

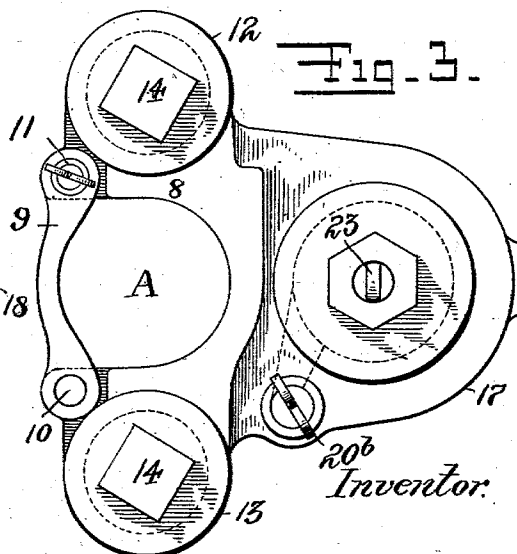
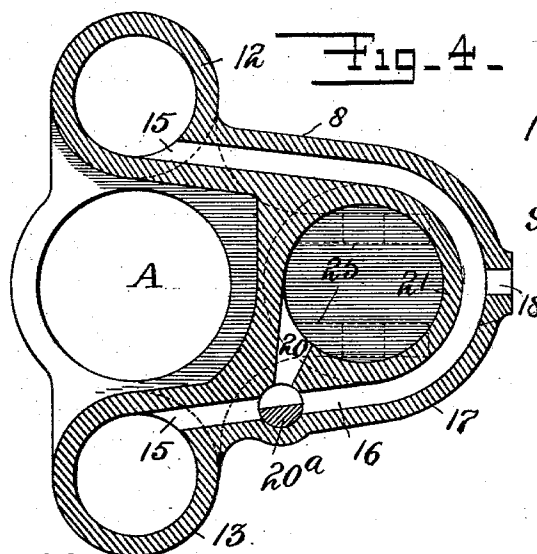
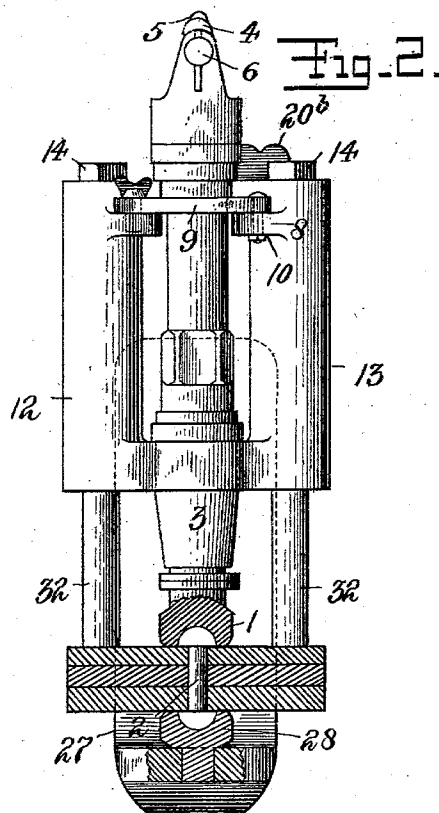
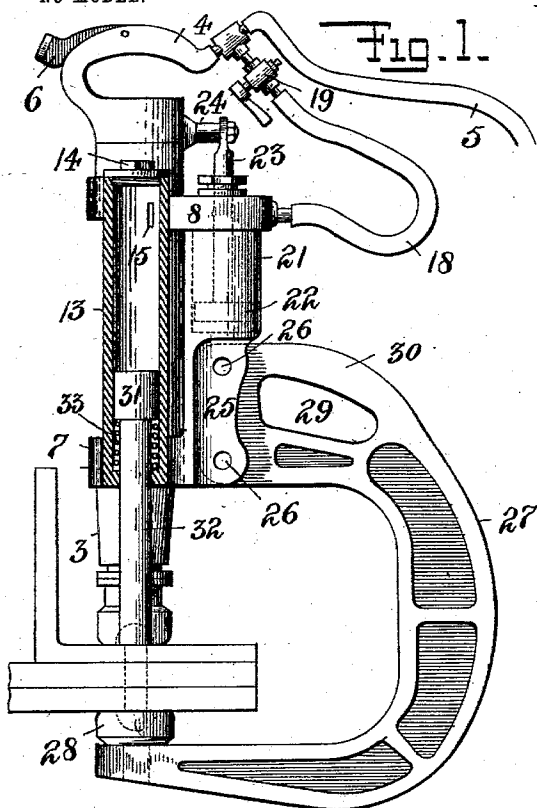
No. 748,816.

