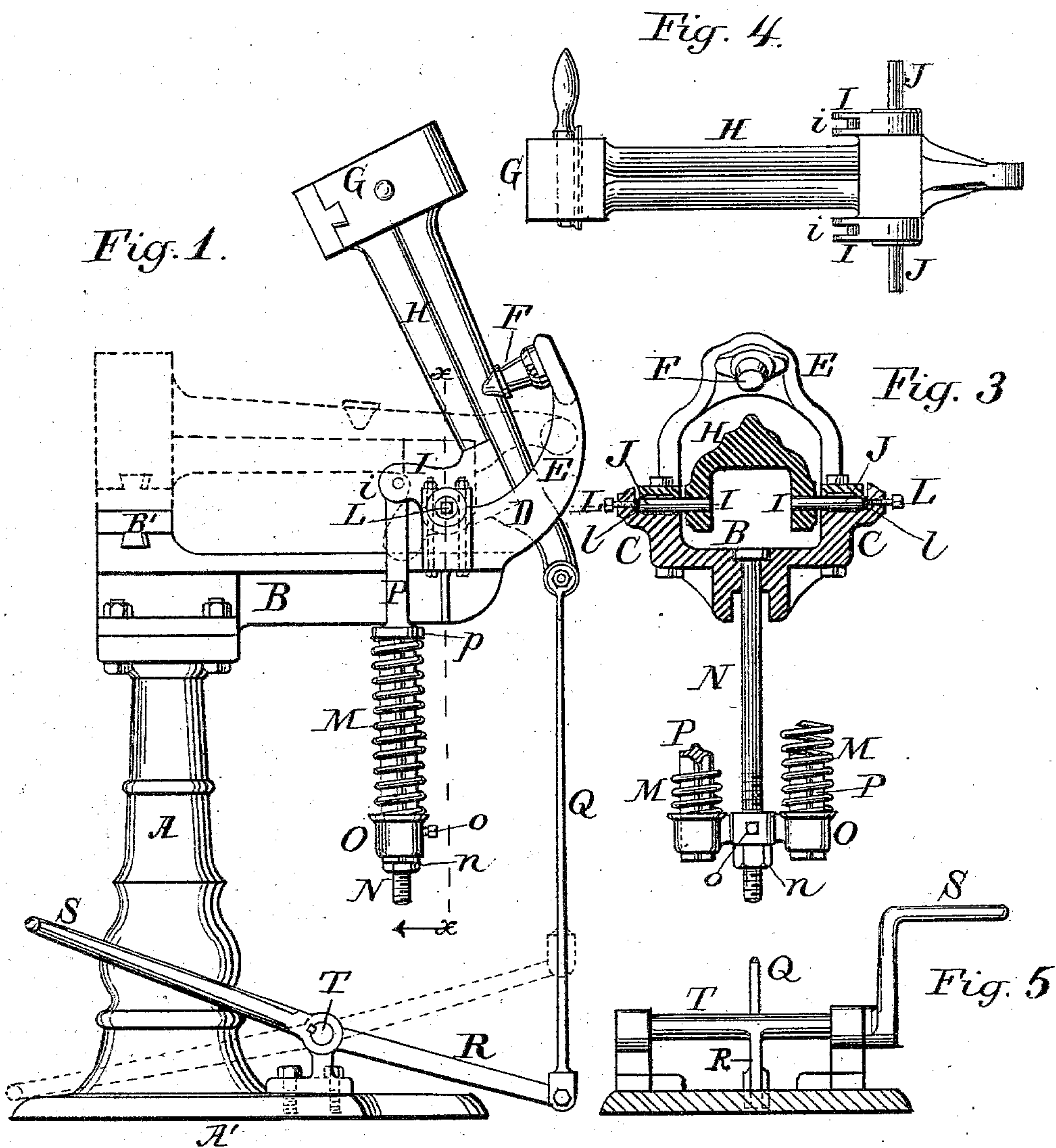


(No Model.)

