

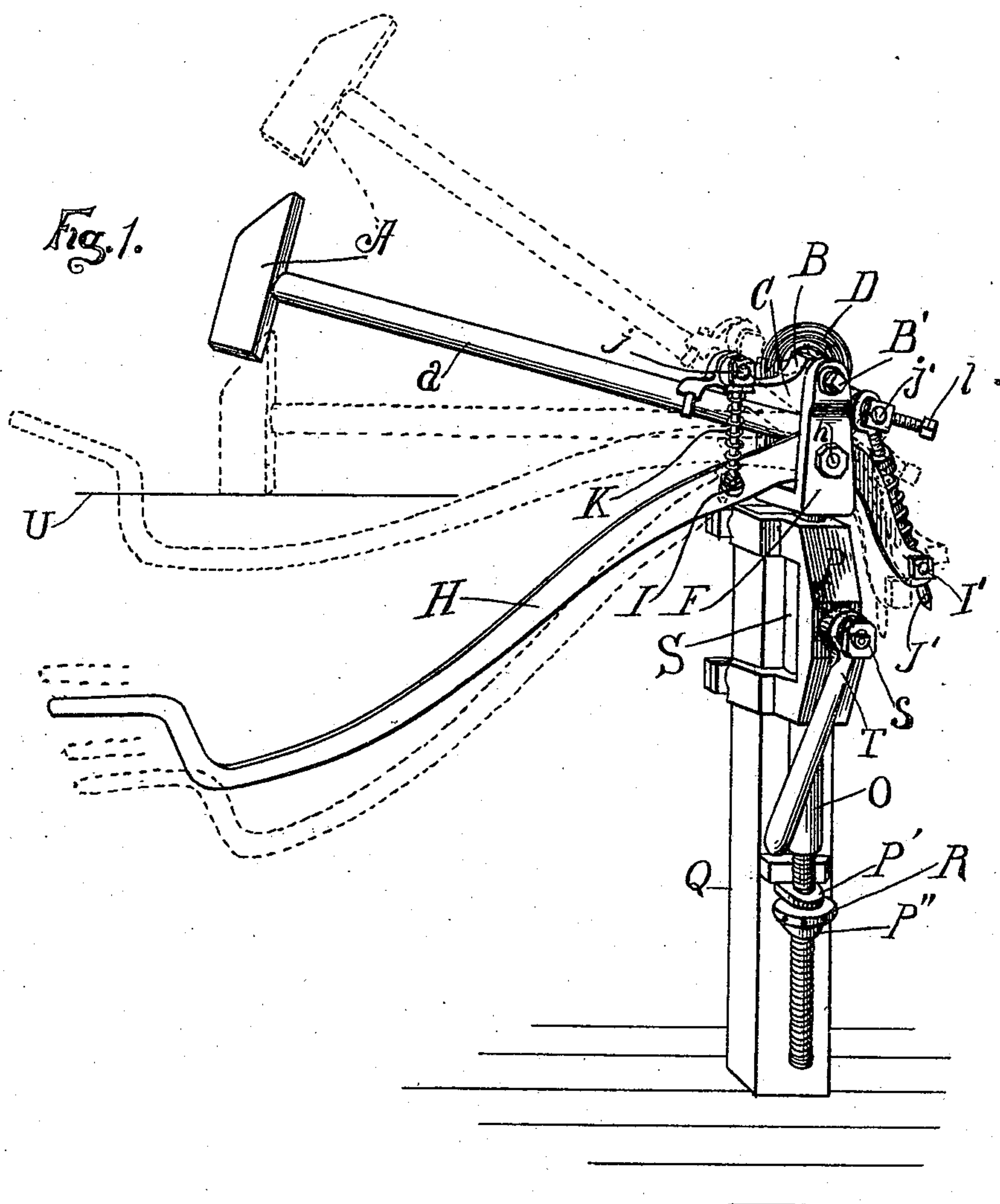
(No Model.)

2 Sheets—Sheet 1.

A. SPERL.
FORGING HAMMER.

No. 500,970.

Patented July 4, 1893.



Witnesses.