PATENTED JAN. 5, 1904.

E. F. TERRY.  
RIVET HOLDER.

APPLICATION FILED MAY 19, 1902.

NO MODEL.



Witnesses:  
J. B. McGirr.  
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# UNITED STATES PATENT OFFICE.

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## RIVET-HOLDER.

SPECIFICATION forming part of Letters Patent No. 748,816, dated January 5, 1904.

Application filed May 19, 1902. Serial No. 107,971. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD F. TERRY, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, county and State of New York, have invented a Rivet and Hammer Holder, of which the following is a specification.

In the accompanying drawings, Figure 1 is a side view of a pneumatic hammer with my rivet-holder attached, with the cylinder 13 longitudinally sectioned. Fig. 2 is a front view of the same with the hammer-head, the set, and the material being riveted in section. Fig. 3 is a top view of my rivet-holder detached from the hammer. Fig. 4 is a horizontal section of my rivet-holder detached from the hammer, the plane of section being through the air-passages 15. In Figs. 3 and 4 the space or position occupied by the hammer is lettered A.

No detailed description of the hammer proper is necessary, since it is well known as consisting of a member 1, adapted to transmit to the rivet 2 the force of blows received from suitable pneumatically-operated mechanism in the casing 3, there being at the top of said casing a handle 4, through which the air is transmitted from a supply-pipe 5 under the control of a valve operated by the trigger 6.

The frame of my rivet-holder is provided with collars 7 and 8, which are adapted to fit around the casing of the hammer and support the attachment thereon. The collar 8 is preferably supplied with a swinging front 9, pivoted at 10 and secured at the opposite end by a thumb-screw 11, so as to operate as a gate, the opening of which will enable the attachment to be dismounted from the hammer-casing. Upon opposite sides of the collars 7 and 8 are mounted the vertical cylinders 12 and 13, axially parallel with and on diametrically opposite sides of the cylinder of the hammer when occupying the space A. These two cylinders are of similar construction. The following description of one therefore answers for a description of both.

14 is a removable cylinder-head. 15 is an air-port into the upper portion of the cylinder from the air-passage 16, extending through the bracket 17 from one cylinder to the other. 31 is the piston of the cylinder,

the piston-rod 32 of which projects downwardly, so as to bear against the upper portion of the material to be riveted.

33 is a coiled spring tending to elevate the piston-rod 32. The two piston-rods 32 32 of the cylinders 12 and 13, respectively, bear against the material to be riveted on opposite sides of the rivet, as shown in Fig. 2.

18 is a pipe leading from the compressed-air-supply pipe 5 to the passage 16, controlled by the hand-operated valve 19, which is a three-way valve adapted to connect the pipe 18 with the supply-pipe 5 for pressure or with the open air for exhaust.

20 is a port from the passage 16 into the cylinder 21 at the upper portion thereof.

20<sup>a</sup> is a valve operated by the handle 20<sup>b</sup>, whereby the port 20 may be cut off from the passage 16, if desired.

22 (shown in dotted lines in Fig. 1) is the piston of said cylinder secured to the piston-rod 23, fixed to the stud 24, projecting from the hammer-casing.

25 25 are a pair of lugs extending downwardly from the bottom of the cylinder 21, between which is secured by the bolts 26 26 the upper end of the yoke 27, carrying at its lower end a set 28, adapted to hold up the head of a rivet. This yoke is provided with a hand-opening 29, so that the portion 30 of the yoke and the portion 4 of the hammer afford handles whereby the operator can successfully and conveniently place the combined structure in position.

