressed in the ram body on the upward stroke. Thus there are *three* forces acting on the down stroke of the ram. This is found *only* in the LOBDELL-NAZEL HAMMER.

The Blow

The force of the blow upon the work developed by the descending ram of a power hammer such as the LOBDELL-NAZEL cannot be accurately judged solely upon the weight of the striking parts. However, as the majority of users seem accustomed to thinking in terms of steam hammer ratings the following table has been compiled to arrive at a tentative comparison between the steam and LOBDELL-NAZEL HAMMER for general blacksmithing work. A more accurate measure of the rating of the LOBDELL-NAZEL HAMMER is the energy in foot-pounds developed by the normal working stroke of the ram which is also given in the table. As previously stated these ratings are merely tentative. The ability of a hammer to handle any specific job is subject to so many factors that the only safe course is to submit complete details for recommendation.

Steam Rated Size	Nazel Air Rated Size	Stock Handled Successfully	Energy of the Blow
250 lbs.	No. 2-B	3 in. square	1056 foot pounds
400 "	No. 3-B	4 " "	1600 " "
600 "	No. 4-B	5½ " "	2900 " "
800 "	No. 5-B	6½ " "	4900 " "
1250 "	No. 6-B	8 " "	8500 " "
2000 "	No. 7-B	11 " "	13700 " "

Steam Rated Size	Nazel Air Rated Size	Stock Handled Successfully	Energy of the Blow
500 lbs.	No. 10-S	4½ in. square	1700 foot pounds
800 "	No. 11-S	5½ " "	2920 " "
1000 "	No. 12-S	6½ " "	4930 " "
1500 "	No. 13-S	10 " "	8860 " "
2500 "	No. 14-S	13 " "	15900 " "

The LOBDELL-NAZEL HAMMER strikes a more effective blow than any other type hammer of equal falling weight due to its unique application of three forces, viz.: the pressure on top of ram and vacuum beneath produced by the compressor piston plus the expanding air in the hollow body of the ram compressed in every ascending stroke.

The Control

The control of the blow of the LOBDELL-NAZEL HAMMER is simplicity itself. A push of the switch when work is to be done and it is immediately ready. Another push of the switch when the work is completed and power consumption ceases. Anyone with medium intelligence can soon get the "feel" of its rhythmic cadence and become adept in its operation. Blows of variable force are instantly obtainable without interruptions or adjustments of any kind. The advantages of being able to control the force of the blow to the greatest nicety without interfering with the rhythmic cadence of operation are manifold and result in increased production, more uniform work and fewer reheats.

Class of Work

There is a type and size of LOBDELL-NAZEL HAMMER suited to almost every forging job. We have grouped them roughly in the following pages as Light Duty and Heavy Duty Type B Hammers for general maintenance, blacksmithing and similar requirements. Many hammers of this type however are on mass production work as evidenced by the hammers illustrated on page 10 at work on the production of drill bits and small tools. Type N Hammers for general forging, tube drawing, etc. Type I with fitted anvil for special forging such as necking, shell nosing, valve heading and other die forging operations. Type S, the latest developments in this class of hammer incorporating the single or set blow with the regular automatic blow increasing the adaptability to almost any type of forging operation.

Construction

LOBDELL-NAZEL HAMMERS are constructed most substantially of special materials best suited for the specific purpose.

HOUSING. The compressor and ram cylinders are cast integral with the housing of special, high tensile, close grained iron connected by the cored ports and valve openings insuring adequate strength, rigidity and permanent alignment. The housing is permanently and rigidly secured to the base by four weldless steel rings shrunk on lugs, the upper halves of which are a part of the housing casting and the lower halves of the base casting.

BASE. On sizes above our No. 3 Type "B" Hammer the base is a substantially braced iron casting with opening encircling the anvil. On our Nos. 1, 2 and 3 Type "B" Hammers the Anvil and Base are in one piece and of cast steel enabling the use of much shallower foundation than in use on previous hammers of this size and type and insures close alignment of dies. This construction was especially developed by our engineers during the war for use in navy installations on ship board and temporary installations on land all over the world.

ANVIL. On Hammers of sizes above the No. 3 Type "B" the anvil is of a special grade of cast iron and separate from the base. It rests independently upon the foundation on a cushion of stout oak planking or other suitable material. The upper surface is accurately planed or grooved to receive the anvil cap or bolster. The bolster groove can be positioned to receive the dies in any of the three positions shown on the opposite page.

BOLSTER. The anvil cap or bolster is a steel casting or forging accurately machined on top and bottom. It is securely keyed to the anvil and lower die.

DIES. Flat face dies, of suitable grade of high carbon steel forgings, accurately machined and heat treated are regularly furnished.

CYLINDERS. The compressor and ram cylinders are accurately machined to receive the piston and ram. In special hammers, where the housings are required to be made of cast steel, removable cylinder bushings of special alloy cast iron are inserted.

VALVES. The valve openings in the housing are accurately bored to receive the valve bushings of special alloy iron driven in place and securely doweled in position. The port openings in these bushings are accurately laid out and milled to size. The valve bodies are accurately machined and ground in place insuring an easily operating non-sticking valve of long life and accurate control.

RAM. The ram is a hollow forging of special alloy steel bored from the solid and carefully heat treated to give maximum strength and wear. It is accurately machined and ground. Flats are milled on the ram body and carefully polished. Rings may be inserted in the head of the ram to compensate for wear although these are not regularly supplied in a new ram.

RAM GUIDE. In hammers of the B and S types the ram is guided by a substantial iron casting of suitable length for the stroke of the ram accurately fit and securely bolted in the lower end of the ram cylinder. It is fitted with internal, flat faced, cast iron plates or shoes which are renewable and provide the guiding surfaces to prevent the ram from rotating. Suitable leather packing rings are also inserted in the inner surface of the ram guide. In hammers of the N and I types the lower head of the ram is guided in adjustable cast iron V guides securely bolted to the extended guide arm below the cylinder. A suitable stuffing box is provided in the lower end of the ram cylinder.

COMPRESSOR PISTON AND GUIDE. The compressor piston is of cast iron fitted with overlapping cast iron rings. It is guided in a cast iron guide securely fitted into the lower end of the compressor cylinder. The piston pin is securely fastened in position.

CRANK SHAFT. The crank shaft is a heavy one-piece steel forging accurately machined and ground. It runs in generously proportioned, bronze bushed ring oiling bearings rigidly secured to the hammer base. As the bearing at the crank end of the shaft takes the maximum strain produced in the hammer it is essential that this bearing be very rigidly mounted to maintain alignment and give satisfactory operation. The crank shaft assembly is easily mounted in the bearings through a convenient opening in the rear of the housing.

COVERS. The motor pinion and flywheel gear are suitably enclosed in a cast iron gear cover. Cast iron covers are provided for all openings and hand holes in the housing.

MOTOR AND BRACKET. The motor is mounted on a cast iron bracket securely bolted and doweled to the hammer base insuring perfect alignment.

LUBRICATION. A belt driven sight feed lubrication supplies oil to the ram and compressor cylinders and to the crank bearing. Crank shaft bearings are ring-oiling with provision for conveniently renewing the oil without disassembly. The piston pin is automatically lubricated from the oil spray in the compressor cylinder.

POSITION OF DIES

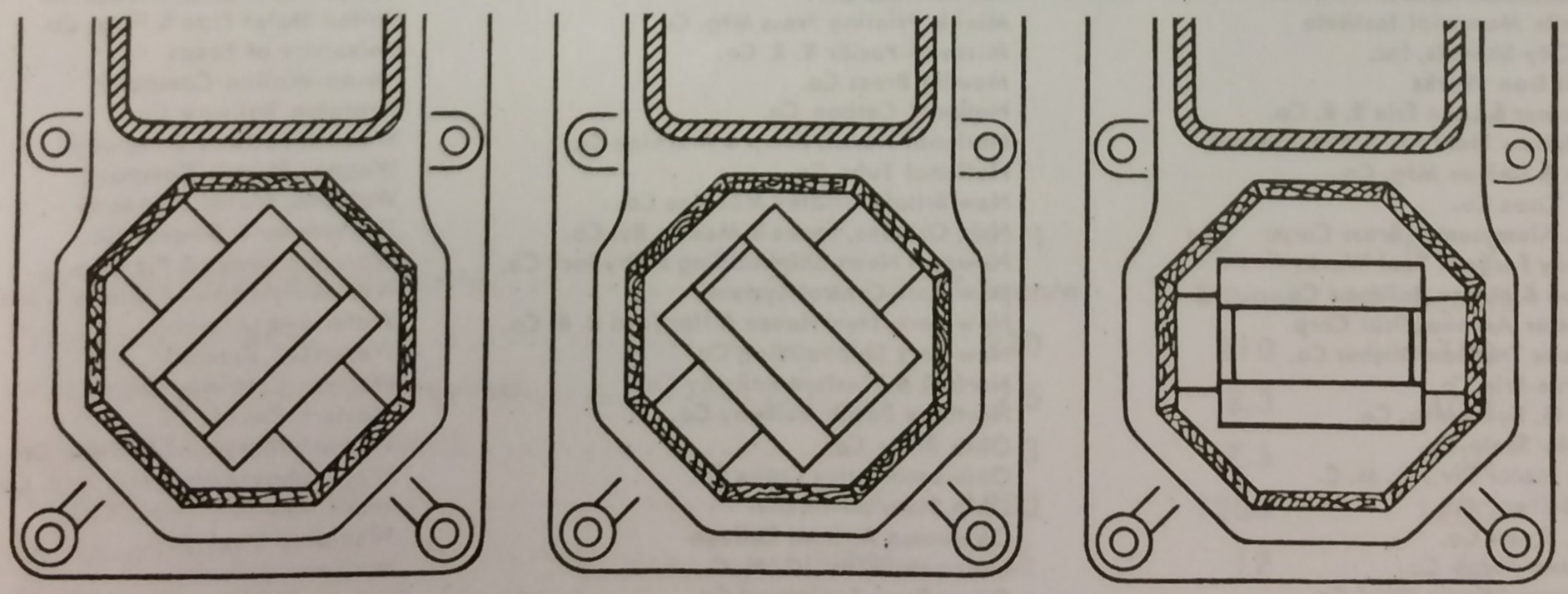


FIG. 1 FIG. 2 FIG. 3

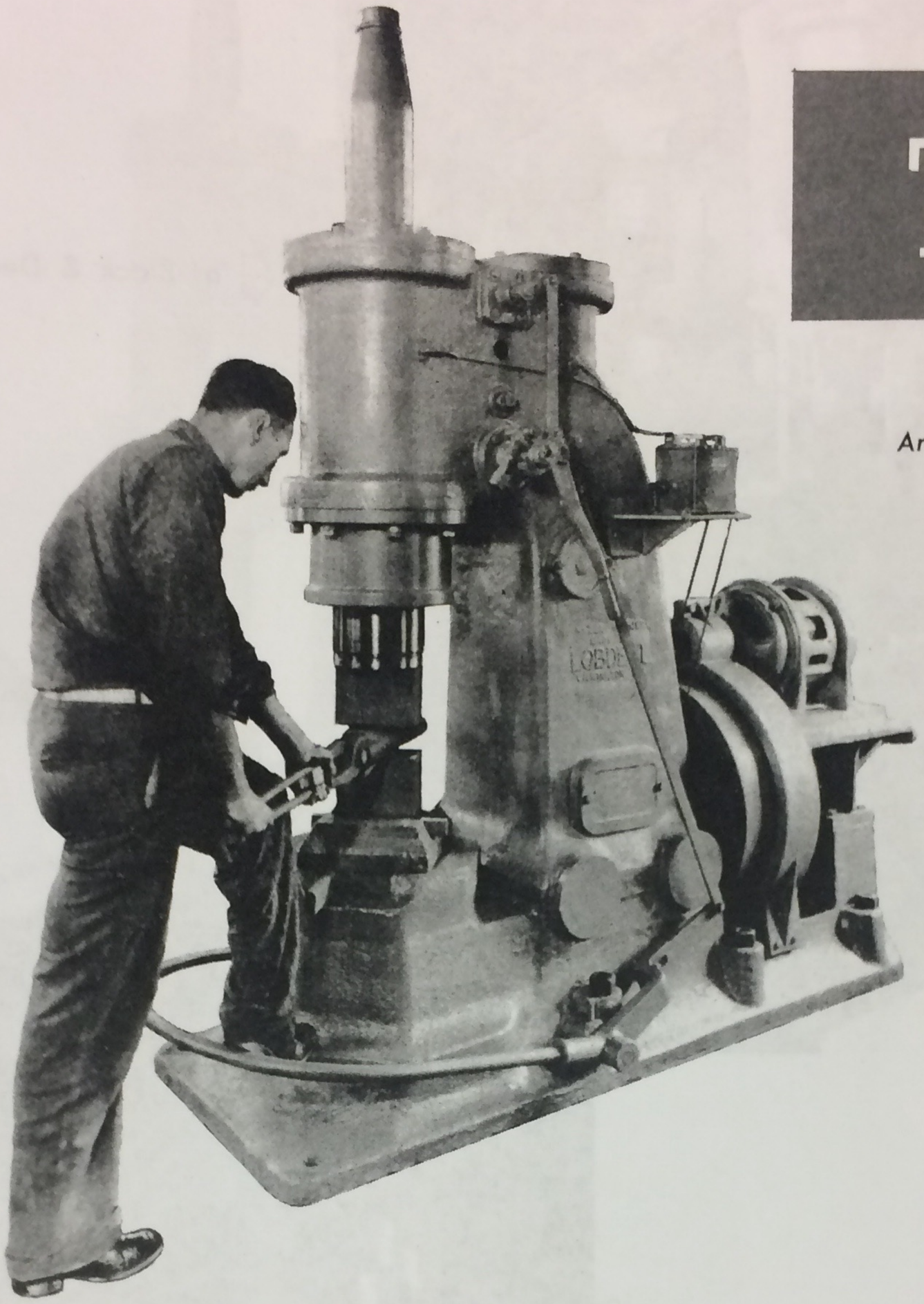
Figure 1 shows the position of dies when looking down on the anvil that is regularly furnished. If specified when ordering, the anvil will be made to accommodate dies set as in either Figures 2 or 3.

MORE THAN 1100 LEADERS in over 70 industries USE NATIONAL LOBDELL HAMMERS!

These are a few of the Famous Names . . .

