No. 850,212. PATENTED APR. 16, 1907.

J. H. CONLEN.

POWER HAMMER.

APPLICATION FILED NOV. 6, 1906.

2 SHEETS—SHEET 1.

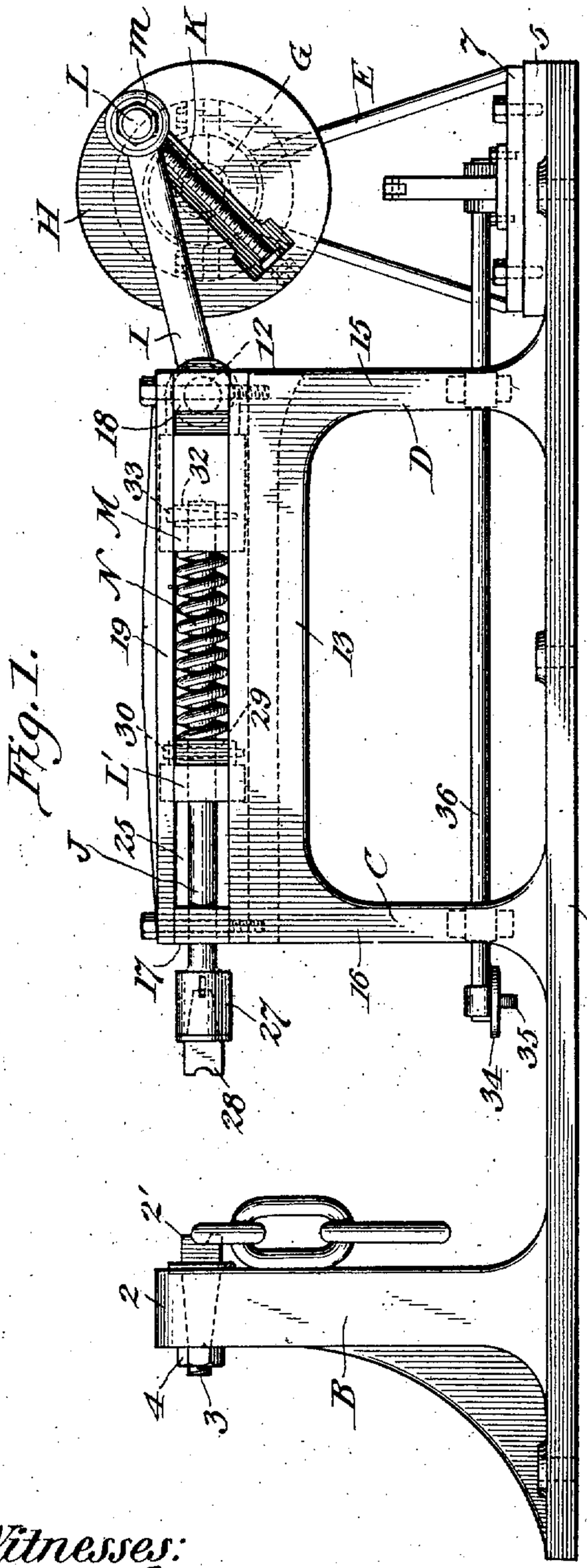
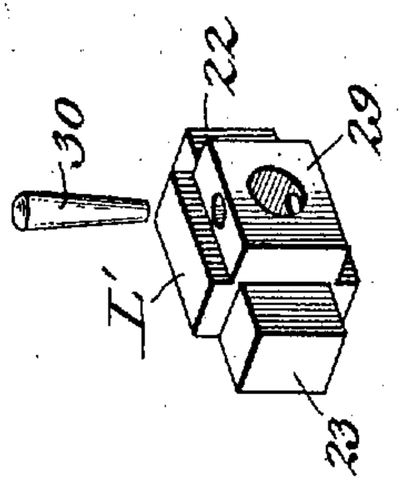


Fig. 1.



