No. 763,887. PATENTED JUNE 28, 1904.

A. L. HASTINGS.

PNEUMATIC RIVET HOLDER.

APPLICATION FILED JAN. 8, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

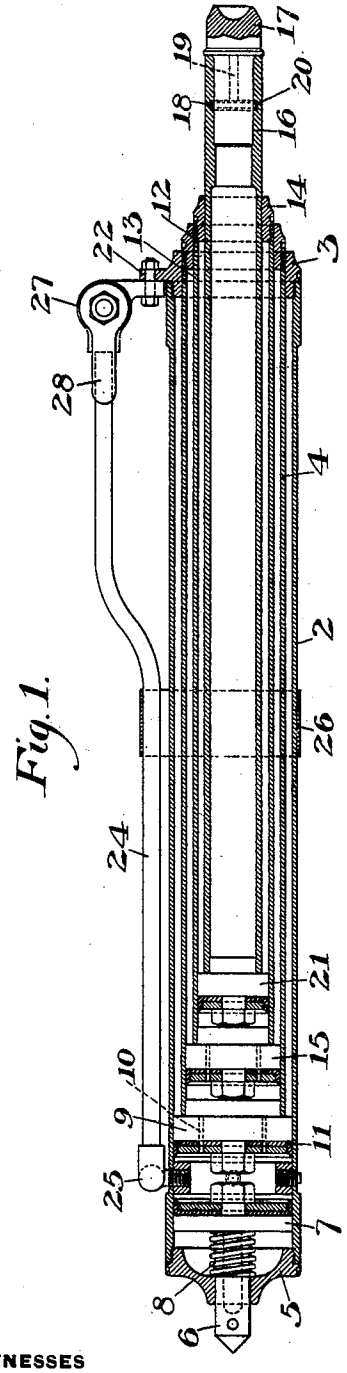



Fig. 1.

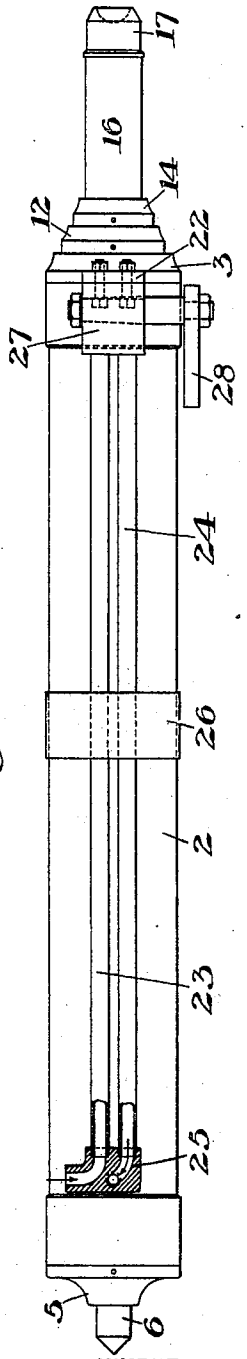



Fig. 2.

WITNESSES

Warren W. Swartz

H. M. Corning

INVENTOR

A. L. Hastings

by Dal Cann & Byrnes

his attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 763,887. PATENTED JUNE 28, 1904.