A. STANDISH.
FOOT POWER HAMMER.

No. 280,969.

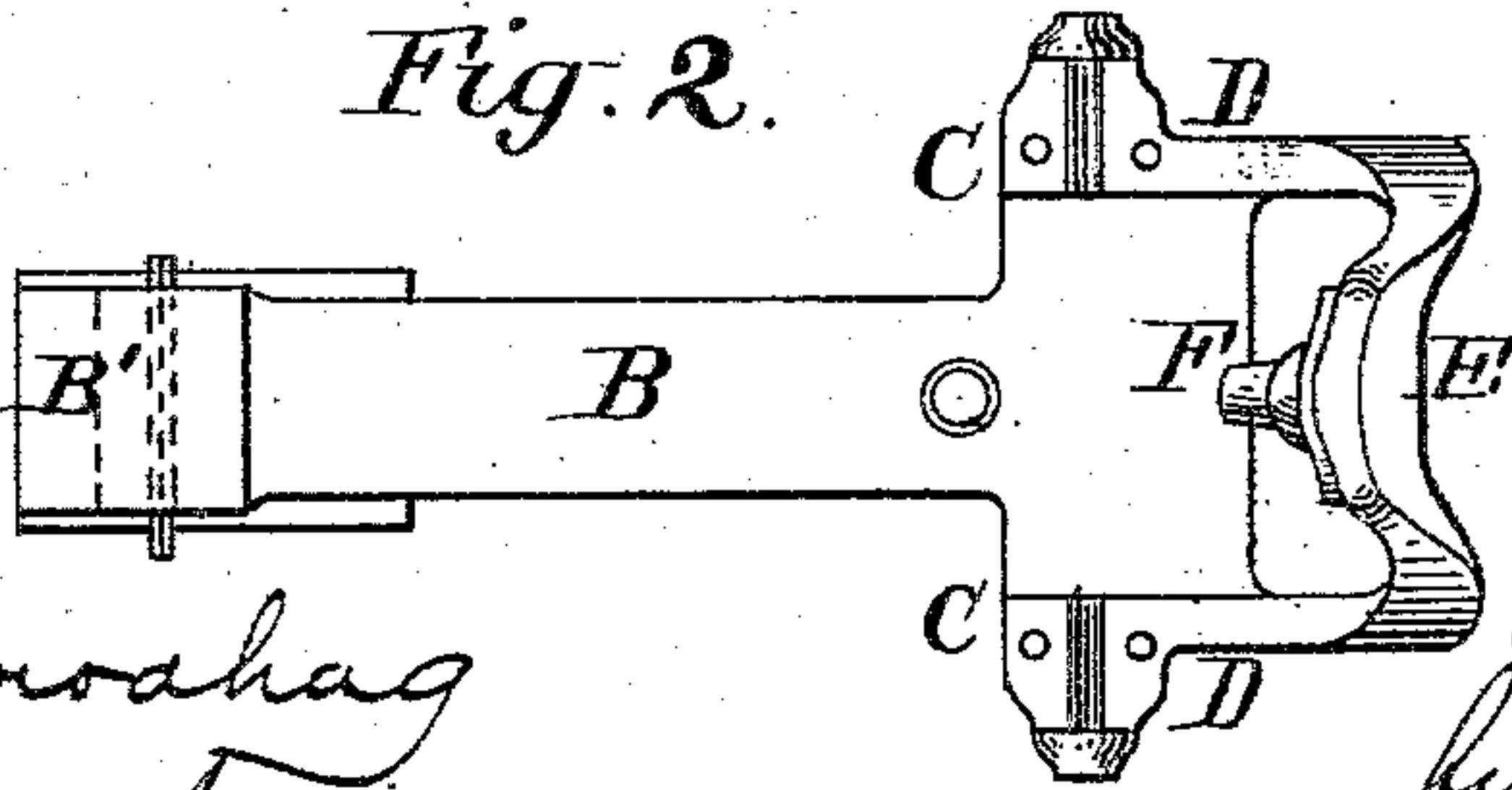
Patented July 10, 1883.



