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F. E. LANE & A. C. CRETER.
STEAM HAMMER.
APPLICATION FILED AUG. 2, 1909.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 1.

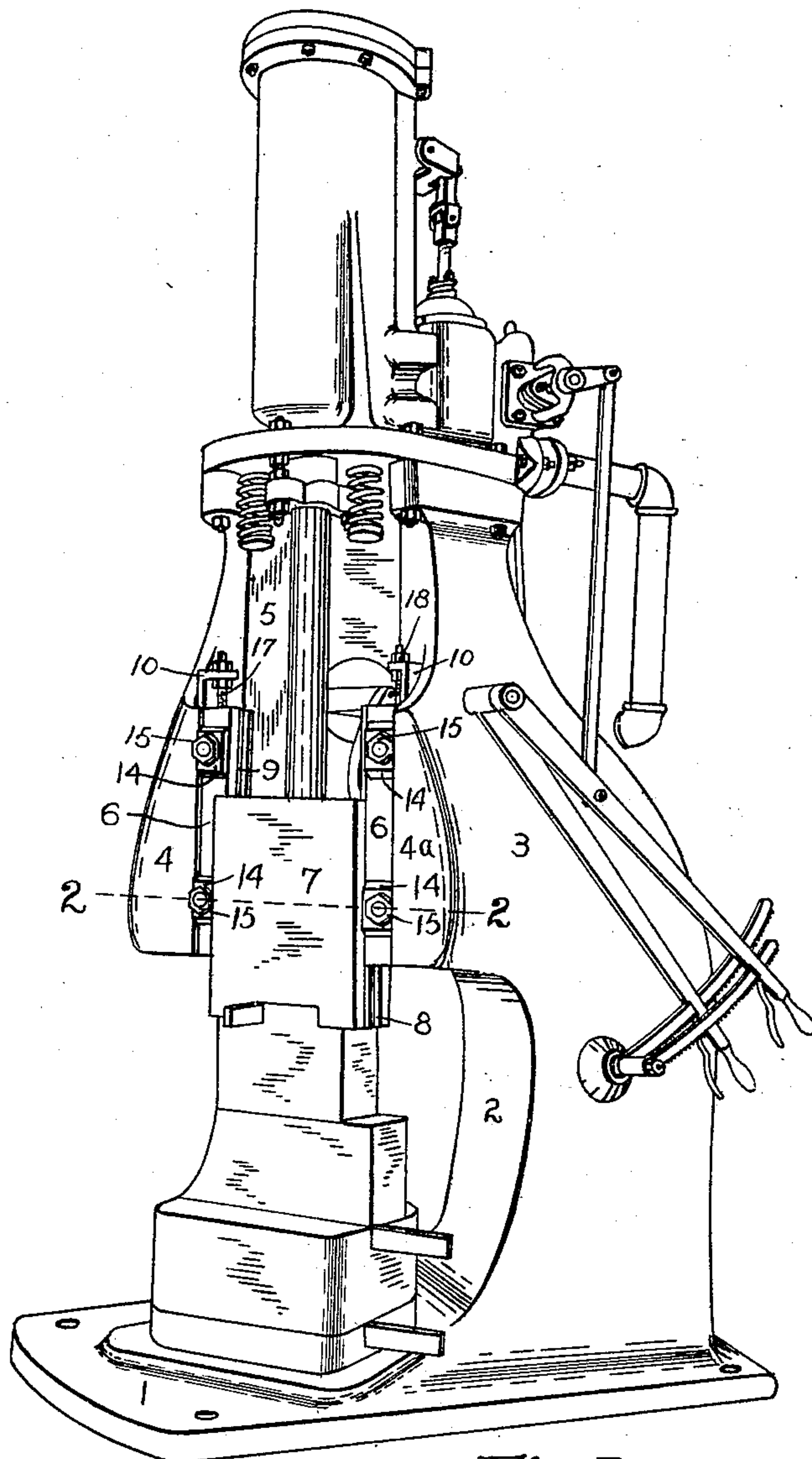


Fig. 1.

Witnesses;
Wm. R. Rhoads.
Ruth A. Miller

Inventors; Frederick E. Lane,
and Albert C. Creter
By Harry Freese.
Attorney.