Alabama Dry Dock & Shipbuilding Co.
Allegheny-Ludlum Steel Co.
Allis-Chalmers Mfg. Co.
Aluminum Co. of America
America Brass Co.
American Bridge Co.
(A.C.F.) American Car & Foundry Co.
American Engineering Co.
American Fork & Hoe Co.
American-LaFrance-Foamite Corp.
American Radiator & Standard Sanitary Corp.
(ARMCO) American Rolling Mill Co.
American Smelting & Refining Co.
American Steel Foundries
American Steel & Wire Co.
American Viscose Corp.
Ames-Baldwin-Wyoming Co.
Atlantic Refining Co.
Babcock & Wilcox Co.
Bagley & Sewell Co.
Baldwin Locomotive Works
Battelle Memorial Institute
Bay City Shovels, Inc.
Beloit Iron Works
Bessemer & Lake Erie R. R. Co.
Bethlehem Steel Co. & Subsidiaries
Black & Decker Mfg. Co.
Blaw Knox Co.
Bohn Aluminum & Brass Corp.
Bonney Forge & Tool Works
Boston & Maine Railroad Co.
Brewster Aeronautical Corp.
Buckeye Traction Ditcher Co.
Bucyrus-Erie Co.
Edw. G. Budd Mfg. Co.
Buffalo Scale Co.
Buick Motor Div., G. M. C.
The Bullard Co.
A. M. Byers Co.
Camden Forge Co.
Carnegie-Illinois Steel Co.
Carnegie Institute of Technology
Caterpillar Tractor Co.
Central Tube Co.
Chesapeake & Ohio Ry. Co.
Chevrolet Motor Div., G. M. C.
Chicago Pneumatic Tool Co.
Chrysler Corporation
Clark Equipment Co.
Cleveland Crane & Engineering Co.
Cleveland Twist Drill Co.
Columbia Steel & Shafting Co.
Combustion Engineering Co.
Continental Roll & Steel Fdry. Co.
Corning Glass Works
Crucible Steel Co. of America
DeLaval Steam Turbine Co.
The Deming Company
Detroit Edison Co.
Diamond Alkali Co.
Henry Disston & Sons, Inc.
Dodge Bros. Div., Chrysler Corp.
Dravo Corporation
E. I. duPont de Nemours & Co.
Eastman Kodak Co.
Edgewood Arsenal
Electric Boat Company
Electro-Metallurgical Co.
Firestone Tire & Rubber Co.
Firth-Sterling Steel Co.
Fisher Body Div., G. M. C.
Ford Motor Co.
Frankford Arsenal
General Electric Co.
General Motors Corporation
General Steel Casting Corp.
Giddings & Lewis Machine Tool Co.
Grand Trunk Railway System
Haughton Elevator Co.
Hazel-Atlas Glass Co.
Heppenstall Company
R. Hoe & Sons, Inc.
Hudson Motor Car Co.
Independent Pneumatic Tool Co.
Indiana Limestone Co.
Ingersoll Milling Machine Co.
International-Great Northern R. R. Co.
International Nickel Co.
Jones & Laughlin Steel Co.
Kelsey-Hayes Wheel Co.
Walter Kidde & Co.
Laclede Steel Co.
LaSalle Steel Co.
Lidgerwood Manufacturing Co.
Lima Locomotive Co.
Lincoln Motor Co.
Lukens Steel Co.
Mackintosh-Hemphill Co.
Massachusetts Institute of Technology
Matson Navigation Co.
Michigan Central R. R. Co.
The Midvale Co.
Miehle Printing Press Mfg. Co.
Missouri-Pacific R. R. Co.
Mueller Brass Co.
National Carbon Co.
National Transit Pump & Machine Co.
National Tube Co.
New Britain Gridley Machine Co.
New Orleans, Texas & Mexico Ry. Co.
Newport News Shipbuilding & Drydock Co.
New York Central System
New York, New Haven & Hartford R. R. Co.
New York Shipbuilding Co.
Norfolk & Western Railway Co.
Northern Pacific Railway Co.
Ohio Brass Co.
Ohio Locomotive Crane Co.
Ohio State University
Oklahoma A. & M. College
Oldsmobile Div., G. M. C.
Oliver Farm Equipment Co.
Oliver Iron Mining Co.
Pacific Fruit Express Co.
Parkersburg Rig & Reel Co.
Pennsylvania Forge Co.
Pennsylvania State College
Pere Marquette Railway Co.
Phoenix Iron Co.
Pittsburgh Plate Glass Co.
Pittsburgh Steel Co.
Potter & Johnston Machine Co.
Pullman-Standard Car Manufacturing Co.
Pure Oil Company
Pusey & Jones Corporation
Ramapo-Ajax Div., American Brake Shoe Co.
Reading Company
Reo Motors, Inc.
Republic Steel Corporation
Revere Copper & Brass, Inc.
Reynolds Metals Co., Inc.
Rock Island Arsenal
John A. Roebling's Sons Co.
Rustless Iron & Steel Corp.
St. Louis Car Co.
Shepard-Niles Crane & Hoist Corp.
Sinclair Refining Co.
Singer Manufacturing Co.
Standard Oil Co.
The Stanley Works
Sullivan Machinery Co.
Sun Shipbuilding & Drydock Co.
Taylor-Wharton Iron & Steel Co.
Tennessee Coal, Iron & R. R. Co.
The Texas Co.
Textile Machine Works
Thew Shovel Company
Thompson Products, Inc.
Timken-Detroit Axle Co.
Timken Roller Bearing Co.
The Torrington Co.
Traylor Engineering & Mfg. Co.
Treadwell Construction Co.
Union Fork & Hoe Co.
Union Pacific System
United Engineering & Foundry Co.
United Fruit Company
United States Government
- Bureau of Public Roads
- Dept. of Commerce, Lighthouse Service
- Marine Barracks
- Naval Air Stations, Research Lab. & Training Stations
- Overseas Navy Air Bases
- Repair Ships
- Shore Establishments, Naval Bases
- Submarine Bases
- U.S. Navy Yards: Boston, Brooklyn, Cavite, Charleston, Mare Island, Norfolk, Philadelphia
- U.S. War Dept.: Air Bases and Supply Depots

United States Coal & Coke Co.
United States Pipe & Fdry. Co.
University of Texas
Upson-Walton Company
Virginian Railway Co.
Wabash Railway Company
Wagner Electric Company
Waltham Watch Company
The Warner & Swasey Co.
Warren Foundry & Pipe Co.
Waterbury-Farrell Foundry & Mach. Co.
Watertown Arsenal
Watervleit Arsenal
Western Cartridge Co.
Western Electric Co.
Western Maryland Railway Co.
Westinghouse Electric & Mfg. Co.
Weyerhaeuser Timber Co.
Wheeling Steel Co.
Whitman & Barnes
Wilcox-Rich Div., Eaton Mfg. Co.
Alan Wood Steel Co.
Wright Aeronautical Corp.
Wyckoff Drawn Steel Co.
Youngstown Sheet & Tube Co.

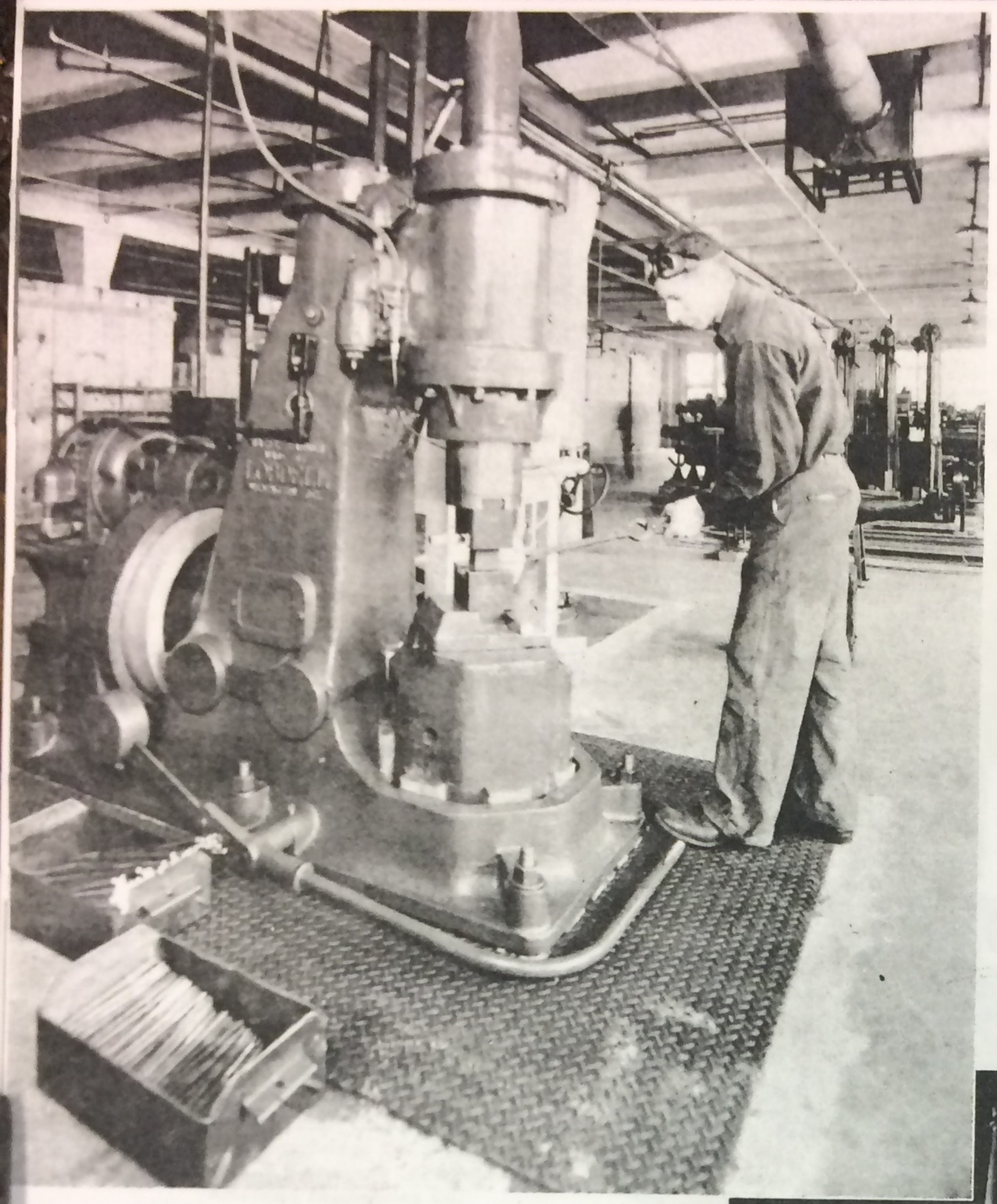


TYPE B

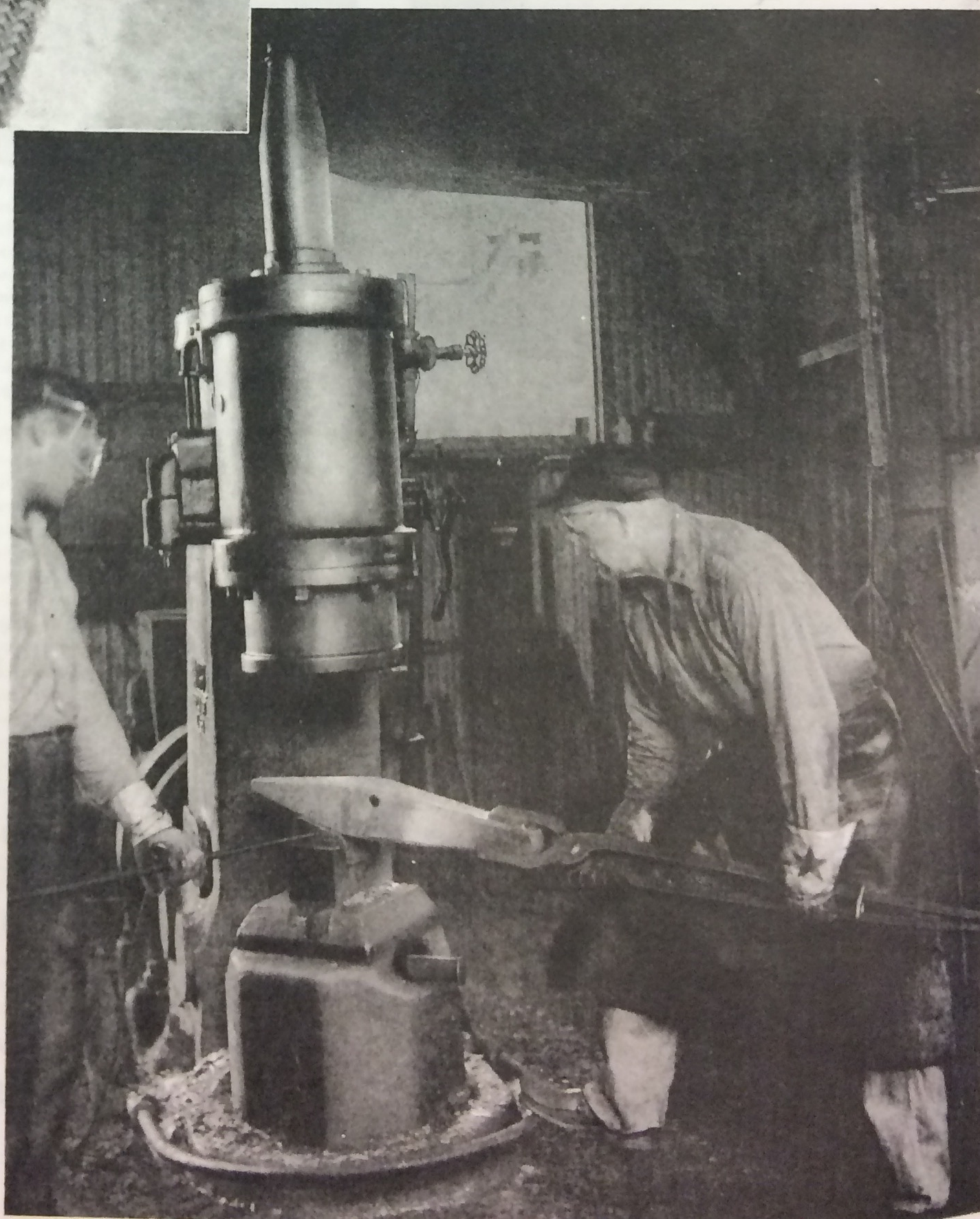
LIGHT DUTY

Anvil and Base in One Piece and of Cast Steel

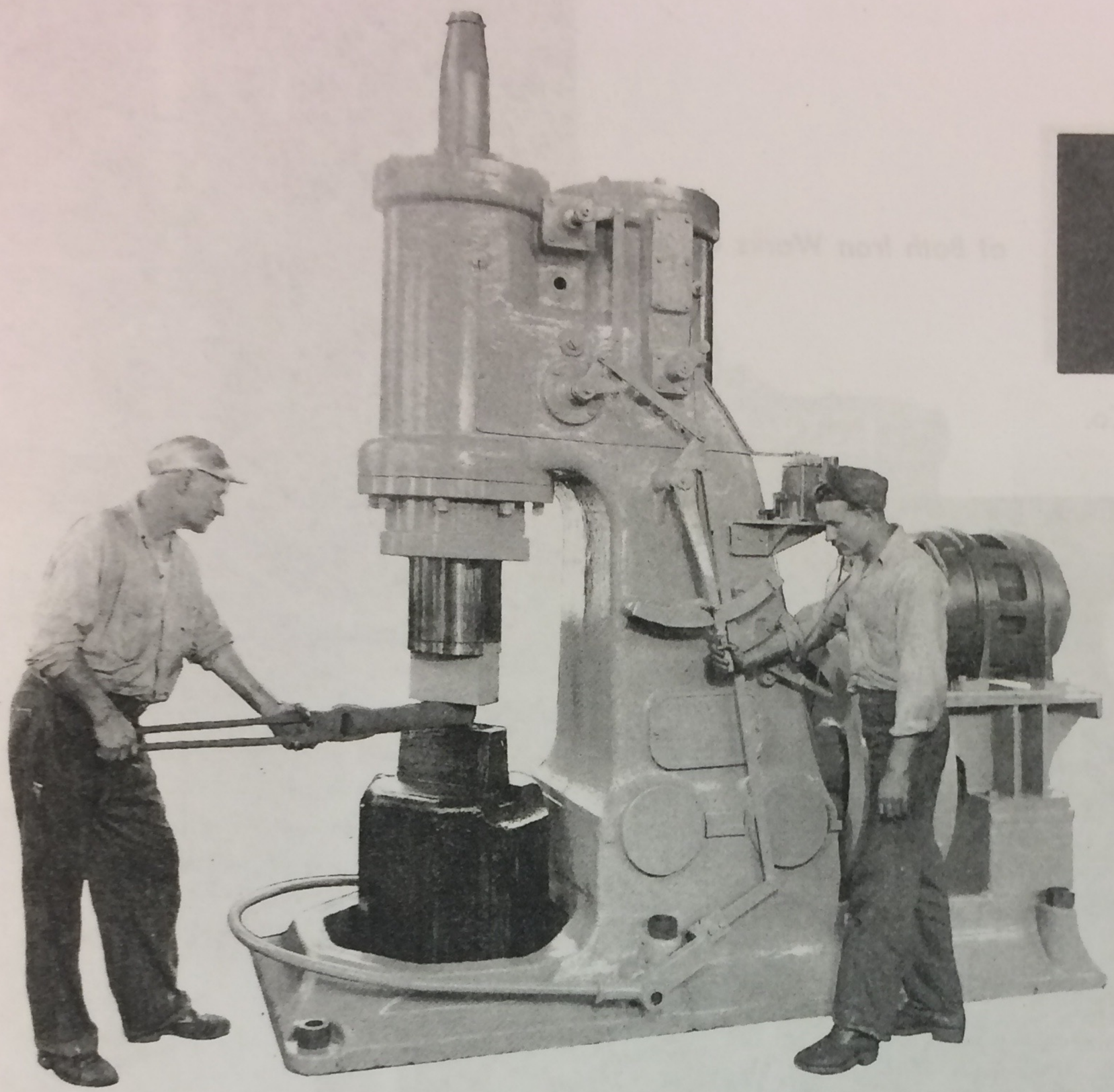
		No. 1	No. 2	No. 3
Mild Steel Worked Efficiently		2″ Square	3″ Square	4″ Square
Blows per Minute		220	210	180
Maximum Horsepower Required		2.5	8.3	10.3
Requisite Motor (Horsepower)		3	7.5	10
Desirable Motor Speed	R.P.M.	1200	1200	1200
Stroke of Ram	inches	11 ½	12	16
Distance from Center of Ram to Housing	inches	10 ½	12 ½	13 ½
Distance Between Dies, Clear Working Space	inches	9	11	15
Ram Die Surface, Regular	inches	2x5	2 ¾ x6 ¾	3 ½ x7 ⅞
Floor Space Required	inches	67x28	75x42	87x33
Total Weight, Approximately	pounds	5000	7200	10750