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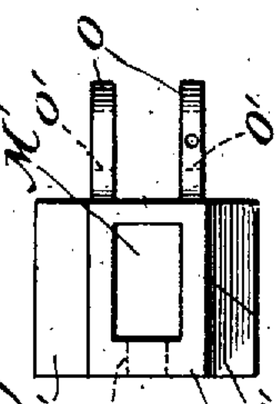

Fig. 6.

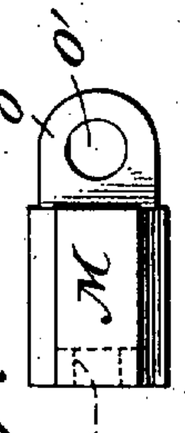

Fig. 7.

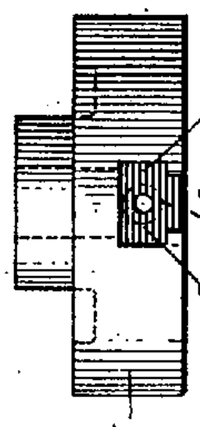

Fig. 5.

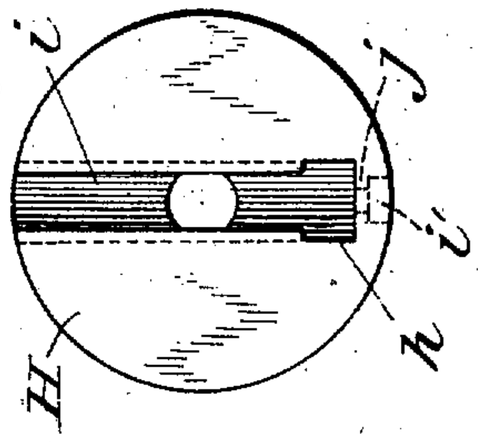

Fig. 4.

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2 SHEETS—SHEET 2.

Fig. 9.

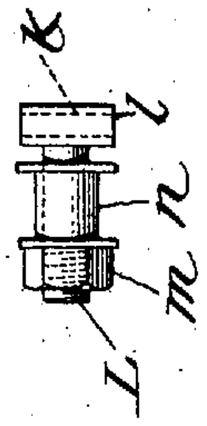


Fig. 3.

