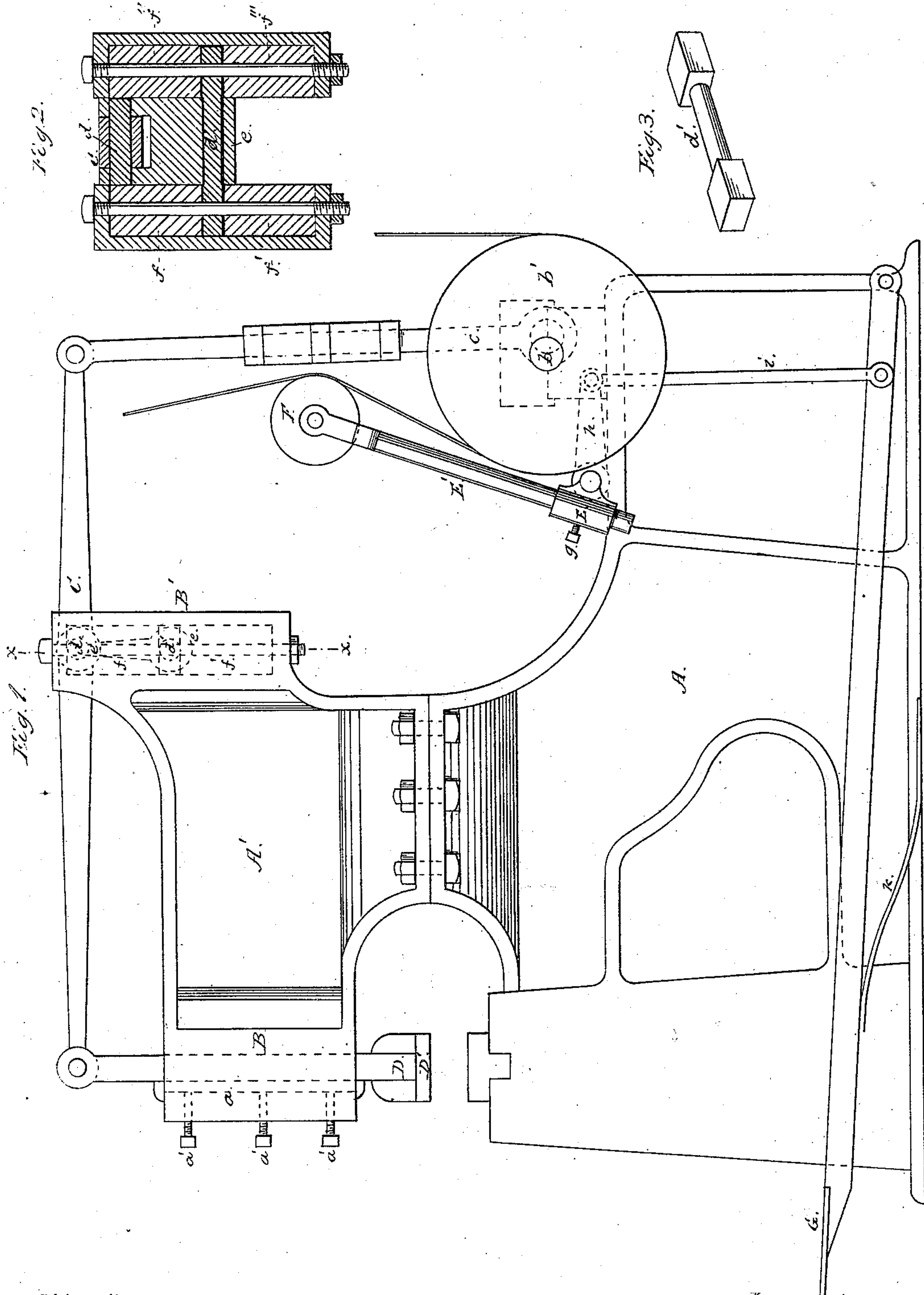


(No Model.)

W. R. JENKINS, Jr.  
Power Hammer.

No. 237,872.

Patented Feb. 15, 1881.



Attest;  
J. W. Howard  
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by Ayer & Wilber Attys.



# UNITED STATES PATENT OFFICE.

WILLIAM R. JENKINS, JR., OF BELLEFONTE, PENNSYLVANIA.

## POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 237,872, dated February 15, 1881.

Application filed October 26, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. JENKINS, Jr., of Bellefonte, in the county of Centre and State of Pennsylvania, have invented a new and useful Improvement in Power-Hammers; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to power-hammers, and especially to that class in which the hammer operates through an oscillating helve having proper bearings between the hammer and the mechanism for operating the same.

My object is to construct a power-hammer provided with an oscillating helve whose fulcrum shall have bearing directly upon an elastic surface, for the purpose of giving an elastic blow adapted to the different thicknesses of material intended to be operated on; and it therein consists, first, in making the bearing upon which the helve oscillates elastic, so that the blow imparted to the iron by the hammer shall be elastic and yielding, accommodating itself to the different thicknesses of material to be operated upon; second, in mounting the helve upon a vibrating rocker-arm, whereby the motion imparted to the hammer by said helve will allow the same to move in a vertical direction; and, further, in the various details of the construction and arrangement of its various operative parts, all as more fully hereinafter explained.

