

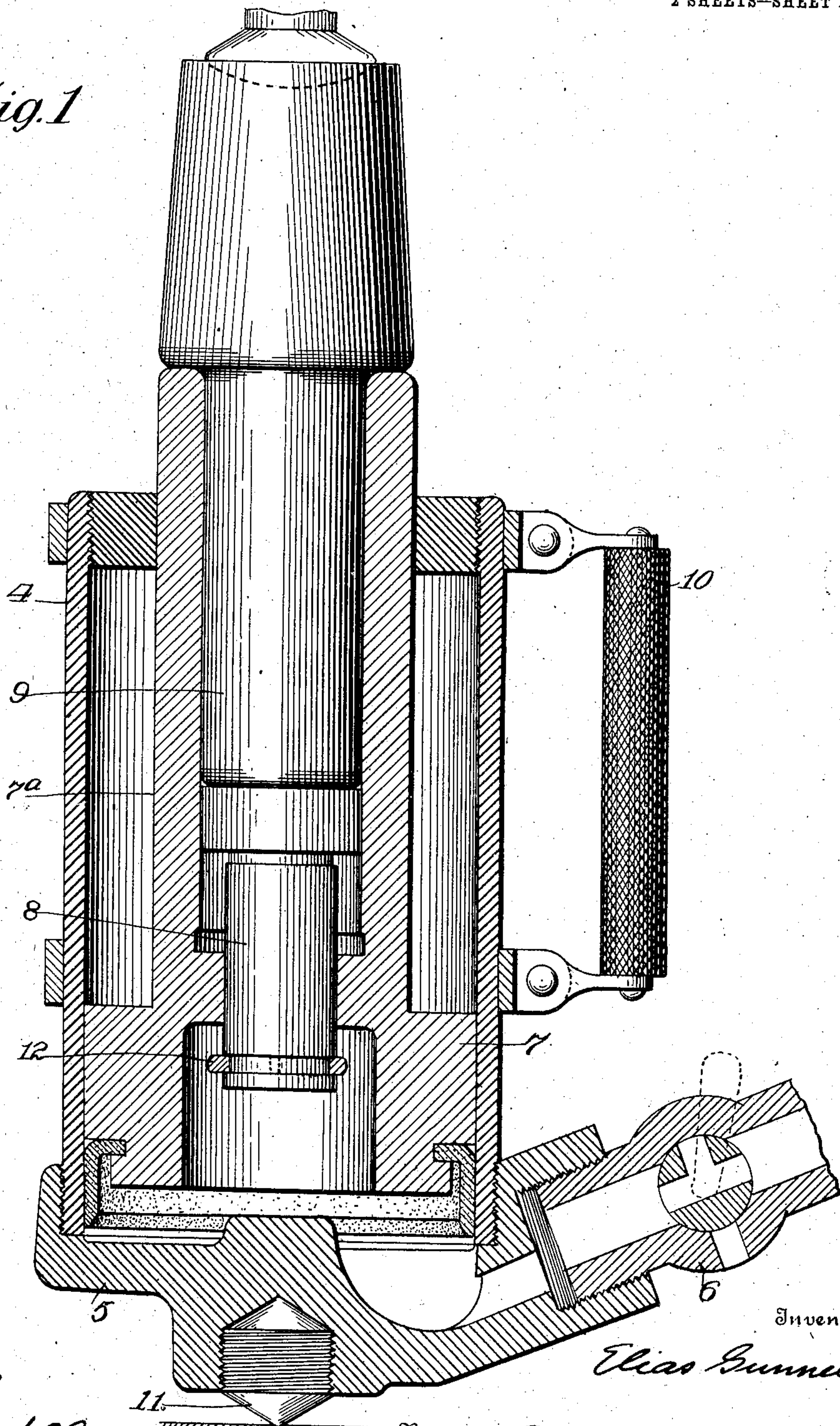
No. 833,878.

PATENTED OCT. 23, 1906.

E. GUNNELL.
HOLDER-ON FOR RIVETERS.
APPLICATION FILED SEPT. 2, 1903.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses

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2 SHEETS—SHEET 2.