at Black & Decker



at Gill Rock Drill Co.



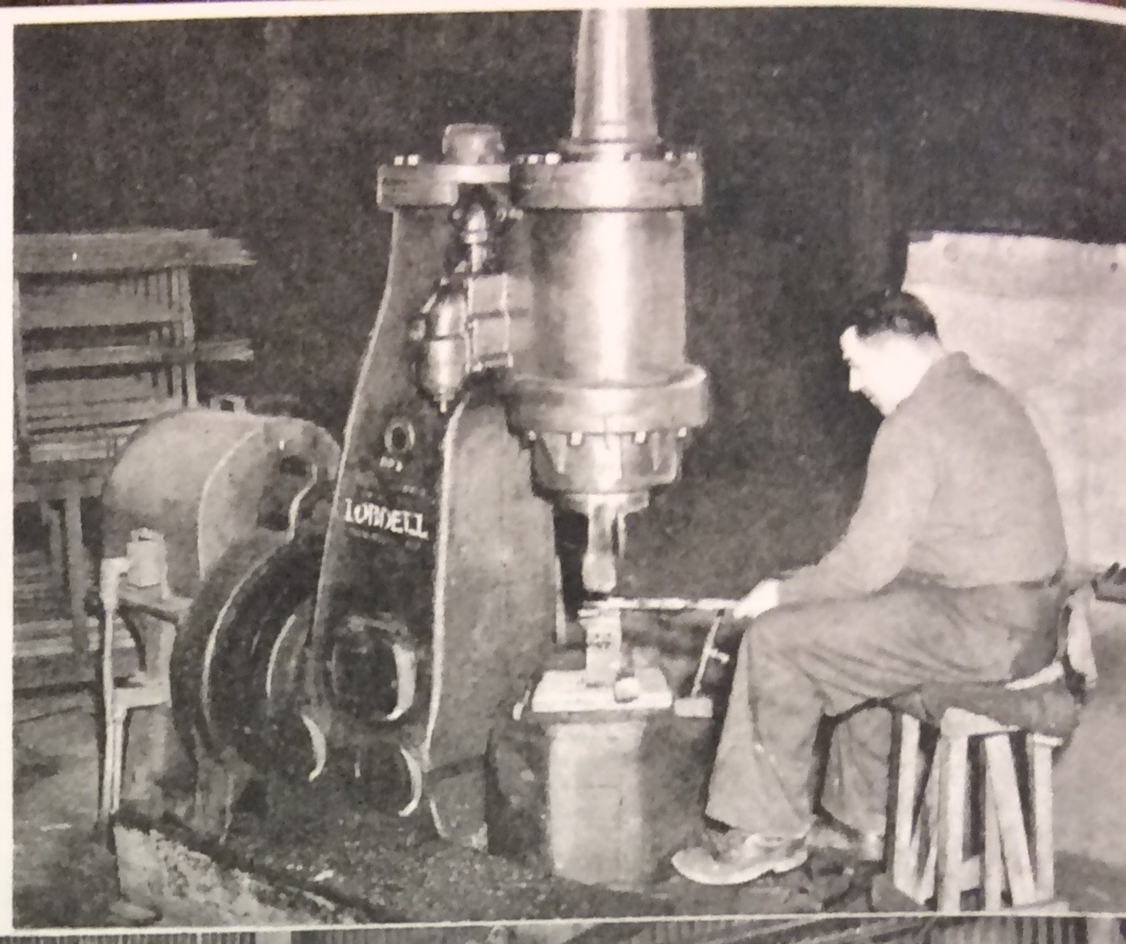
TYPE B

HEAVY DUTY

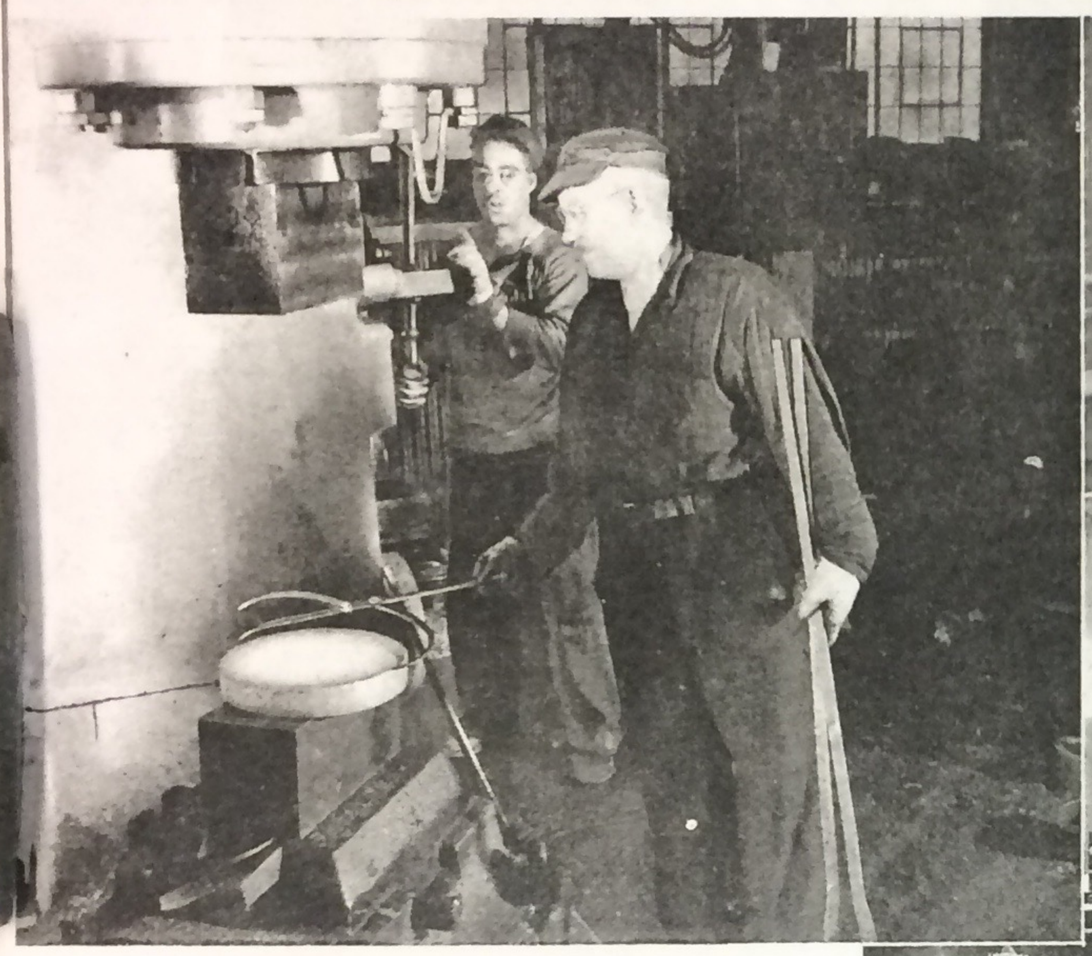
Anvil and Base Separate and of Cast Iron

		No. 4	No. 5	No. 6	No. 7
Mild Steel Worked Efficiently		5½″ Square	6½″ Square	8″ Square	11″ Square
Blows per Minute		150	130	120	100
Maximum Horsepower Required		15	23.5	34.4	60
Requisite Motor (Horsepower)		15	25	40	60
Desirable Motor Speed	R.P.M.	900	900	900	600
Stroke of Ram	inches	20	23½	27¾	32
Distance from Center of Ram to Housing	inches	14¾	16¾	20¼	30
Distance Between Dies, Clear Working Space	inches	18½	20¼	25	26
Ram Die Surface, Regular	inches	3½x9	5x10	5x12	6x13½
Floor Space Required	inches	94x37	110x43	118x47	168x68
Weight of Hammer Without Anvil	pounds	11000	14700	24000	37200
Weight of Anvil With Die Holder and Die	pounds	7000	10200	14300	21100
Total Weight, Approximately	pounds	18000	24900	38300	58300

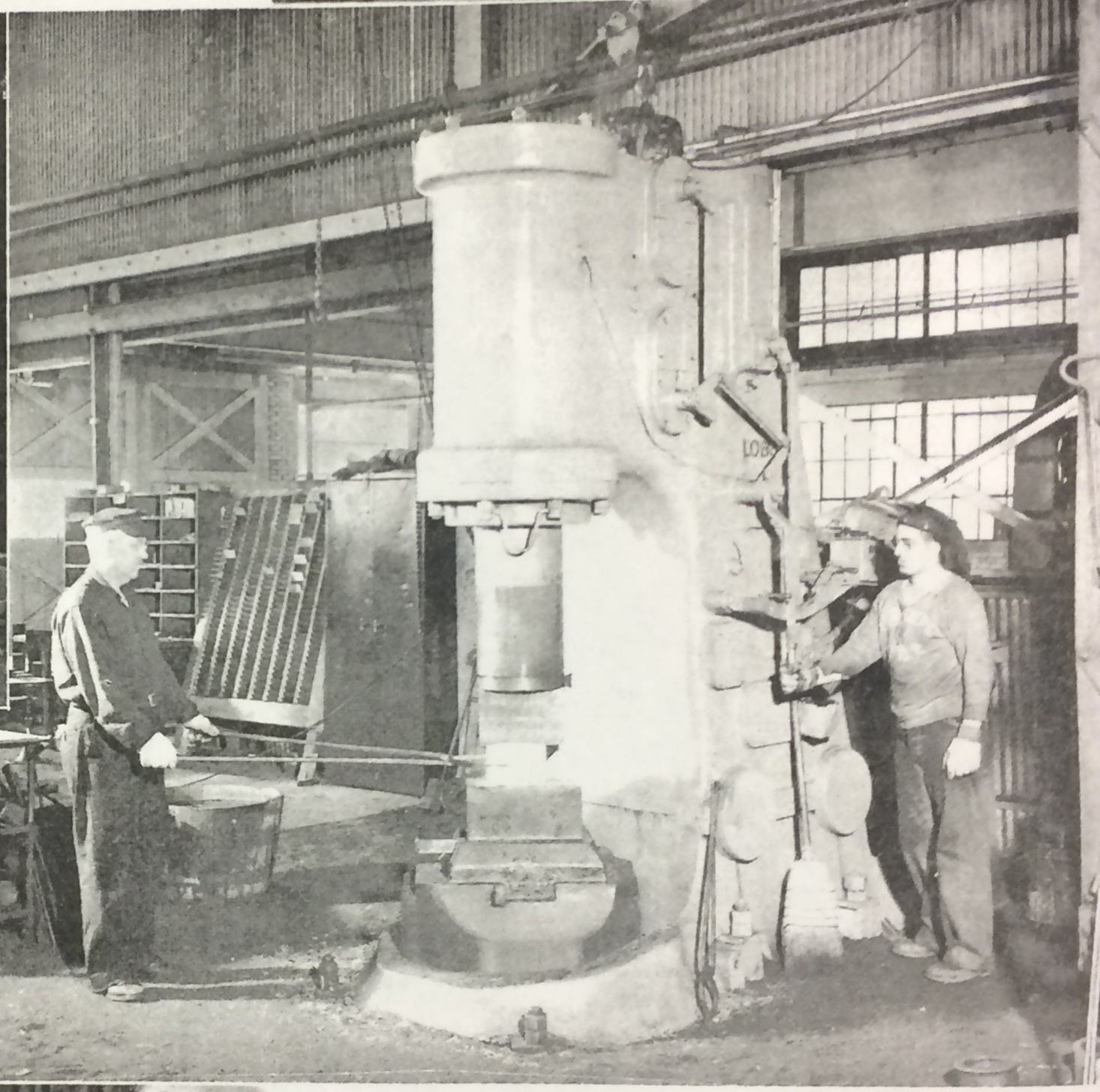
at Bath Iron Works Corp.