Witnesses:

Edmund Croahag
R. E. Grant

Fig. 2.



Inventor.

Albert Standish
by Johnson and Johnson
(Attys)

UNITED STATES PATENT OFFICE.

ALBERT STANDISH, OF COLUMBUS, OHIO.

FOOT-POWER HAMMER.

SPECIFICATION forming part of Letters Patent No. 280,969, dated July 10, 1883.

Application filed February 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALBERT STANDISH, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented new and useful Improvements in Foot-Power Hammers, of which the following is a specification. *

My invention relates to the class of power-hammers known as "Olivers," in which the hammer is raised by springs and the blow given by treadle-power; and my improvements consist in the construction and combination of the devices by which the hammer is supported and upon which it operates, in the hammer-reacting mechanism, and in means for regulating the force of the blow, whereby compactness and solidity of construction are obtained. An important advantage in my invention is the peculiar construction of the two main parts—viz., the supporting bed-plate and the hammer—in such manner that they may be connected by parts integral with each, so as to obtain a durable and solid working of the hammer to resist the great strain and racking force produced by the concussion of the blows.

In the drawings, Figure 1 represents a side elevation; Fig. 2, a plan view of the bed-plate of a foot-power hammer embracing my invention; Fig. 3, a section at the line *x x*, Fig. 1; Fig. 4, a bottom view of the hammer, and Fig. 5 shows the treadle.

Similar letters of reference indicate like parts in the several views.

Upon a strong column, A, having a broad rearwardly-extending base-plate, A', is secured the bed-plate B, upon which all the working mechanism is attached. This bed-plate is formed with a solid horizontal portion, B, terminating at the front in a seat for the lower die or anvil, B'. Toward the outer end of the bed-plate B, at a point where it is desired to bring the journal-bearings for the hammer, the base-plate is widened, or considerably bulged out laterally, as shown at C, and formed with vertical flanges D D, in the top edge of which is journaled the hammer-helve. After passing the points where the journal-bearings for the hammer are formed, the bed-plate has a rear extension, E, which curves upward and forward, and, uniting at the top end, forms a support for a rubber buffer, F, which projects forward from the crown of the arch and forms

a cushion for the helve of the hammer to strike against, and also acts as a reacting spring to assist the downward motion of said hammer. 55

G is the hammer, formed in a single casting with the helve or handle H and hangers I. The hammer is supported in position by steel journals J, secured in each side of the hangers I of the helve, and extending outward and resting in Babbitt-metal boxes in the top of the flanges D of the bed-plate. L L are set-screws acting against the ends of the journals J, to keep the hammer in a central position and prevent lateral play. A washer, l, may be put between the set-screw and journals, if desired or found necessary. 60 65

The device for raising the hammer is composed of two spiral springs, M M, supported by a bolt, N, extending through the bed-plate, and having a yoke, O, at its end, upon which the springs rest. 70

P P are rods passing down on each side of the bed-plate and through openings in the yoke or spring-support O. These rods P are cast with flanges or collars, *p p*, near their upper ends, which rest upon the top of the springs, and said rods are pivoted at their upper ends to the projecting ends *i* of the hangers I of the hammer-helve. The end of the bolt N is screw-threaded, and provided with a nut, *n*, by which the tension of the springs, by forcing the yoke against the same, may be regulated. 75 80 30

o is a set-screw for securing the yoke in position after being set. The downward movement of the hammer forces the rods P down, and by reason of the collars *p p* the springs M are compressed against the yoke O. When the power exerted to trip the hammer is released, the springs, acting through the rods N, exert an upward impulse, or assist in raising the hammer to its elevated position. 85 90

The devices for tripping the hammer consist of a connecting-rod, Q, attached at one end to the rear end of the hammer-helve and at the other to the crank-arm R of the treadle S. This treadle is of novel construction, the crank-pedal or foot-piece S being keyed onto the treadle-shaft T, and the arm R being formed in one piece with the shaft. The foot-pedal S and part R being right-angled crank-arms of the shaft T, a simple and effective device of greater power than by the usually-formed treadle is by this means secured. 95 100

As is apparent, one spring only may be used, arranged around the bolt N, and to act upon the head of a yoke the ends of which are pivoted to the hangers of the hammer-helve.

