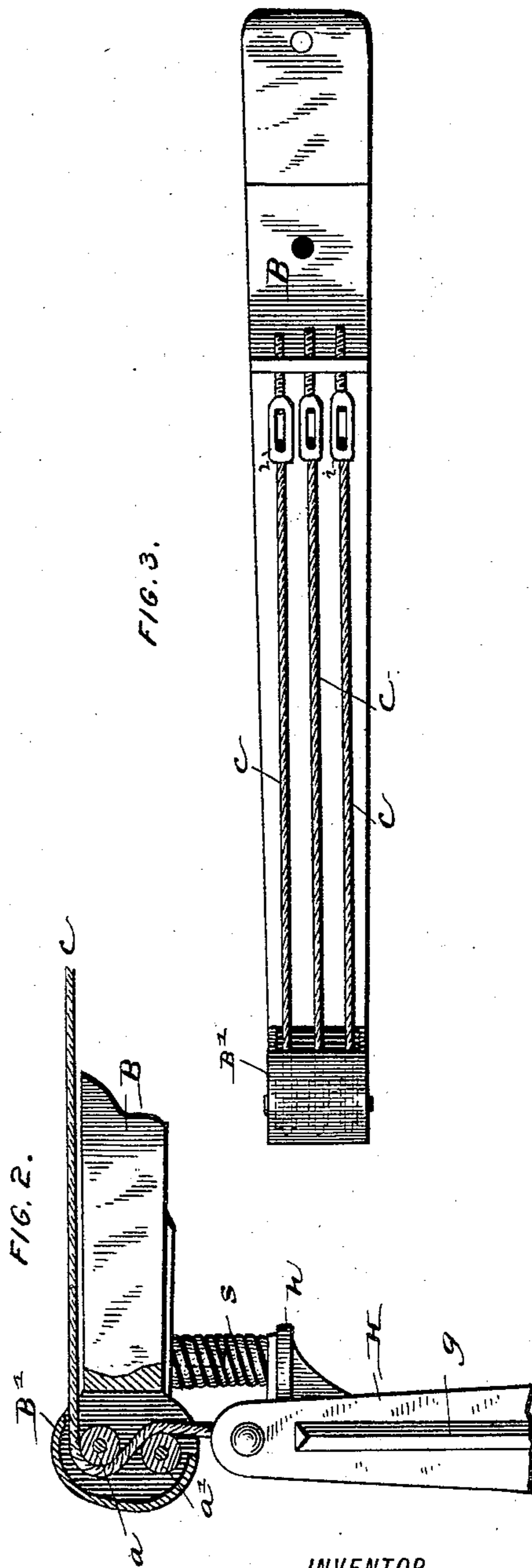
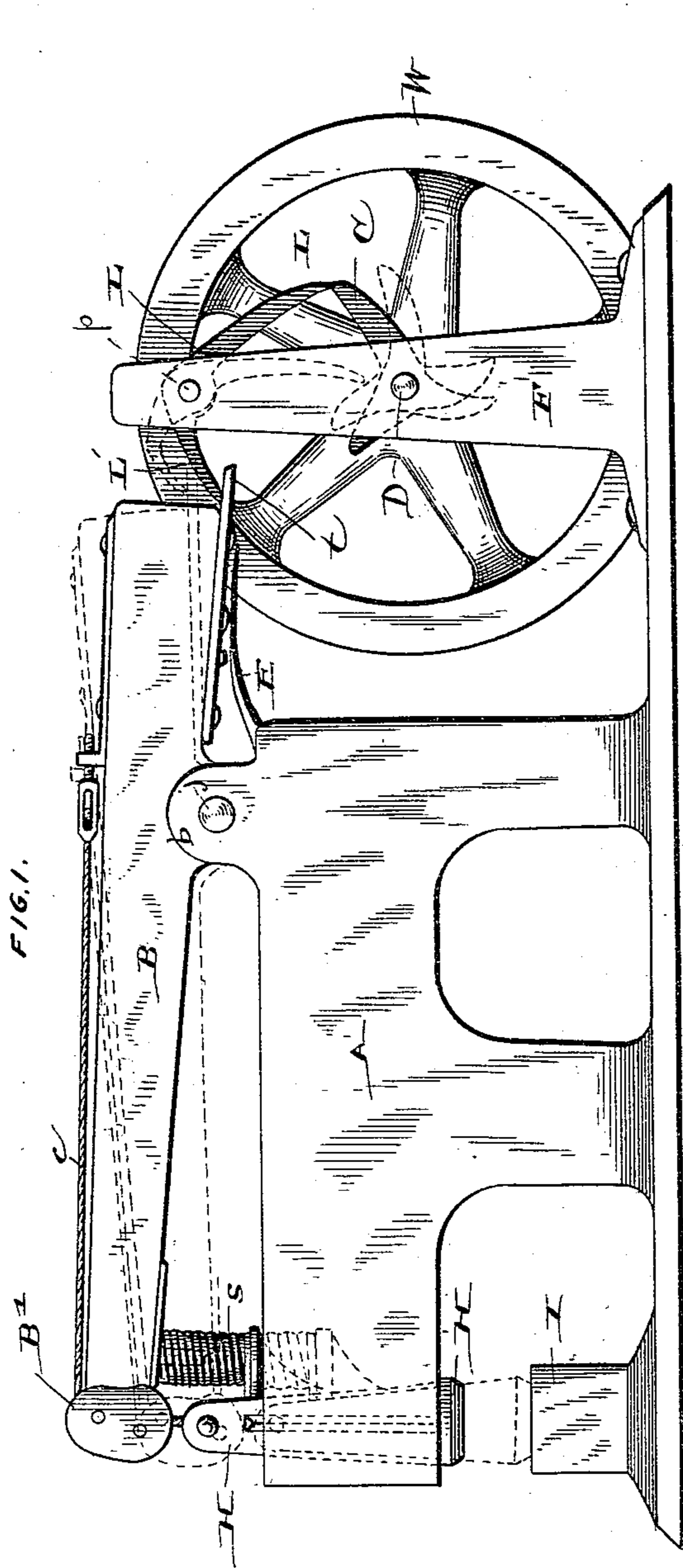