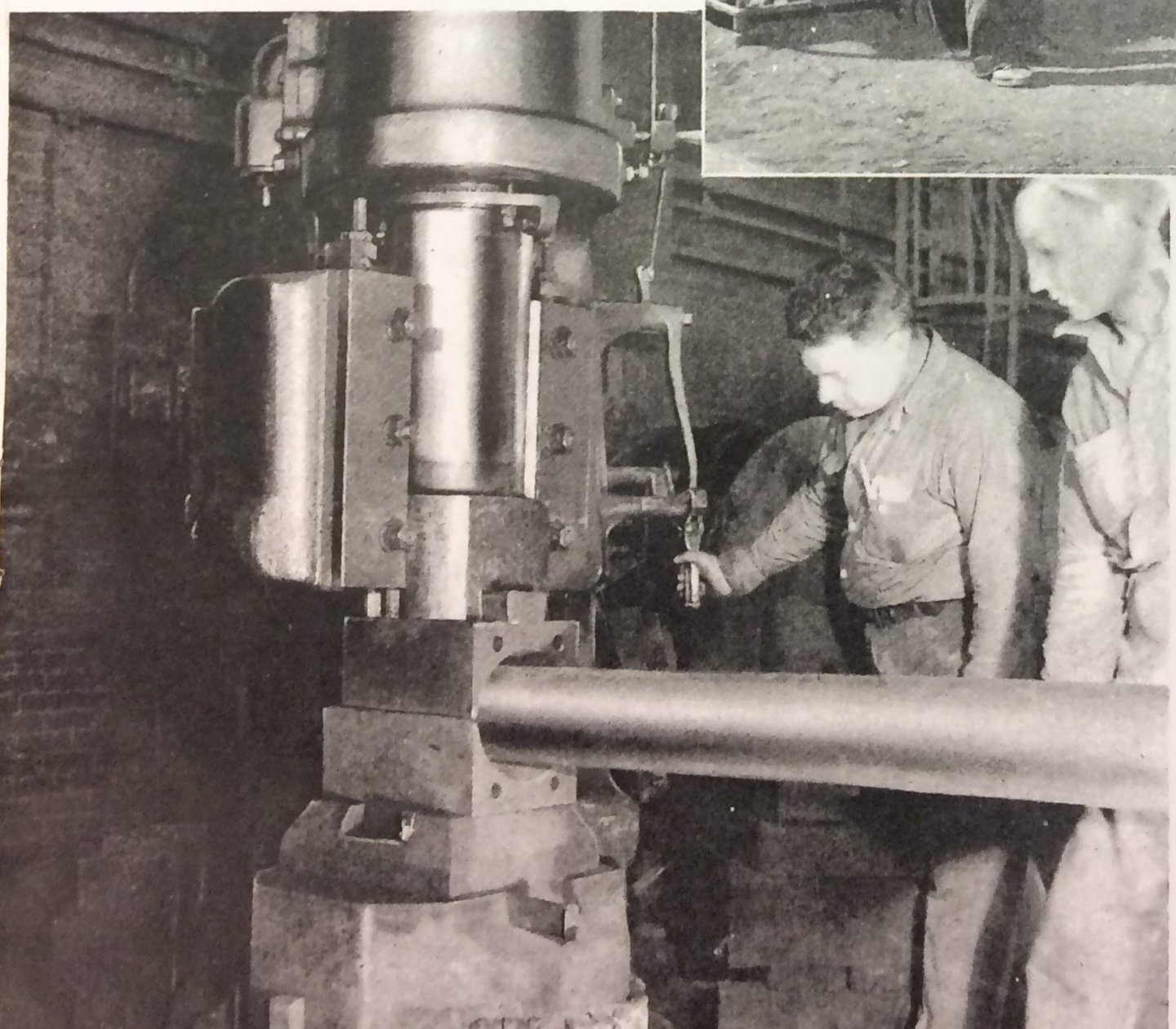


at New Britain Machine Co.



New Britain-Gridley Machine Div.



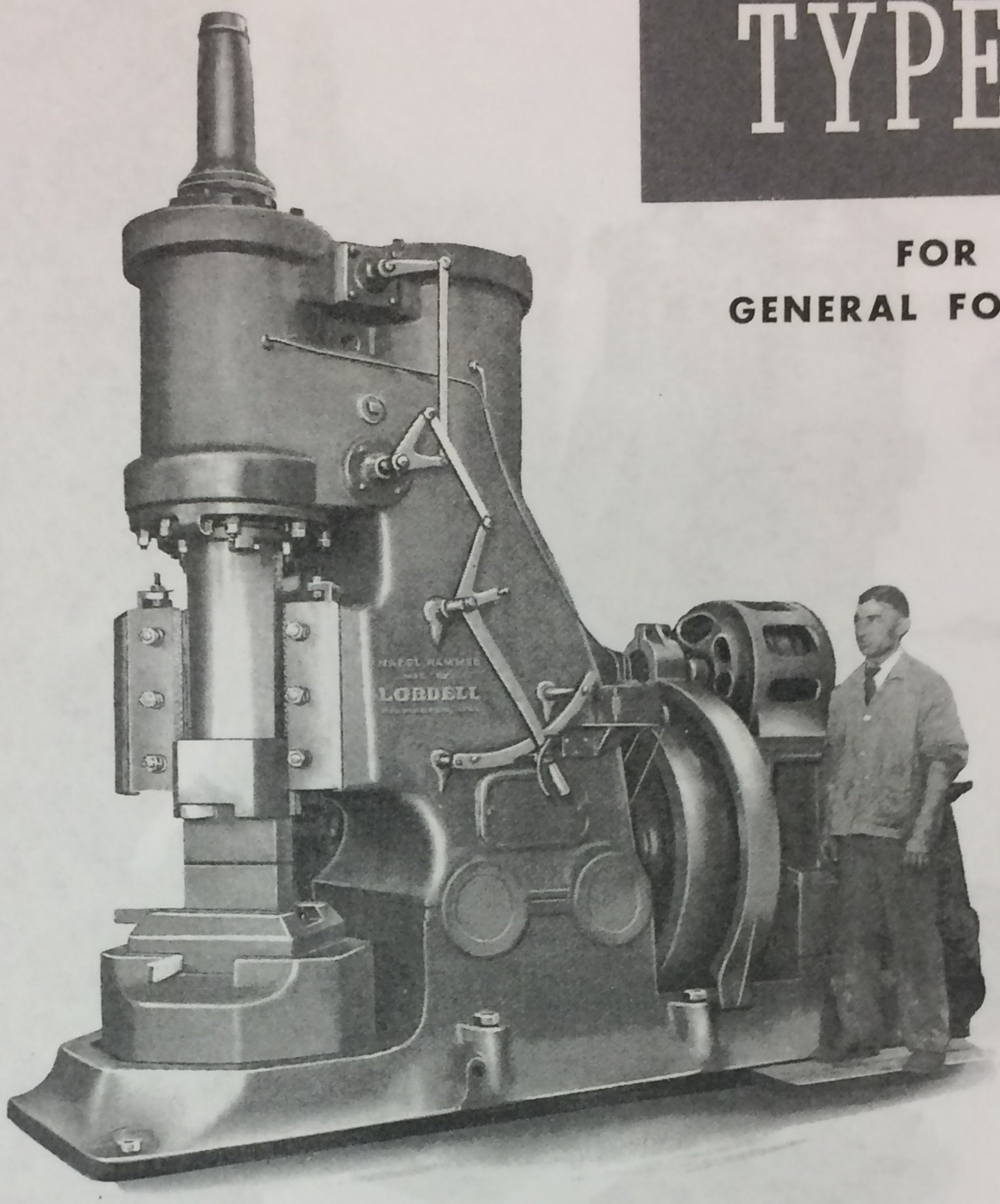


Panoramic view (above) was taken prior to the upsetting of the piece shown on the anvil, while the close-up (upper left) shows the finished gear blank.

at a Seamless Tube Mill

TYPE N

FOR GENERAL FORGING

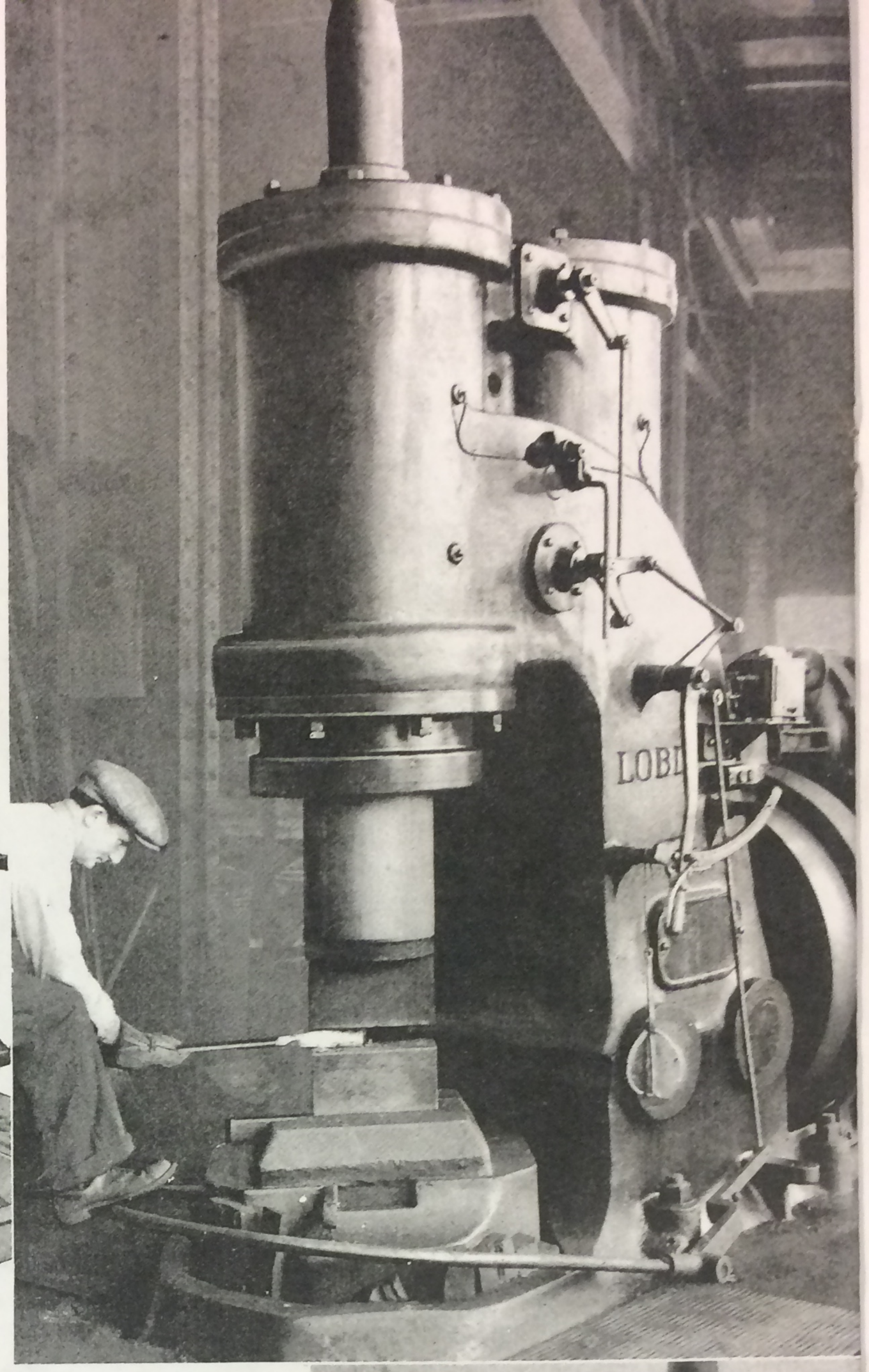


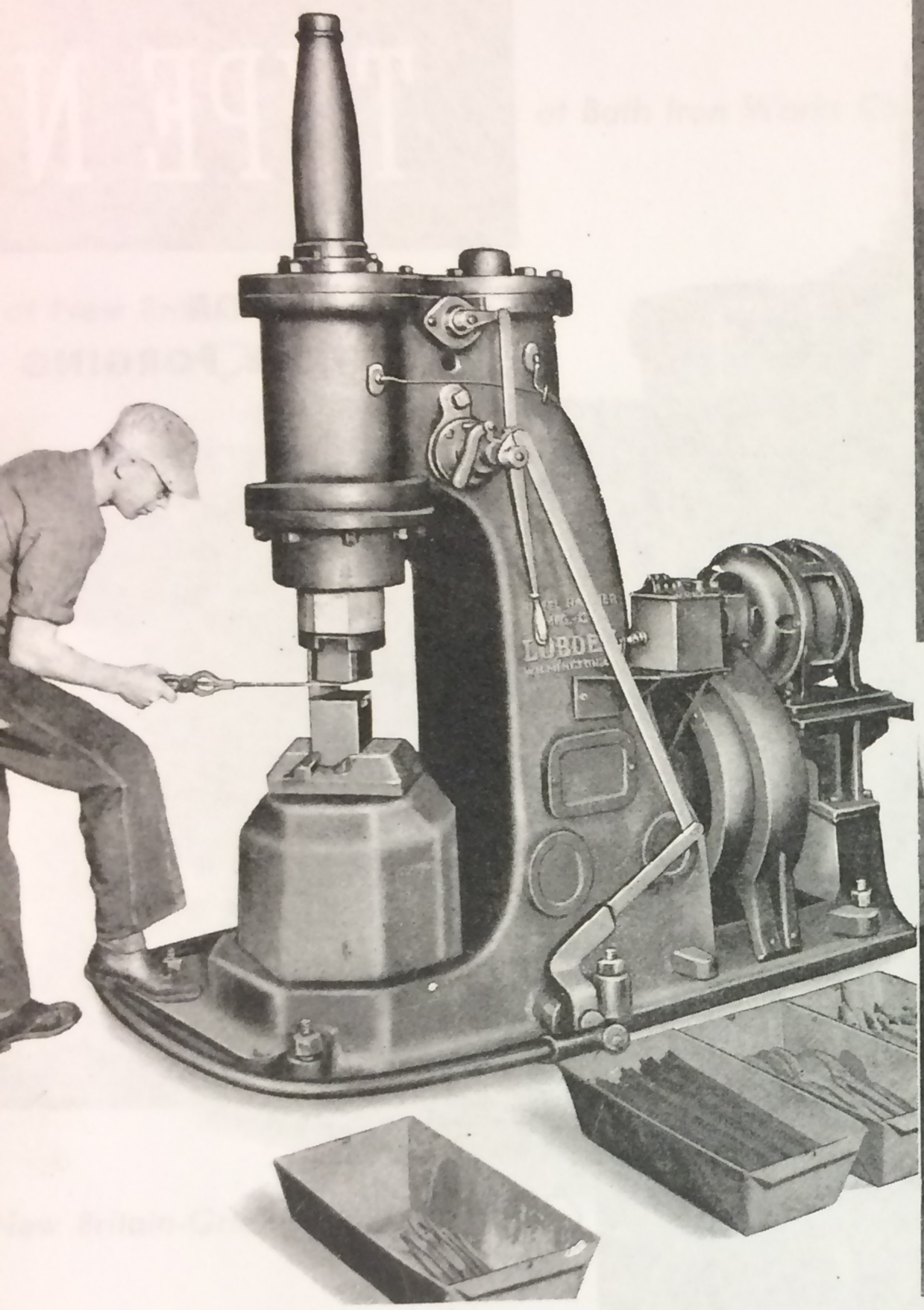
This hammer was designed to meet the demand for a hammer of large capacities with greater die area than is permissible with Type B Hammers of same rating, at the same time adapted for direct motor drive.

Its working principle is identical to that of the Type B Hammer and differs only in the design and construction of the ram and guides, and while it permits the use of larger dies, it does not have as high a working space as the Type B of same rating.

		No. 4	No. 5	No. 6
Mild Steel Worked Efficiently	inches	5x5	6x6	7x7
Blows per Minute		150	130	120
Clear Space Between Guides	inches	9	11	13
Requisite Motor (Horsepower)		15	25	40
Desirable Motor Speed	R.P.M.	900	900	900
Stroke of Ram	inches	18	21	23½
Distance from Center of Ram to Housing	inches	14	16	20½
Ram Die Surface, Regular	inches	5x9	5x10	5x12
Floor Space Required	inches	34x92	42x103	44x120
Total Weight, Approximately	pounds	17000	23100	37500

at 207 St. Shop, Bd. of Trans., City of N. Y.