5 Provision at the faces of the hammer-head and lower die or anvil is made by which the dies may be removed, this being done, as is usual, by forming a dovetailed groove along the face of the parts, and forming a dovetail
10 on the die which fits into said groove, as shown.

By forming the bed-plate of the machine, upon which all the working mechanism is attached, together with the journal-bearings for the hammer, stop for the hammer-helve, and
15 support for the compression-springs, of a single casting, the parts are rendered strong, durable, and compact, and more effective in operation. So, also, by forming the hammer, with
20 its helve or handle, journal-bearings, and end for applying the operating power, of a single casting, the parts are stronger, durable, and cheaply made, and the parts cannot get out of adjustment.

25 By reason of the construction of the journal-bearings for the hammer-helve as a part of the bed-plate, they are prevented from spreading because of said bed-plate being of a solid structure, with an opening through its rear end
30 for the end of the hammer-helve to work in and to allow of long work being passed through. The lateral play or wobbling of said hammer is therefore prevented, and thus another serious defect in machines of this class is
35 avoided.

By attaching the power direct to the end of the hammer-helve, and placing the fulcrum on a line with the face of the dies or anvil and between the power and weight, instead of
40 placing the power between the weight and fulcrum, the operation of the hammer is rendered much easier and more effective in action.

The arrangement of the die-faces in the same horizontal plane with the bearing-centers of the
45 hammer-helve gives the advantage of working deep and straight impressions.

A single compression-spring may also be used on top of the bed-plate instead of the arrangement shown.

50 I claim—

1. The combination, in a foot-power hammer, of the bed-plate B, constructed with the vertical side parts, C C D D, the latter terminating in an overhanging arch, E, at the rear of said

plate, and the cushion F, carried by said arch, 55 with the hammer-helve constructed with the side depending hangers, I I, terminating in pivot-connecting ends *i i*, the steel bearings J J, the yoke O, the vertical connections N P P, the springs M, and suitable operating-connec- 60 tions, substantially as described, for the purpose specified.

2. In a foot-power hammer, the bed-plate B, constructed with the vertical side parts, C C D D, the latter terminating in an overhanging 65 arch, E, forming a seat for a cushion, jointly with the hammer-helve H, constructed with side depending hangers, I I, terminating in pivot-connecting ends *i i*, the said hangers being adapted to fit within the said vertical side 70 parts C C, and pivoted thereto, substantially as described, for the purpose specified.

3. The hammer-reacting mechanism composed of spring or springs M, yoke O, bolt N, suspended in the bed-plate of the machine, and 75 rods P, with collars *p* thereon, and pivoted to the hangers of the hammer-helve, as and for the purpose described.

4. In a foot-power hammer, the hangers I, formed with an extension, *i*, for receiving the 80 ends of the spring-rods, combined with said rods acting upon suitable springs, for the purpose described.

5. The combination, with bed-plate B, and the bolt N, supported therein, and having a screw 85 end and nut thereon, of the yoke or support O, the springs, and the clamp-screw *o*, for the purpose described.

6. The bed-plate B of a foot-power hammer, constructed with the anvil or die-seat, 90 vertical side bearings C C for the hammer-helve, and an overhanging arch, E, forming a seat for the cushion, all constituted of a single casting, as shown and described.

7. The hammer of a foot-power hammer, 95 having its helve H constructed integrally with the side hangers, I I, terminating in pivot-connecting ends *i i*, the said integral hangers being provided with the steel bearings J J, by which the helve is pivoted; as shown and de- 100 scribed.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBERT STANDISH.

Witnesses:

JOHN R. BOWDLE,
F. TURNER.