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PARKER RUST-PROOFING PROCESS

PARKER PROCESS

PARKER RUST-PROOF COMPANY OF AMERICA

DETROIT, U.S.A.

PARKER

RUST-PROOFING

PROCESS

PARKER PROCESS

PARKER RUST-PROOF
COMPANY OF AMERICA
DETROIT, U. S. A.

(c. 1925)

PARKER PROCESS

The Mystery of Rust

IRON rust is one of the biggest mysteries in the world. It is one of our most valuable mineral products and yet it is produced by the most destructive process known.

Iron ore is essentially iron rust. Remove the oxygen from ore by smelting and metal is the result. Expose iron or steel to air and moisture and we have rust.

Its composition varies within narrow limits, its approximate formula being Fe_2O_3 X H_2O, a sesquioxide of iron.

The decay of iron or steel is much more rapid than that of wood or concrete. Experiments have shown that in the case of iron the rate of destruction increases progressively, being, under normal conditions, 50 per cent more rapid the second year than the first.

The cause of rusting is not definitely known, although three distinct theories have been advanced in an effort to account for it. These are the carbonic theory, the peroxide theory and the electrolytic theory. From present indications it seems possible that the latter will be proved correct, but any discussion of this subject is out of place in this catalogue.

The fact that iron and steel will rust is accepted just as medical science accepts the fact of the existence of certain diseases, even though their origins are still unknown. As the physician is chiefly concerned in affecting a cure for these, so this catalogue, leaving the discussion of the origin of rust to science, will treat only of the methods of its prevention.

For the inquiring mind which seeks to go deeper into the causes of this corrosion, we recommend "The Corrosion of Iron and Steel," written by Alfred Sang—a compilation of the results of experiments, together with excellent lists of references, bibliography, etc. Also Cushman and Gardner's "Corrosion and Preservation of Iron and Steel."

Interior of Processing Room

Merits of the Parker Process

THEORETICALLY, if iron or steel is covered by a coating impervious to moisture, the chemical action known as oxidation or rusting will not occur and it is to accomplish this result that a great many different methods are used. Painting, lacquering, enameling, galvanizing, electroplating and a number of other finishes are all applied to accomplish this result.

Of the many methods used to prevent rusting, Parker Process has proven to be one of the most practical and efficient.

The fundamental difference between Parker Process and other rust proofing methods is the fact that in Parker Processing an additional coat or covering of some other substance is not applied to the iron or steel to be protected.

The Parker Process consists in changing, by chemical action, the surface of the metal so that rusting does not occur.

In technical language, Parker Process changes the surface of iron to form a basic iron phosphate, impervious to the oxidizing action of the atmosphere.

It is in this fundamental difference in Parker Process that much of its merit lies, for in Parker Process a coating of other material is not applied. Due to this fact, dimensions are not increased or contours altered.

Corrosion on dental needles, with points finished to three thousandths of an inch, has been completely eliminated by the use of the Parker Process. The surface of these needles is covered with delicate barbs, so essential

to the functions of the instrument and so familiar to the nerves of all those who have been in the dentist's chair. Yet the efficiency of these barbs was undamaged by the Process.

Very fine screw threads can be Processed without destroying the accuracy of their fit or requiring a rechasing of the threads.

Fine springs, whether round or flat, when Parkerized, do not have their elasticity impaired.

Magnets, before and after Processing, possess exactly the same magnetic force.

The low temperature at which the Processing is conducted (212 degrees Fahr.) does not affect, in any way, the physical properties of the metal.

Parker Process makes a perfect base for the application of paint or enamel. The surfaces are microscopically etched and an unusually strong bond between the metal and paint is obtained. The efficiency and durability of paint or enamel on Parker Process is very materially increased.

Parker Process has a further point of especial merit as an under-body coat for paint or enamel. Should such a surface be completely broken by severe mechanical abuse and the bare metal exposed, rust may form at the exposed point, but will not spread, a fault so characteristic of other rust proofing methods.

Parker Process frequently makes possible the substitution of iron or steel for brass, copper, and other high priced metals. In many cases the adoption of Parker Process by a manufacturer has not only returned many times the total cost of necessary installation but has added materially to the business and profits of such manufacturer.

Simplicity

Furthermore, the method does not depend upon electrolytic action, and, consequently, pieces being treated may be placed in any position, with full assurance that the entire surface is being affected. It is only necessary that the article be covered with the solution.

Safety

Unlike other methods of making iron rust-resistant, there are no objectionable fumes given off during the treatment. Nothing in the Parker Processing Tank is harmful to either clothing, flesh or health of the operator.

Service

We are interested in every licensee. We wish him to receive the greatest possible benefit from his Parker Processing installation, and to

have his operator kept informed on all new developments in the practical handling of the work.

For this purpose we maintain a staff of factory-trained experts to put the Process in operation, to assist in adapting it to the customers' needs and to train thoroughly the employees who are to operate the Process.

Our service, however, does not stop here. These representatives visit our licensees periodically, to discuss the Parker Process, to offer suggestions in solving any problem peculiar to their installation and to give them the benefit of their experience in operating the Process along many different lines.

Estimating and Engineering Dept.

An Estimating and Engineering Department is maintained to take care of the special problems which arise in adapting Parker Process to any manufacturing program. This Department lays out complete installations for the manufacturer and furnishes blueprints for such layouts.

This service is at the disposal of any concern contemplating an installation.

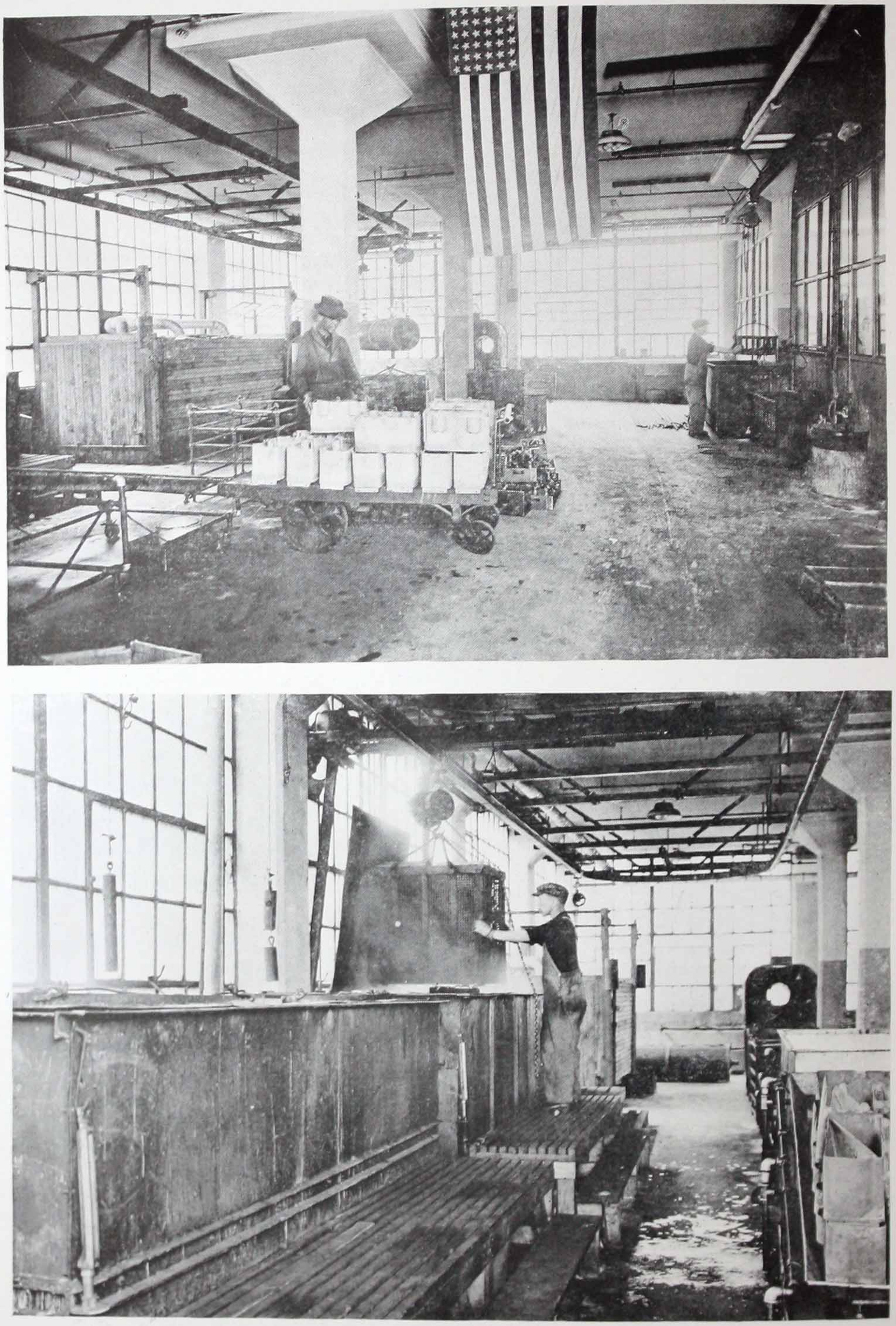
Method of Licensing Avoids Confusion

The Parker Process method of licensing avoids all accounting, auditing and confusion arising out of a royalty system. It is giving general satisfaction with all Parker Process users.

The Process is licensed to the user on a straight annual fee based on the capacity of the processing tanks furnished. There is no limit as to tonnage treated. If, for example, a 1,000 gallon processing tank is installed, as much metal may be Parkerized by the licensee as can be handled in the tank.

We Invite You to Visit Our Plant

If this catalogue has helped you to understand the merits of the Parker Process it has done its work. But no real knowledge of the system can come without a practical demonstration. If you will visit our Detroit plant your reception will be a cordial one. If you are not able to give us this pleasure we will be glad to send one of our representatives to see you.



The above illustrations show the Parker Process of Rust-Proofing installed at the Packard Motor Car Company's Plant. The installation has a daily capacity of ten tons.

What it Means to Your Business

Parkerizing insures your product against corrosion. Its finish increases the market value of your goods. These two facts are established by the experience of many users.

We offer to you the benefit of years of research work, insuring positive results. You need not experiment. We are qualified to advise you concerning the use of the Parker Process on any or all of your product, and the correct manner of handling it.

To the Sales Force

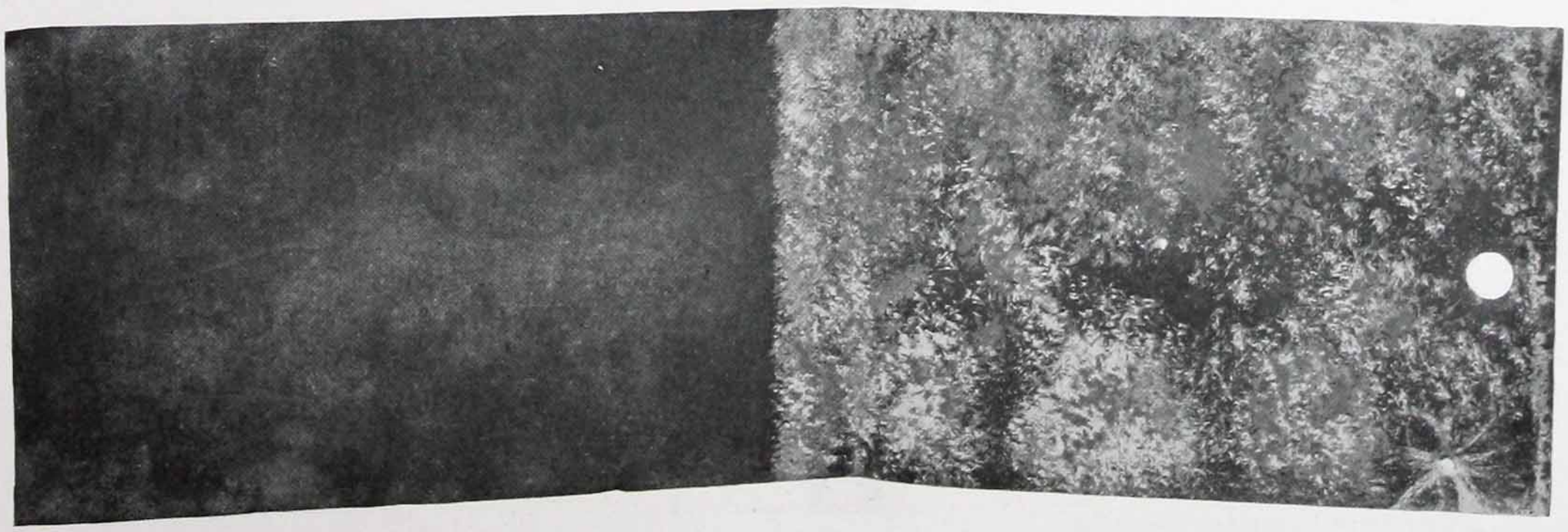
Parkerizing is a selling point with a strong appeal. Dealer and consumer are both interested in an article which is immune from rust. Nor is this rust-resisting quality obtained at the sacrifice of appearance. Parker Process is a metal finish as well as a means of rust-proofing. It is an ornament to the shelf or showcase of the dealer, and there are no come-backs of goods "rusted in stock."

To the Production Manager

Parkerizing makes possible the handling of material in large quantities. There is no stringing or hanging in certain positions. It is a rustproof and finishing operation in one. Usually the finished product is processed after all manufacturing operations are completed. It is easily and quickly incorporated into the factory line of production.

To the Superintendent

No especially skilled help is required to operate the Parker Process. Any man of average intelligence, who can read and write, can learn the operation in a few days. We teach him. The instructions are few and simple, and we insure continuous operation in the proper way by having our experts call at frequent intervals.



This picture shows the representative areas of a steel panel, one-half of the sheet was rust-proofed and after over two years exposure the relative corrosion resistance of both halves of this sheet is shown by the untreated half being almost entirely disintegrated while the treated half is in excellent condition.

The Three Steps in Parker Rust-Proofing

Cleaning

Before iron or steel can be successfully Parkerized it must be free from oil, grease, scale or other foreign matter.

Metal parts which have been completely machined, are frequently Parkerized without any preliminary operation. This is also true of some grades of stampings and pressed steel parts, although, owing to the presence of oil or grease on the surface, particularly on machined parts, such articles usually require a soda washing or rinsing. Rough castings and other articles require sand blasting or a pickling operation to clean the surface thoroughly.

Processing

After the articles are cleaned they are placed in baskets, racks or trays, whichever equipment is best adapted to handle the production efficiently, and then immersed in the processing tank.

The processing solution is prepared in a special steel tank, heated by steam or gas, and maintained just below boiling point (210 degrees F.). This solution is made up of water, with the addition of two prepared chemicals which we furnish—Hyro Acid Compound and Solite. The bath loses strength during the processing operation. This loss is replaced by the addition of more of the chemicals, and the same bath used over and over again. The amount of the chemicals required to renew the strength of the bath is quickly and easily determined by a simple test made by the operator.

Drying and Finishing

The length of time required to Process varies with different classes of materials, ranging from one to three hours.

Upon the completion of the bath the articles are removed, dried and finished. Articles of any considerable weight will dry themselves almost instantly by means of the heat retained from the processing bath. Very light articles can be dried in an oven.

The final operation is determined by the finish desired on the articles Processed. For ordinary commercial requirements the Process is completed by simply dipping the parts in Parkerol, after which they are spread on racks to drain or dry.

This produces the matte black finish, which is characteristic of the Parker Process. This finish is inexpensive and satisfactorily meets the average requirements.