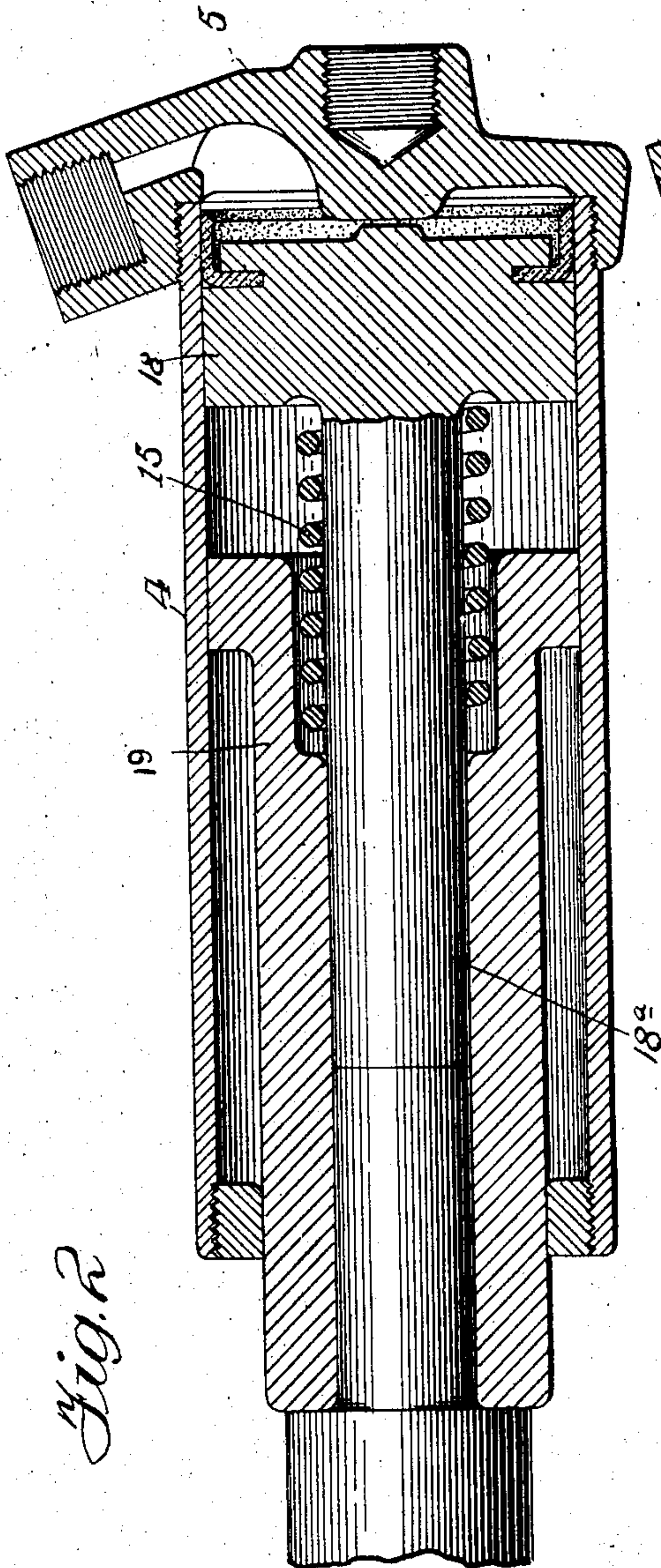


Fig. 2

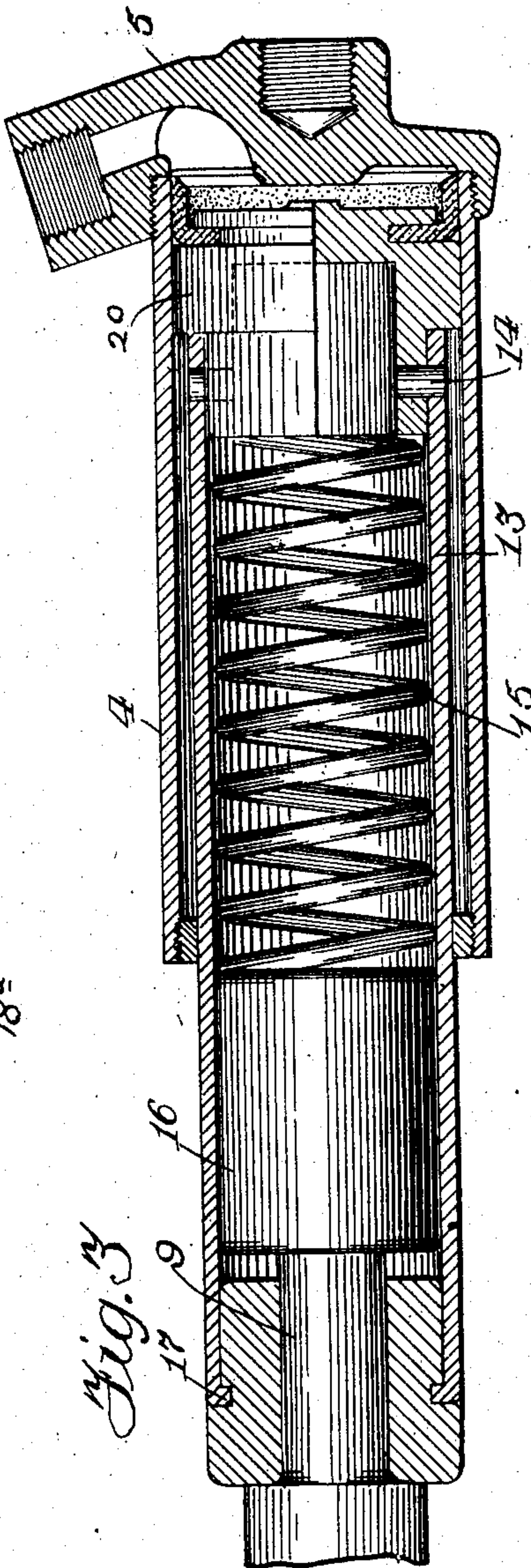


Fig. 3

Witnesses

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HOLDER-ON FOR RIVETERS.

No. 833,878.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed September 2, 1903. Serial No. 171,593.

To all whom it may concern:

Be it known that I, ELIAS GUNNELL, a citizen of the United States, residing at Chicago, in the State of Illinois, have invented certain new and useful Improvements in Holders-On for Riveters, of which the following is a specification.

My invention relates to riveting apparatus and particularly to the means for supporting the rivet in place while it is being operated upon by the riveting tool. The objects of the invention are, to provide a pneumatically operated support which is easily adjustable to place and provides for receiving the impact upon the rivet; to provide a pneumatically supported rivet set with means for moving it to adjust into position and resilient means for taking up the recoil of the impact, and to generally improve the structure and operation of holders-on for riveting and the like. These objects, together with other advantages which will hereinafter appear, I attain by means of the construction illustrated in preferred forms in the accompanying drawings, wherein

Figure 1 is a central vertical section through my preferred form of the holder-on.

Figure 2 is a central longitudinal section of a modified form, in which is supplied an elastic fluid support for the adjusting member, and a spring for supporting and actuating the impact member. The impact member in this instance surrounds and is free to slide upon the adjusting member.

Figure 3 is a similar view of a still further modified form of the device wherein the impact member reciprocates within the adjusting member, as in Figure 1, and is supported and actuated by a spring as in Figure 2.