(No Model.)

W. JONES.
POWER HAMMER.

No. 454,824.

Patented June 23, 1891.



WITNESSES:

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WILLIS JONES, OF BUFFALO, NEW YORK.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 454,824, dated June 23, 1891.

Application filed February 9, 1891. Serial No. 380,739. (No model.)

To all whom it may concern:

Be it known that I, WILLIS JONES, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Power Helve-Hammers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of this invention is to simplify the working, relieve the strain on the helve, and reduce the power required to drive such hammers without impairing the effect of the blow, and also to strike a square blow on the anvil, which I accomplish by hanging the hammer by cables and operate by a lever-and-cam movement; and the invention as constructed will be understood by the following specification and claims.

In the drawings, Figure 1 is a side elevation of the whole device; Fig. 2, a detail of head of helve, partly in section, the hammer-head, and spring; Fig. 3, a top view of helve, showing the cables.

A represents the frame; B, the helve or hammer-arm, its journal *j* working in bearings *b*, forming part of the frame. The helve-head B' is hollow and has pulleys *a a a* therein, over which cables *c c c* run, as shown, the front ends of the cables being attached to the hammer-head in any suitable manner.

The hammer H is provided with guides *g* on the sides working in slides in the frame A (see dotted lines) to aid in getting a perfectly straight up-and-down movement of the hammer, and which is mainly accomplished by means of the cables *c c c*, which give a little slack, and thus allowing a perfectly square blow to be struck on the anvil I as the helve rises and falls. Hanging the hammer by these cables lessens the strain on the helve. The rear ends of these cables are attached on top of the helve by shackles or screws *i i i* to take up or let out slack.

On the back of the hammer just below the top a shelf *h* is cast, on which is a strong spiral spring *s*, whose top is in contact with

the under side of the helve, as shown. This is important, as it not only aids the blow but takes off the hardness of the shock on the anvil and reduces the strain on the cables.

W is the power-wheel, its shaft D working in an upright post or bearing F, and having fast on the shaft a cam-wheel C. In the upper part of the post is pivoted at *p* a bent lever L, its front and shortest end L' projecting downward, its point resting on a tappet *t*, attached to and extending out from the under side of the helve B. (See Fig. 1.) The other and longest end of this lever L extends downward, and its point is constantly in contact with the teeth of the cam-wheel C. Fig. 1 shows its position as the hammer is raised, and dotted lines (same figure) show it when the blow is struck. This position and contact of the lever with the cam-wheel and tappet are kept up, no matter how fast the hammer is run. The short end of the lever, always resting on the tappet, has a sliding and partly rolling movement and not a pounding one, therefore lessening the noise and allowing a reduction of the power to run such a hammer. A spring E, attached to the frame A at the rear, comes in contact with the under side of the back end of the helve and aids in throwing it up after every downward movement.

The operation is simple. The long end of the lever L is thrown outward by the revolving cam-wheel C. Consequently the short end forces down the tappet, which pushes down the rear end of the helve and raises the hammer end. The release of the long lever from each tooth of the revolving cam-wheel drops the helve and the hammer falls. This movement is kept up without a break.

I claim—

1. In a power-hammer, in combination with the hammer H, pulleys *a a a*, cables *c c c*, and the helve B, the power-wheel W, having the cam-wheel C fast on its shaft D, the pivoted bent lever L, its short arm L' in contact with and working on the tappet *t* of helve B, and its long arm in contact with and operated by the cam-wheel C, all substantially as and for the purpose specified.

2. In a power-hammer, the helve-head B', having the pulleys *a a a* therein and the cables *c c c* working thereon, their ends attached to the hammer H, and helve B, oper-

ated by the power-wheel W, cam-wheel C on shaft D, pivoted bent lever L L', and tappet *t*, all substantially as set forth.

3. In a power helve-hammer, the combination of the pulleys *a a a* with the head of the helve B', the cables *c c c*, working on said pulleys and attached to the hammer H, and the spring *s*, adapted to operate in connection with the hammer H and helve by means of the power-wheel W, cam-wheel C, pivoted bent lever L L', tappet *t*, and spring E, substantially as set forth.

4. In a power helve-hammer, the combination of the helve B B', pulleys *a a a*, cables *c c c*, hammer H, spring *s*, power-wheel W, cam-wheel C on shaft D, pivoted bent lever L L', tappet *t*, and spring E, all arranged and operating substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIS JONES.

Witnesses:

J. R. DRAKE,
EDMUND I. BARNARD.