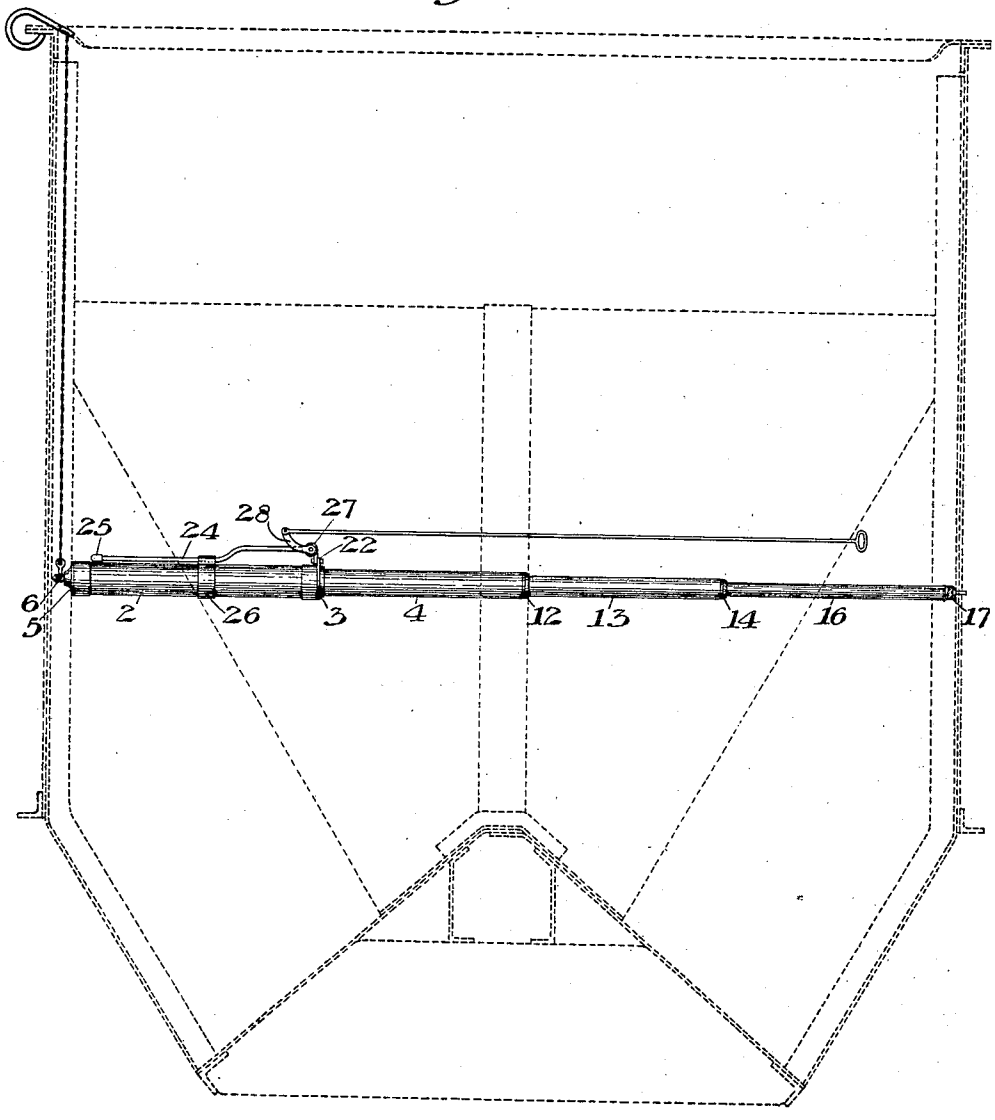
A. L. HASTINGS.

PNEUMATIC RIVET HOLDER.

APPLICATION FILED JAN. 8, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

*Fig. 3.*




WITNESSES

Warren W. Swartz

H. M. Corwin

INVENTOR

A. L. Hastings

by Baldwin & Hughes

his attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 763,887. Patented June 28, 1904.

# UNITED STATES PATENT OFFICE.

ALONZO L. HASTINGS, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO PRESSED STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA.

## PNEUMATIC RIVET-HOLDER.

SPECIFICATION forming part of Letters Patent No. 763,887, dated June 28, 1904.

Application filed January 8, 1904. Serial No. 188,244. (No model.)

*To all whom it may concern:*

Be it known that I, ALONZO L. HASTINGS, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Pneumatic Rivet-Holder, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional side elevation of my improved rivet-holder. Fig. 2 is a top plan view of the same; and Fig. 3 is a partial vertical cross-section of a steel car, showing my improved device in working position.

My invention relates to the devices used for backing up the head of a rivet while the other end of the rivet is being hammered into head form, and is designed to provide a simple and effective device of this character which shall be under complete control of the operator and can be extended so as to bear against a distant backing, such as the side of a car.

The invention is also designed to provide a pneumatic cushion, which will take up the jars of the hammer.