In order that persons skilled in the art may know how to make and use my invention, I will now proceed to describe the same, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved power-hammer; Fig. 2, a cross-section through the line *x x* of Fig. 1, showing more clearly the arrangement of the elastic bearings; and Fig. 3, a perspective view of the fulcrum-pin *d'*.

The frame is cast in two parts, A representing the lower part or base, upon which are erected the anvil and driving mechanism; and A', the upper part, having extensions B B', the said parts A A' being bolted together, as shown, and furnishing a strong and substantial support for the operative features of my device.

The extension B of the upper part is provided with a guide, *a*, horizontally adjustable by means of suitable screws, *a'*. Between the inner sides of this guide *a* and extension B slides the ram D. This guide *a* is for a two-fold purpose, viz: first, it is made removable by means of screws *a'*, so that the ram, if it should become too much worn or be broken, can readily be replaced with a new one; second, it is adjustable by means of the same screws *a'*, so as to accommodate itself to the usual wear of ram arising out of necessary friction incident with the use of the machine.

The extension B' of the upper part embraces the principal features of my invention, which will be more fully hereinafter explained.

Upon the rear part of the base A is the crank-shaft *b*, mounted upon suitable bearings. To this crank-shaft *b* is secured the driving-pulley *b'*, and to the crank itself is secured the lower end of the connecting-rod *c*, the upper end of which is connected to the helve C, which, in turn, is connected at its opposite end to the ram D, provided at its lower end with the hammer D'.

At a proper distance from either end of the helve C is pierced an eye, through which is passed a fulcrum-pin, *d*, into corresponding eyes of a rocker-arm, *e*, thereby furnishing a suitable bearing for the helve to oscillate upon. This rocker-arm is provided with a slot cut in its center of sufficient width and depth to allow the helve, when mounted therein, to operate freely. Through the lower end of this rocker-arm, which is provided with an eye similar to the one at its upper end, is passed a fulcrum-pin, *d'*, upon which it vibrates. This pin *d'* is of peculiar construction, it being round in the center and flat at both ends, as shown in Fig. 3. These flattened ends are passed into pockets or recesses cast in the sides of the extension B'. Above and below these flattened ends are placed elastic springs *f f' f'' f'''*, of any suitable material, but preferably rubber. These springs and fulcrum-pin *d'* are held in position by rods passing down through the center, which are provided with nuts at both ends to prevent their working out, as shown in Fig. 2. The object of this rocker-arm *e* is to permit the ram to move vertically in slides, as it is evident, if the fulcrum were fixed, the end of the helve attached to the ram would



describe an arc, and thereby cause the ram to clog or stick; but by the construction and arrangement of my device, as above described, the vibration of the rocker-arm avoids this difficulty and permits the helve to move backward and forward, thereby adjusting itself to the position of the ram.

Upon the rear part of the base A, near the driving-pulley, is pivoted a socket, E, in which is adjustable, by means of a thumb-screw, g, an arm, E', carrying at its upper end a stress-pulley, F, which has action upon the belt passing around the driving-pulley. This stress-pulley F is for the purpose of regulating the force of the blow, either to increase or diminish its force, and it is operated by the treadle G, with which it is connected by means of the rod i and arm h, the latter being suitably connected to the socket E. The treadle is pivoted to the base, as shown, and can be operated by the foot. It is provided on its under surface with a leaf-spring, k, secured to the base, for the purpose of throwing the treadle back to its normal position when the foot is removed therefrom.

It may be seen, by the above description, that the hammer is simple, effective, and compact in its construction.

I am fully aware that springs have heretofore been used in power-hammers, but not in the manner above described.

Having now fully described my invention, what I desire to secure by Letters Patent is—

1. A power-hammer provided with an oscillating helve whose fulcrum is in close contact with elastic springs placed respectively above and below said fulcrum, substantially as described and shown, and for the purpose set forth.

2. In a power-hammer, the combination of the driving mechanism, as described, with the oscillating helve C, pivoted in a rocker-arm which is mounted on a fulcrum-pin whose flattened ends pass into recesses cast in the sides of an extension, B', and are provided above and below with elastic springs, substantially as described, and for the purpose set forth and shown.

3. In a power-hammer, the combination of the extension B' of the frame A' with the helve C, pivoted at a proper distance from its ends in a slot of the rocker-arm e, whose lower end is mounted on a fulcrum-pin, d', provided with flattened ends, which pass into recesses in the sides of said extension, and are provided with elastic springs, held in position by rods passing down through their center, all arranged for the purpose of giving an elastic blow to the material to be operated upon, substantially as described and shown.

This specification signed and witnessed this 20th day of October, 1880.

WILLIAM R. JENKINS, JR.

Witnesses:

J. H. LINGLE,

J. B. LEATHER.