P. W. Harbison.

F. M. Townsend.

Inventor.

Antonin Sperl

By *F. M. Townsend*
his atty

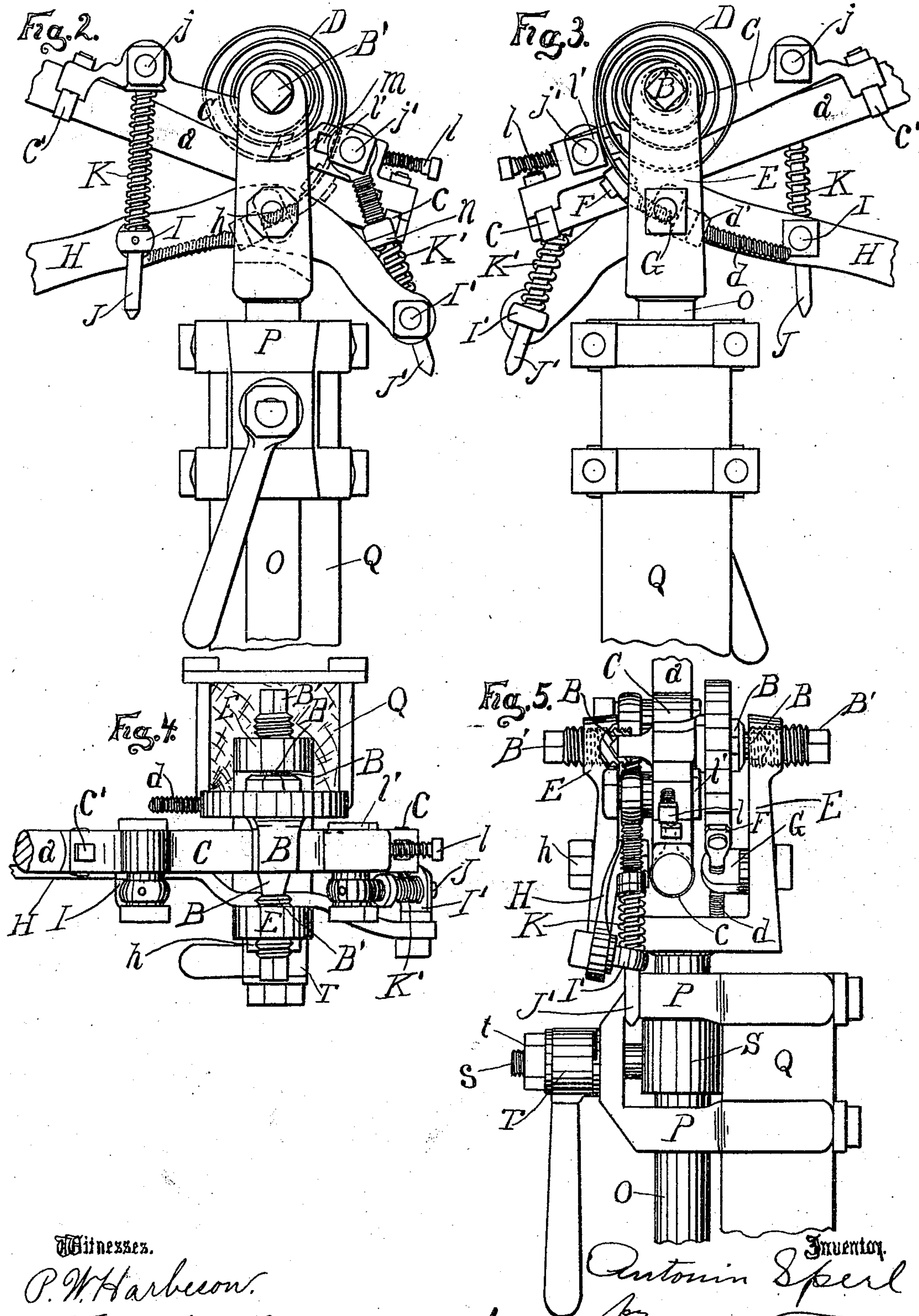
(No Model.)

2 Sheets—Sheet 2.

A. SPERL.
FORGING HAMMER.

No. 500,970.