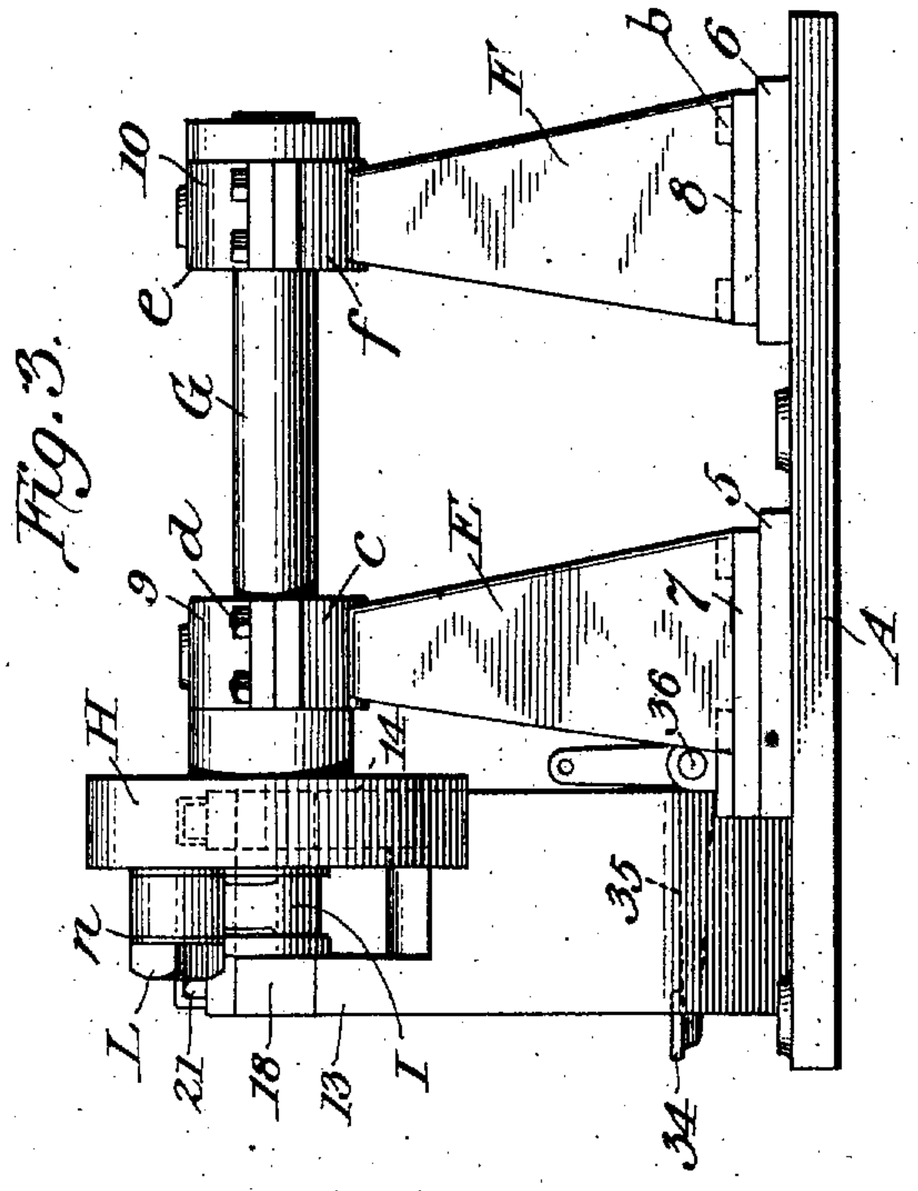
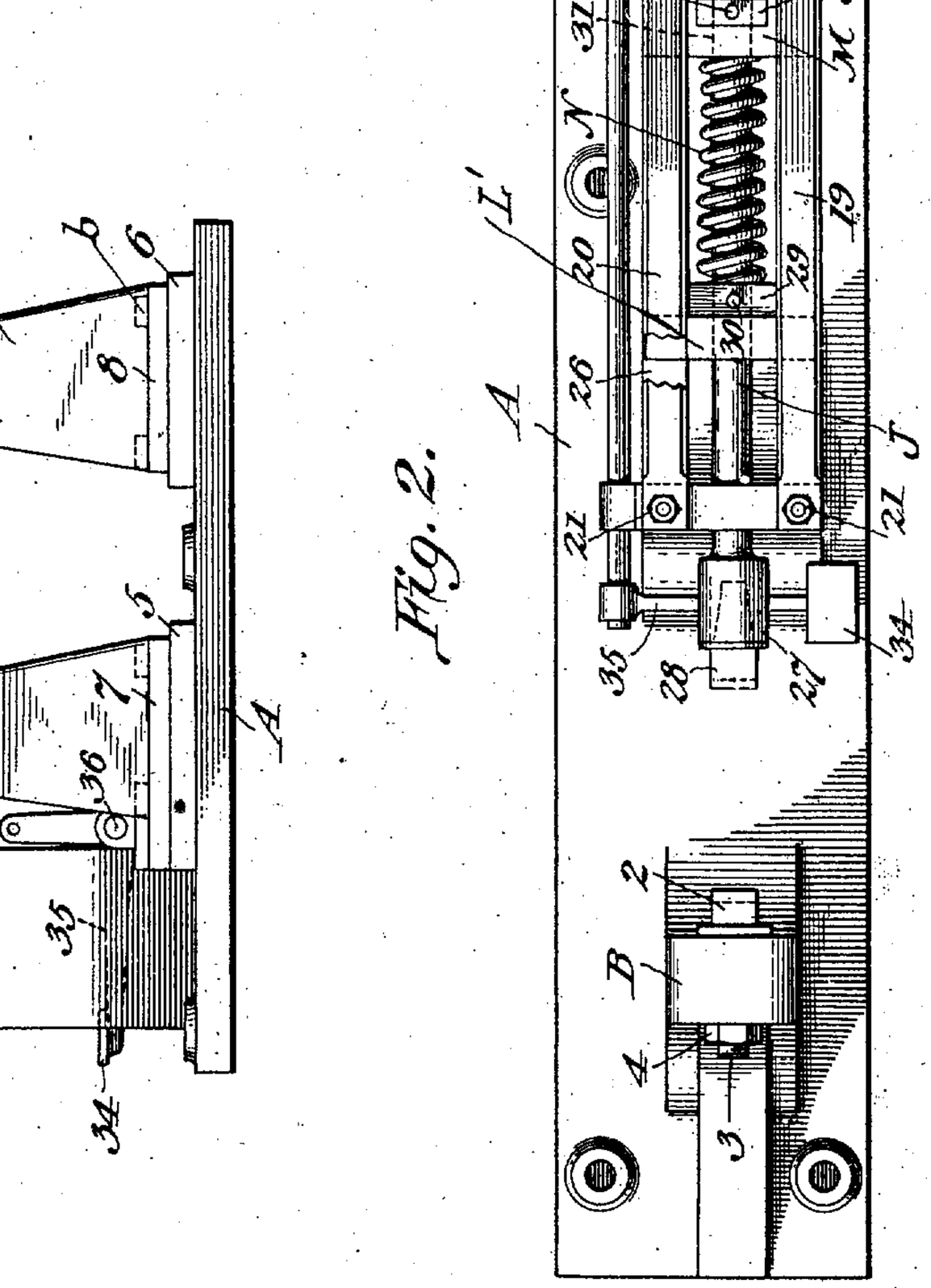