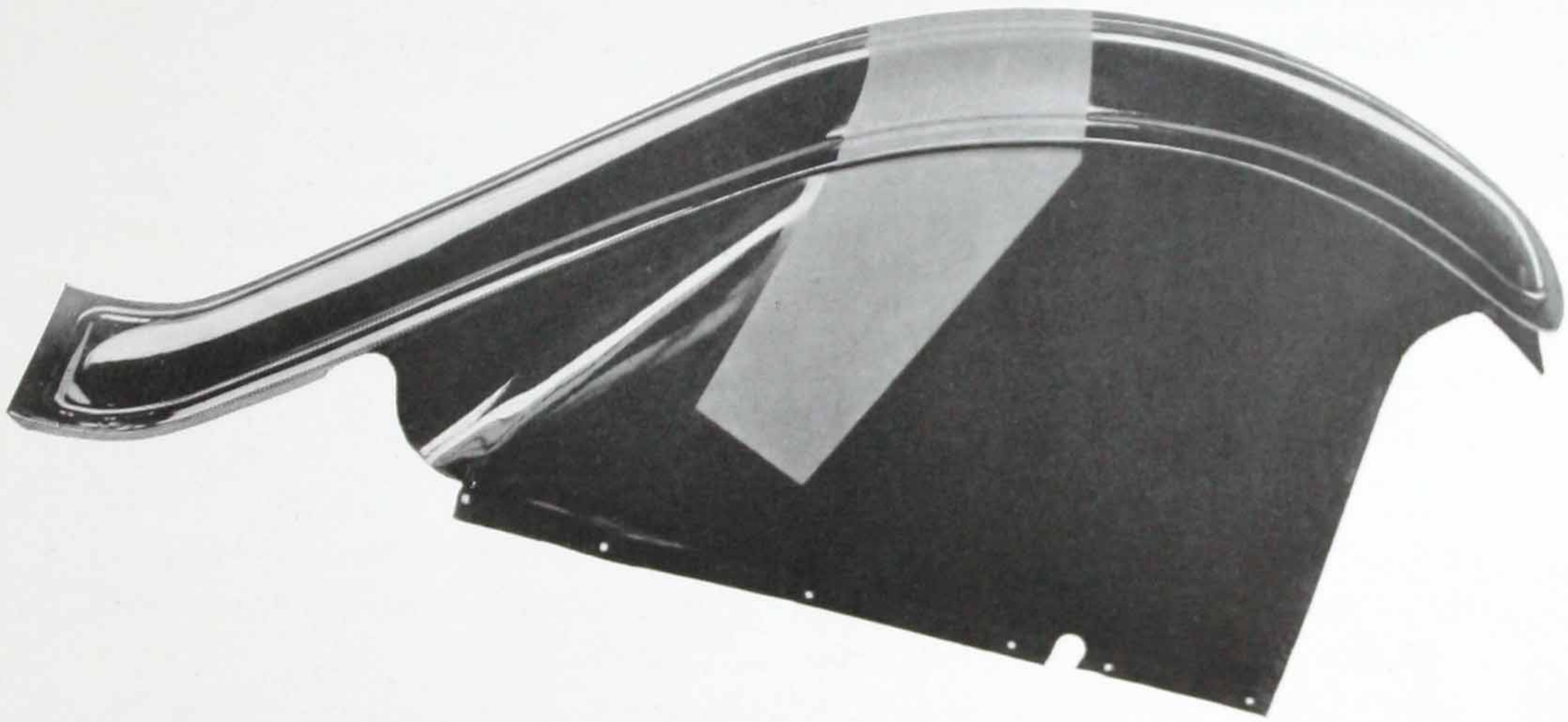
PARKER PROCESS

Where high finishes are desired, they can be readily obtained on Parker Processed surfaces by means of special oils and buffing operations.

Parker Process makes a perfect base for paint, Japan or enamel on iron or steel.

Below is illustrated an automobile fender rust-proofed, and enameled. The strip in the center is Parker Processed without any other coating.

The Parker Process finish presents a surface for enameling which is miscroscopically etched, and to which the enamel clings tenaciously.



Parker Process leaves this metal with a dull matte black surface. This makes a priming coat unnecessary, and many manufacturers are putting on finish Gloss Enamel for the first and final coat over Parker Process with excellent results.

Where the highest grade enamel finishes are required, two coats of enamel over Parker Process will produce a high grade finish equal to three or four coats of enamel without the Process.

By use of the Parker Process the enamel is bonded to the metal so that it will stand much more vibration, bending or abrasion without peeling off. Further, where enamel is removed by abrasion the surface underneath is still rust-proof to atmospheric conditions. Chipping or peeling off of enamel is practically eliminated by the use of Parker Process.

Parker Process is in no way affected by the heat necessary in the enameling operation.

The Installation of Parker Process

Equipment

Owing to the wide application of the Parker Process to different lines of manufacture, it is impossible to designate exactly the equipment required for a Parker Process installation. We urge manufacturers, contemplating its use, to take up with us the question of necessary equipment.

Units of Installation

To give some general idea of what may be required for a complete installation, we list below equipment used, although in many cases a considerable portion of this equipment may not be required.

Vat for alkaline wash
Vat for rinse.
Vat for pickle (sulphuric).
Vat for pickle (rinse).
Processing tanks.
Drying oven (optional).
Oiling tank.
Drain boards.
Overhead track and trolley.
Baskets and racks for pickle process and oil.
Table or bench for testing apparatus.
Cupboard for reserve supplies.
Laboratory equipment with weighing scale.
Inclined tumbling barrel for sand roll.

This covers all equipment necessary for handling the work through the various operations. Standard equipment will accommodate the general run of work, but we are prepared to supply specially designed equipment to fit the peculiar needs of any manufacturer.

Location

The installation should be placed in a well-lighted, well-ventilated room, preferably devoted exclusively to the Parker Process.

Arrangement

All units of the installation, including cleaning, processing and oiling, are preferably placed in line, so that one track and hoisting apparatus (when such equipment is used) may care for all tanks. The four vats for the cleaning operation, alkaline wash, rinse, pickle and pickle rinse are placed close together in the order given. Sufficient space should be allowed between the cleaning tanks and the processing tank for the convenient handling of materials after they are cleaned, and for loading them in baskets, tray or racks.

Between the processing tank and the oiling tank, space also should be provided for unloading production after it is Parkerized. If a drying oven is required for the drying of light parts, it should be located near the

end of the Processing tank. A low temperature, not over 200 degrees F., is all that is required for a drying oven.

After the material is dry it is immersed in a special oil and placed on drain racks to allow the surplus oil to drain off. The production is then ready for shipping, assembling or placing in stock.

A table or bench for testing apparatus should be provided. This should be about five feet long and 18 inches wide, placed in a good light and as near the processing tank as possible. A small sink with running water will be found convenient at one end of this table. Under the table can be installed the cupboard for holding the reserve supplies of the test solutions and equipment.

Floor Space

Approximately 1,500 square feet of floor space is required for a standard 1,000-gallon installation. A room with dimensions of about 35 x 45 feet is admirably suited for this size installation.

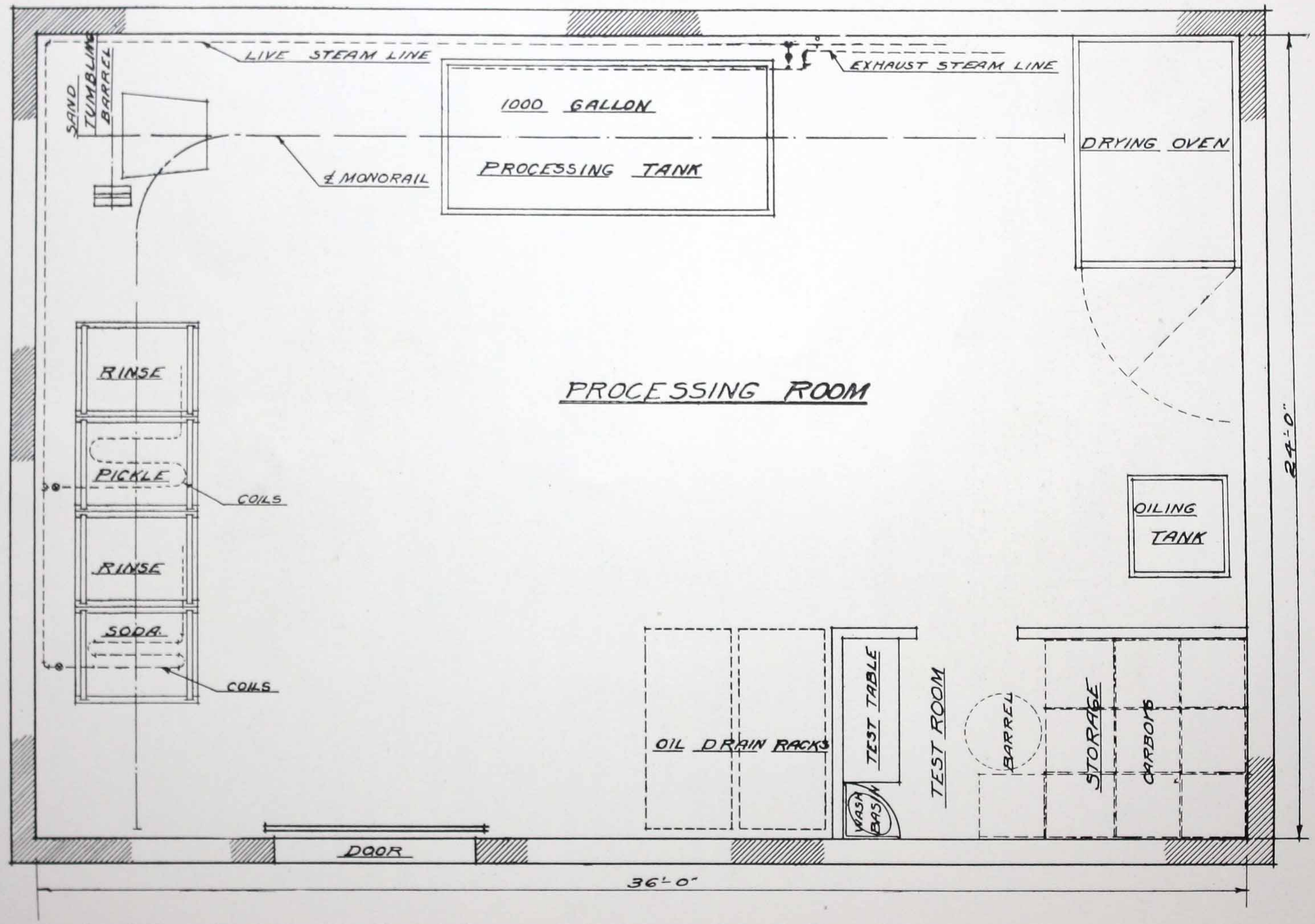
Tanks

The tanks furnished for the Process bath are the result of several years of experience in trying out different designs. The present patented design, adopted early in 1917, is constructed to give the best possible efficiency and economy of operation. It is heated by steam coils contained in the tank, and arranged to give perfect circulation of the processing solution and to provide maximum space for material to be treated.

Running water should be piped close to the processing tank to permit of its being filled by means of a short length of hose.

For Parkerizing large quantities of small articles, such as bolts, screws, etc., or pieces with flat surfaces, we recommend a tank which contains a cylinder or revolving barrel. This processing barrel is constructed of perforated metal in which the work is placed before immersion in the processing solution. It is revolved slowly by a simple mechanical device, insuring the exposure of all surfaces to the action of the processing solution.

All tanks can be arranged for gas heating if necessary.



A model layout for a 1,000-gallon series, including complete cleaning, processing and oiling equipment. An overhead carrier system is provided to facilitate the handling of the regular baskets and racks used in connection with the Process.

PARKER PROCESS

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Processing Tank

The Processing tanks are made of tank steel, acetylene welded throughout. They are furnished with covers supplied with counter weights, and insulated so that the loss of heat by radiation is reduced to a minimum. They are fitted complete with steam coils and baffle plates to insure the proper heat and circulation of the Processing solution. The following sizes are considered standard and are carried in stock:

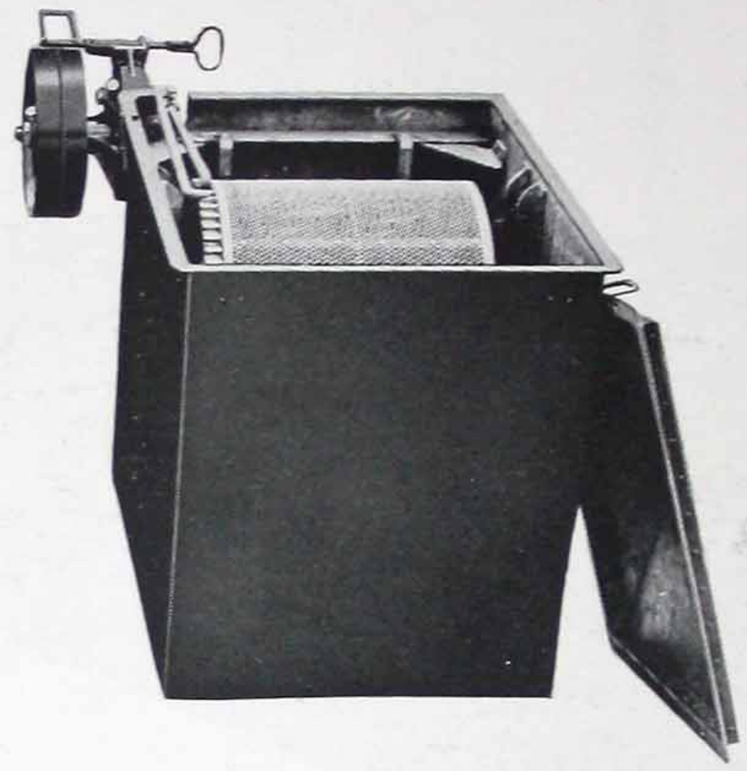
Gallon Capacity	Length	Width	Depth
250	60	26	25
500	90	39	36
1000	114	50	48
1500	134	52	54
2000	178	52	54

Special sizes are made to order to meet individual requirements.

Sand Tumbling Barrel

Oblique tumbling barrel, used for tumbling small articles with dry sand. This operation follows the pickle cleaning.

Processing Tumbling Barrel



The Processing Tumbling Barrel is used to advantage in Processing small parts, such as screws, nuts, bolts, etc.

One standard size is carried in stock:

The tank is of 250 gallons capacity, 44″ x 34¼″ x 40″ deep.

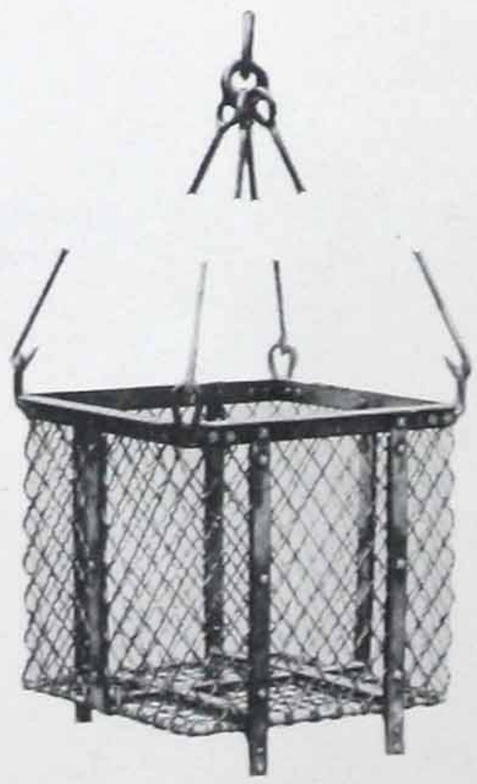
The tumbling barrel is 24″ in diameter and 24″ long and constructed of perforated metal. It may be readily removed for loading and unloading. The Processing baskets can then be used 30″ x 24″ x 30″ deep, or a Processing rack of the same size containing 11 trays 2½″ deep.

The tank is supplied with driving mechanism for the tumbling barrel. It has tight and loose pulleys 16″ in diameter with 2″ face; these should be run at an approximate speed of 60 r. p. m.

Suitable reduction gears are furnished. The tumbling barrel is driven by means of a pawl and ratchet, giving it approximately one revolution in three minutes.

