

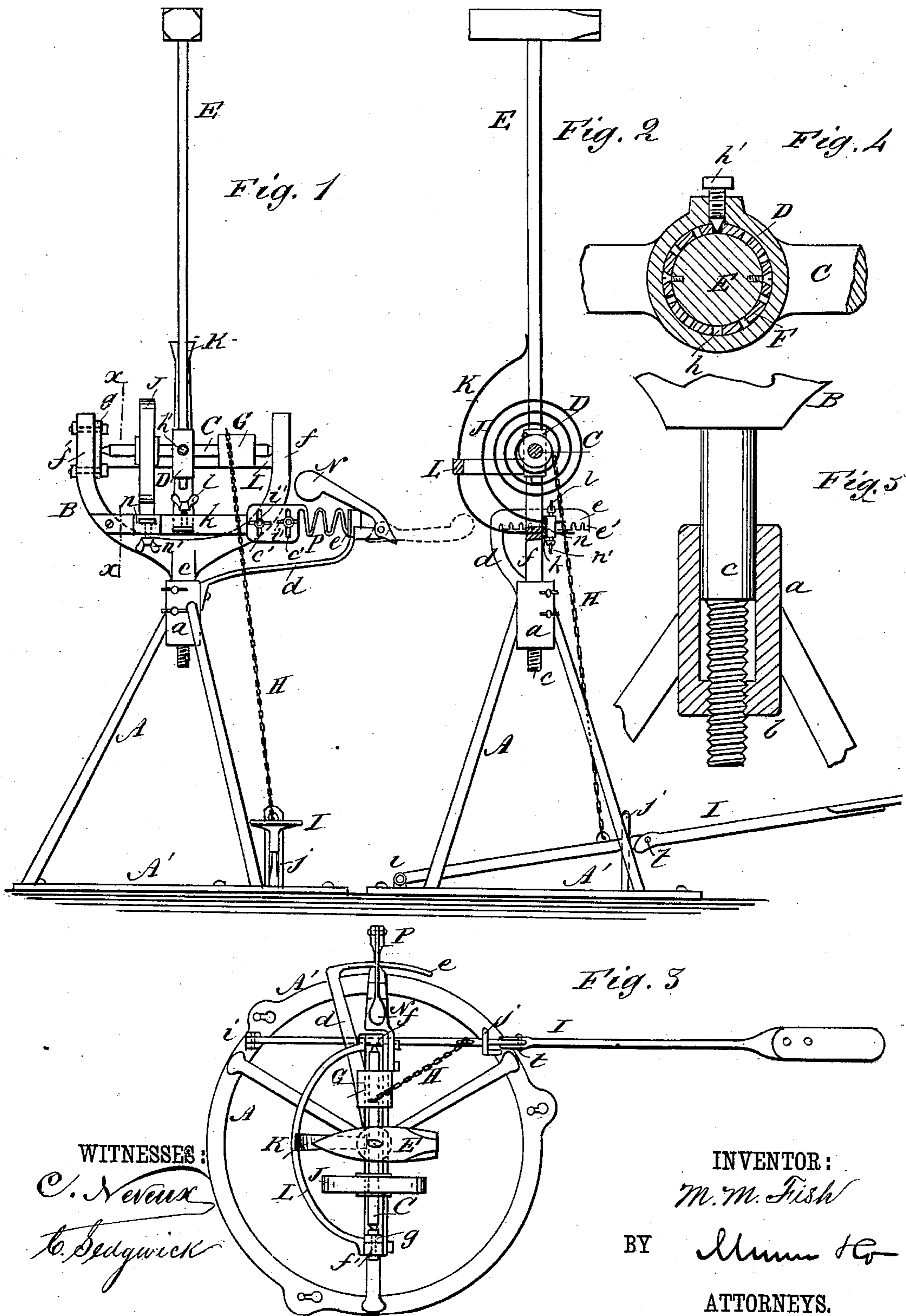
(No Model.)

M. M. FISH.

BLACKSMITH'S FORGING HAMMER.

No. 253,689.

Patented Feb. 14, 1882.



WITNESSES:

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MARTIN M. FISH, OF DAVID CITY, NEBRASKA.

BLACKSMITH'S FORGING-HAMMER.

SPECIFICATION forming part of Letters Patent No. 253,689, dated February 14, 1882.

Application filed August 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, MARTIN M. FISH, of David City, in the county of Butler and State of Nebraska, have invented a new and useful
5 Improvement in Blacksmiths' Forging-Hammers, of which the following is a full, clear, and exact description.

The object of my invention is to provide a mechanical striker for blacksmiths' use to be
10 operated with the foot, the machine having such construction that a powerful blow may be struck with but little exertion, and to provide the machine with means whereby the sledge may be set to suit any position of the
15 object on the anvil, and to deliver a square or diagonal blow, as desired.

The invention consists in a novel construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.
20 In the accompanying drawings, Figure 1 is a front elevation of my invention. Fig. 2 is a sectional elevation taken on line *xx* of Fig. 1. Fig. 3 is plan view. Fig. 4 shows a cross-section of the handle-socket, and Fig. 5 is a
25 detailed view of the socket of the frame and the lower end of the adjustable head.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the standard
30 or main frame, which is formed with the socket *a* at its upper end, which socket is provided with the threaded opening *b* at the bottom, through which the threaded shank *c* of the head B passes, as shown in Fig. 5.