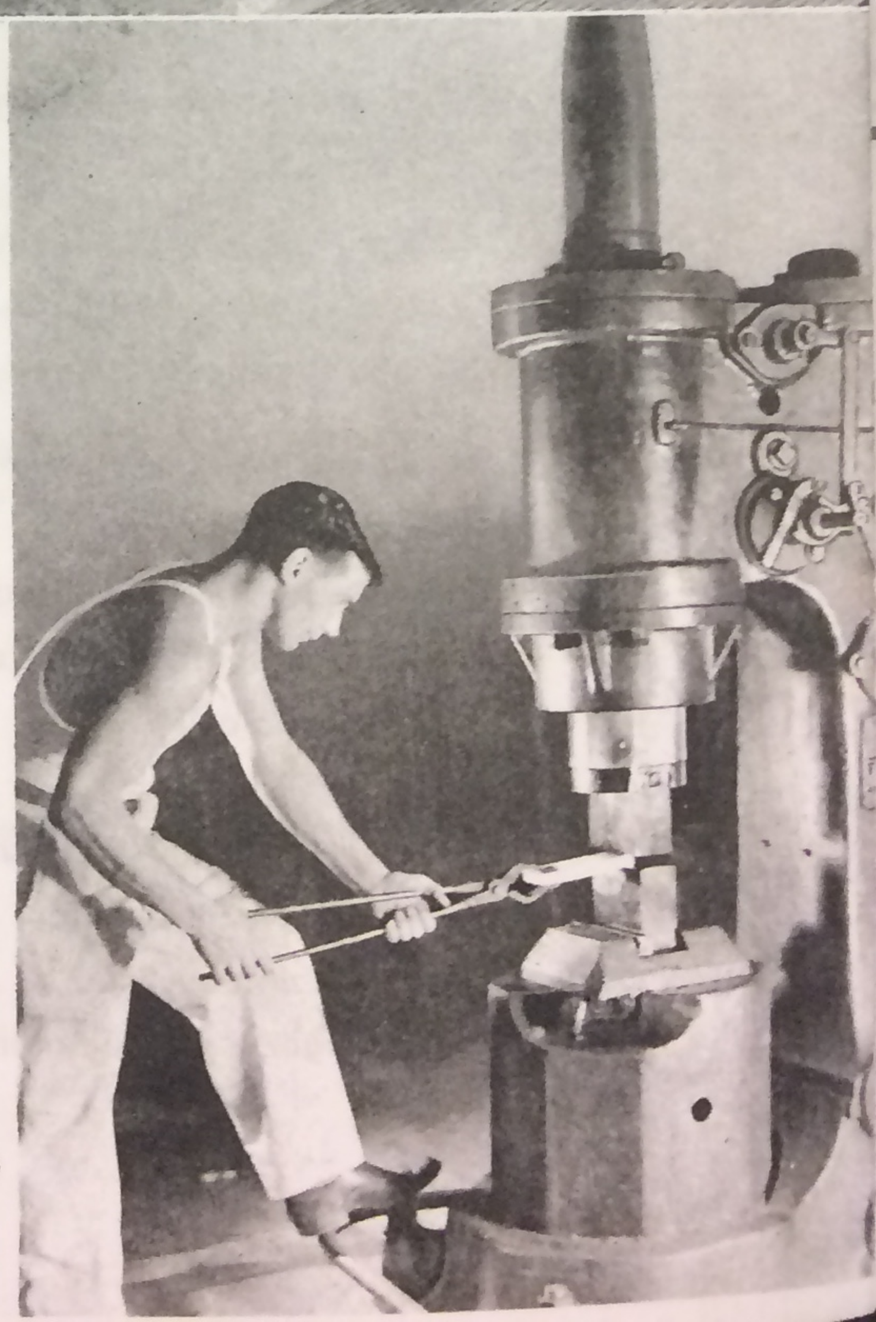


at Baltimore Tool Works

The No. 2 Type B Hammers, at right and above, were selected because of their powerful, clinging, non-bounding blow.

These hammers will work 3″ square soft steel and the variety of their uses is almost unlimited. The hammer above is in constant operation on the forging of high quality chisels and star drills. The one at the right is used in shaping billets of fine metals for further processing.

at J. Bishop & Co. Platinum Works

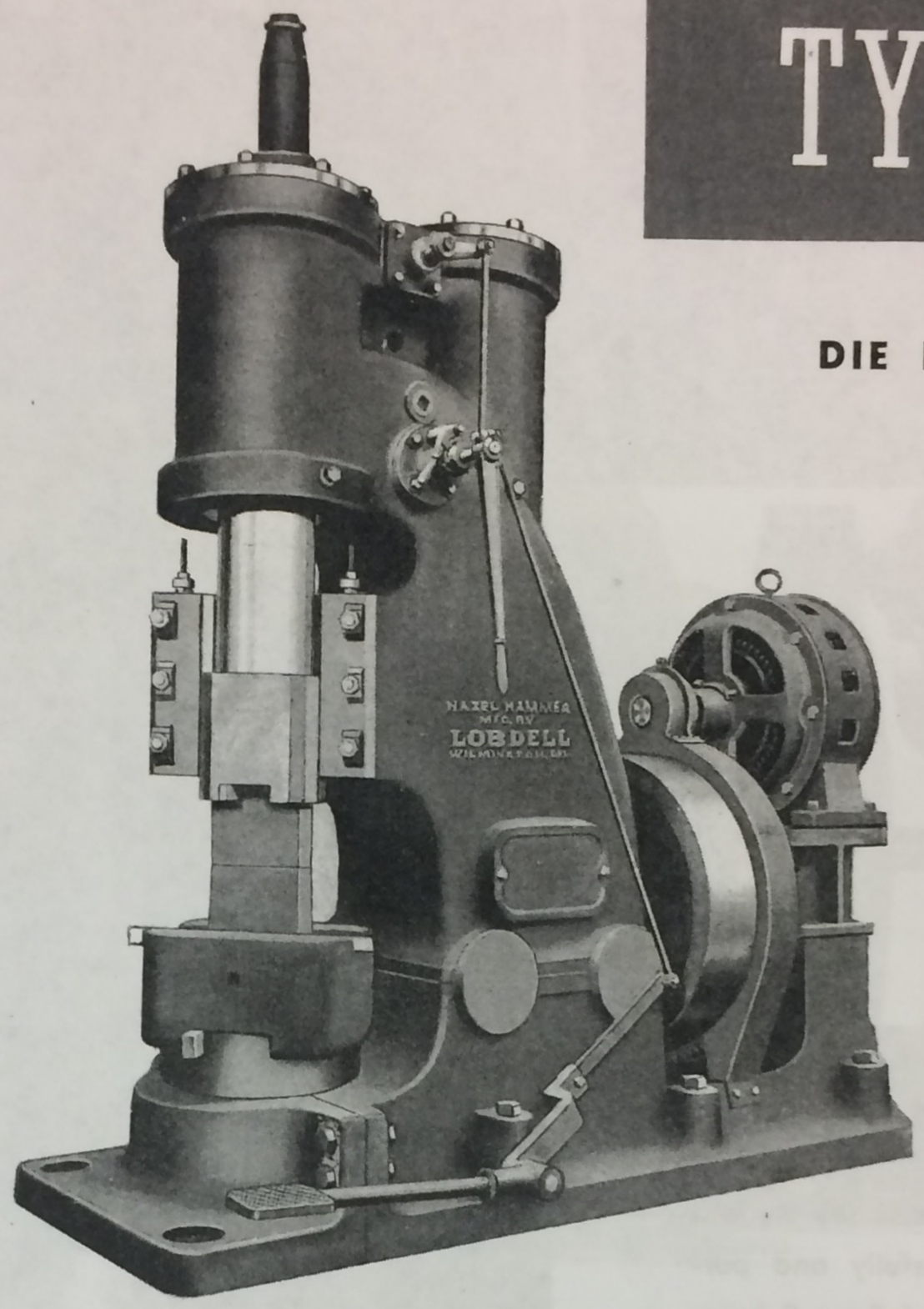


TYPE I

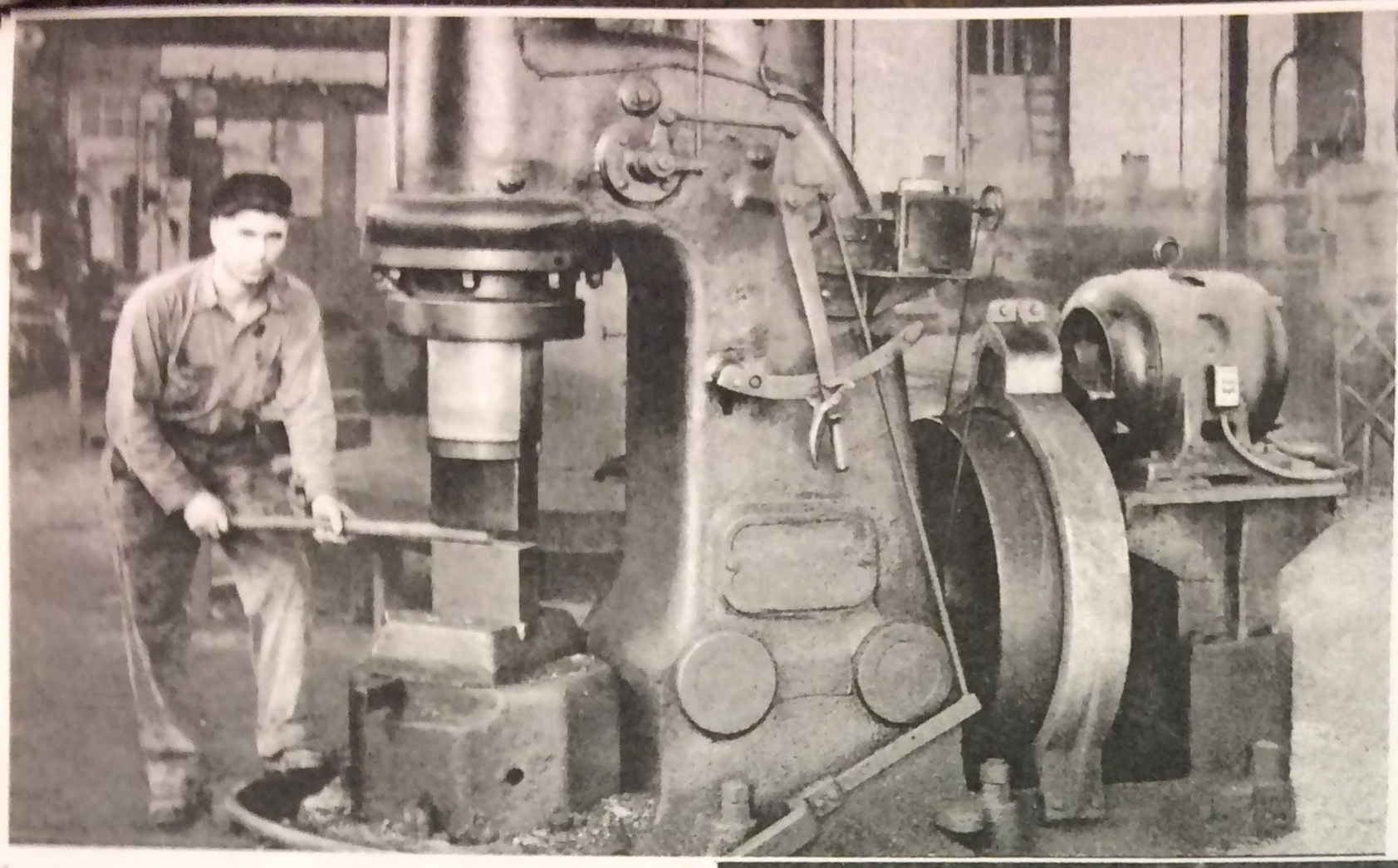
FOR DIE FORGING

This illustration shows the construction of the hammer as designed for die or impression work. To insure absolute alignment of dies, in addition to the adjustable ram guides and lower die-holder, the anvil is turned and fitted to opening in base, which is also machined; and so anvil can be removed at any time without disturbing hammer, the base is made in two parts, the front part or cap being joined and bolted to base proper, but easily removed. Provision is also made for lubricating anvil to prevent cutting. The advantages of hammer are: power, accuracy, speed, control, safety, small floor space and head room, adaptability for direct motor drive.

This design is built in three sizes only, viz., 500 lb., 700 lb. and 1250 lb. ram weights, and are suitable for a large variety of work requiring board and steam drop hammers of higher rating. When making inquiries, specimens or drawings of forgings to be made should be sent us.



		No. 4	No. 5	No. 6
Blows per Minute		150	130	120
Clear Space Between Guides	inches	9	11	13
Requisite Motor (Horsepower)		15	25	40
Desirable Motor Speed	R.P.M.	900	900	900
Stroke of Ram	inches	18	21	23 ½
Distance from Center of Ram to Housing	inches	14	16	20 ½
Ram Die Surface, Limit	inches	9x11 ½	11x12	13x13 ½
Floor Space Required	inches	34x92	42x102	44x120
Total Weight, Approximately	pounds	17000	23000	36000



⇦ *at Buckeye Traction Ditcher Co.*

When a prominent research laboratory needed a hammer to investigate the forging properties of alloy steels they studied the market carefully and purchased the No. 6 Type B hammer, illustrated at right. Their selection was influenced by the accurate control from the lightest tap to the heaviest squeezing blow and the economical power consumption of the Lobdell-Nazel Hammer.

⇨

What Lobdell-Nazel Hammers are doing for others they will do for you — giving highest possible efficiency with the lowest operating cost and upkeep.

TYPE S THE BIG HAMMER

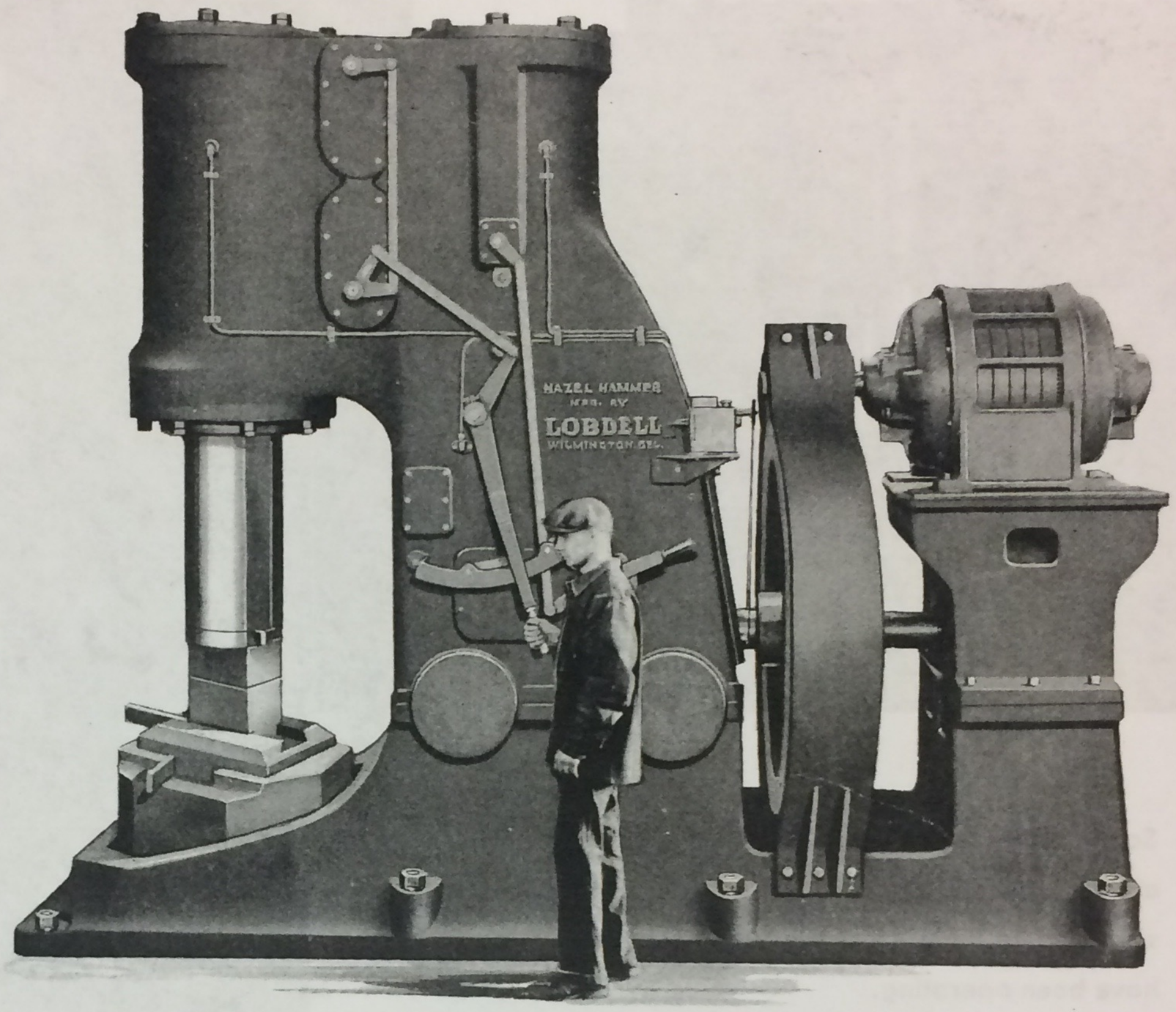
Single and Set Blows from any Point in the Stroke

. . . in addition to its well known variable automatic blows by the simple movement of control lever has been incorporated in this new design.