For the proper operation of such tools it is necessary to have a considerable motion longitudinally to adjust the rivet set in proper place over the rivet, and also to have a limited motion for the immediate impact part to recoil by the hammer upon the rivet. I combine these two motions conveniently and compactly and operate them both by means of steam or air or other fluid pressure by means of the structure illustrated. Referring first to Figure 1, the cylinder 4 is provided at its rear end with a head 5 which has a laterally extending sleeve receiving a pipe which may be provided with any convenient form of cock for introducing and allowing escape of the fluid therein, such as illustrated at 6 in said figure. Within the cylinder 4 I

provide a hollow cylindrical adjusting member 7^a which is closed at its inner end and provided with a piston-like head 7 provided with proper packing and designed to move longitudinally in the cylinder 4 under the pressure admitted through the cock 6. A screw guide ring is inserted in the forward end of the cylinder which also prevents the removal of the member 7^a.

Inside of the adjusting member 7^a I provide an impact member or tool-support 8 which has a shank extending through an opening in the inner end of the adjusting member and is exposed on its inner face to the fluid pressure. Against it is supported the shank of the rivet set 9 which is shown as placed in position abutting against the rivet which is supposed to be receiving hammer blows upon its opposite end, it being observed that the entire holding device rests upon the floor or some support by means of the center point 11 screwed into the bottom of the cylinder head 5. The inner end of the impact member 8 may be provided conveniently with a split spring ring 12 which sets in a groove and prevents the member 8 from being pushed entirely through and out of the member 7^a, as will be evident. The cylinder is provided with a convenient form of handle such as 10 which is held by rings embracing the cylinder 4.