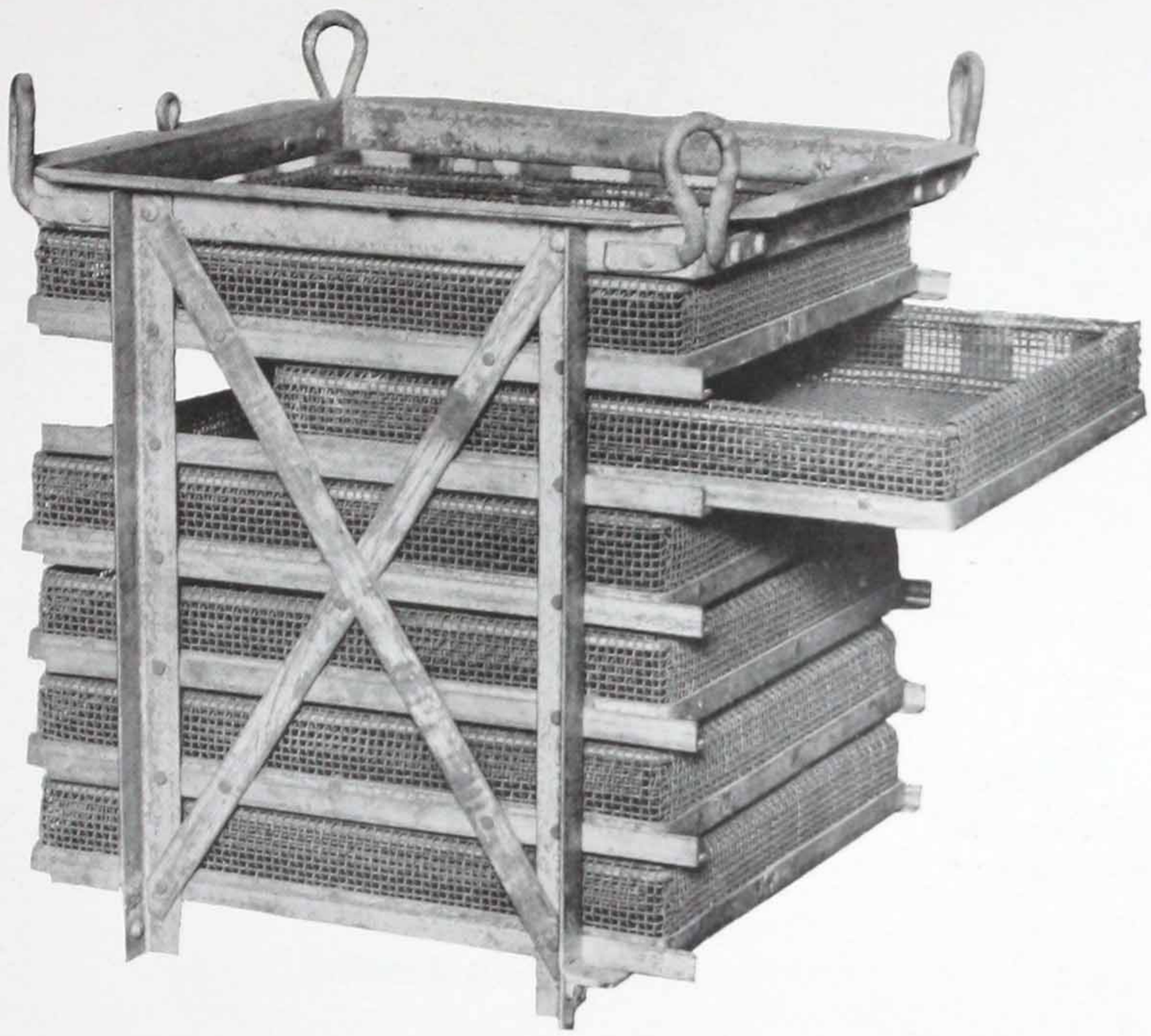
When the tumbling barrel is removed the tank may be used for still Processing.

Processing Basket and Bale



The bales are of substantial design, made up of four hooks attached to a center ring. Two standard sizes are carried in stock, the smaller being used for all series up to and including the 500 gallon.

Processing Racks
and
Processing Trays



For Processing many classes of small articles a series of racks and trays are provided.

These trays are made up of wire mesh, strongly reinforced. The entire lower edge is surrounded by small angle iron. The sizes of the tray vary with the capacity of the Processing Tank with which they are to be used.

The racks are of substantial angle iron construction, designed to take a standard number of trays.

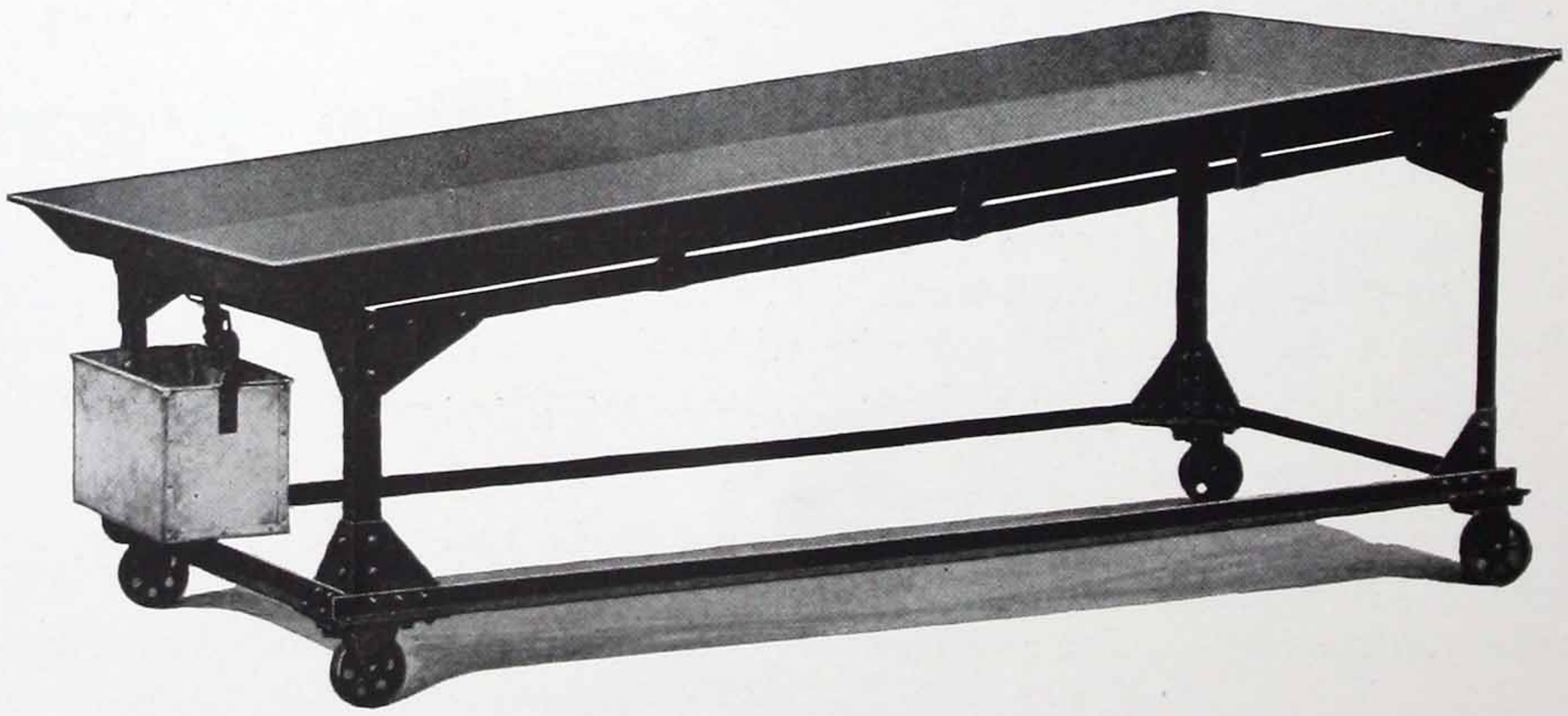
In many shops where machined parts are to be rust-proofed the trays are filled at the machines and taken to the Processing room on trucks, where they are set in the racks. The racks and trays can afterwards be handled as a unit.

Used with Processing	Length	Width	Depth
150	19	12	15
250	19	18	21
500	24	21	24
1000	34	29	36
1500	36	33	42
2000	36	33	42

Oil Draining Basket

Oil Drain Baskets are substantially constructed of Diamond Mesh Wire. A 1¼″ angle iron is carried around the entire top. Baskets are provided with trunnions to which a bale is attached.

Oil Drain Boards



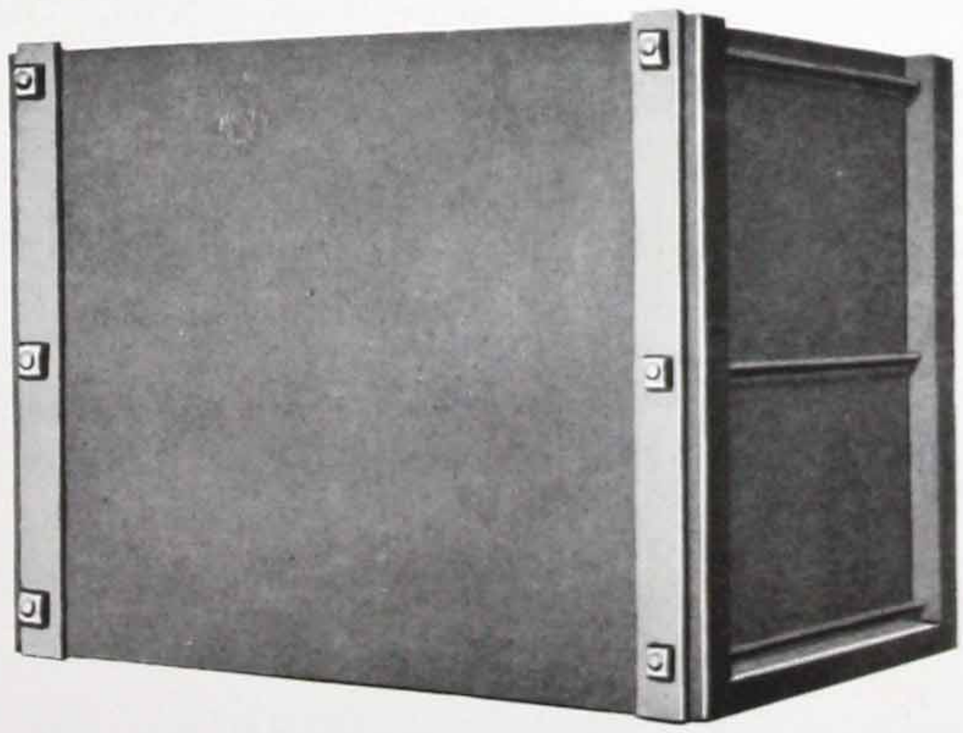
Oil Drain Boards are provided in all installations where the parts are oiled after Processing. Drain Boards are of angle iron construction with a sheet metal pan. The boards have a capacity of approximately 1000 pounds, and are provided with casters to facilitate their movement about the shop. The general dimensions are 72″ long, 30″ wide and 36″ high.

Oiling Tank

These tanks are constructed of iron with welded steel angles at the top to insure ample rigidity.

Capacity	Length	Width	Depth	Furnished with Processing Tank
	26	22	16	150 and 250
	32	18	24	500 and 1000
	36	32	24	1500 and 2000
Special	60	36	24	

Pickling Vat and Wash Tanks



For cleaning metals either by acid pickling or caustic washing we recommend the use of a cypress wood tank. These are constructed in the best possible manner and furnished in sizes to meet individual requirements.

Parker Rust-Proofing

A summary of some of the reasons which life of a product, cheapen its pro

The Parker Process makes iron and steel rust-proof.

It frequently makes possible the substitution of iron and steel for brass, copper and aluminum.

The dull, black surface which it gives makes a complete finish for many articles.

It forms a surface of fine, microscopic etchings, to which Japan, enamel and paint will cling tenaciously.

When this finish is used for a base, one or more coats of enamel may be saved.

No priming coat is needed after Parkerizing.

Parkerizing saves costly work and detailed attention on parts that are easily rusted.

Parkerizing will not change the size, weight, dimensions, temper, elasticity, magnetic qualities or conductivity of the metal.

To your business, Parkerizing means all of the

g Earns Larger Profits

enable the Parker Process to lengthen the duction and please the consumer

Parkerizing can be done in your factory.

Any intelligent employee, who can read and write, can operate the installation.

The installation does not introduce sweeping changes into your business or demand expensive alterations.

There is no "incubation" period following the installation of the Process. The flow of work through your plant is as uninterrupted as before.

Parkerizing is done after the article is manufactured; so the steps in production remain unchanged.

The license plan avoids the confusion arising from most royalty systems,

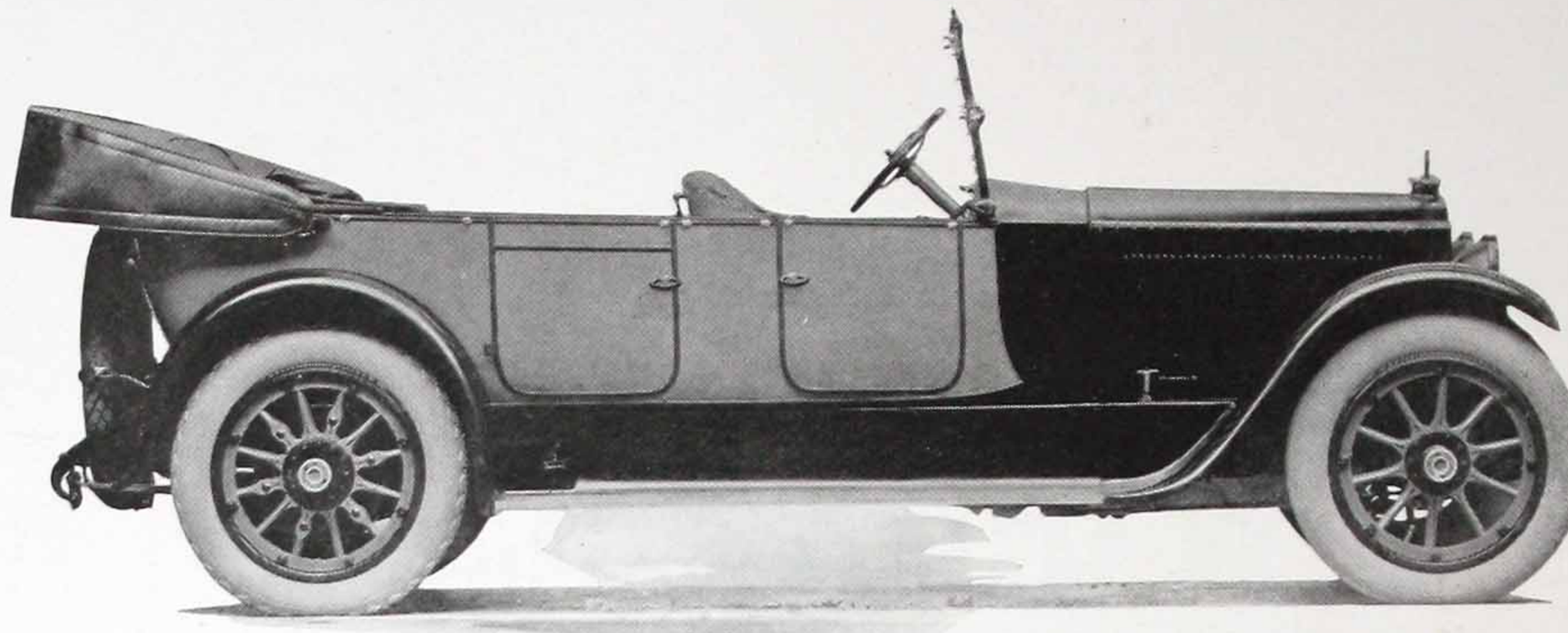
Every licensee has the advantage of the Parker Laboratories and service.

se things and many more. Let us show you why

PARKER PROCESS

On the remaining pages are illustrated a few of the many representative articles rust-proofed by the