Patented July 4, 1893.



Witnesses.

P. W. Harbison.
J. M. Townsend.

Inventor.
Antonin Sperl
by
Hazard Townsend
his Att'y

UNITED STATES PATENT OFFICE.

ANTONIN SPERL, OF LOS ANGELES, CALIFORNIA.

FORGING-HAMMER.

SPECIFICATION forming part of Letters Patent No. 500,970, dated July 4, 1893.

Application filed January 24, 1893. Serial No. 459,608. (No model.)

To all whom it may concern:

Be it known that I, ANTONIN SPERL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Forging-Hammers, of which the following is a specification.

The object of my invention is to provide improved means whereby a mechanic can with great ease and convenience do heavy and light forging without a helper. By my invention the mechanic can control a large and heavy hammer with great ease and accuracy so that such heavy hammer can be employed to deal a very heavy or a very light blow at the will of the operator.

My invention consists in the combination of a hammer having its handle pivoted to a suitable support, a spring secured at its ends, respectively, to the support and hammer and arranged to sustain the hammer in its elevated position, a lever pivoted near the pivotal support of the hammer and extending forward to near the head of the hammer and suitable yielding connections arranged between the hammer and lever to communicate the motion of the lever to the hammer.

It also comprises the peculiar means by which the connection is made between the lever and hammer, and also various combinations of the parts hereinafter fully set forth.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of my forging hammer in position for operation, showing in solid lines, the hammer at rest, and showing in dotted lines different positions of the parts while in operation. The highest position of the hammer and lever shown in dotted lines is that which is assumed when the hammer is fully elevated to deal a forcible blow. The lowest position of the hammer shown in dotted lines is that which the hammer assumes in striking the blow. The lowest position to which the lever can be forced is shown in the lowest dotted lines, and the short dotted lines at the end of the lever indicates the ordinary movement of the lever in the process of forging. Fig. 2 is a front side elevation of the pivotal support and operating mechanism. Fig. 3 is a rear elevation of

the same, the connection between the spring, the hammer and the standard being shown in dotted lines. Fig. 4 is a top view of such mechanism. Fig. 5 is an elevation looking toward the right in Figs. 1, 2 and 4. In this view a portion of the standard is broken away to show the pivotal connection between the handle and the standard.

A indicates the hammer of which *a* is the pivotally supported handle arranged to extend on both sides of its support or pivot shaft B.

B' indicates the supports or bearings which sustain the pivot shaft.

C is the clamp which holds the hammer handle; such handle being secured thereto by suitable means such as the clips *c c'* which resemble those of a scythe snath. The hammer handle and the sockets of the clips are circular in cross section so that the handle can be turned to adjust the face of the hammer to the plane of the face of the anvil.

D is the hammer supporting spring connected at one end with the hammer through the medium of the pivot shaft B (which, as shown, is integral with the clamp C and pivotally supports the hammer) and connected at the other end with the support or standard E through the medium of the spring clamp F, the tension screw *d*, tension nuts *d'* and post G which are fixed to the standard E;—the spring being coiled around the pivot shaft B so that the shaft is allowed to rotate upon its pivots but is sustained by the tension of the spring. The spring D is so arranged that its tension is sufficient to hold the hammer in a normally elevated position as shown in Fig. 1. The tension screw *d* is connected with the spring D and passes through the tension post G and is secured by the tension nut *d'* which engages the post G so that the tension spring can be adjusted by screwing the nut back and forth upon the tension screw *d* thus to hold the hammer normally at the desired elevation.

H is the operating lever which is pivoted to the standard *h* and is provided with pivoted sockets I I' through which respectively reciprocate the connecting rods J J' which are pivoted to the hammer handle on opposite sides of the pivot shaft B through the medium

of suitable pivots j, j' . Connecting springs K K' are arranged to press such connecting rods upward from the lever.

