W. WALKER.

STEAM HAMMER.

No. 182,725. Patented Sept. 26, 1876.

Fig. 1.

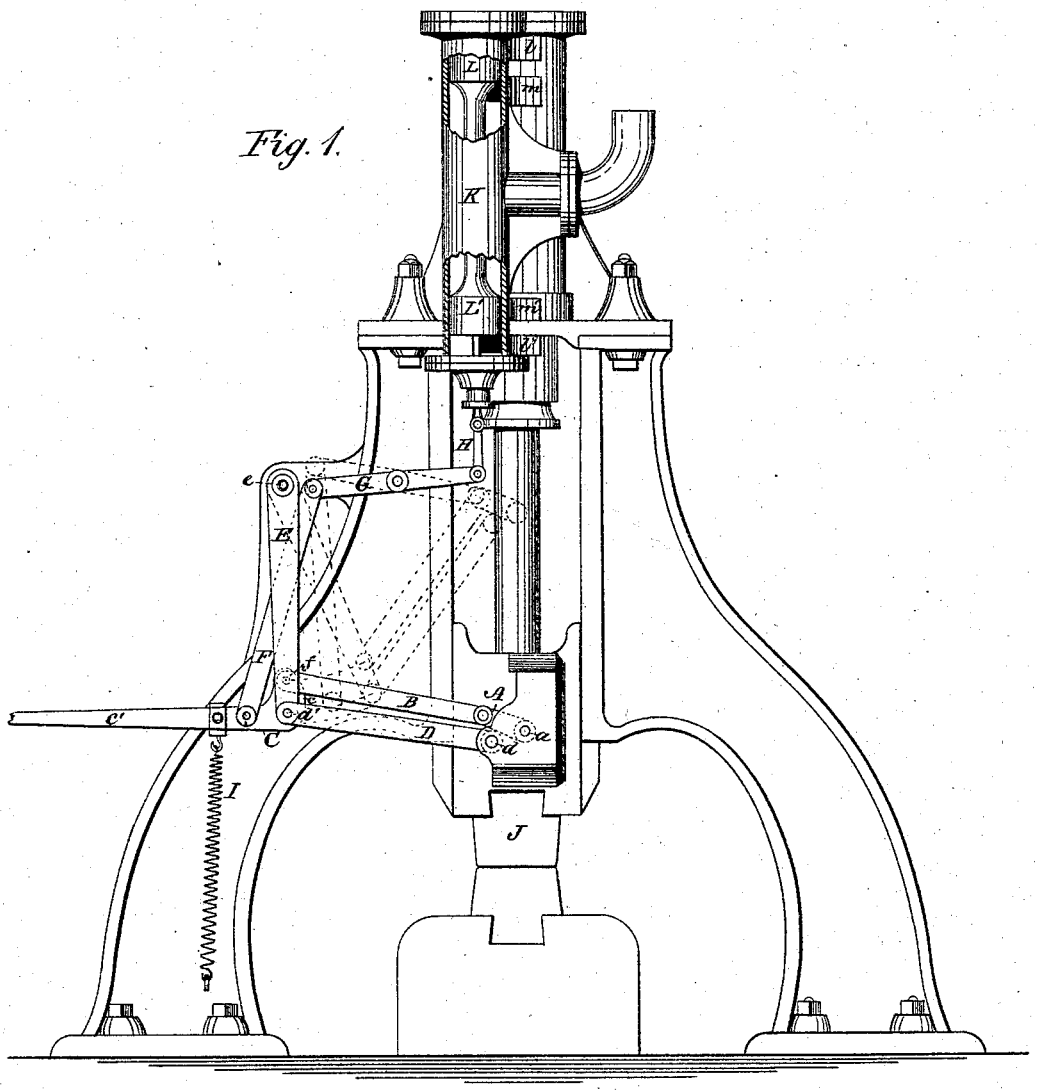
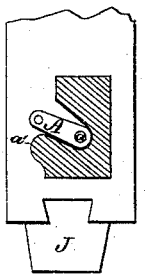


Fig. 2.



WITNESSES:

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WILLIAM WALKER, OF MANCHESTER, ENGLAND, ASSIGNOR TO HIMSELF AND JOHN S. CROSSLEY, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN STEAM-HAMMERS.

Specification forming part of Letters Patent No. **182,725**, dated September 26, 1876; application filed August 11, 1876.

To all whom it may concern:

Be it known that I, WILLIAM WALKER, of Manchester, Lancaster county, England, have invented a new and useful Improvement in Steam-Hammers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the drawings accompanying and forming part of this specification, in which—

Figure 1 represents a side elevation of my invention. Fig. 2 is a detail view of certain parts of the same.

The object of my invention is the construction of an improved automatic mechanism, whereby a dead blow may be struck by a steam-hammer at any point of its descent, and the lower steam-port opened immediately after; and it consists of certain levers, links, and connecting-rods, constructed and arranged in a manner hereinafter more fully described.

In the accompanying drawings, A represents a dropping-lever, which pivots at one end, *a*, on the tup of the steam-hammer J, the other end being connected by the link B with the end of the short arm *c* of the rectangularly-bent lever C. A projection, *a'*, on the tup of the hammer stops the lever A when it has fallen nearly far enough to be in a straight line with the link B, and makes it again assume an angle with the latter when the hammer rises. D is a connecting-rod, one end of which, *d*, is also pivoted to the tup of the hammer, the other being attached to the lever C at the right angle *d'* formed by the short arm *c* and long arm *c'* of the latter. Said lever C is swung from the fixed point *e* by the rod E, the lower end of which pivots at *d'*. The lever C is connected with the valve-spindle H by means of the link F and lever G, the former pivoting at *f*. I is a spring attached to the long arm *c'* of the lever C, to render the motion of the mechanism quick, easy, and smooth in action. K is the valve-cylinder, and L L' are the upper and lower valves; *l l'* the upper and lower steam-ports, and *m m'* the upper and lower exhaust-ports, respectively.

The mode of operation of the invention is as follows: A blow having been struck and the lower steam-port *l'* opened, the hammer, in rising, by means of the rod D pulls the lever C toward itself, said lever swinging on the fixed point *e*. The projection *a'* in the mean time gradually decreases the angle between the lever A and link B, and rotates toward the hammer, the short arm of the lever C causing said lever to depress, by means of link F and lever G, the valve-spindle H, and, consequently, reverse the valves. The hammer now falling, the rapidity of its descent makes the lever A keep its angle with the link B until the blow is struck, when said lever immediately drops nearly into a straight line with said link, pushes the lever C out from the hammer, and, consequently, by means of link F and lever G, raises the valve-spindle, and again reverses the valves.

It is apparent that this action will take place should the hammer stop at any part of its fall, but never till it stops, which is a useful feature in working different thicknesses of metal. The long arm *c'* of the lever C serves to work the hammer by hand, when desirable.

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

The combination, with a steam-hammer, of the dropping-lever A, projection *a'* on the tup of the hammer, link B, connecting-rod D, lever C swung from a fixed point, *e*, by connecting-rod E, link F, and lever G, connected with the valve-spindle H, all constructed and arranged substantially as shown and described, for the purpose specified.

WILLIAM WALKER.

Witnesses:

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