It will be observed that the head 7 of the adjusting member presents to the actuating fluid a larger surface than the impact member 8 so that in placing the apparatus in position for operation the rivet set 9 will be pushed up into place by the combined motion of the member 7^a and member 8, and that in operation when a blow is struck upon a rivet and the impact takes effect upon the rivet set 9 this impact may be taken up by the weight of the impact member 8 and will immediately be followed by a return or reflexed blow by the member 8 acting under the fluid pressure; this will insure keeping the rivet tight against the sheet metal into which it is being placed and also assist in the settling and properly forming the head of the same by means of the recess in the head of the rivet set 9.

In the other figures I have illustrated the use of a spring to perform one of the two functions necessary. Thus in Figure 2 the cylinder 4 is provided with a head 5 and inlet as before and the adjusting member 18^a is mounted as the stem of the piston head 18

and this alone is exposed to the fluid pressure. Surrounding this adjusting member 18^a is a tubular impact member 19 which is also provided with a guiding flange at its inner end to engage the cylinder and is supported directly against the rivet set by means of coil spring 15, which rests against the piston head 18. In this case the immediate impact upon the rivet set may be received upon the impact member 19 and the return stroke and constant contact of the same is provided for by the spring 15.

In the form shown in Figure 3 the position of the parts is reversed, that is the piston-head 20 of the adjusting member 13 is alone subjected to the pressure, and within this member 13 is disposed a coil spring 15 which at the top supports the impact member 16 against which the shank of the rivet set 9 rests directly. The end of the tube 13 is closed by a block 17 in order to prevent the exit of the impact member 16, and the tube 13 is attached to the piston head 20 by pins 14, as will be understood. In this form of the device the longitudinal motion for adjusting the rivet set to proper height and position is supplied by the long movement of the member 13 and its head 20 within the cylinder 4, while the immediate impact upon the rivet set 9 is taken by the impact member 16 which is held against the spring and which may provide for the return stroke when the hammering action takes place. Either of these forms may be provided with any desired means for introducing and exhausting the fluid pressure therein, and I desire it to be understood of course that I may use hydraulic pressure as well as gas or steam pressure, as may be more convenient.

In this apparatus it will be observed that I attain an extended range of movement in order to adjust the rivet set to its place and any desired pressure may be exerted thereon; at the same time the proportion of pressure exerted upon the impact member is proportionally the same whatever may be the pressure upon the adjusting member.

The operation, and the many advantages of the device, will be readily apparent from the drawings to those familiar with the art.

Having thus described my invention and illustrated its use, what I claim as new, and desire to secure by Letters Patent, is the following:

1. A holder on for riveters, comprising an adjusting member engaging the rivet set and an impact member carried thereby but movable independently thereof and adapted to

also engage the rivet set to receive shocks, together with resilient means for holding both members against the rivet set.

2. A holder on for riveters, comprising a fluid pressure cylinder, an adjusting member therein adapted to engage the rivet set and having a long range of movement, an impact member carried by said adjusting member and resiliently supported but movable independent of the adjusting member for a comparatively short distance and adapted to take the direct impact of the rivet set.

3. A holder on for riveters, comprising a cylinder and a fluid pressure actuated adjusting member therein having a shank to engage the rivet set, a movable impact member adapted to move with said adjusting member and capable of being moved relatively thereto to engage the rivet set, together with a resilient support by which the impact member is supported in part by the adjusting member.

4. A holder on for riveters comprising in combination a cylinder and a fluid pressure supply and controlling means, an adjusting member in the cylinder having a shank to engage the rivet set, and an impact member resiliently supported and guided by the adjusting member and also adapted to engage the rivet set.

5. A holder on for riveters comprising in combination a cylinder and means for introducing fluid pressure therein, an adjusting member in the cylinder, said member being provided with a shank and having a long range of movement for adjusting the rivet set, and an impact member carried on said shank and spring supported thereon for slight movement along the shank, and adapted for engagement with the shoulder of the rivet set.

6. In a holder on for riveters the combination of a cylinder and cylinder head having means to introduce and exhaust fluid pressure, an adjusting member movable in the cylinder and having a part engaging the rivet set, together with an impact member movable in the cylinder independent of the adjusting member to a slight extent, and also adapted to engage the rivet set to take the impact thereof.

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

ELIAS GUNNELL.

Witnesses:

PAUL CARPENTER,
CHAS. H. EBERT.