In the drawings, 2 represents an outer metallic shell or casing which forms a motive cylinder and is provided at its front end with a gland 3, receiving a second cylinder 4, which slides therein. The rear end of the outer cylinder is closed by a head 5, secured into the outer cylinder and through which projects centrally a rod 6, secured to an inner packed piston 7. Within the cylinder and between the piston and the head 5 is placed a strong spiral spring 8, which normally holds the piston 7 in the position shown.

The cylinder 4 is secured at its rear end to a packed piston 9, which is provided with through-holes 10 and with suitable packing strips or rings 11. The cylinder 4 is provided at its front end with a gland 12, which fits neatly around an inner concentric cylinder 13, also having a gland 14 at its front end. The tube or cylinder 13 is secured at its rear end to a perforated piston 15, similar in form to the piston 9 and having similar backing and through-holes. Within the gland 14 fits the hollow shaft or tube 16, carrying at its front end the removable standard rivet-set fitting 17. I have shown this rivet-fitting as held in position by a pin 18, which slides through the longitudinal internal groove 19 of the tube 16 until it reaches the annular inner groove 20, when a slight turn of the fitting locks it in position. The opposite end of the rivet-holder shaft is secured to a piston 21, fitting in the tube 13 and having suitable backing. This piston is imperforate.

A bracket 22 is secured to the gland 3, and the inlet and outlet pipes 23 and 24 lead from a valve-casing on the bracket-back to a fitting 25, secured in the outer casing between the pistons 7 and 9. These pipes are intermediately held to the apparatus by a band 26. The valve 27 in the valve-casing may be operated by a suitable handle 28.

In using the apparatus on account of the telescopic-cylinder system the device may be extended so as to bear against the opposite side of a car or a distant backing, as shown in Fig. 3. In this case the motive fluid being supplied to the device it will be held firmly in place on the rivet while the pneumatic hammer or other device is being used, the head being on the opposite end of the rivet. The blows imparted to the rivet-fitting will tend to force the air backwardly and through the perforated pistons and against the piston 7, and hence a pneumatic cushion is afforded which will absorb the shocks. The hand-operated valve is in the front end of the casing and in a convenient position for the operator. The several cylinders move within each other when air is admitted, and the pressure will equalize in the several cylinders, so that they will be partly extended in ordinary cases.

The advantages of my invention result from the telescoping system and also from the pneumatic cushion for absorbing the shocks, also from the location and connections of the valve.

Many changes may be made in the form

and arrangement of the cylinders, the rivet-fitting, the valve system, &c., without departing from my invention.

I claim—

1. A pneumatic rivet-holder comprising a casing containing a series of telescopic plungers having rear heads, at least a part of which are provided with constricted openings, said casing having a fluid-inlet in the rear of the plungers, and a rivet-fitting secured to the projecting end of the innermost cylinder; substantially as described.

2. A pneumatic rivet-holder having a rivet-fitting secured to the projecting end of a plunger with a closed rear end, and a telescopic cylinder surrounding the plunger and having a rear piston fitting in a surrounding cylinder or casing and having a constricted opening, said holder having a fluid-inlet in the rear of the telescopic cylinder; substantially as described.

3. A pneumatic rivet-holder having a rivet-fitting secured to a movable plunger, a cylinder surrounding the plunger and a yielding rear head within the cylinder and arranged to assist in absorbing the shocks, said holder having a fluid-inlet between the rear head and the movable plunger; substantially as described.

4. A pneumatic rivet-holder having a cylinder, a yielding rear head therein, having means to bear upon an exterior support, a plunger carrying the rivet-fitting and a fluid supply and exhaust system entering the cylinder between the head and plunger; substantially as described.

5. A pneumatic rivet-holder having a piston within its rear head, a rod extending from the piston through said rear head, a spring surrounding the rod within the cylinder and a plunger within the holder carrying a rivet-fitting; substantially as described.

In testimony whereof I have hereunto set my hand.

ALONZO L. HASTINGS.

Witnesses:

L. A. CONNER, Jr.,

G. B. BLEMING.