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN H. CONLEN, OF PHILADELPHIA, PENNSYLVANIA.

POWER-HAMMER.

No. 850,212. Specification of Letters Patent. Patented April 16, 1907.

Application filed November 6, 1906. Serial No. 342,278.

To all whom it may concern:

Be it known that I, JOHN H. CONLEN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Power-Hammers, of which the following is a specification.

This invention relates to power-hammers of the horizontal type, more particularly to hammers for welding the links of chains; and it consists, essentially, of a sliding carriage mounted upon a frame and carrying a cushioned rammer and an anvil adjacent thereto. The construction of parts and operation of the machine are more fully described in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a top plan view thereof. Fig. 3 is a rear end elevation. Fig. 4 is a top plan view of the crank-disk. Fig. 5 is an end view of Fig. 4. Fig. 6 is a top view of the cross-head. Fig. 7 is a side view thereof. Fig. 8 is a perspective view of the ram-guide, and Fig. 9 is a view of the crank-pin.

Similar letters and numerals indicate corresponding parts in the different views.

A is the base-plate or foundation, which is substantially of L shape, and B is the standard for supporting the anvil.

C and D are standards supporting the rectangular frame, comprising the carriage guide or way.

E and F are standards supporting the power-shaft G, which carries the disk H.

I is an arm connecting the disk H with the rammer cross-head M of the carriage for imparting movement thereto, and J is the rammer connecting with the carriage and which in its reciprocations hammers against the anvil.

At one end of the base A or on that part forming the L are two bed-plates 5 and 6, secured thereto by welding or otherwise. Mounted upon the beds 5 and 6 are the bases 7 and 8 of the standards E and F, said bases being of approximately the same dimensions as the bed-plates 5 and 6 and are secured thereto by bolts *b*, for which purpose the beds 5 and 6 and bases 7 and 8 are provided with screw-threaded openings. The standards E and F are tapered upwardly and at their ends are provided with journal-boxes 9 and 10, consisting, essentially, of two parts, *c d* and *e f*, the lower ones of which, *c* and *f*, are integral parts of the standards. The parts of the journal-boxes 9 and 10 are assembled by bolts *a*.

To one end of the shaft G is the disk H, which is keyed thereto, and at its opposite or rear end the shaft is locked against one side of the journal-box 10 by the pinned sleeve 13′, which is fastened to the shaft G by a pin *g*. The disk H is provided with a groove *i* substantially the shape of an inverted T, which extends approximately the diameter of the disk.