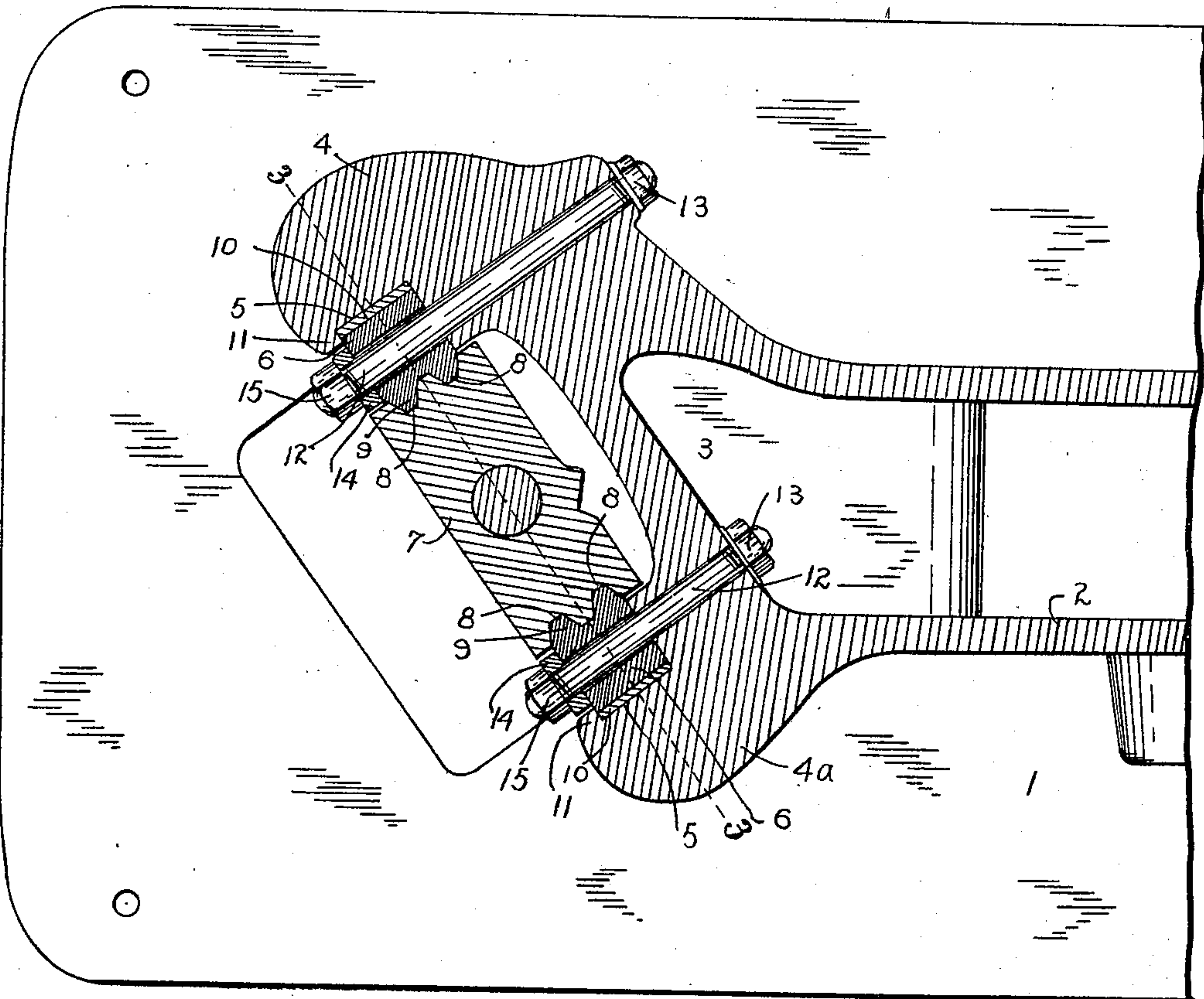
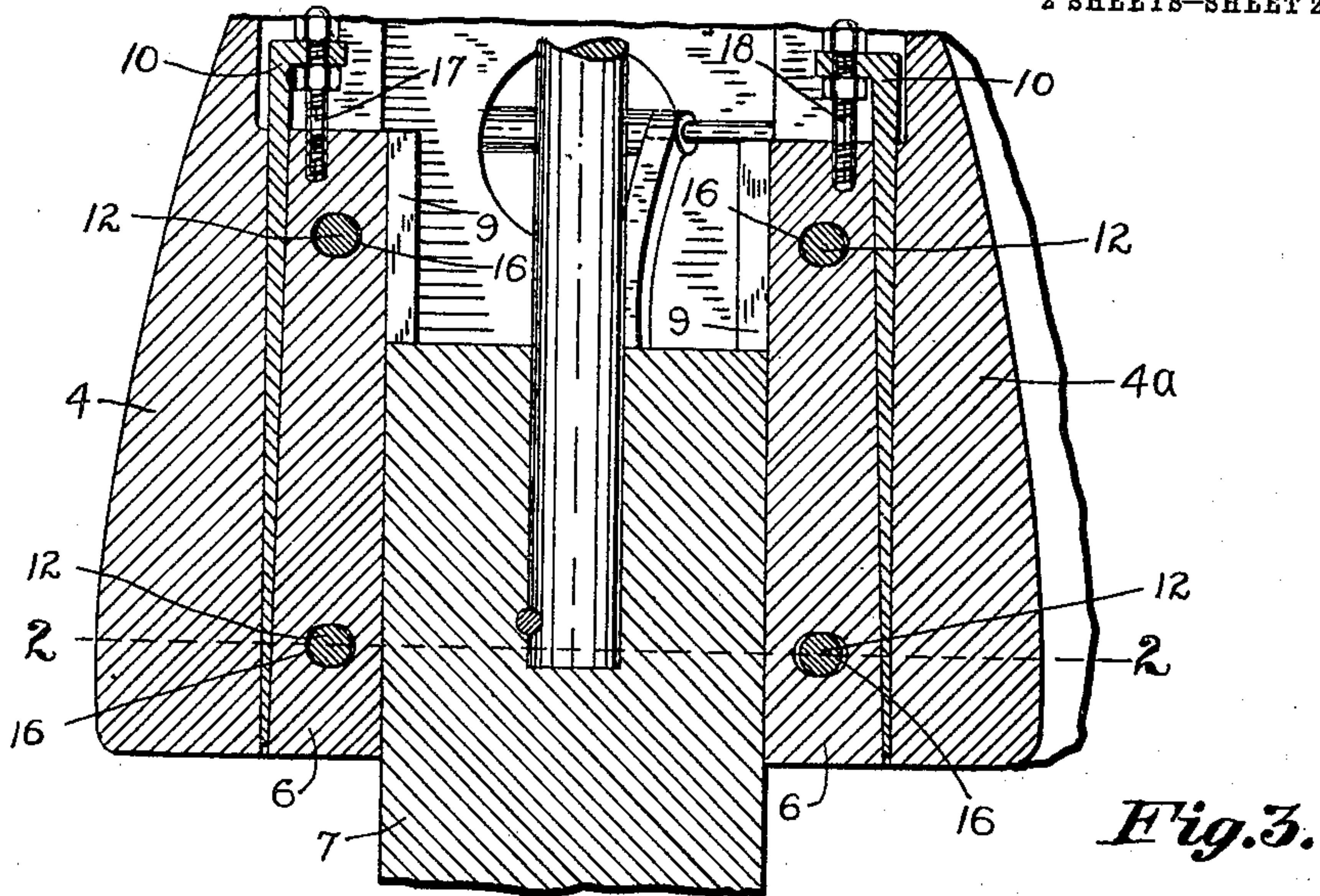
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Witnesses;
Wm. R. Rhoads.
Ruth C. Miller