PARKER PROCESS
RUST PROOFS IRON AND STEEL



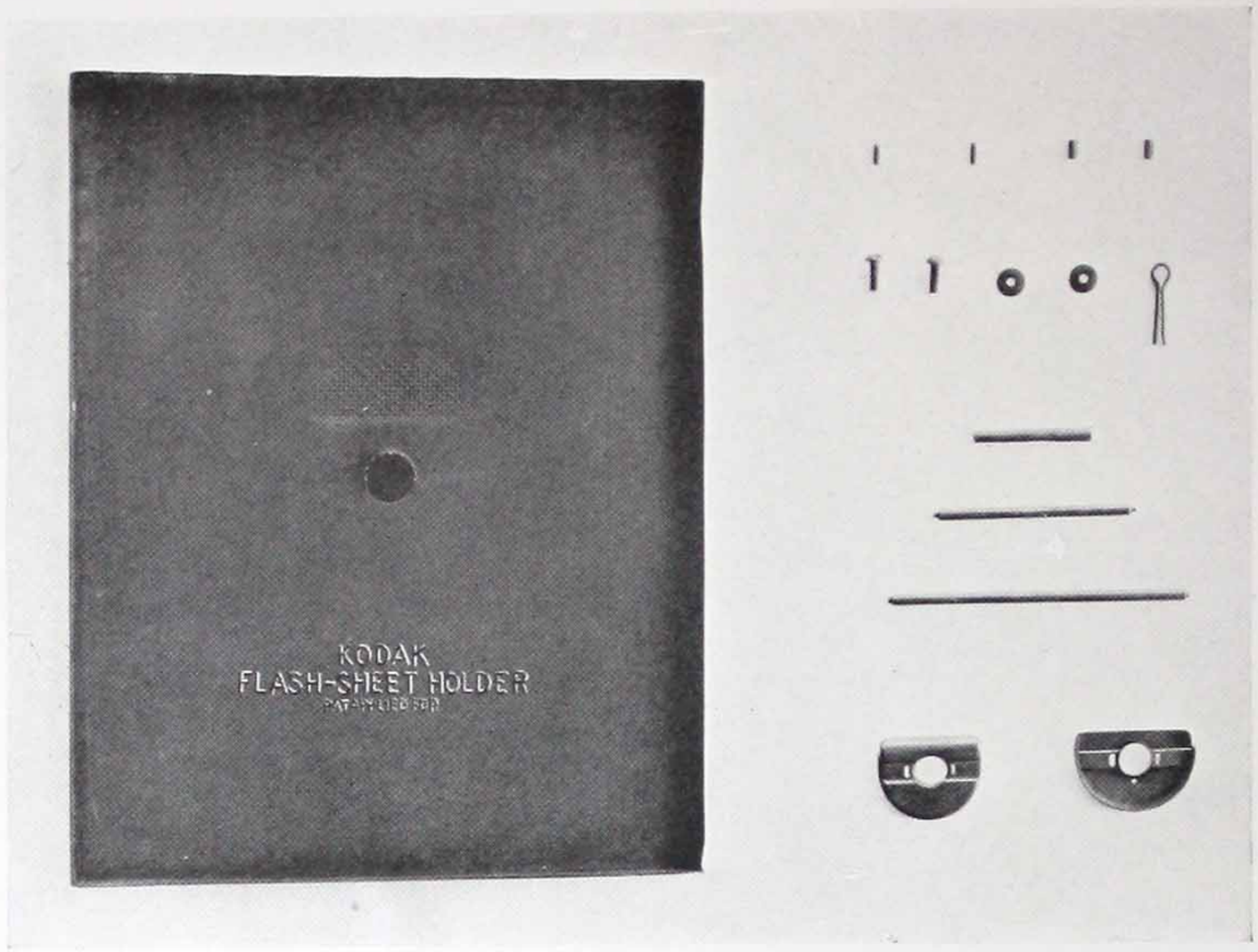
Parts Rustproofed by the Parker Process

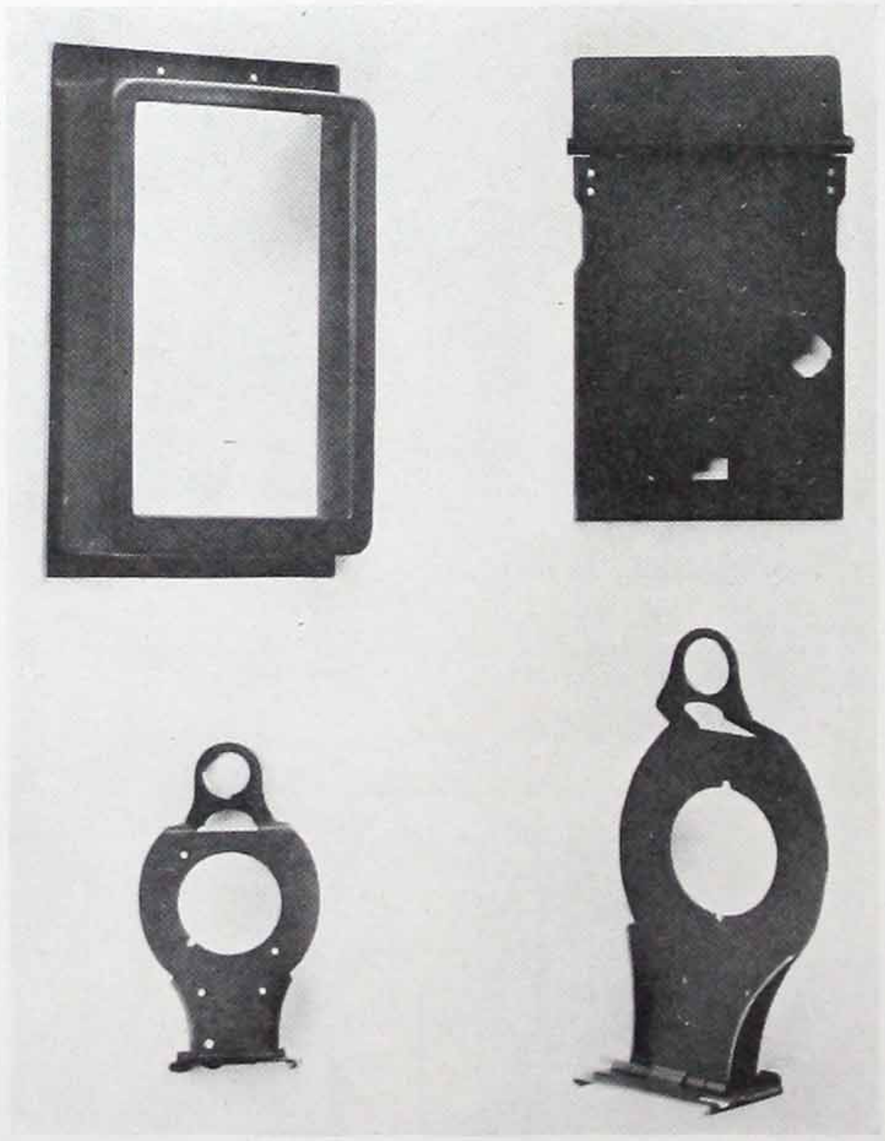
Packard Twin Six

The Packard Motor Car Company have been successfully operating a Parker Process installation in their plant for four years, and are now Parkerizing 800 different parts of their cars.

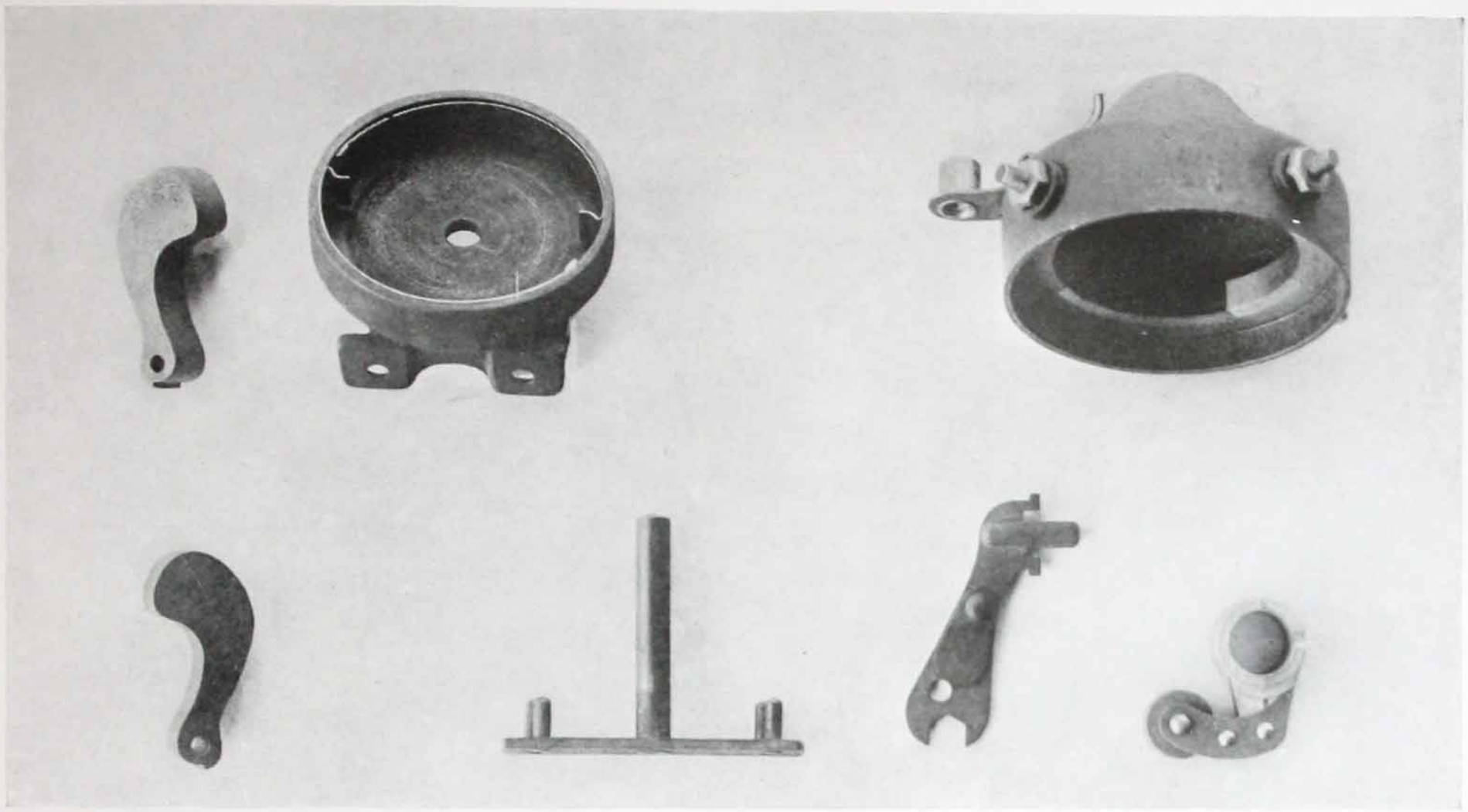
Telephone Equipment, Stromberg-Carlson Telephone Mfg. Co.

"Aervoid" Food and Liquid Containers
Vacuum Can Co.