The face of the groove *i* is enlarged at one end, as at *h*, and that portion of the disk between said enlargement *h* and the periphery of the disk is partly cut away, as at *i′*, to the same depth as the T-groove, but of less width than the opening in the face of the groove *i*. The enlargement *h* gives room for the hand while securing the adjusting-rod to the disk H. The piece between the groove enlargement *h* and the recess *i′* provides a journal-bearing *j* for the adjusting-screw K. Said adjusting-screw is adapted to fit within the groove *i* of the disk H and is provided with screw-threads for adjusting the crank-pin L to regulate the throw of the crank-arm I. The crank-pin L has a head *k*, adapted to fit loosely and slide freely within the groove *i*, and is provided with a screw-threaded opening *l*, adapted to receive the adjusting-screw K. A locking-nut *m* secures the crank-pin L to its adjusted position, and a sleeve or bushing *n*, carried by the pin, receives the eye 8 of the crank-arm I. The other end of said crank-arm has a similar eye 9, adapted to pivotally fit between the two lugs *o* of the cross-head *m*, for which purpose said lugs have openings *o′*, adapted to register with the eye 9 of the crank-arm I, and a pin 12 passing through the openings *o′* and the eye 9 pivotally connects the crank I and cross-head *m*.

The rectangular frame constituting the rammer-guideway comprises side pieces 13 and 14 and end pieces 15 and 16, integral with the standards C and D and having their upper surfaces all in the same plane. At either end of the frame or on each of the pieces 15 and 16 is a spacing-block 17 and 18, of the same width as the end pieces and adapted to support the truss-bars 19 and 20, to which they are secured by the bolts 21, one of which is at each end of the truss-bars 19 and 20. By means of the spacing-blocks

17 and 18 two guideways 25 and 26 are provided, one on either side of the frame, for the reciprocations of the rammer-guiding block L′ and the cross-head M. The cross-head M comprises a block having a recess or perforation to provide a chamber M′. One end 40 of said block has an opening to receive the rammer J. Both the cross-head M and the rammer-guide L′ have each two wings, numbered 20′ 21′ and 22 23, respectively, said wings being oppositely disposed and adapted to reciprocate within the ways 25 and 26.

The rammer comprises a shaft, preferably round, and has at its active end a head 27, said head being suitably recessed to receive the hammer block or die 28 and having a mortise behind the head of the die for the insertion of a drift-pin to drift the die, the end of the hammer die or block being partially cut away to conform to the shape of a chain-link to be welded. The body portion of the shaft J passes through a suitable opening in the spacing-block 17 and carries about midway of its length the rammer-guide L′, which is keyed thereto by the integral piece 29 on its inner side, adapted to receive the pin 30. At its rear end the shaft J passes through the opening 31 of the block M and is keyed within the perforation of said block by the pin 33; but the shaft J is to have free movement through the opening 31 in said block. A cushioning-spring N, carried by the shaft J, between the cross-head M and the rammer-guide L′, is adapted to contract between those parts and cushion the force of the blow, said contraction being taken up by the movement of the rammer within the perforation of the cross-head. The standard B is provided at its upper end with a tapered opening in line with the throw of the rammer to receive the pin 3 of the anvil 2′, the end of said pin being threaded to receive nut 4 for securing the anvil to standard 2. The active face of the anvil-block 2′ is cut away similar to that of the hammer-block 28.

A treadle 34, located to one side of the standard C and connected to the source of power by members 35 and 36, is the means for controlling the operation of the machine.

In its operation the machine works as follows: Power being applied to the shaft G is transmitted through the disk H and the crank-arm I to the carriage carrying the rammer J and reciprocates the same. When the head 28 of the rammer strikes against the link held by the anvil-block 2, the blow is cushioned and further reinforced by the continued forward movement of the cross-head M against the spring N, which in turn operates against the guide L of the rammer, the rammer-guide L′ having in the meanwhile stopped with the head 28, the difference in the movements of the cross-head M and rammer-guide L′ being taken up by the space within the perforated block M.