Fig. 2. Inventors; Frederick E. Lane,
and Albert C. Creter,
By
Harry Trease, Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK E. LANE, OF KEENE, NEW HAMPSHIRE, AND ALBERT C. CRETER, OF MASSILLON, OHIO, ASSIGNORS TO THE MASSILLON FOUNDRY AND MACHINE COMPANY, OF MASSILLON, OHIO, A CORPORATION OF OHIO.

STEAM-HAMMER.

999,662.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed August 2, 1909. Serial No. 510,723.

To all whom it may concern:

Be it known that we, FREDERICK E. LANE and ALBERT C. CRETER, citizens of the United States, residing, respectively, at 5 Keene, Cheshire county, New Hampshire, and Massillon, Stark county, Ohio, have invented a new and useful Improvement in Steam-Hammers, of which the following is a specification.

10 The invention relates to a single-frame steam hammer in which the hammer is adapted to operate between guides secured on one side of an overhanging portion of the frame; and the object of the improve- 15 ment is to secure and hold the guides to the frame in such a manner that the abutting and adjacent portions of the frame will not be crystallized or fractured by the concussions of the hammer.

20 When guides for the hammer are secured to the face of the frame merely by means of bolts passed through the guide into the body of the frame, the shocks and strains caused by the blows of the hammer soon bend and 25 shear the bolts and render the guides useless to properly control the hammer, and furthermore the shocks and strains ultimately fracture the frame, usually along the line of the bolt holes. And when the frame 30 is extended as jaws to embrace the outer edges of the guides and securing bolts are passed laterally through the width of the guides and the extended portions of the frame, the shocks and strains of the ham- 35 mer soon crystallize and fracture the extended portions of the frame, which receive the full force of the concussions and vibrations of the hammer. These difficulties are overcome by constructing the frame 40 with extensions or jaws adapted to abut the outer sides of the guides, in combination with securing bolts passed through the thickness of the guides into and through the body of the frame; whereby the tensile 45 strength of the bolts saves the frame jaws from the twisting strains and vibrations of the hammer and prevents the jaws from being crystallized or fractured, and the abutment of the jaws against the outer edges 50 of the guides squarely stops the guides from lateral movement and prevents any bending or shearing of the bolts.