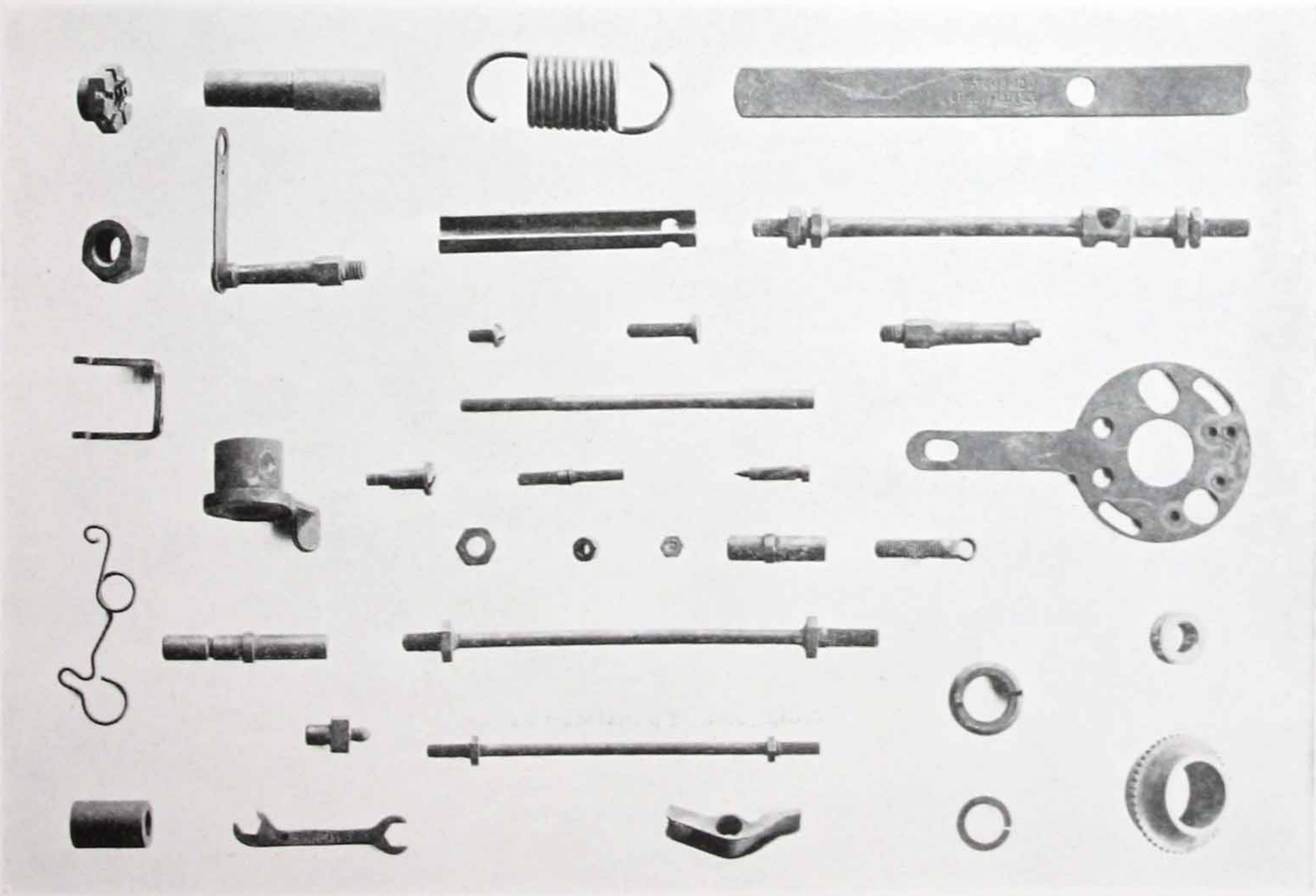




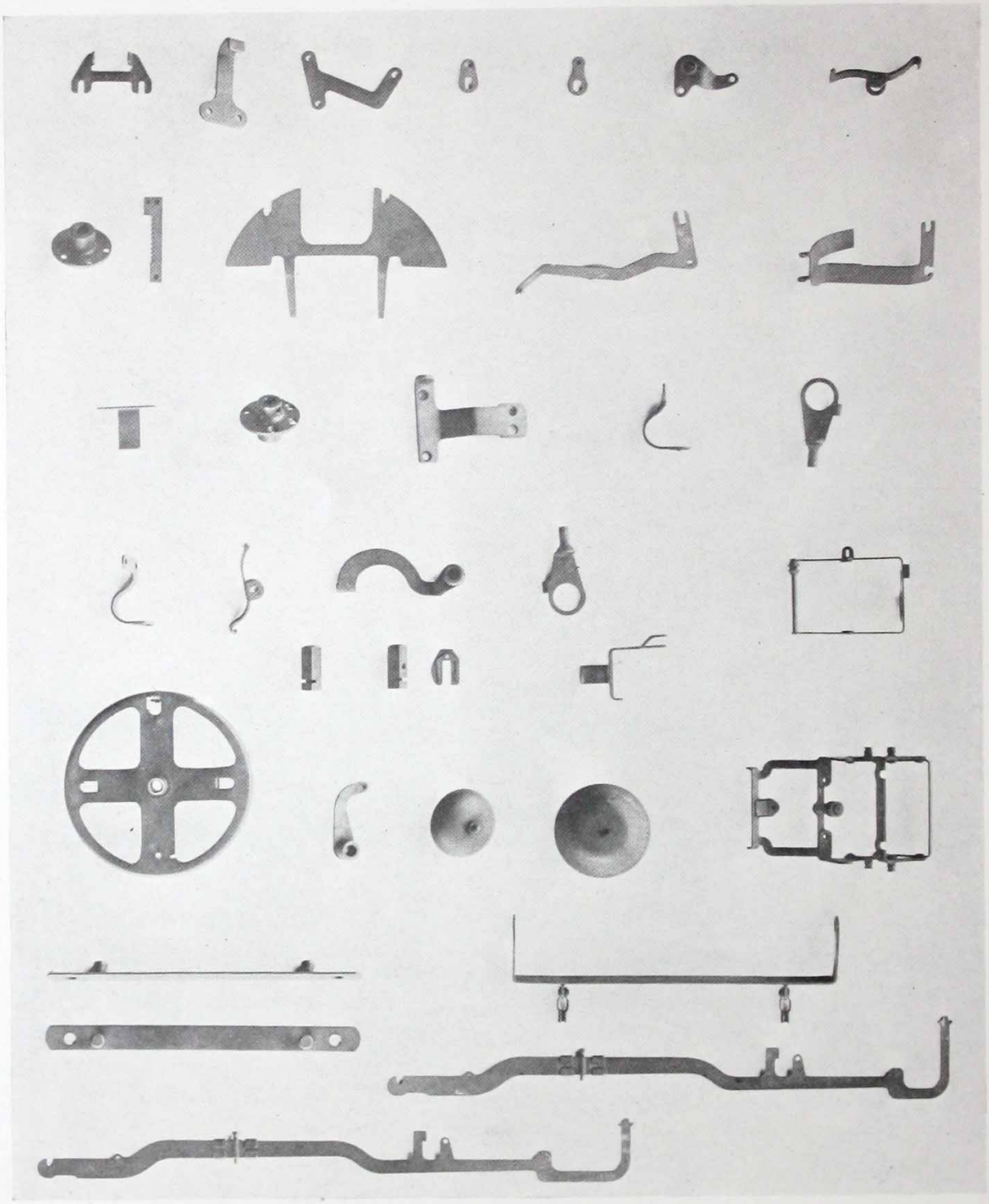
Eastman Kodak Parts



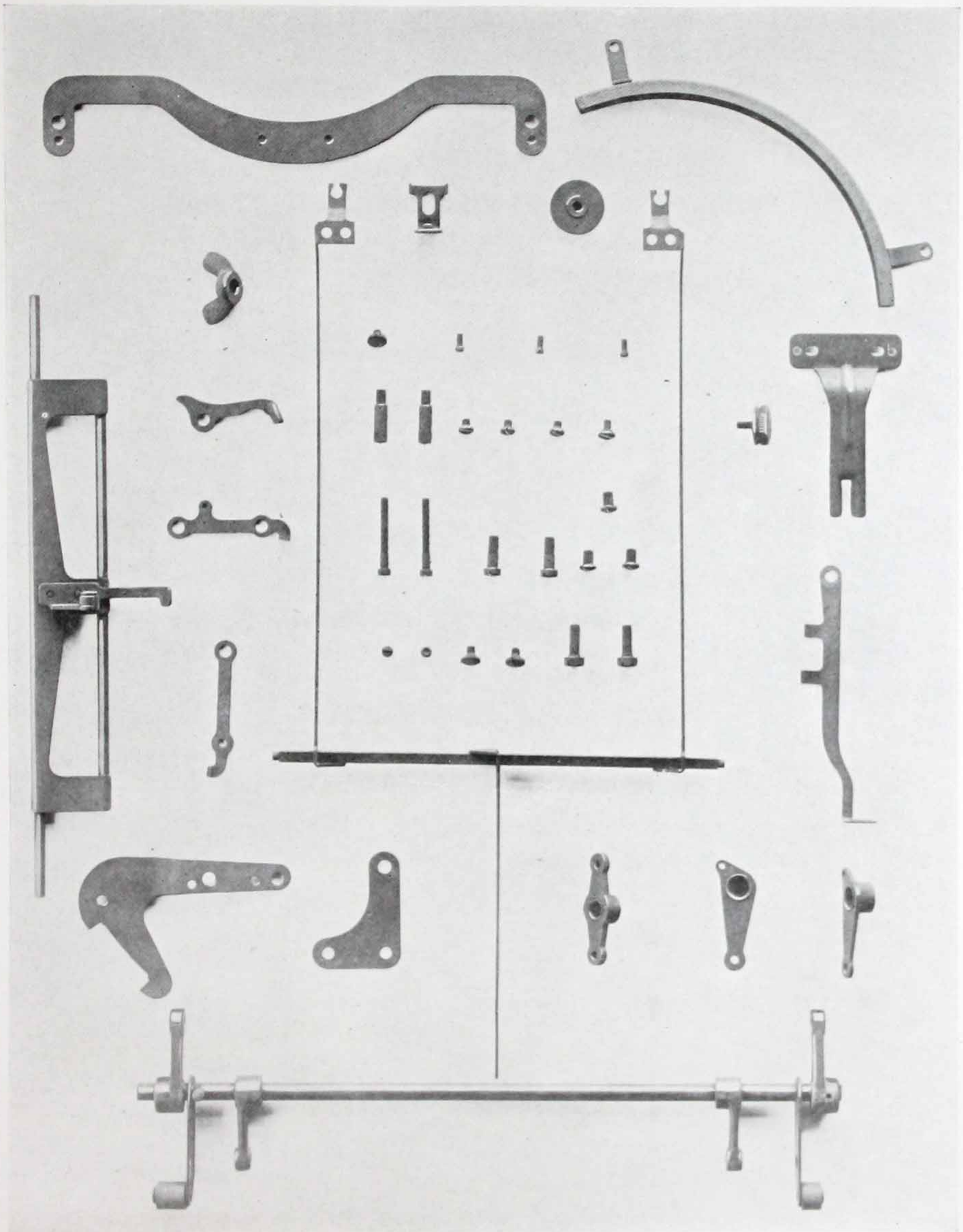
J & B Timer Parts, J & B Mfg. Co.



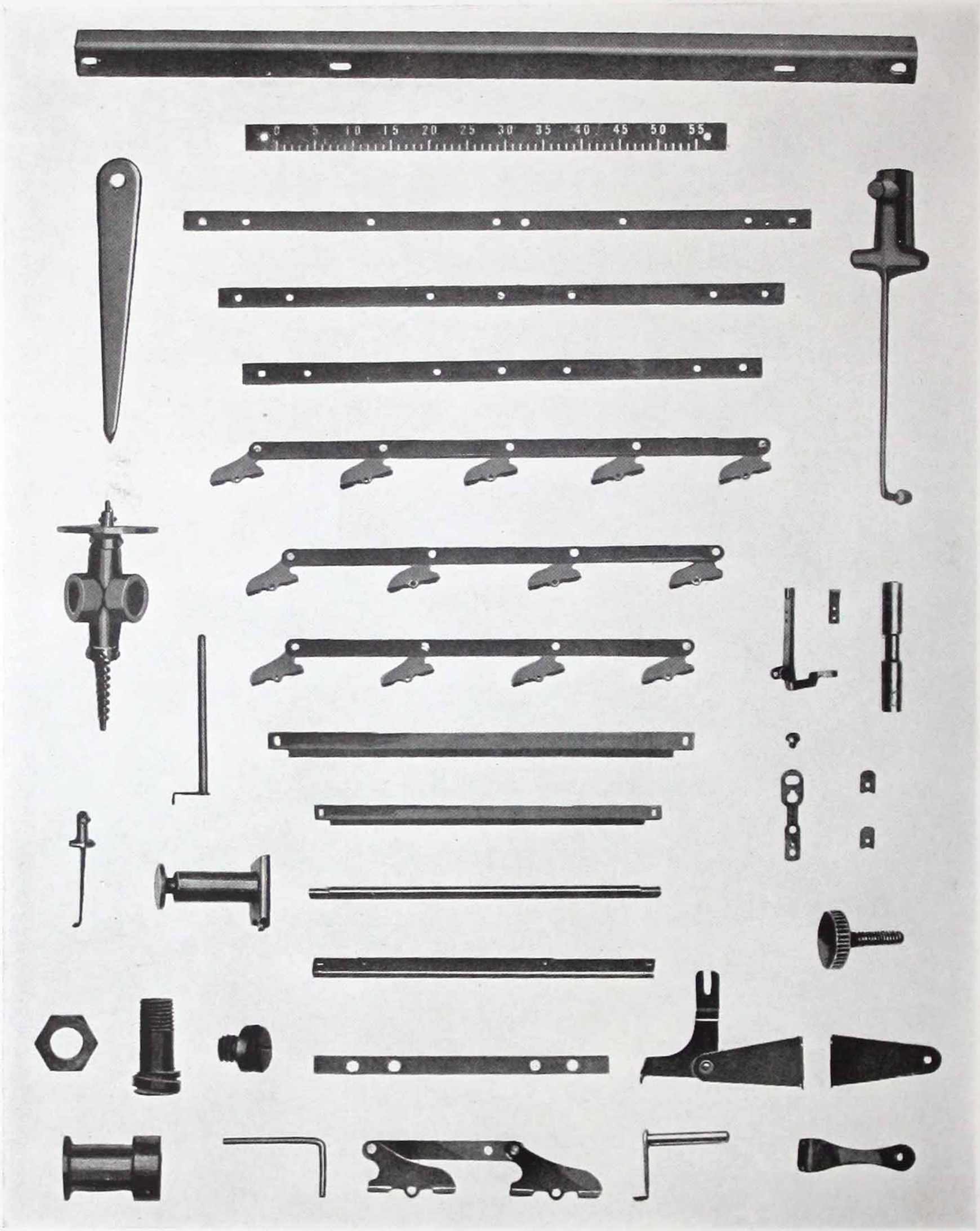
Parts of Magnetos for Aeroplane and Stationary Engines, Splitdorf Electrical Co.



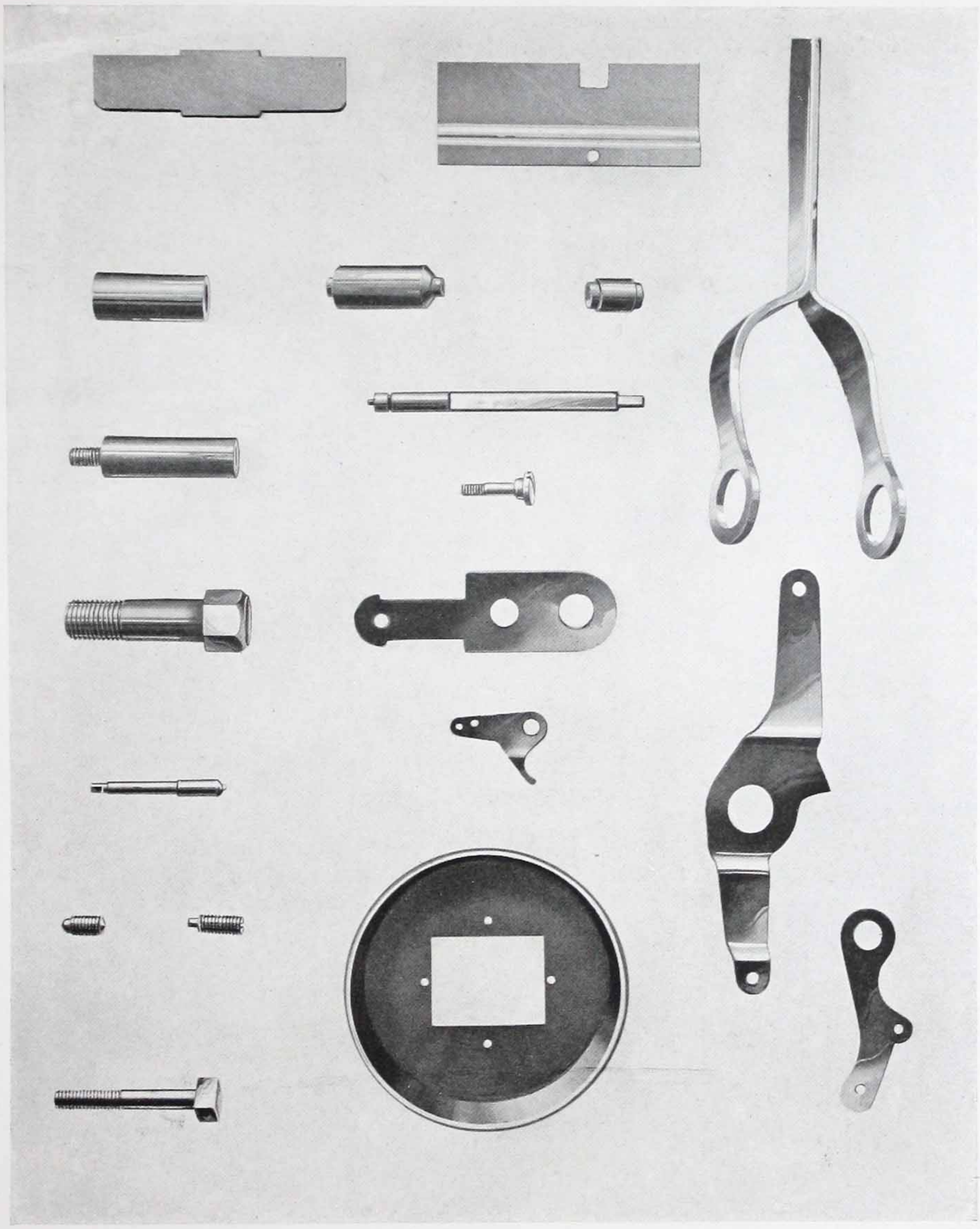
Remington Typewriter Parts



Smith Premier Typewriter Parts

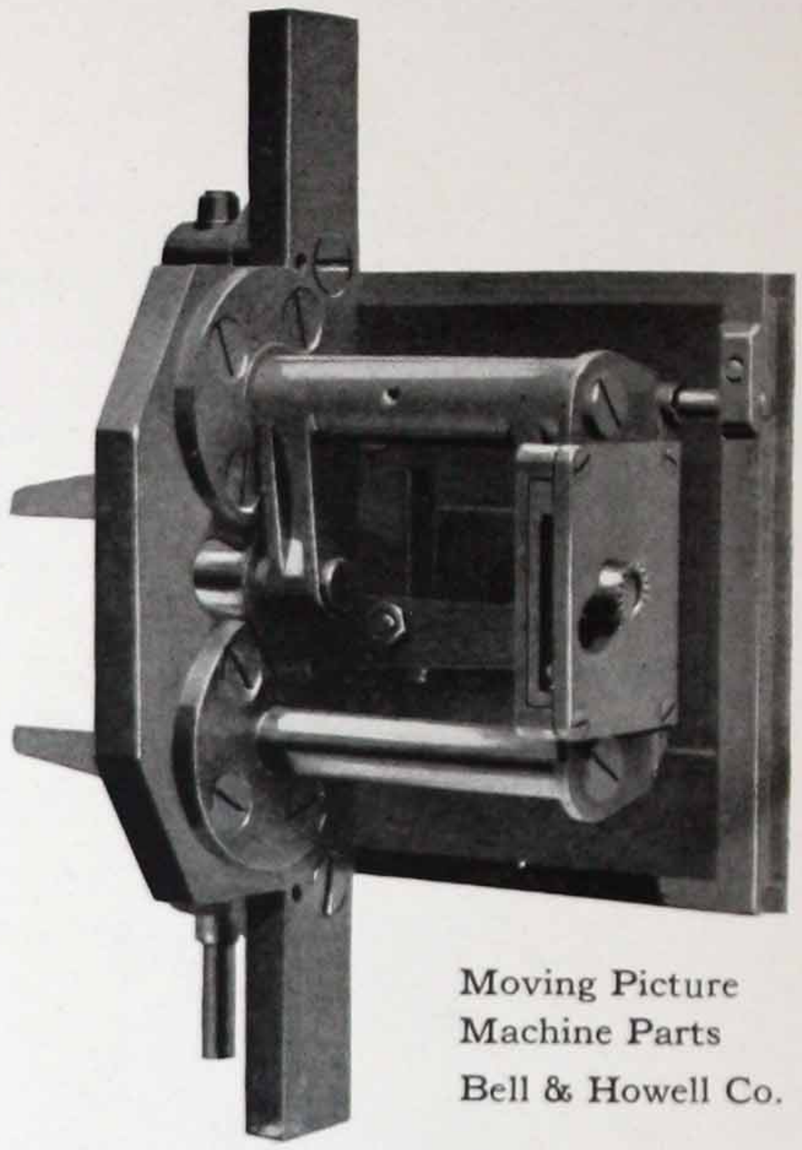


Graphophone and Dictaphone Parts
Columbia Graphophone Co.

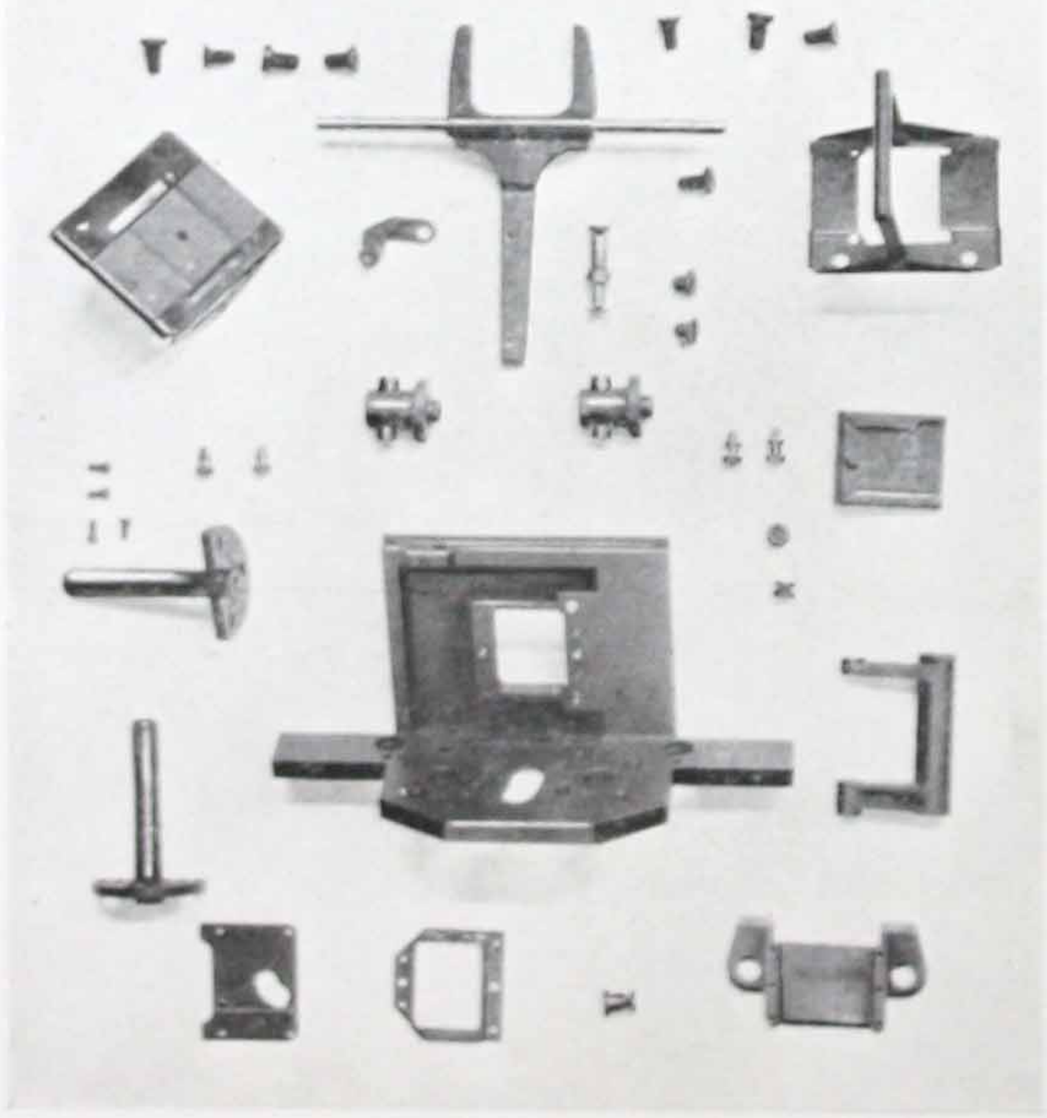


Stromberg Electric Co.