Increased Clear Working Space Above and Around the Anvil Block

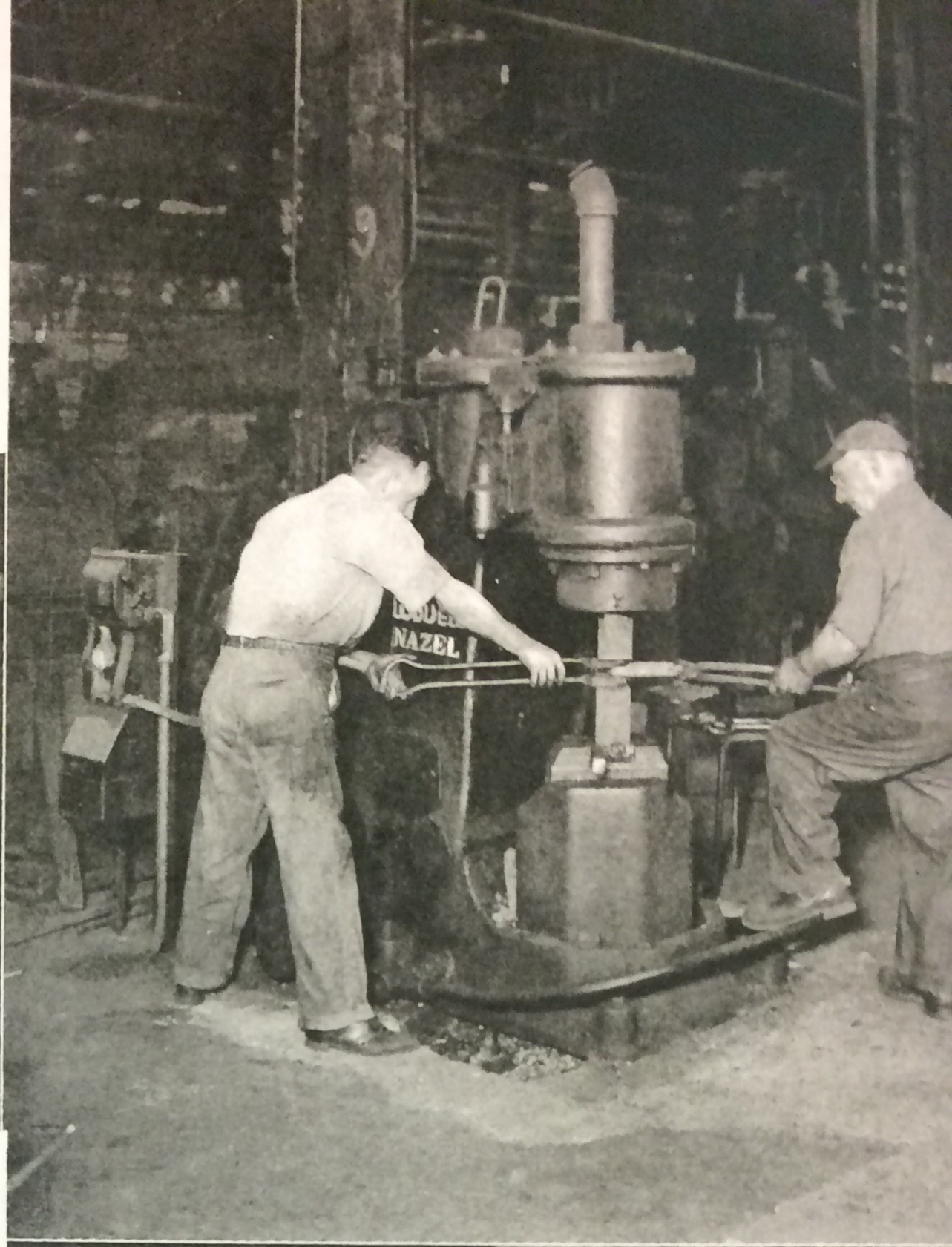
. . . is another feature of the Type S. The space between dies is equal to the full stroke of the ram — as the die does not disappear into the ram guide.

These features have been achieved without sacrificing any of the attributes of earlier types and were developed to meet the increased demand for larger motor driven hammers for all kinds of general forging.



		No. 10	No. 11	No. 12	No. 13	No. 14
Mild Steel Worked Efficiently	inches	4½x4½	5½x5½	6½x6½	10x10	13x13
Blows per Minute		180	150	130	120	100
Clear Working Space	inches	16½	20	23½	27½	32¼
Requisite Motor (Horsepower)		10	15	25	40	75
Desirable Motor Speed	R.P.M.	1200	1200	900	900	600
Stroke of Ram	inches	16½	20	23½	27½	32¼
From Center of Ram to Housing	inches	14	16½	19¼	23	29½
Ram Die Surface, Standard	inches	3½x8	4x9	5x10	5x12	7x14
Floor Space Required	inches	93x36	102x38	120x45	136x48	176x70
Weight of Hammer Less Anvil	pounds	8500	12500	18500	26000	45000
Weight of Anvil, Bolster and Die	pounds	3200	5700	8600	14300	28000
Total Weight, Approximately	pounds	11700	18200	27100	40300	73000

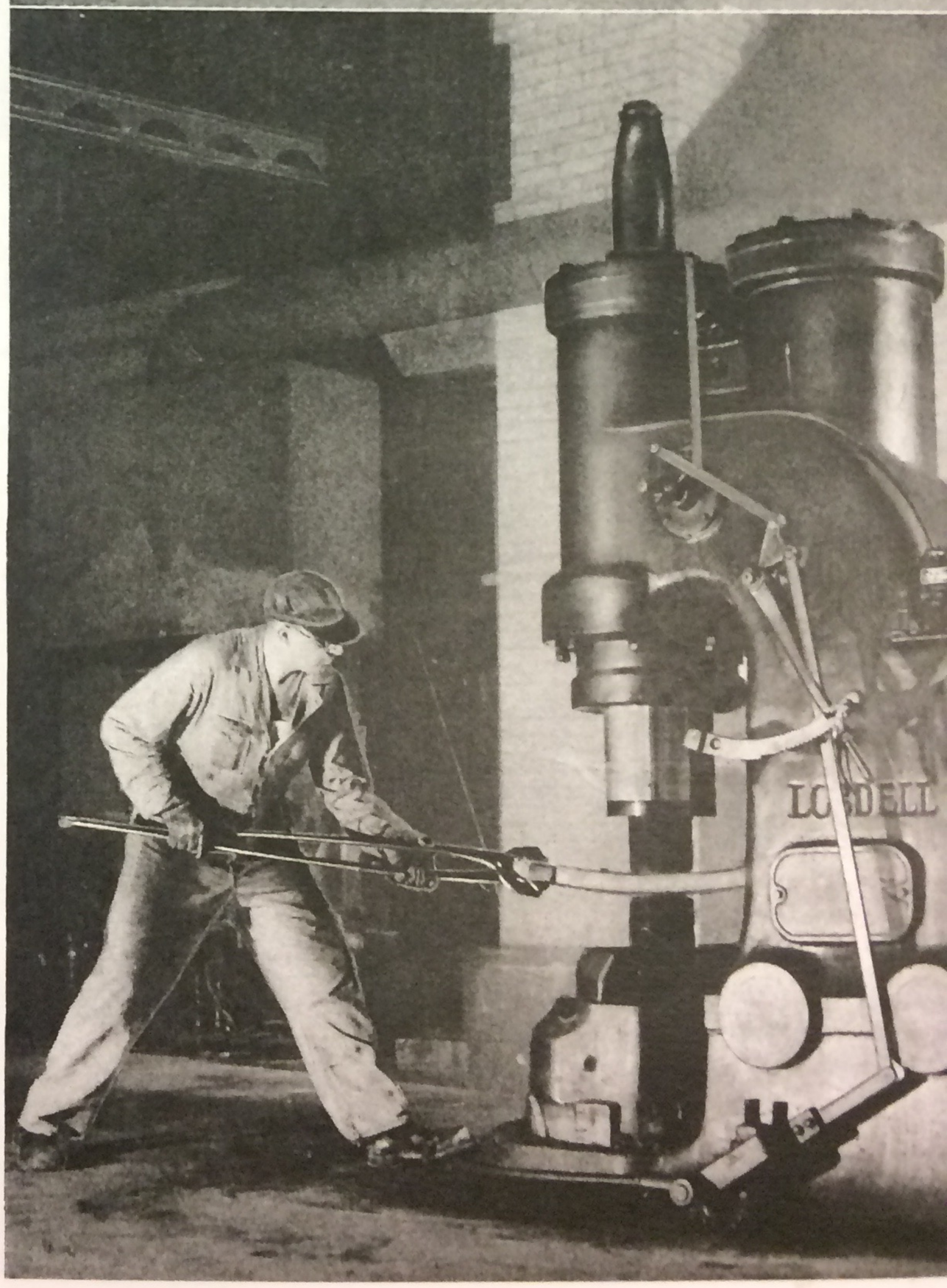
at Baldwin Locomotive Works



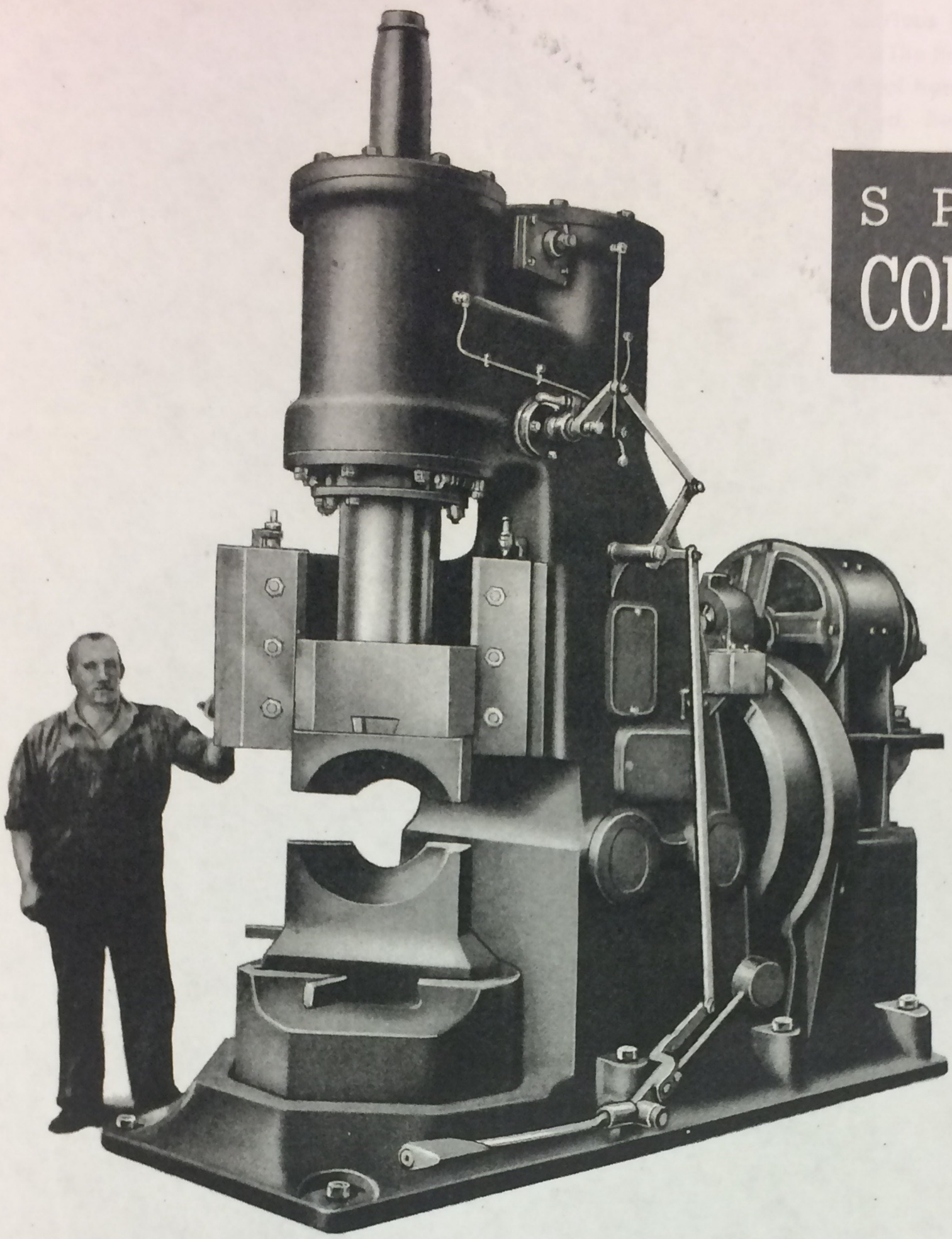
Some smiths prefer the type of hammer above over our Type "B" due to its similarity to that of steam hammers they have been operating.

That is one of the reasons why a Philadelphia forge shop selected a No. 5, Type "N" Hammer; the others were because of its powerful, squeezing blow and general all-around utility.