One of the important advantages resulting from the construction herein shown and described resides in the fact that the anvil and rammer or die are disposed horizontally and low down, so that the operator can always see his work, which is under him, so to speak. Another advantage of importance results from the special construction shown, wherein the die and anvil are normally widely separated from each other, giving the operator free and unobstructed access to his work. The construction and arrangement of parts also gives the much-desired cushioned blow to the rammer, the force of which may be varied to suit the work by simply adjusting the position of the operating-crank.

What I claim is—

1. A chain-welding machine comprising a frame, an anvil, a carriage within the frame, said carriage comprising a guiding-block and a cross-head, a rammer carried by said carriage, a cushioning means carried by said rammer and interposed between the cross-head and the guiding-block, and a power-driven means operatively connected to said cross-head.

2. A chain-welding machine comprising a frame, an anvil, a carriage within the frame, said carriage comprising a guiding-block and a cross-head, a rammer carried by the carriage and keyed to the guiding-block, a cushioning means carried by said rammer and interposed between the cross-head and the guiding-block, and a power-driven means operatively connected to said cross-head.

3. A chain-welding machine comprising a frame, an anvil, a carriage within the frame, said carriage comprising a guiding-block and a cross-head independently arranged, said cross-head having a perforation, a rammer keyed to the guiding-block and fitting loosely within the perforation of the cross-head, a cushioning means carried by said rammer and interposed between the cross-head and the guiding-block, and a power-driven means operating said cross-head.

4. A chain-welding machine comprising a frame having guideways, an anvil, a carriage within the frame, said carriage comprising a guiding-block having wings, and a cross-head provided with wings and a perforation, the wings of said guiding-block and cross-head adapted to reciprocate within said guideways, a rammer keyed to the guiding-block and fitting loosely within the perforation of the cross-head, a cushioning means carried by said rammer and interposed between the cross-head and the guiding-block, and a power-driven means for operating said cross-head.

5. A chain-welding machine comprising a frame having spacing-blocks and truss-bars to provide ways, an anvil, a reciprocating carriage within the ways, said carriage comprising a guiding-block, and a cross-head

having a perforation, a cushioned rammer keyed to the guiding-block and fitting loosely within said perforation of the cross-head, and a power-driven means for operating said cross-head.

6. A chain-welding machine comprising a frame having spacing-blocks and truss-bars to provide ways, an anvil, a carriage adapted to reciprocate within said ways, said carriage comprising a guiding-block, and a cross-head having a perforation, a cushioned rammer keyed to the guiding-block, and adapted to play within the perforation of the cross-head, and a power-driven means for operating said cross-head.

7. A chain-welding machine comprising a frame having spacing-blocks and truss-bars to provide ways, an anvil, a carriage, said carriage comprising a guiding-block having wings, and a cross-head having wings and a perforation, said wings adapted to reciprocate within the ways of the frame, a cushioned rammer keyed to the guiding-block, and adapted to play within the perforation of the cross-head, and a power-driven means for operating said cross-head.

8. In a chain-welding machine, the combination of a standard supporting an anvil, standards supporting a frame, said frame comprising spacing-blocks and truss-bars to provide ways, a carriage adapted to reciprocate in said ways, said carriage comprising a guiding-block, and a cross-head having a perforation, a rammer keyed to the guiding-block and loosely connected to the cross-head, end of said rammer locked within and adapted to play in the perforation of said cross-head, a cushioning means carried by the rammer and interposed between the cross-head and the guiding-block, and a power-driven means for operating the cross-head.

9. A chain-welding machine comprising a frame, an anvil, a carriage within the frame, said carriage comprising a guiding-block and a cross-head, a rammer carried by said carriage, a cushioning means interposed between the cross-head and the guiding-block, and a power-driven means operatively connected to said cross-head.

10. A chain-welding machine comprising a frame, an anvil, a carriage within the frame, said carriage comprising a guiding-block and a cross-head, a rammer keyed to said guiding-block intermediate its ends, one end of said rammer loosely connected to the cross-head, a cushioning means interposed between the cross-head and the guiding-block, and a power-driven means operatively connected to said cross-head.

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

JOHN H. CONLEN.

Witnesses:
WILLIAM J. CONLEN,
EMANUEL V. H. NARDI.