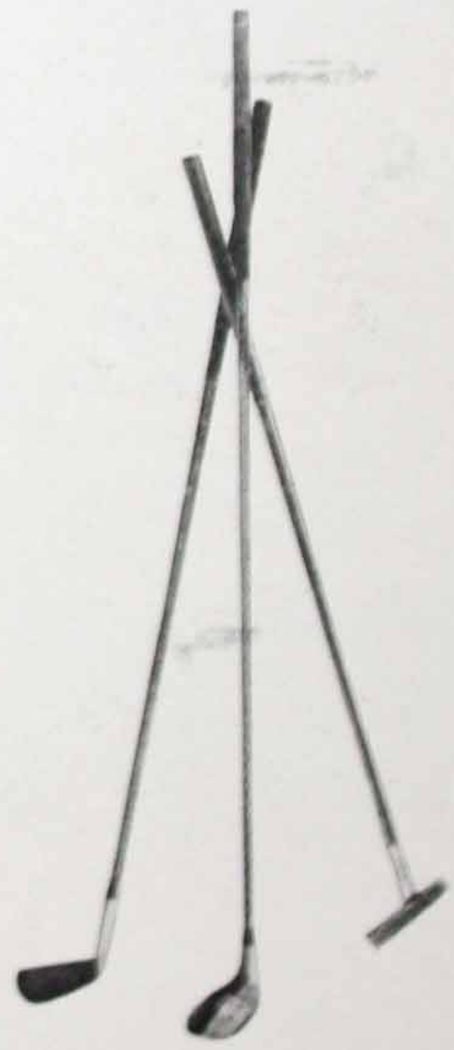
The "Range Eternal"
Manufactured by
Engman-Matthews Range Co.



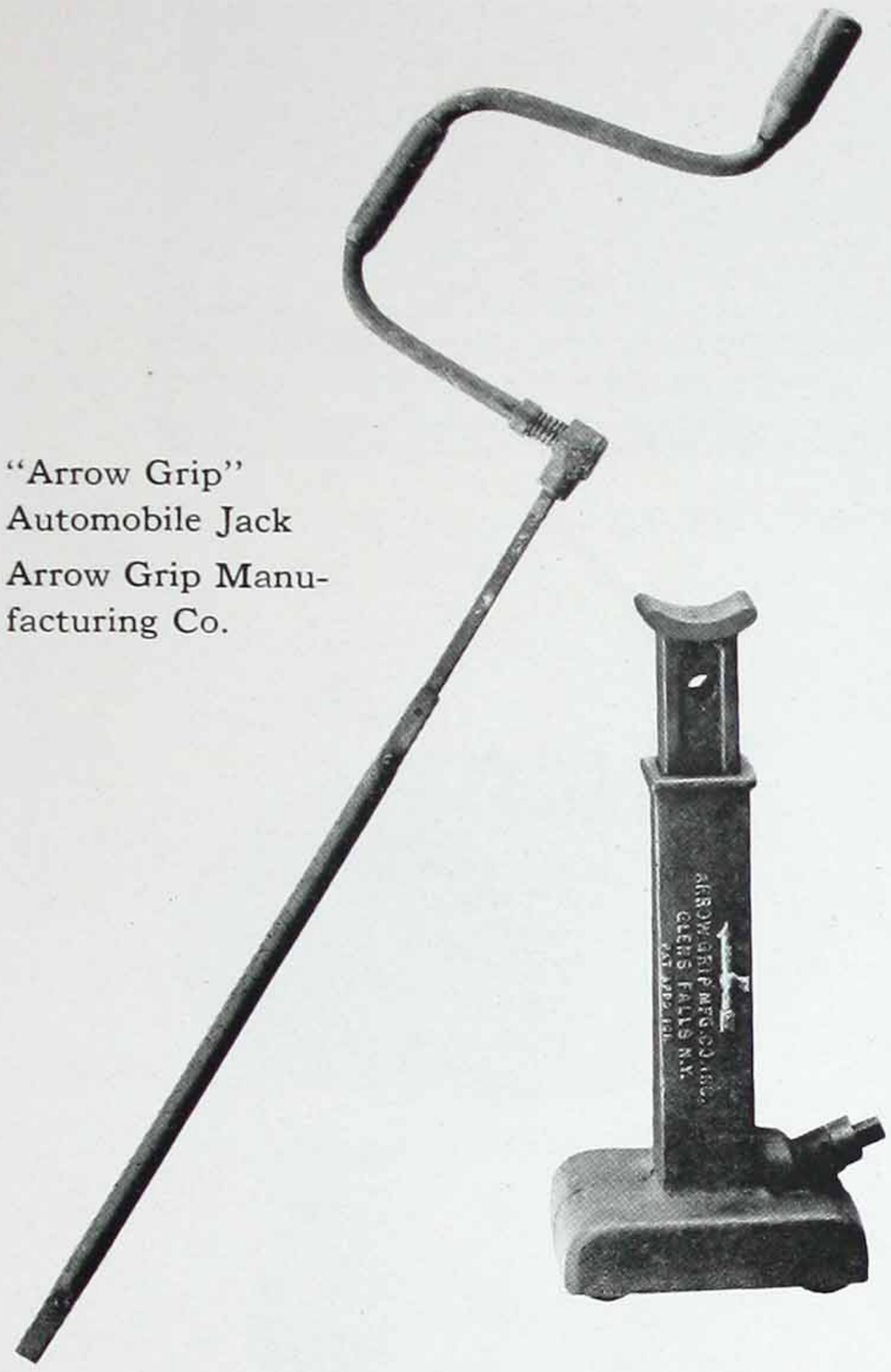
Moving Picture
Machine Parts
Bell & Howell Co.



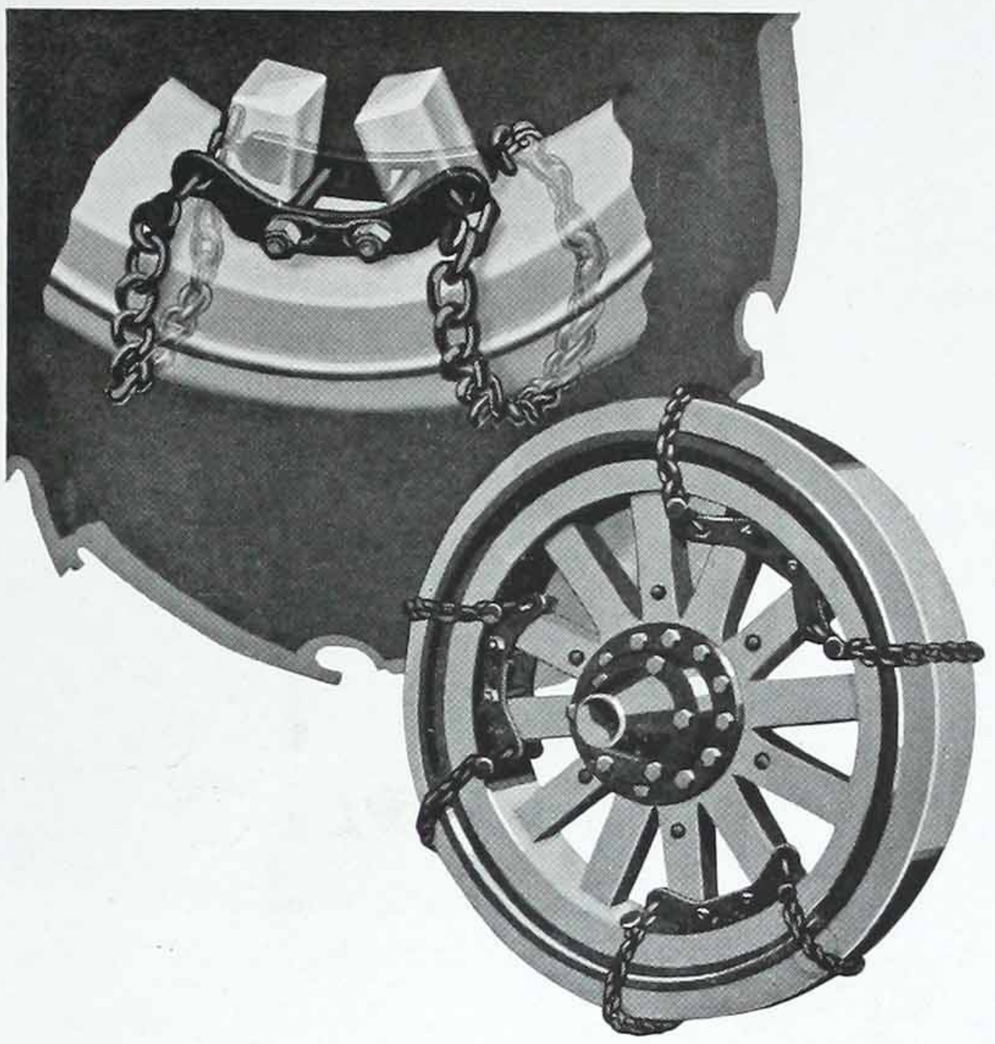
Moving Picture Machine Parts, Bell & Howell Co.



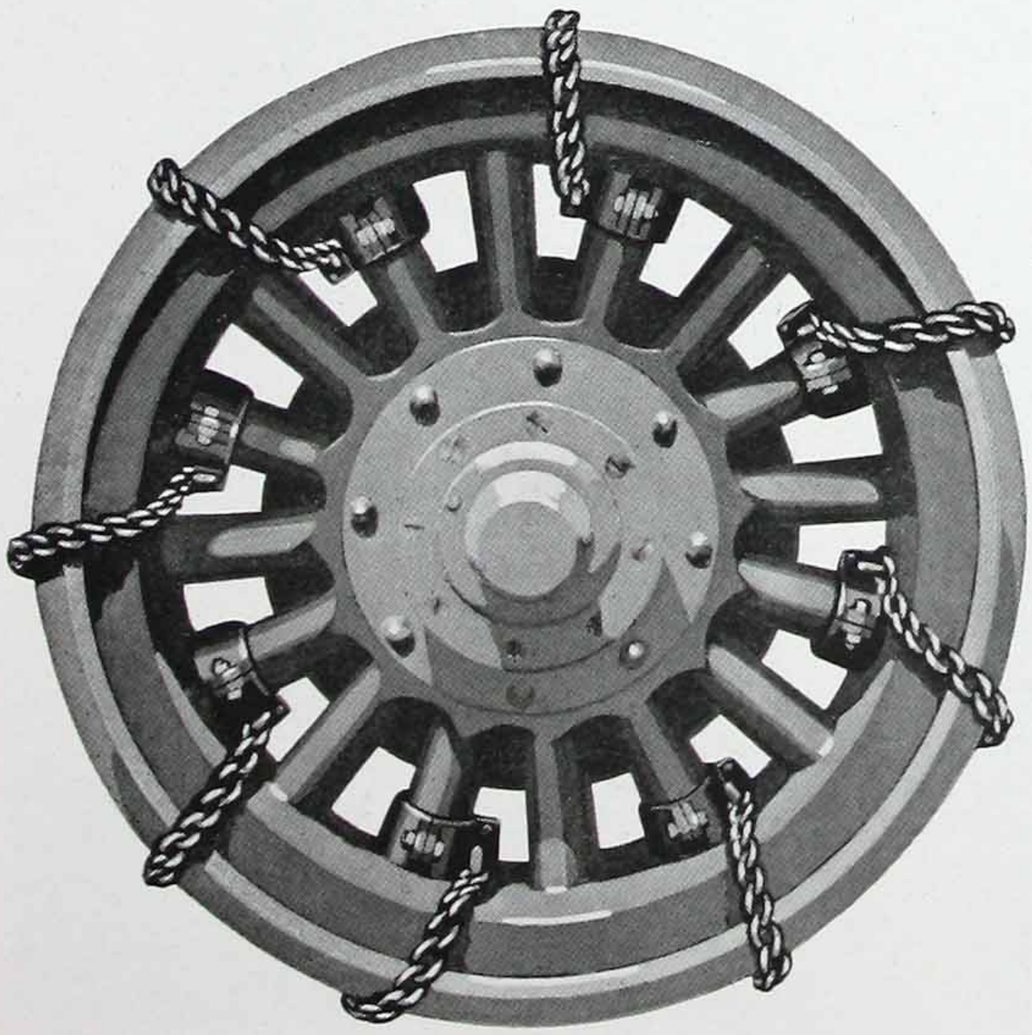
Spalding Golf Clubs



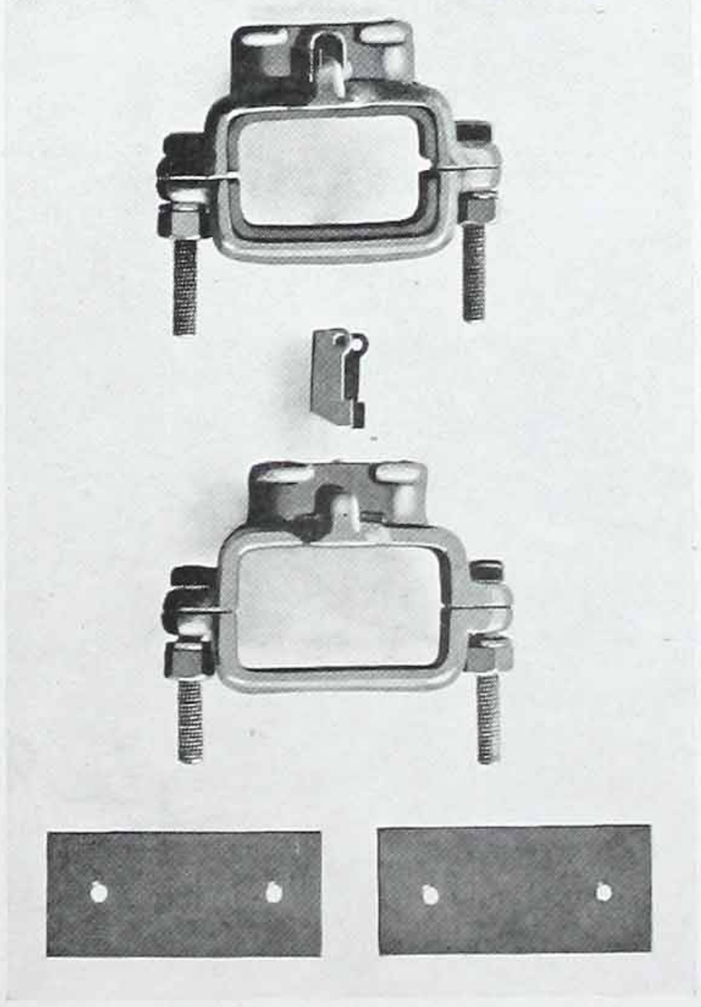
"Arrow Grip"
Automobile Jack
Arrow Grip Manufacturing Co.