When photograph was taken, they were just starting to break down 4" square Chrome Nickel Steel — a tough job for a 750 lb. hammer. No. 5, Type B. But with Nazel's "different" blow there is no comparison between them and other types of the same rating. They'll do such work with great efficiency. Proof? They do it so well that several are installed in this plant.



at Battelle Memorial Institute



SPECIAL CONSTRUCTION

No. 6

TYPE N

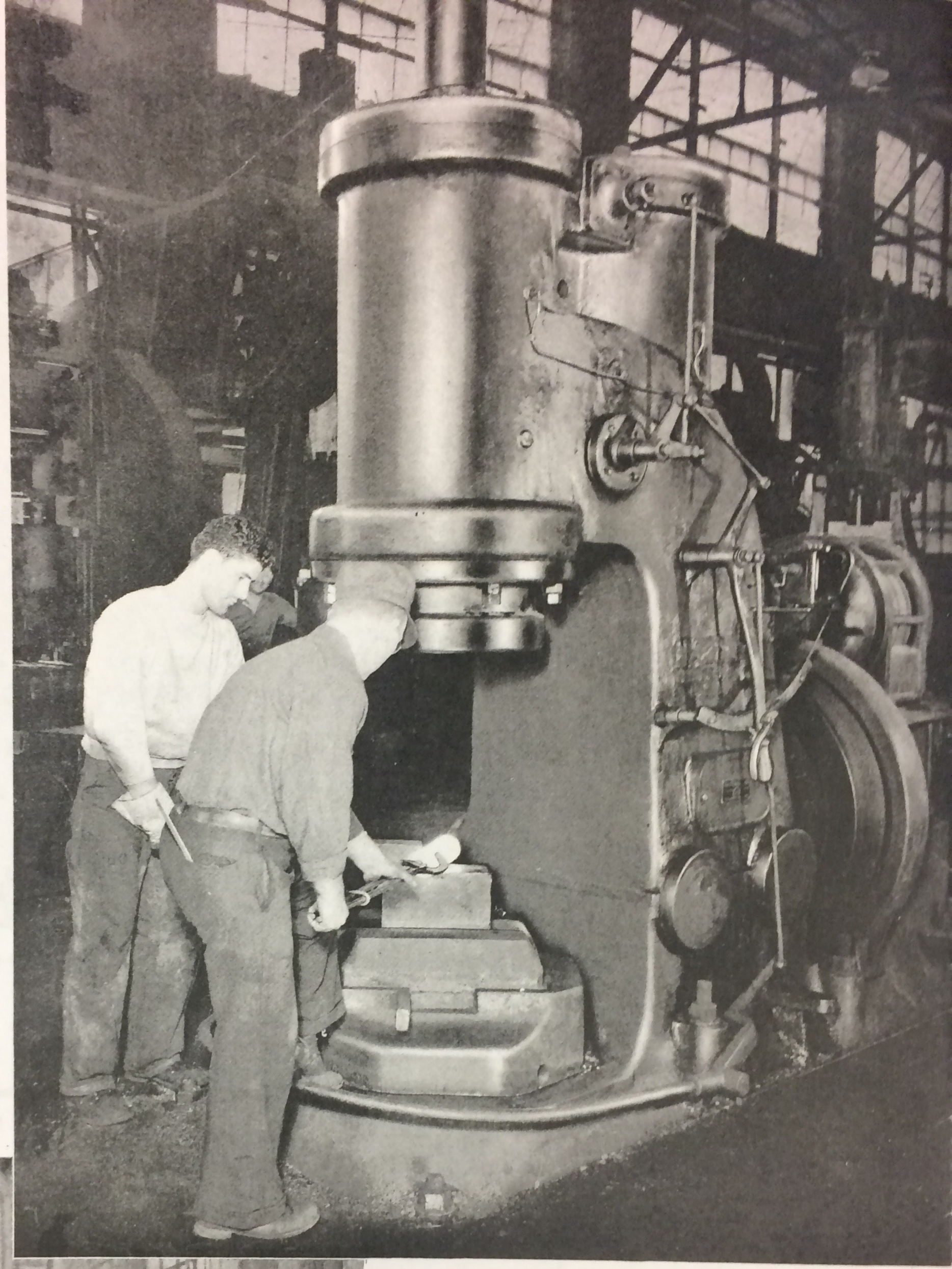
HAMMER

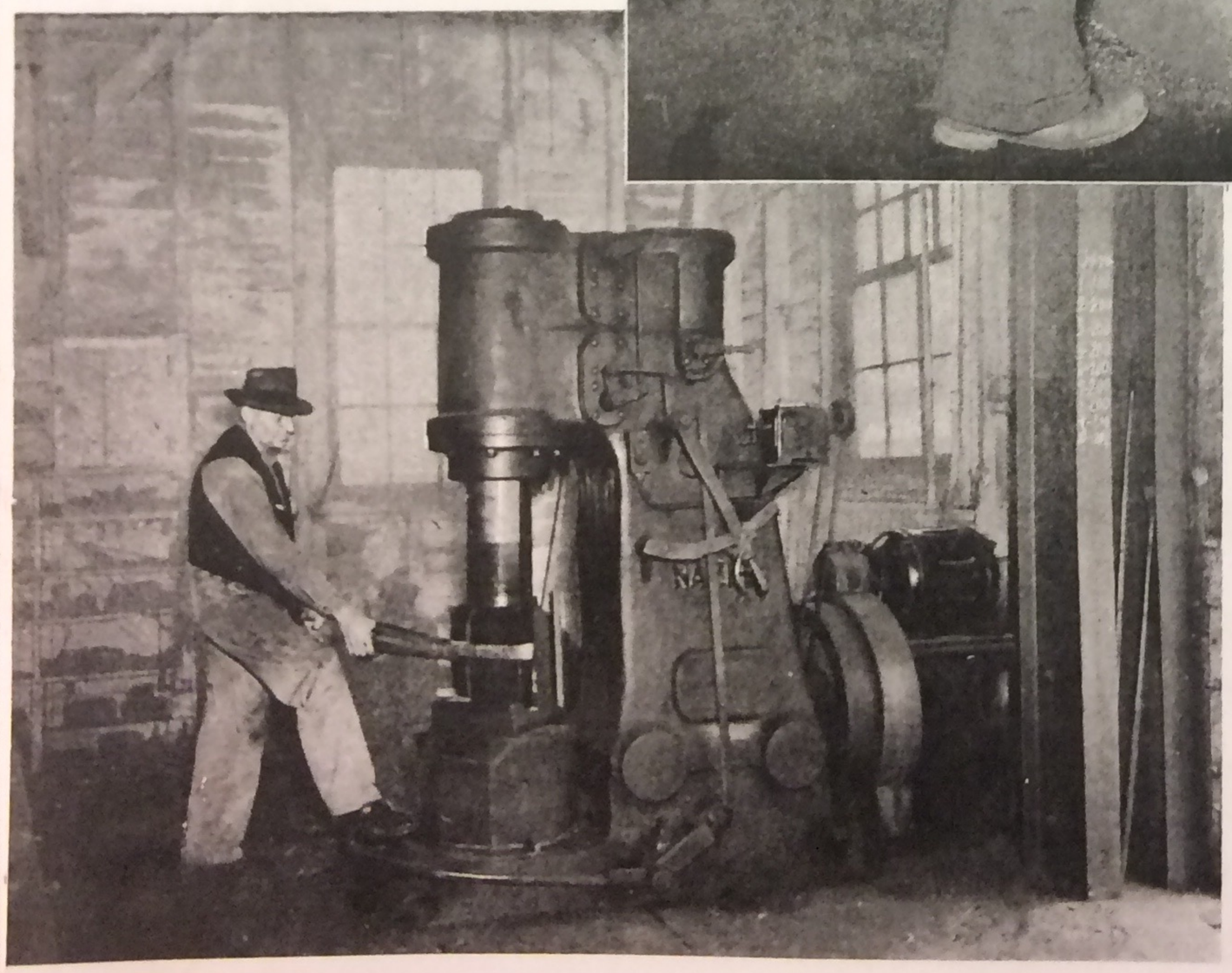
The illustration shown above is of a No. 6 Type "N" Hammer of special construction designed to permit the use of much larger dies than is permissible with this size and type of hammer of standard construction.

To accomplish this the distance between the guide was increased, the guide arm made more massive and the guides secured by means of through bolts. The base was also raised to provide for the greater height of the dies.

This particular hammer is one of a battery of five designed and built for a well-known tube manufacturer for the necking process of carbonic acid gas cylinders. Repeat orders are being constantly received from this user.

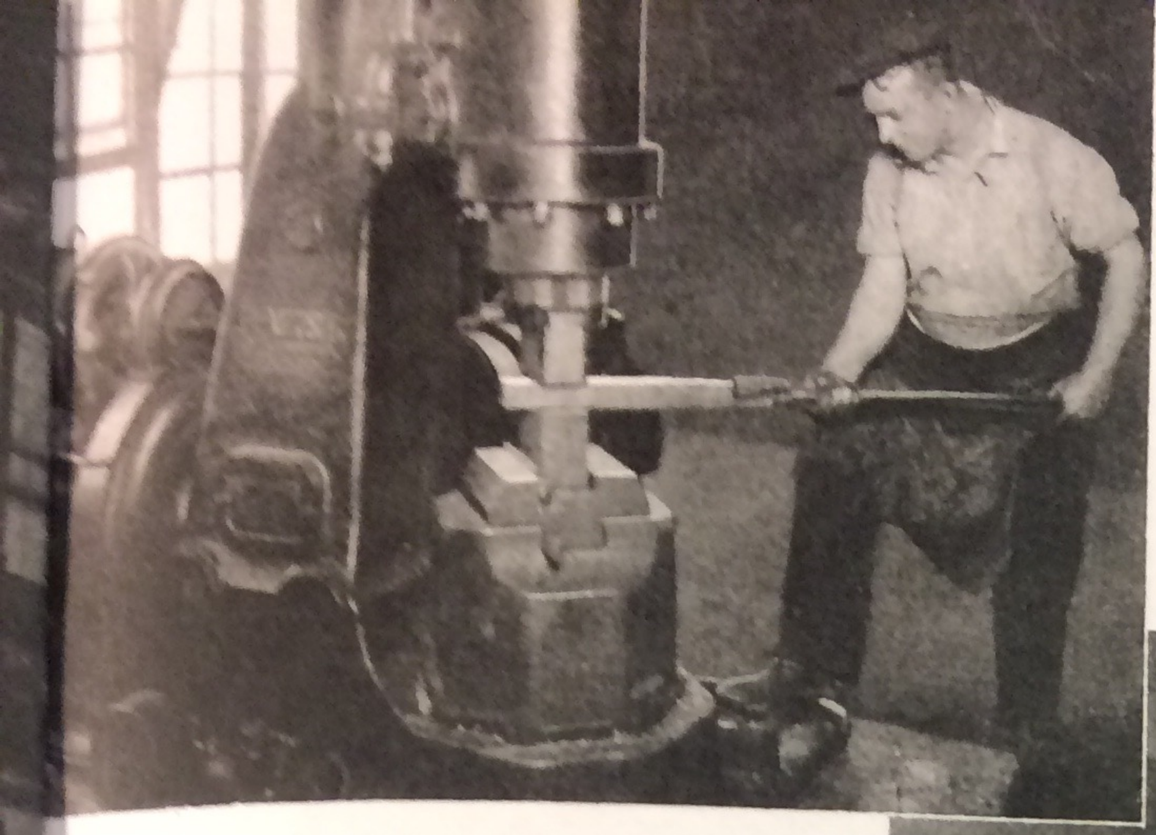
at General Electric ⇨



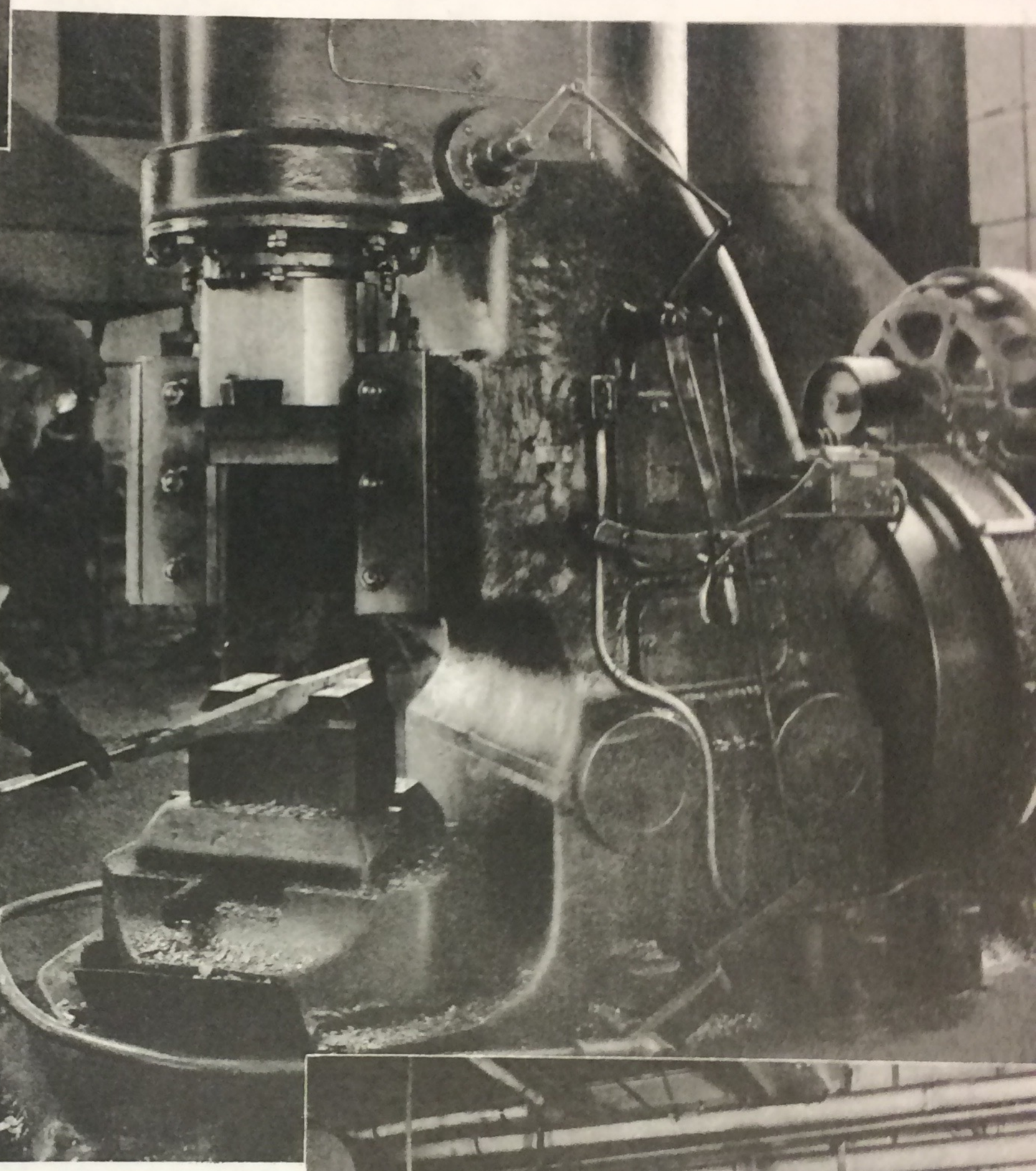


⇦ at Reading R. R. Shop
Port Richmond, Pa.