To the socket *a* is secured the arm *d*, to the
35 outer end of which is secured the notched segmental plate *e*, for the purposes hereinafter mentioned. The head B is bifurcated, as shown clearly in Fig. 1, and between the parts *f f'*
40 thereof is journaled the rocking shaft C. One end of this shaft C is placed in a socket formed in the arm *f* of the head, while the other end thereof is placed in a corresponding socket formed in the adjustable plate *g*, secured upon
45 the arm *f'* of the head, as shown in Fig. 1.

The shaft C is provided near its center with the socket D, in which the handle of the sledge E is to be placed. This socket is larger than the handle of the sledge should be, so as to
50 admit the thimble F, which is secured to the handle of the sledge, as shown in Fig. 4. This

thimble F is perforated circumferentially with a series of holes, *h*, in which the point of the set-screw *h'* is adapted to engage for holding the sledge in the socket and for adjusting it
55 so that the face of the sledge will deliver a flat or diagonal blow upon the object to receive the stroke, as desired.

Secured upon the shaft, between the arm *f* of the head and the socket D, is the hub or
60 pulley G, to which is attached one end of the cord or chain H, the other end of this chain being attached to the foot-lever I, one end of which is fulcrumed at *i'* to the circular bottom piece, A', of the main frame, and which
65 moves in the loop *j*, also secured upon the bottom plate of the main frame, as shown clearly in Fig. 2.

Between the arm *f'* and the socket D is placed the coiled spring J, the inner end of
70 which is secured to the shaft, while the outer end of it passes through a slot formed through the cross-plate *k* and a corresponding slot made through the boss *n*, secured or formed upon the said plate *k*, in which slot it is adjustably
75 secured by the set-screw *n'*, which turns in said boss. This spring J is so arranged upon the shaft that it will just hold the sledge E in vertical position, as shown in the drawings, and it is of such strength that it will readily bring
80 the sledge back to this position after it has been brought forward by pressure upon the foot-lever I to deliver its blow.

Back of the sledge I place the curved spring K, the lower end of which is adjustably secured
85 by the set-screw *l* in the cross-plate *k*, and this spring is firmly supported near its center in the bow L, which is secured upon the back of the arms *f f'* of the head B, as shown in Fig. 2.

In order that the machine shall be adapted
90 to deliver blows rapidly, the spring J must be of such strength as to quite suddenly elevate the sledge after each blow, for in rapid use the backward momentum of the sledge will obviously be considerable, so much so that it will
95 pass the vertical line even against the tension of the spring K, and while in this backward position it is obvious that the shaft C will also be turned by the handle of the sledge back out of its normal position. Now, in order to con-
100 vert all of this backward force of the sledge into potential energy for increasing the force of

the next blow of the sledge, I so adjust the spring J upon the shaft that when the shaft is turned back out of its normal position the said spring will be distended so that when the sledge
 5 begins its reverse or forward movement the spring J, as well as the spring K, will exert a sudden forward force upon the sledge, thus requiring but little additional pressure on the foot-lever to cause the sledge to deliver a suc-
 10 cession of powerful and effective blows.

In addition to the above-described adjustment of the sledge in the socket D, whereby the face of the sledge may be turned to give diagonal as well as square blows, the head it-
 15 self may be turned in the socket *a*, so that the sledge may be set to strike any part of the object upon the anvil; and, furthermore, the head may be vertically adjusted by means of its screw-shank *c* and the threaded opening B in
 20 the socket *a* of the frame. When the head is turned in the socket *a* to set the sledge to strike any particular spot of the object on the anvil it is held in that position by the spring-plate P, which engages with the notches *e'*, formed
 25 in the segmental plate *e*. This spring-plate is adjustably secured upon the arm *f* of the head by means of the screws *i' i'* passing through the slots *e' e'* in the plate, by which means the plate can be moved up or down in accordance
 30 with the vertical adjustment of the head. The outer end of this spring-plate is provided with hinged weight N, which, when turned to the position shown in full lines in Fig. 1, locks the plate securely with the notches *e'*, but when
 35 thrown out to the position shown in dotted lines causes the plate to disengage the said notches, and thus leaves the head free to be turned to any position desired.

The foot-lever I is hinged, as shown at *t*, so
 40 that it may be folded up to occupy small space when not in use.

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

45 1. The combination, with the adjustable bi-

furcated head B, provided with the cross-bar *k*, of the shaft C, journaled in the arms of the said head and provided with the handle-socket D, and the coiled spring J, having one end se-
 50 cured to the shaft C and its other end adjustably secured to the bar *k*, substantially as and for the purpose set forth.

2. The combination, with the adjustable bifurcated head B, provided with the cross-bar *k* and the bow L, and shaft C, provided with
 55 the socket D and handle E, of the spring K, adjustably secured to the said cross-bar and supported near its center by the said bow, substantially as and for the purpose set forth.

3. The combination, with the bifurcated head
 60 B, provided with the cross-bar *k* and bow L, and the rock-shaft C, provided with the socket D and handle E, and the means for operating it, of the coiled spring J, secured to said shaft and cross-bar, and the spring K, secured to the
 65 said cross-bar and supported at its center by the bow L, substantially as and for the purpose set forth.

4. The adjustable head B, provided with the adjustable spring-plate P, having the hinged
 70 weight N, in combination with the frame A, provided with the arm *d* and the notched plate *e*, substantially as and for the purposes set forth.

5. The perforated thimble F, adapted to be
 75 secured upon the handle of the sledge, in combination with the shaft C, formed with the socket D, the socket being provided with the set-screw *h'*, as and for the purposes set forth.

6. The shaft C, pivoted in the vertically and
 80 axially adjustable head B and provided with the socket D, in combination with the thimble F, fitting in said socket, substantially as and for the purposes set forth.

MARTIN MARCELLUS FISH.

Witnesses:

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