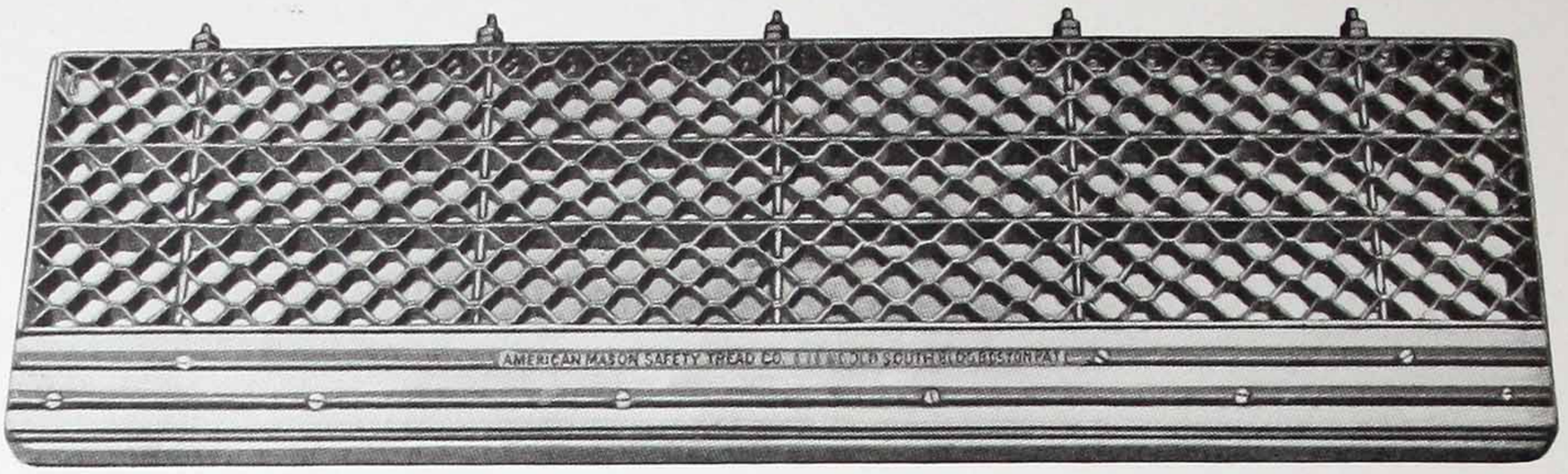
"Giant Grip" Traction Equipment
Challoner Co.



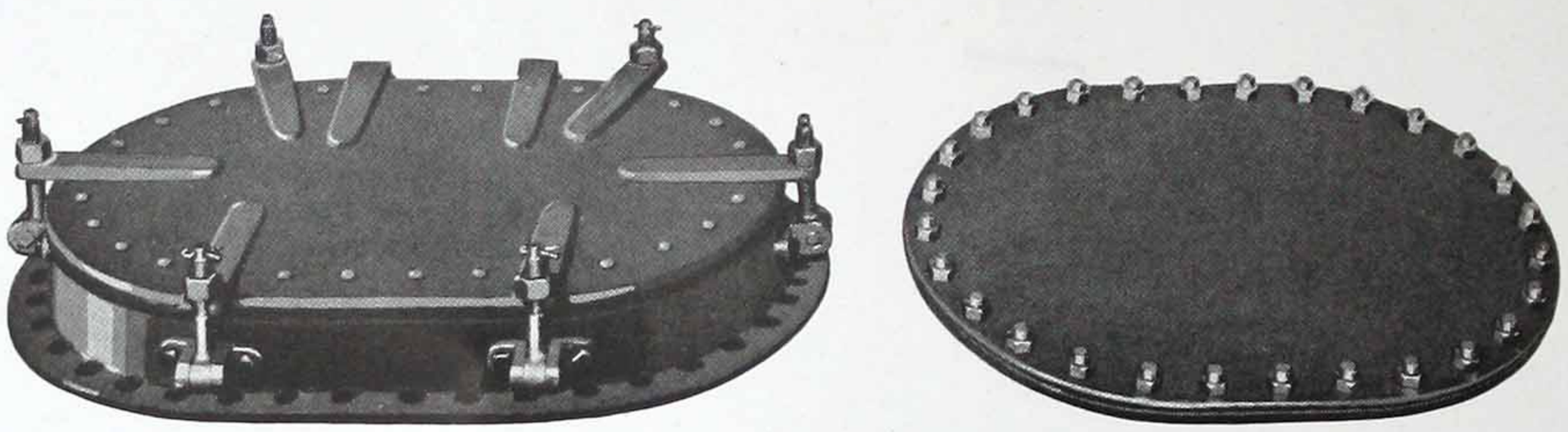
"Arrow Grip" Non-Skid Equipment
Arrow Grip Manufacturing Co.



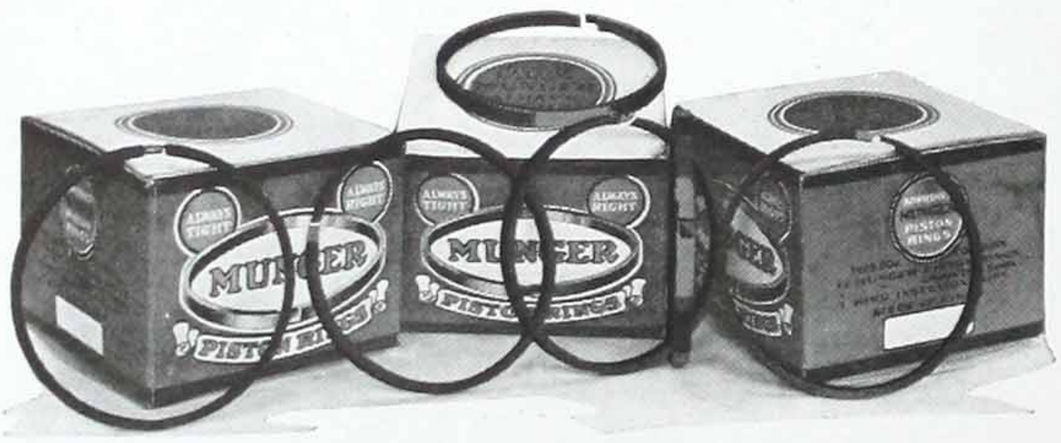
"Arrow Grip" Non-Skid Equipment
Arrow Grip Manufacturing Co.



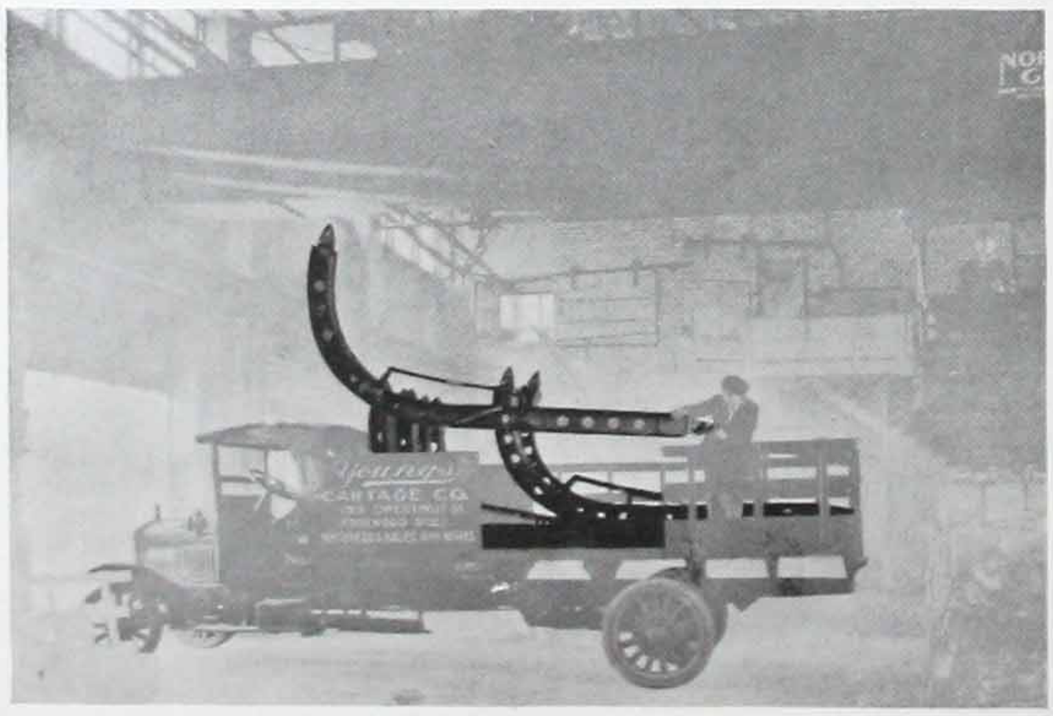
"Stanwood-Mason" Step, American Mason Safety Tread Company



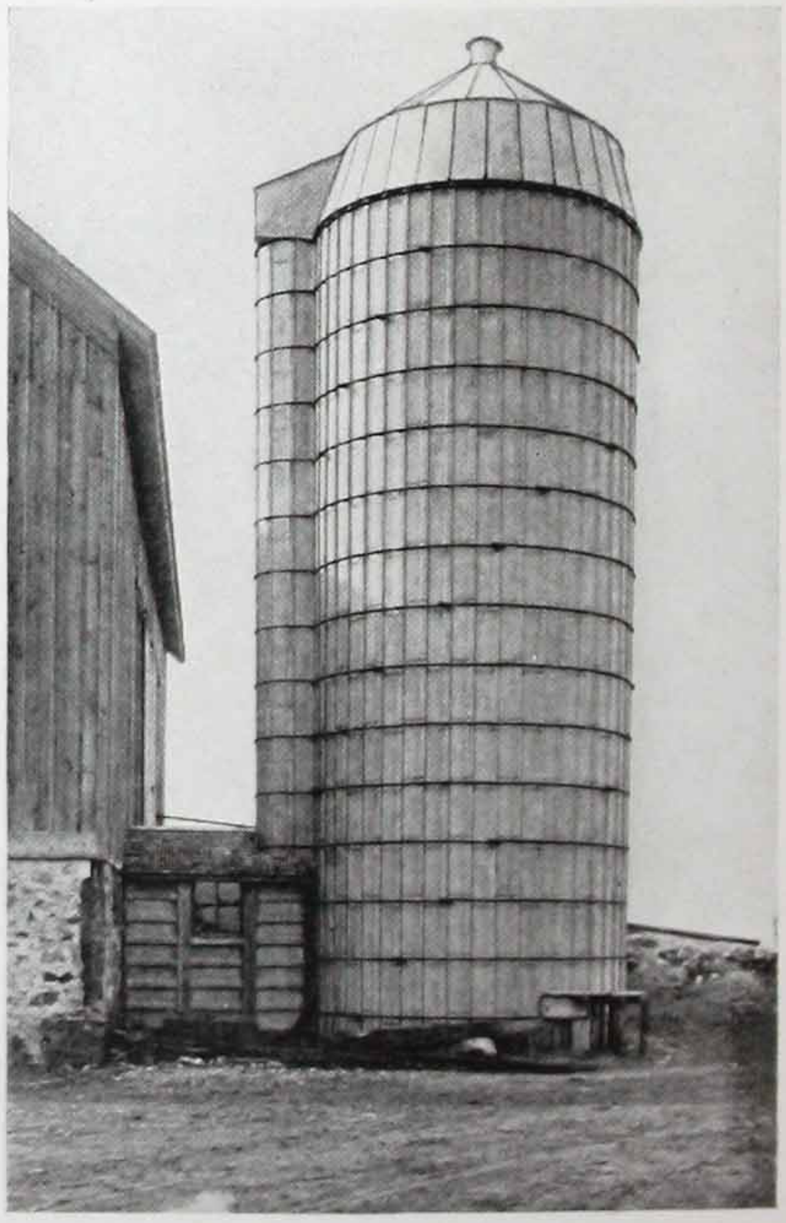
Hatch and Cover for "Eagle" Submarine Chasers, Dahlstrom Metallic Door Co.



Munger Piston Rings
Hendee Mfg. Co.



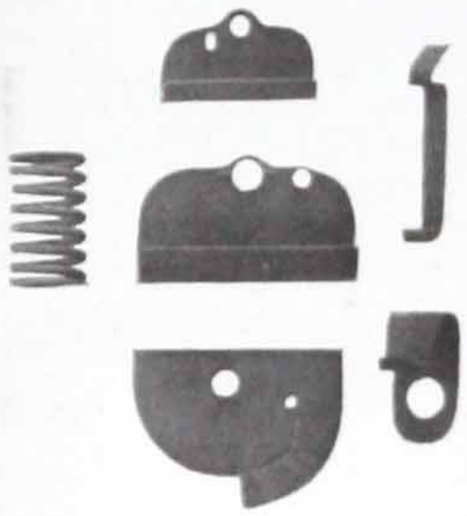
Anchor Davit for
"Eagle" Submarine Chasers



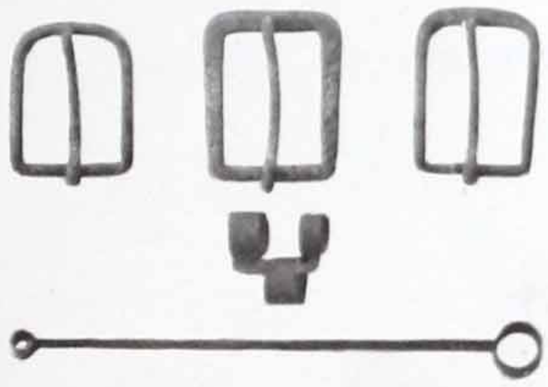
Hoops for Cement Stave Silos
Playford Mfg. Co.

Caster

Lock Parts
Slaymaker Lock Co.



Springs
Morgan Spring Co.

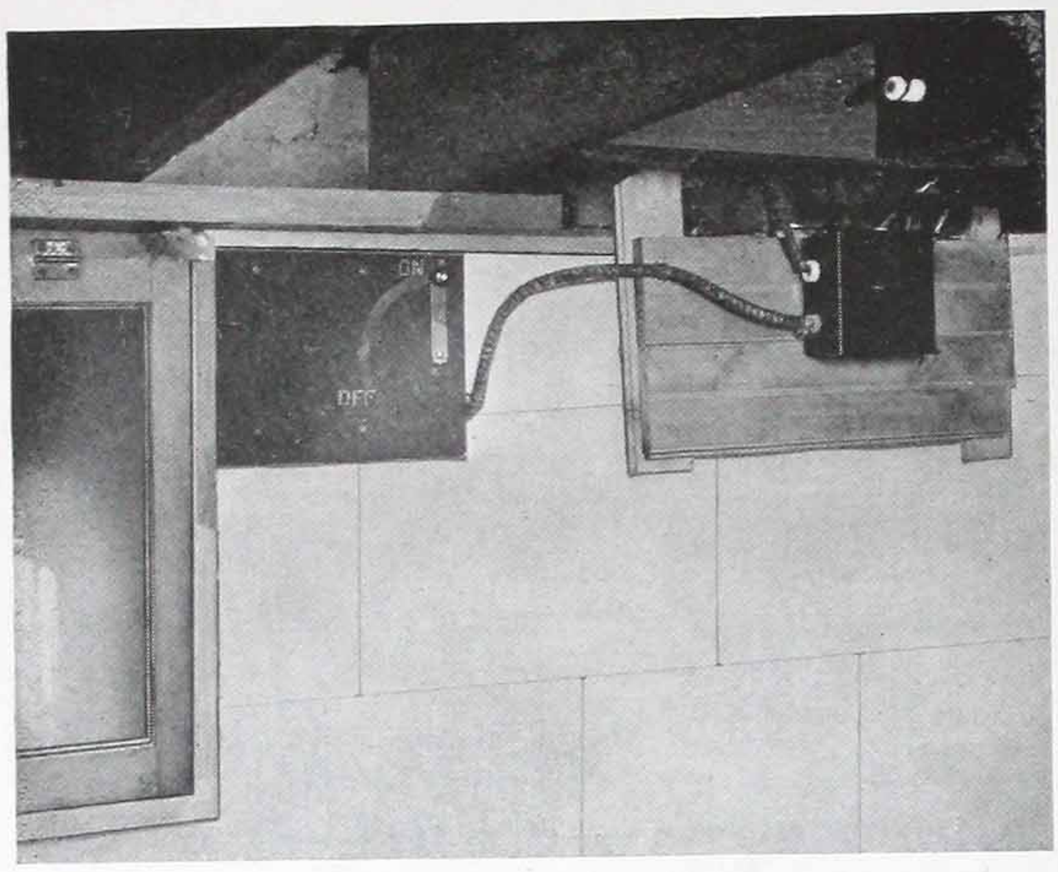


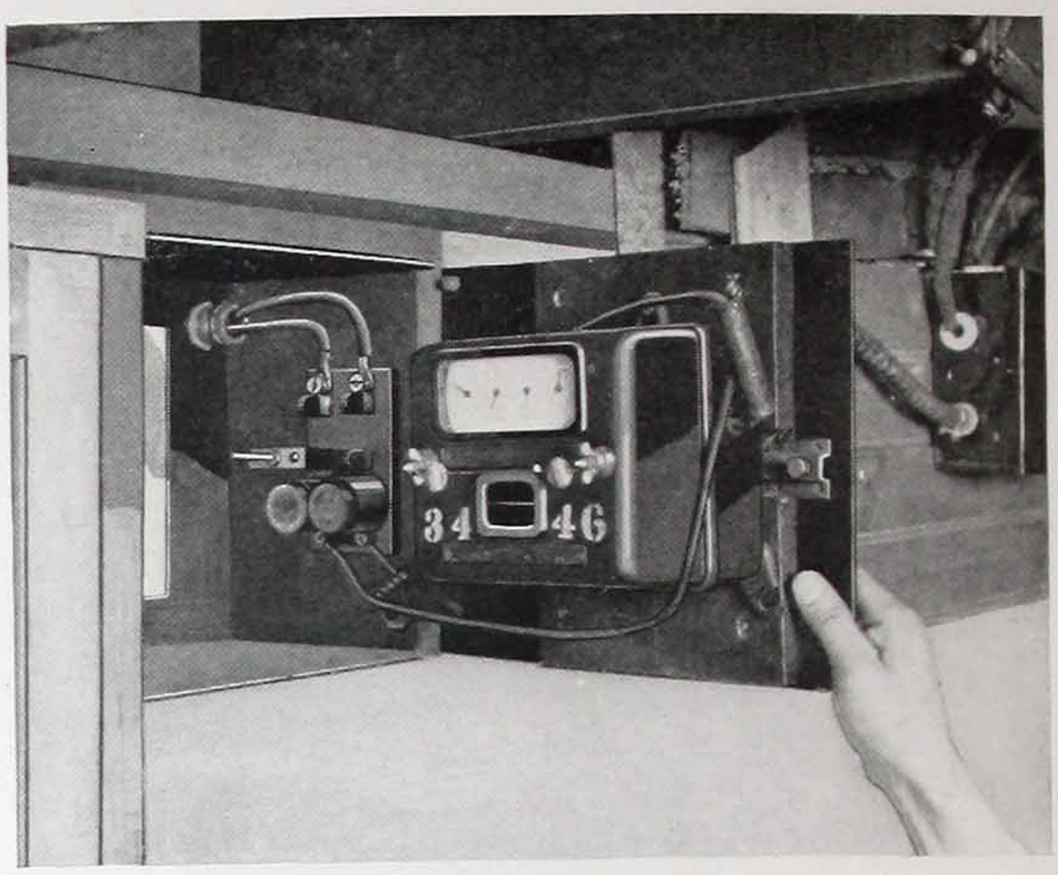
Machine Gun Belt Links and Buckles
The Traut & Hine Mfg. Co.