The sockets I I' are pivotally connected 5 with the operating lever H. The connecting rods J J' are arranged on opposite sides of the pivots B and h of the hammer and operating lever respectively and the operation of the lever causes the connecting rods and 10 springs J K J' K' to operate the hammer to produce the blows. The rear pivotal connection j' between the connecting rod J' and the clamp C is moved along such clamp by means of an adjusting screw l and a pivot slide l' 15 arranged in a slot m so that the pivotal connection j' between the connecting rod J' and the handle can be placed near to the pivotal support B of the handle, or farther away therefrom so that a greater or less length of 20 stroke of the lever H will be required to operate the hammer through the same arc.

The spring K is the hammer elevating and cushioning spring and the spring K' is the stroke producing spring. The tension of the 25 spring K can remain the same under all conditions of work as its purpose is simply to elevate the hammer and to take up any rebound which may result when the hammer is thrown up and held in its elevated position. 30 The operation of the lever relative to the stroke depends upon the tension of the stroke producing spring K'. If the spring K' is stiff, the operation of the lever H will serve directly to force the hammer downward and 35 but very little movement of the lever will produce the stroke. This is more especially adapted to be used when light forging is to be done so that a very slight movement of the hand will operate the hammer and the 40 lever need not be thrown through a very great arc, but if heavy forging is to be done, the effectiveness of the stroke is increased by giving greater movement to the operating lever.

45 When it is desired to increase the tension of the stroke producing spring K' the tension nut n is turned to press down upon the spring.

The spring K' is much stiffer than the elevating spring K and a slight movement of the 50 tension nut will greatly change the effect of the stroke.

In order to adjust the hammer to the anvil, I provide the support with the swivel stem which is arranged in guides P P' P'' which 55 may be secured to a suitable post Q. The lower end of the stem O is screw threaded and an adjusting nut R is provided between the guides P' P'' and is screwed upon the stem O so that by turning the adjusting nut R the 60 stem O will be raised and lowered in its guides. S is a friction clamp band arranged in the guide clamp P and provided with a screw bolt s and with a cam nut T by which it can be drawn to cause the clamp S to cramp

the stem O in the clamp P. In adjusting the 65 hammer to the right height and position, the cam nut T is turned so that clamp S is loosened to allow the stem O to move up and down therein, and the adjusting nut R is then 70 turned to elevate or lower the stem until the face of the hammer, when in its lowest position as shown in Fig. 1 will rest flat upon the anvil which is indicated by line U in Fig. 1. When the hammer has been brought to the 75 proper position, the cam nut T is turned to draw the clamp S firmly against the stem O thus to clamp the stem firmly in its position, and relieve the nut R from all strain.

In operation the mechanic handles the iron in the ordinary manner and applies the blows 80 by the movement of the lever H as indicated by the dotted lines in Fig. 1.

Now, having described my invention, what I claim as new, and desire to secure by Letters 85 Patent, is—

1. The combination of a hammer having its handle pivoted to a support; a spring secured at its ends respectively to the support and hammer and arranged to sustain the hammer in its elevated position; a lever pivoted 90 near the pivotal support of the hammer; and the yielding connections substantially as described arranged between the hammer and lever to communicate the motion of the lever to the hammer. 95

2. The combination of the hammer having its handle pivoted to a suitable support and arranged to extend on both sides of its pivot; the hammer supporting spring secured at one end to the handle, and secured at the other 100 end to the support; the pivoted operating lever provided with the two sockets adapted and arranged to receive the connecting rods; the connecting rods respectively pivoted to the hammer handle on opposite sides of the 105 pivot, and the springs respectively arranged on such connecting rods to form yielding connections between the lever and the hammer.

3. The combination of a hammer having its handle pivoted to a suitable support, and arranged to extend on both sides of its pivot; the hammer supporting spring secured at one end to the handle and secured at the other 110 end to the support; the pivoted-operating lever provided with two sockets adapted and 115 arranged to receive the connecting rods; the connecting rods respectively pivoted to the hammer handle on opposite sides of its pivot; the springs arranged on such connecting rods to form yielding connections between the lever and the hammer, and suitable means arranged to allow the adjustment of the pivot of the stroke-producing connecting rod with relation to the pivotal support of the hammer. 120

ANTONIN SPERL.

Witnesses:

JAMES R. TOWNSEND,
ALFRED I. TOWNSEND.