From the above description it will be seen that the outfit consists of the hammer, which may be of any suitable construction, and a holding-on or setting device whereby the rivet is set or held in position to be riveted by the hammer. In the preferable form shown the set 28, which holds the head of the rivet, and the points at which the clamping members 32 32 impinge against the material are substantially at the angles of an inverted isosceles triangle, in the base-line of which the riveting member 1 of the hammer lies. This relative position of the four points at which the rivet and riveted material are held and acted upon secures a perfect balance of forces, assuring precision.

The operator holds the combined structure so that the set and hammer are in line with

the rivet intended to be driven. The valve 19 is then opened, admitting compressed air into the passage 16, from which it passes into the cylinders 12, 13, and 21. The action of the air against the piston 22 forces the set 28, carried by the yoke 27, against the head of the rivet. The pressure of the air against the pistons 31 forces the lower ends of the piston-rods 32 32 against the surface of the material, and thus draws the rivet up into place and holds it securely until it is driven by the hammer. The operator causes the hammer to operate by pressing upon the trigger 6. As soon as the operation is complete the operator releases the trigger 6 and turns the valve 19 into position to exhaust from the pipe 18 and passages connected therewith, which permits the coil-springs 33 to raise the clamping members 32 32 and also permits the piston 22 to rise in the cylinder 21, so that the whole clamping attachment drops to a lower position on the hammer-casing and permits the set 28 to drop off of the rivet-head, thus permitting the removal of the whole tool.

Although I have described my attachment as applied to a pneumatic hammer, I do not wish to limit myself to its operation by air, since I am aware that other fluids might be employed.

Since the hammer is complete without the clamp and the clamp complete without the hammer and the two are detachably secured together, the same hammer may be used with or without the clamp, or different hammers may be used from time to time with the same clamp, or the clamp may be placed and secured in position preparatory to the insertion of the hammer. Moreover, since the two clamping members 32 32 are each pneumatically operated from a separate cylinder the relative position of the two is automatically adjustable to accommodate any difference in thickness or form in the material being riveted on opposite sides of the rivet.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination, a gas-operated riveting-hammer, a set whereby the head of the rivet is held during the operation, a pair of clamping members arranged on the same side of the material with the hammer and, respectively, on opposite sides of the hammer and means whereby said set and clamping members are operated inversely to each other.

2. In a rivet-clamping device, in combination, the cylinders 12, 13 and 21, the pistons therein, and clamping devices connected with said pistons and impinging, respectively, against the rivet and against the material being riveted.

3. In a rivet-clamping device, in combination with a frame containing a set 28, and formed with a hammer-holding space A and the cylinders 12, 13, and 21 grouped around said space, of a valve in said cylinder 21, pistons in said cylinders 12 and 13 and clamping devices connected with said pistons and adapted to impinge upon the material being riveted.

4. A yoke and a set on one end thereof, in combination with the following mechanism mounted on the opposite end of said yoke, viz: a hammer-holder, two independent clamping members and means yieldingly pressing said clamping members forward whereby their position is automatically adjusted.

5. A yoke and a set on one end thereof, in combination with the following mechanism on the opposite end of said yoke, viz: a hammer-holder, two pneumatic cylinders independent of the hammer-holder and a clamping member operated from each of said cylinders.

6. A rigid yoke and a set rigidly mounted on one end thereof, in combination with the following mechanism on the other end thereof, viz: a rigidly-mounted hammer-casing and an independent yieldingly-mounted clamping member; whereby the blows of the hammer are delivered from a casing rigid with the set but the distance between the clamping member and the set is automatically controlled by the surface of the material.

7. A yoke and a set rigidly mounted on one end thereof, in combination with the following mechanism on the other end thereof, viz: a pneumatic cylinder, a clamping member yieldingly operated therefrom and a hammer-case embracing socket at one side of said cylinder.

8. A rivet-holding clamp containing, in combination, a yoke, a set on one end thereof and on the other end thereof two clamping-pistons and separate cylinders whereby said pistons are actuated.

9. A yoke and a set on one end thereof, in combination with the following mechanism mounted on the opposite end of said yoke, viz: a pneumatic hammer, an independent pneumatic cylinder, a clamping member operated from said cylinder, a gas-supply pipe and pipes branching therefrom, respectively to said hammer and said cylinder.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

EDWARD F. TERRY.

Witnesses:

H. L. REYNOLDS,  
WALTER A. PAULING.