Window Lock
Fli-Bac Screen
'Corporation

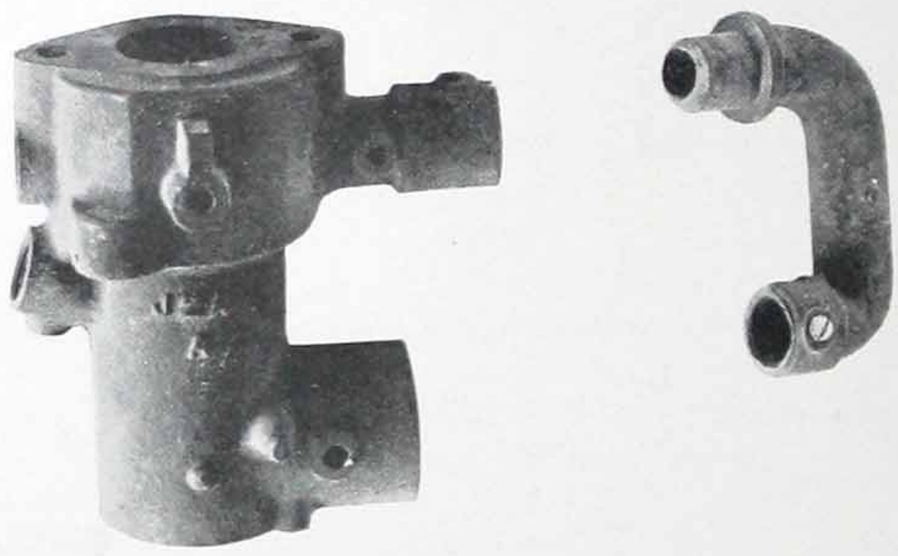
Spark Plug
National Lock Co.

Hose Clamp
Federal Tin Co.

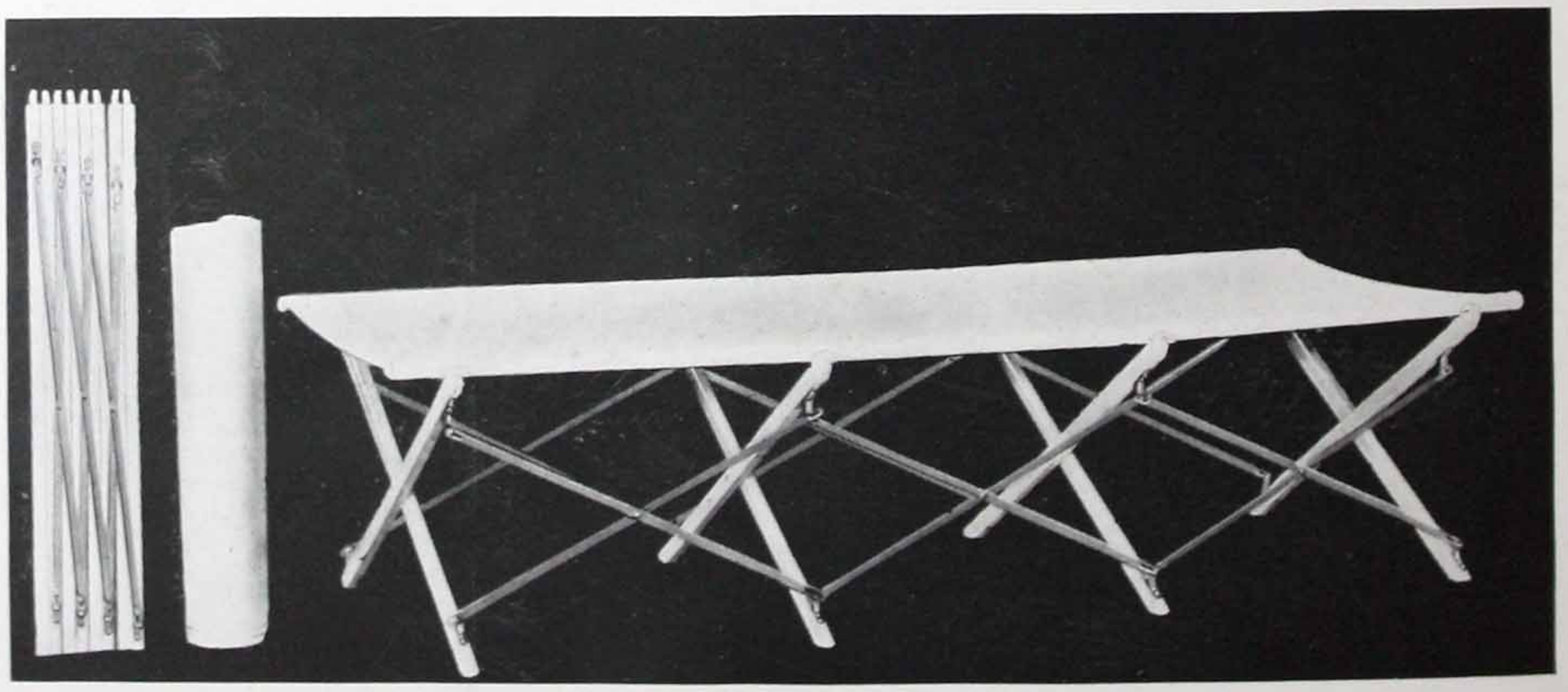




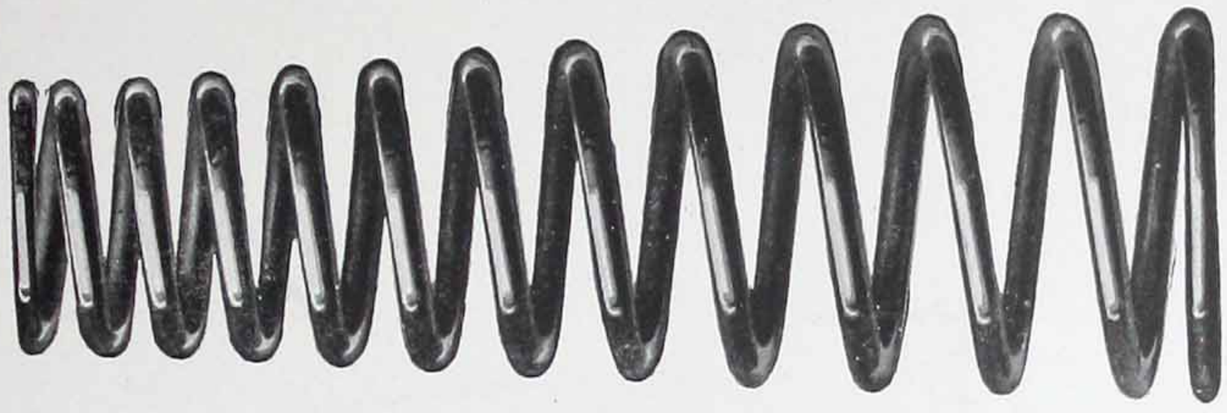
Electric Meter Boxes for Outdoor Reading, Safety Meter Box Co.

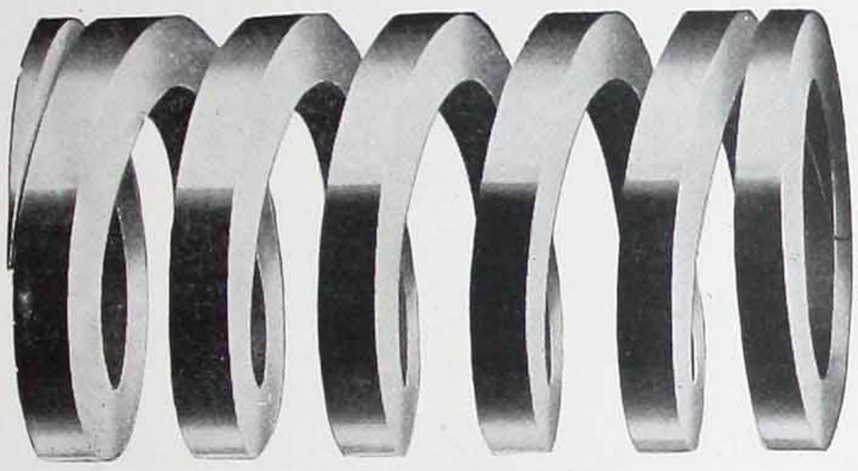


Carbureter Parts, Marvel Carbureter Co.

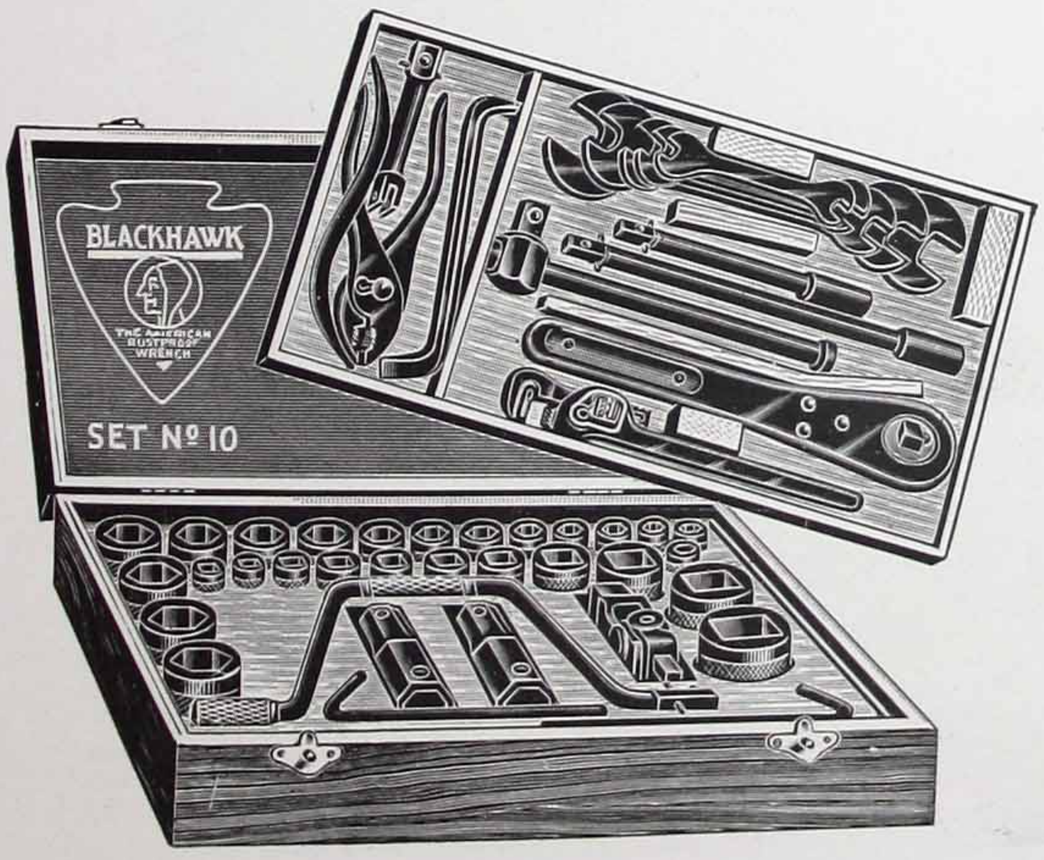


Folding Cot, made by Telescope Cot Bed Co., New York, N. Y.

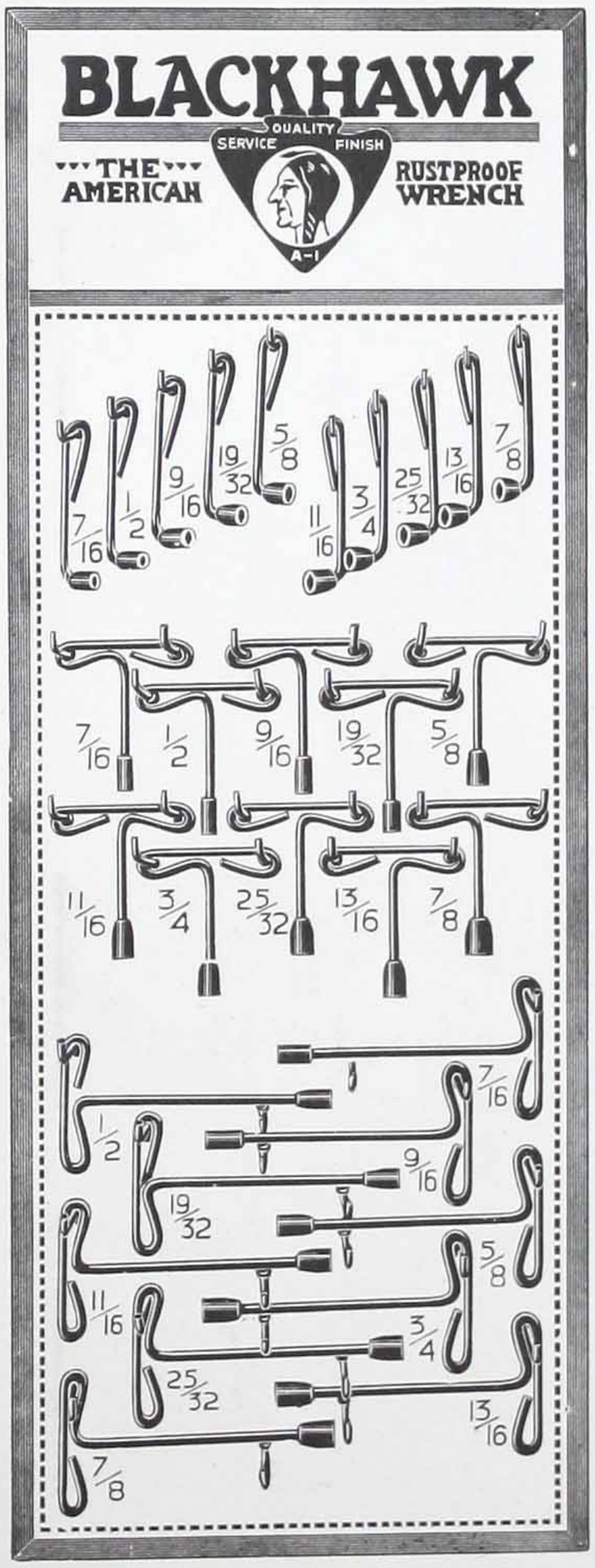




New York Wire & Spring Co.



American Grinder Mfg. Co.



Evans Winner Hebb
printing