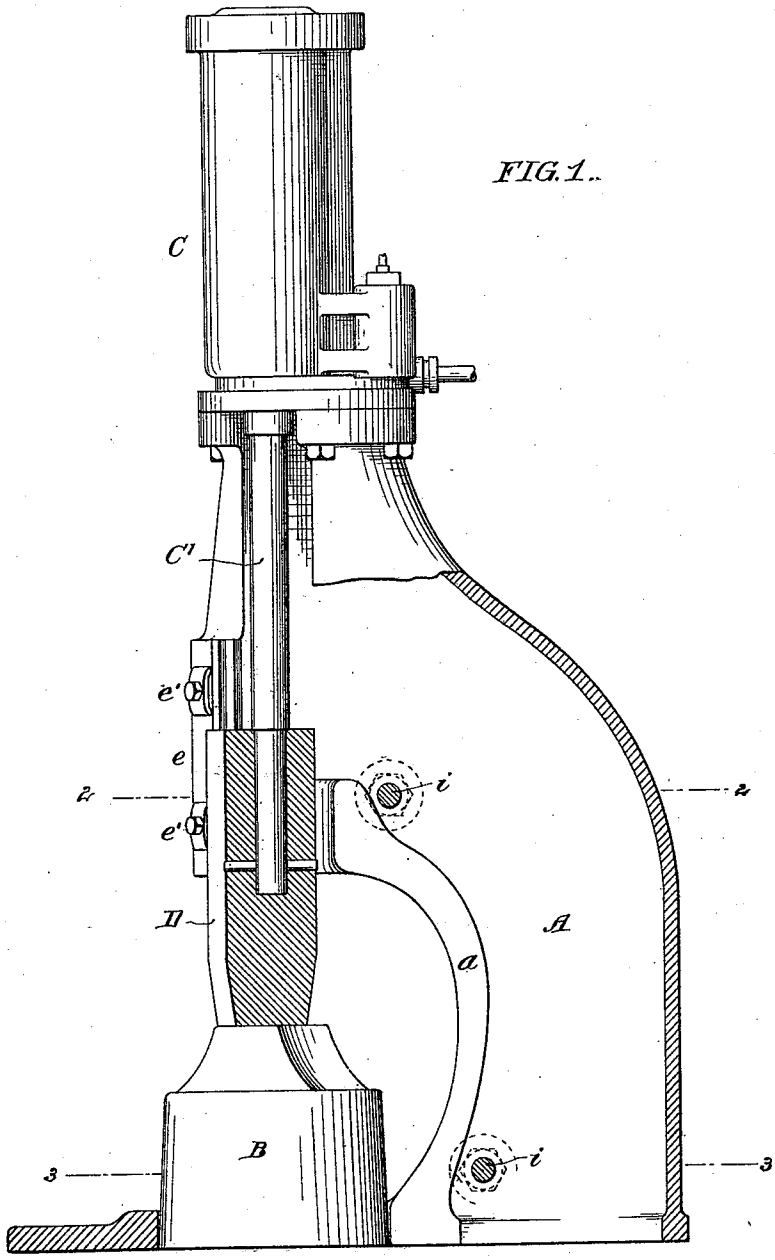
(No Model.) 2 Sheets—Sheet 1.

F. B. MILES.

STEAM HAMMER.

No. 562,231. Patented June 16, 1896.

FIG. 1.



Witnesses:
F. D. Goodwin
Wm. A. Barr.

Inventor:
Frederick B. Miles
by his Attorneys
Howson & Howson

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

(No Model.)

2 Sheets—Sheet 2.

F. B. MILES.

STEAM HAMMER.

No. 562,231. Patented June 16, 1896.

FIG. 2.

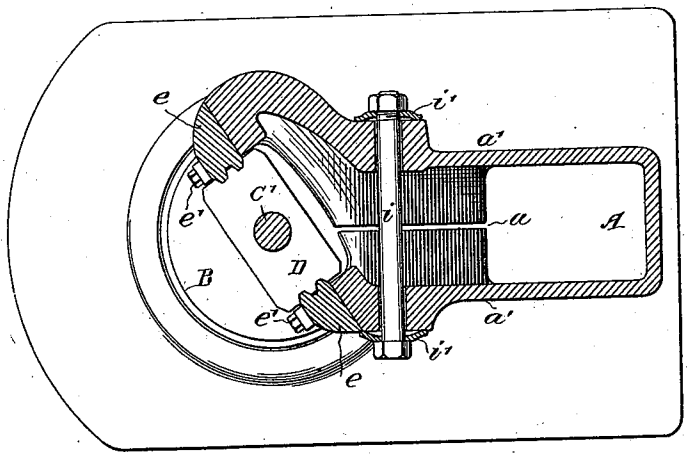


FIG. 3.

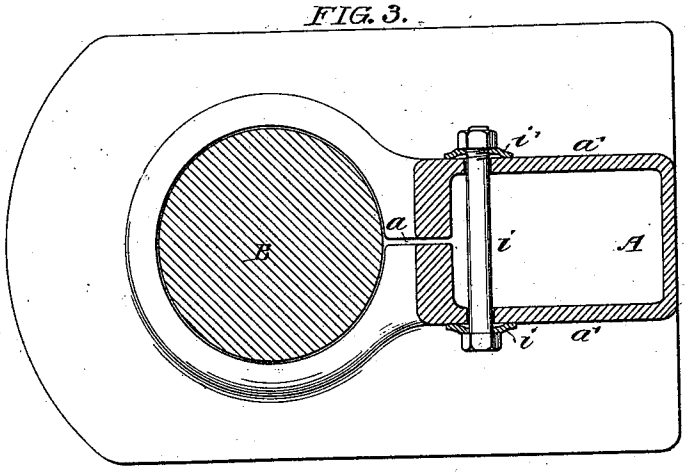


FIG. 5.