A preferred embodiment of the invention

is illustrated in the accompanying drawings, forming part hereof, in which— 55

Figure 1 is a perspective view of a steam hammer illustrating the general arrangement of the improved parts; Fig. 2, a transverse section on line 2—2, Figs. 1 and 3, through the overhanging portion of the 60 frame and showing the guides and hammer therein; and Fig. 3, an elevation section on line 3—3, Fig. 2.

Similar numerals refer to similar parts throughout the drawings. 65

The frame includes the base plate 1, the standard 2 and the overhanging portion 3, the sides of which overhanging portion are extended forward to form the jaws 4 and 4^a. The jaws are shaped to form the substan- 70 tially rectangular channels 5 in the angle of their inner sides with the forward face of the frame, in which channels the guides 6 for the hammer are secured. The hammer 7 is located between the guides, and is pro- 75 vided with the grooves 8 on each side edge, which grooves neatly engage the tongues 9 which are provided on the inner sides of the guides; on which tongues the hammer is adapted to slide and be guided in its vertical 80 movements. The elongated flat wedges 10 are preferably provided between the outer sides of the guides and the adjacent faces of the channels, the abutting faces of the wedges and the guides being tapered alike, 85 by means of which the guides can be laterally adjusted to bring the tongues thereof into close and parallel contact with the corresponding grooves of the hammer. The adjusting wedges are preferably made the 90 full width of the outer sides of the guides, so that a full bearing for the same is provided against the abutting faces of the channels in the jaws of the frame; and the wedges are retained in place by the intur- 95 nated lips 11 which are provided on the forward edges of the jaws and which extend around the forward edges of the wedges, and engage the same, as well as the forward edges of the adjacent portions of the guides, thus 100 assisting the securing bolts 12 in holding the guides squarely to their work. The securing bolts 12 extend from the forward faces of the guides directly backward through the thickness of the same and thence into and 105 preferably through the body of the over-

hanging portion of the frame to an anchorage as the nuts 13 on the rear side of the overhanging frame; and the washers 14 are preferably provided between the faces of the guides and the nuts 15 on the forward ends of the bolts. The bolt apertures 16 are laterally widened to permit the lateral adjustment of the guides and to prevent the guides from bearing or shearing laterally on the bolts.

When the parts are assembled, the adjusting wedges are inserted between the hammer guides and the frame jaws and are brought to proper position for neatly engaging the tongues of the guides in the grooves of the hammer, which adjustment is preferably accomplished by the screw shanks 17 and 18 thereon in the usual manner; after which the nuts on the securing bolts are turned to tightly clamp the rear faces of the guides against the contiguous faces of the frame, against which faces the guides are held by the tensile strength of the securing bolts.

In the operation of the hammer, the securing bolts firmly hold the guides against any tendency to be laterally tilted or twisted by the strains of the hammer, whereby the lateral thrust of the guides is always full width and squarely and directly outward against the abutment of the jaws; and the grip of the bolts furthermore cushions the vibrations of the hammer and to a great extent prevents the same from being communicated directly to the jaws. At the same time, the abutment of the jaws positively stops any lateral movement of the guides and thus prevents any bending or shearing of the bolts. While the jaws squarely receive the lateral concussions of the hammer, they are saved from the twisting and vibrating strains thereof, and it has been found that this saving substantially prevents any crystallization or fracture of the jaws.

It will be understood that the particular

form of wedge adjustment illustrated and described herein is not essential to the other features of the improvement, and also that such adjustment in itself is not broadly speaking a necessarily separate element in the improved combination, but that the means therefor can be considered collectively with the respective guides as a single element.

We claim:

1. A power hammer including a frame having forwardly-extending jaws on each side, hammer guides in the angles formed by the face of the frame and the inner sides of the jaws, securing bolts extending rearward through the thickness of the guides and the body of the frame and adapted to clamp the rear sides of the guides against the face of the frame, and adjusting wedges between the outer sides of the guides and the inner sides of the jaws, whereby the jaws form positive abutments for the guides, and inturned lips on the forward edges of the jaws engaging the forward edges of the wedges.

2. A power hammer including a frame having forwardly-extending jaws on each side, hammer guides in the angles formed by the face of the frame and the inner sides of the jaws and having laterally widened apertures through the thickness of the guides, securing bolts extending rearward through the guide apertures and the thickness of the body of the frame and adapted to clamp the rear sides of the guides against the face of the frame, thus avoiding any tendency to shear the bolts, and adjusting wedges between the outer sides of the guides and the inner sides of the jaws, whereby the jaws form positive abutments for the guides.

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