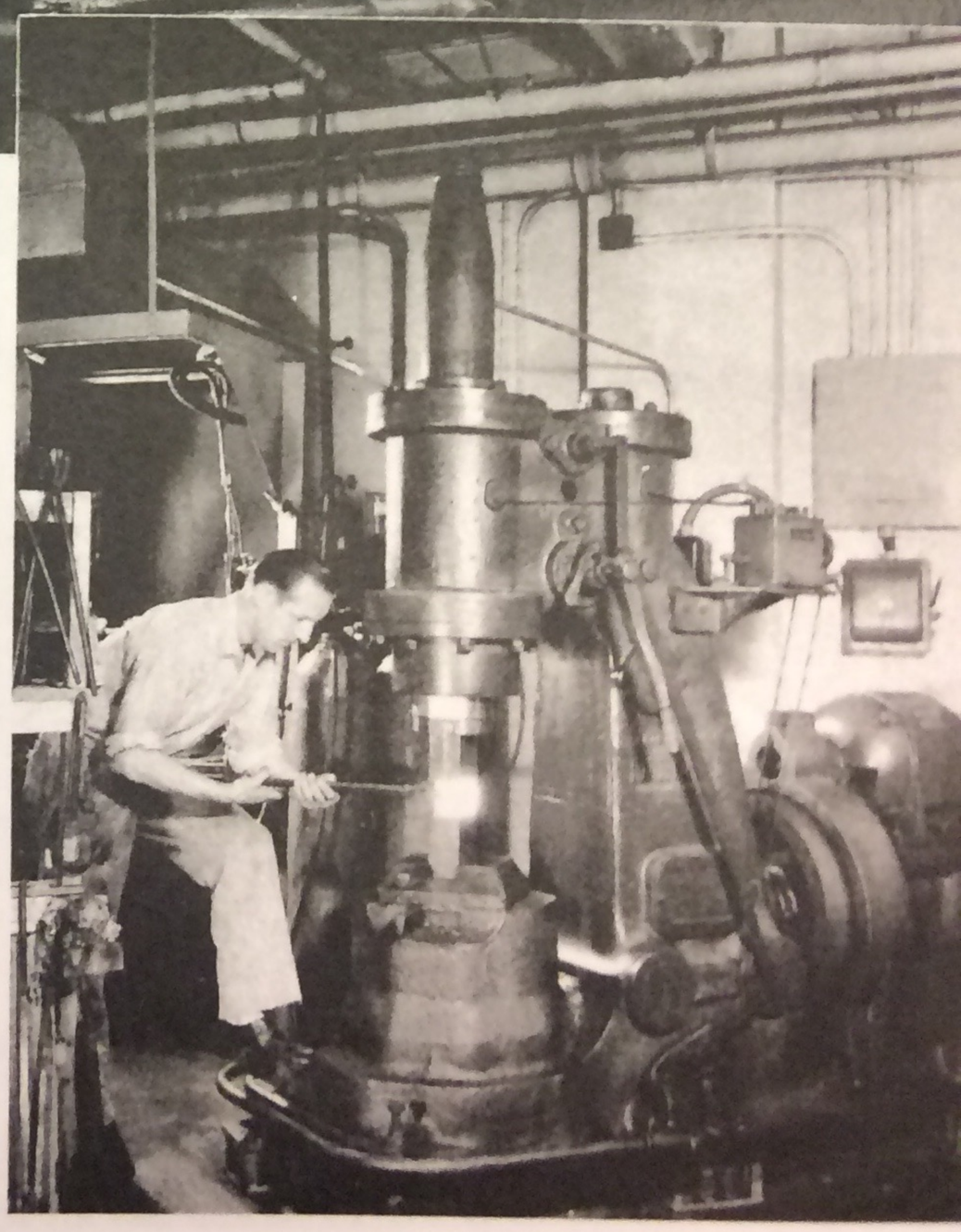
The view at the left shows the Lobdell-Nazel Hammer doing shop maintenance work, and forging repair parts for railroad rolling stock . . . of utmost importance for the prompt transportation of munitions and supplies from factory to point of embarkation. Demonstrating their rugged dependability, Lobdell-Nazel Hammers have been busy day and night in railroad shops all over the country.



A leading automobile manufacturer has eight Type "B" Size 3 Nazel Hammers installed in various factories for small tool maintenance (as illustrated at left). The first hammer was installed in 1919 and, as soon as additional hammers were needed for similar work, Nazels were purchased. Reliability of performance and quality of work were the persuasive reasons behind the purchase of these hammers. Tool dressing, especially, where so much depends on the life of the tool, requires a hammer whose blow "kneads" the hot metal — thus insuring a tool of uniform texture. And, the Nazel delivers just this type of blow.

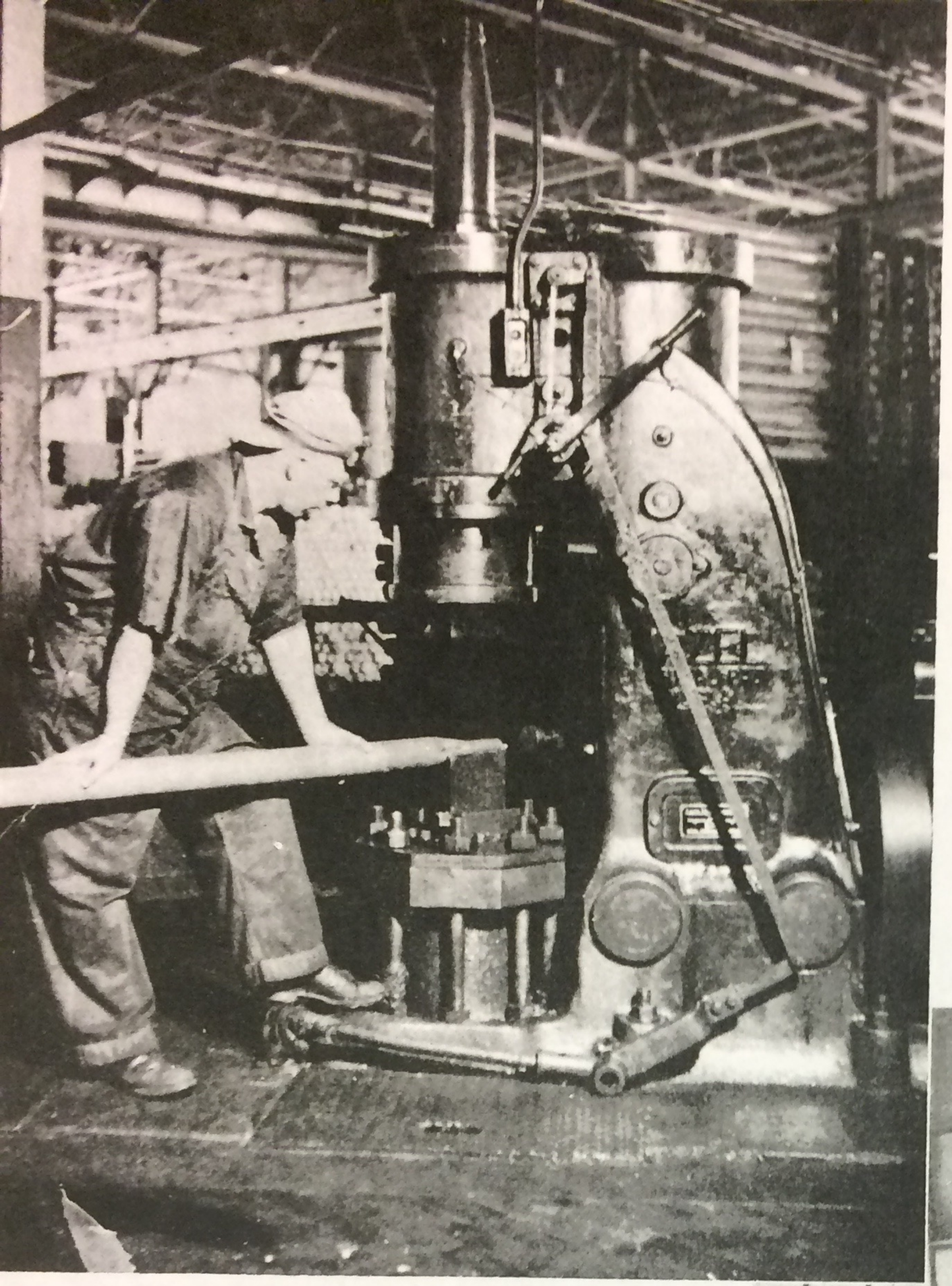


at Ramapo Ajax Division
American Brake Shoe & Foundry

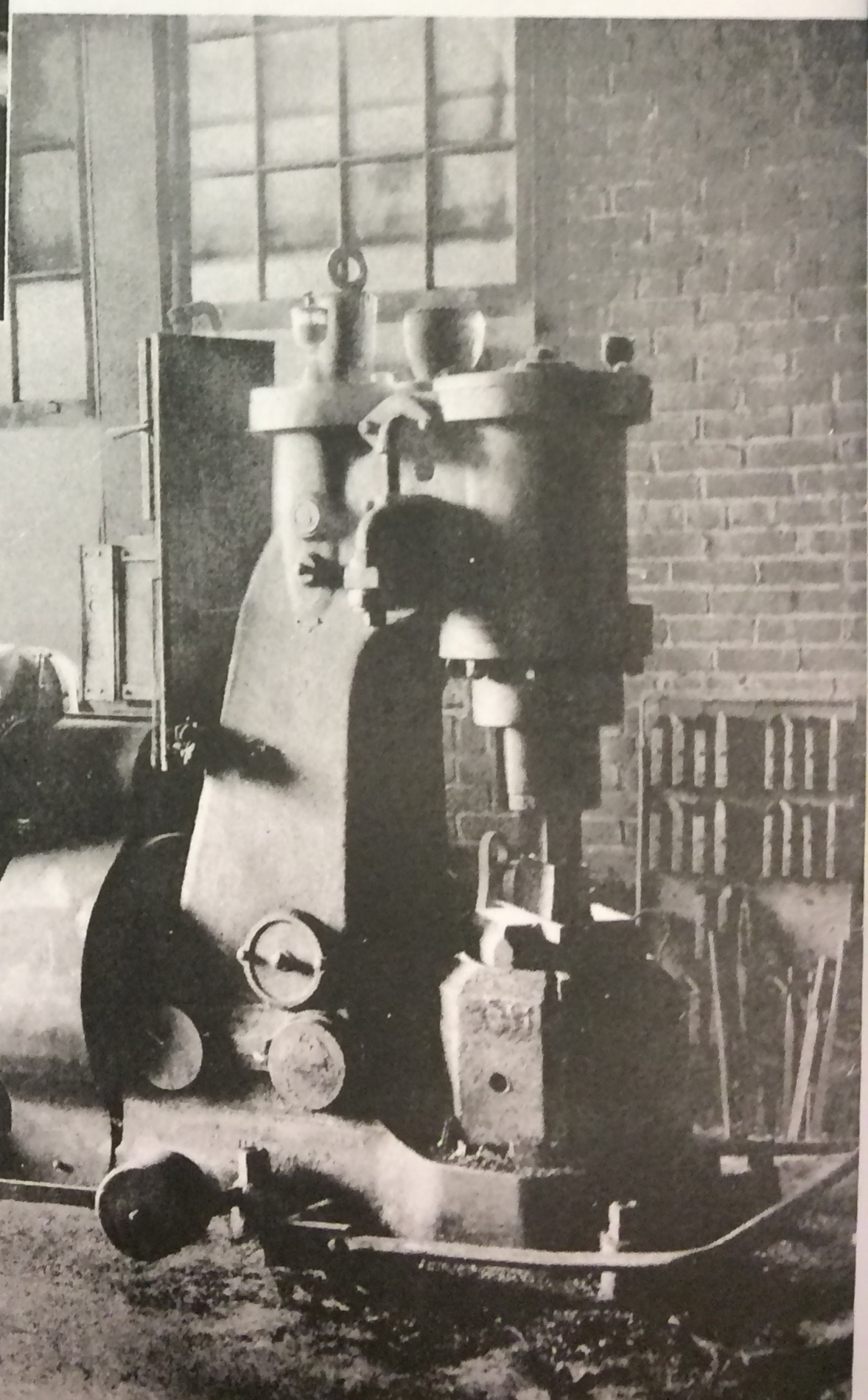


At Kastenhuber and Lehrnfeld

Cast in one base and anvil permitted mounting on a spring base to give freedom from vibration in the rest of the shop while the hammer is operating.



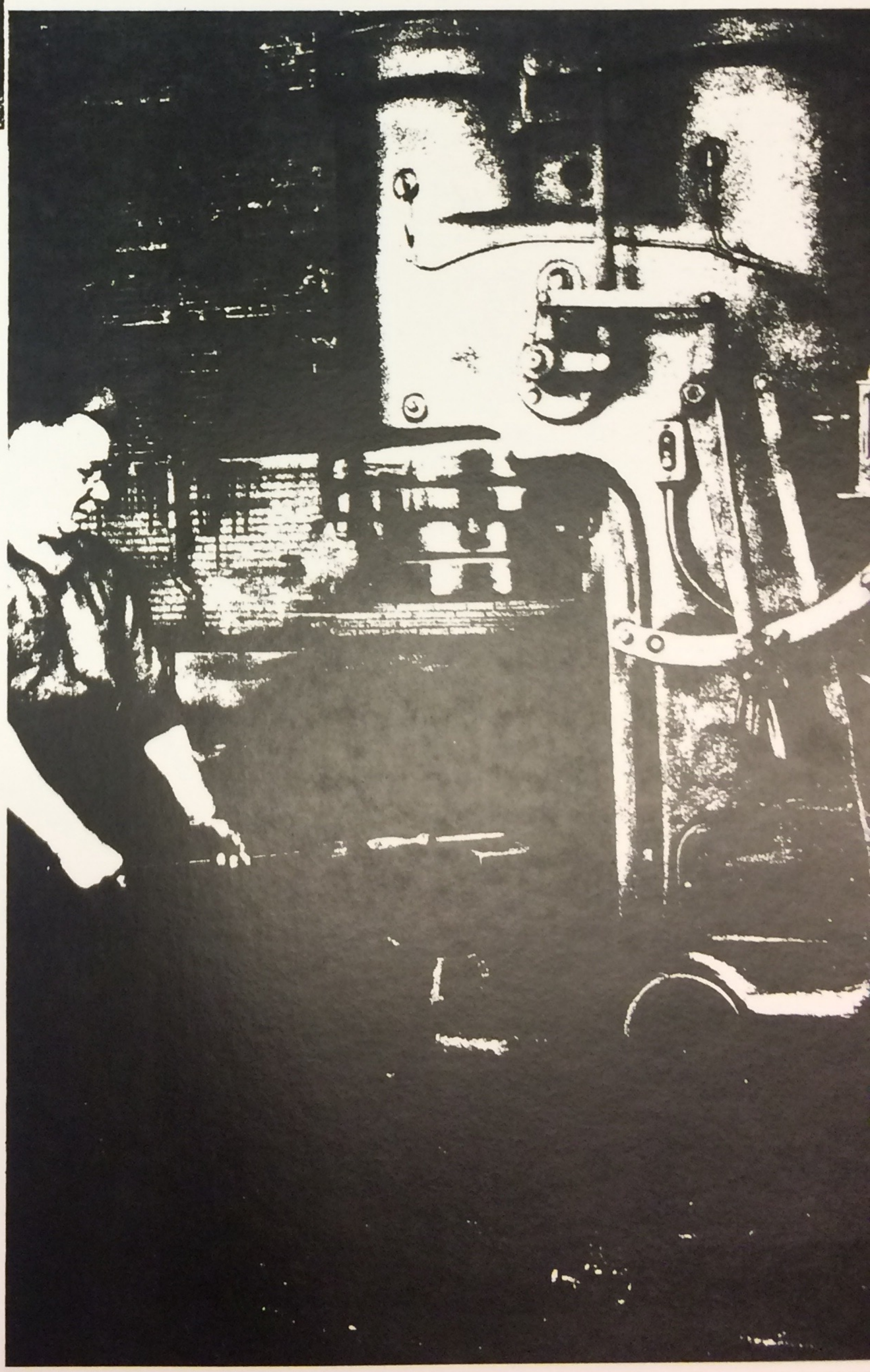
at Aluminum Company of America



at the Fletcher Works

The No. 2 Type B Hammer at the right is today the oldest one in use, with a fine record of 37 years of continuous service.

at American Viscose
Nitro, W. Va.



The powerful Lobdell-Nazel Hammer is so frequently seen forging large sections that its adaptability for producing small pieces is sometimes forgotten.

For work of this character, a hammer must not only have the desired "punch" but must run at a speed which enables the operator to control the blow and obtain the greatest benefit from each blow struck. Lobdell-Nazel Hammers strike the same number of blows per minute whether striking hard, medium or light blows.

at Atlantic Refining

R. E. LOVEKIN CORP., TECHNICAL ADVERTISING, PHILADELPHIA