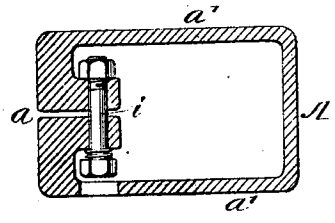


FIG. 4.

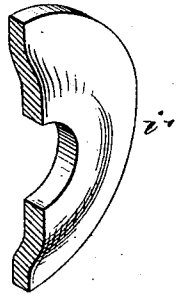
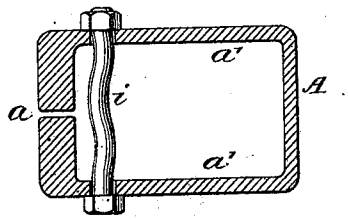


FIG. 6.



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UNITED STATES PATENT OFFICE.

FREDERICK B. MILES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE BEMENT, MILES & COMPANY, OF SAME PLACE.

STEAM-HAMMER.

SPECIFICATION forming part of Letters Patent No. 562,231, dated June 16, 1896.

Application filed June 7, 1895. Serial No. 552,020. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK B. MILES, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Steam-Hammers, of which the following is a specification.

The object of my invention is to so construct a steam-hammer as to prevent the cracking and breaking of the frame by the blow of the hammer. This object I attain by so constructing the steam-hammer that the guides will yield to a certain extent so as to take up the shock incident to the striking of the hammer upon the anvil.

In the accompanying drawings, Figure 1 is a view of a steam-hammer in elevation with a portion of the frame and hammer in section. Fig. 2 is a sectional plan view on the line 2 2, Fig. 1. Fig. 3 is a sectional plan view on the line 3 3, Fig. 1. Fig. 4 is a sectional perspective view of one of the washers. Figs. 5 and 6 are views of modifications of the method of bolting the frame.

Heretofore in the manufacture of steam-hammers of the type shown the frame A was made in a single rigid piece. Consequently the frame would, in some instances, break or crack, owing to the constant jarring of the frame by the hammer, and as the frame had no chance to yield the only alternative was to crack or break at a point between the anvil and the cylinder.

By my invention the cracking and breaking of the frame are prevented to a great extent.

Referring to Figs. 1, 2, and 3 of the drawings, A is the frame of the steam-hammer, mounted on a suitable foundation, and B is the anvil. C is the cylinder carried by the frame. C′ is a piston-rod having a piston within the cylinder and carrying at the opposite end the hammer-head D. Suitable valve mechanism of the ordinary construction is provided so that steam can be admitted to either side of the piston as required. The hammer-head D in the present instance is grooved at the edges, and adapted to these grooves are guides *e e*, secured to the frame A by bolts *e′*. I form a slot *a* in the front end of the frame. This slot extends throughout the entire height of the frame. In the present instance the slot is especially essential in the lower portion of the frame.

In order to hold the two sections *a′ a′* of the frame A in a relative position, I tie the sections together by bolts *i i*, one near the base and one near the guides. These bolts pass entirely through the side *a′* of the frame, and between the head and one side is a spring-washer *i′*, and between the nut and the other side is also a spring-washer *i′*. These washers are clearly shown in Fig. 4 and are cupped so as to form a very stiff spring, as it will be understood that in order to accomplish my purpose only a very slight movement of the sides or sections *a′* of the frame is necessary, the movement being simply enough to take up the shock caused by the blow of the hammer.

In Fig. 5 I have shown flanges in the inside edge of each section of the frame and bolts passing through the flanges. A spring is inserted between the head of the bolt and one of the flanges.

In Fig. 6 I have shown a spring-bolt tying the two sections together.

I claim as my invention—

1. The combination of the frame of a steam-hammer having a vertical slot at the front dividing the frame into two sections, guides on each section and a hammer-head adapted to reciprocate in said guides, substantially as and for the purpose set forth.

2. The combination of a frame of a steam-hammer, having a vertical slot dividing the frame into two sections and guides on the frame normally fixed in relation to each other, with a yielding connection for the two sections, substantially as described.

3. The combination of a frame of a steam-hammer having a vertical slot, with tie-bolts tending to hold the two sections of the split frame in a position relative to each other, and springs between the bolts and frame, substantially as described.

4. The combination in a steam-hammer, of the hollow frame, having a vertical slot in the front portion, a cylinder, piston and piston-rod, a hammer-head adapted to guides in the frame, an anvil, tie-bolts passing transversely

through the frame at the split portion and spring-washers between the bolts and the frame, substantially as described.

5. The combination of a steam-hammer, the frame having a slot at the front, yielding clamps for the two sections of the frame thus formed, guides for the hammer-block secured to the frame, cushions between the back of the guides and the frame, with a hammer and mechanism for driving the hammer, substantially as described.

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

FREDERICK B. MILES.

Witnesses:

WILL A. BARR,

JOS. H. KLEIN.