

No. 686,275.

Patented Nov. 12, 1901.

M. ERICKSON.
POWER HAMMER.

(Application filed July 30, 1900. Renewed June 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.

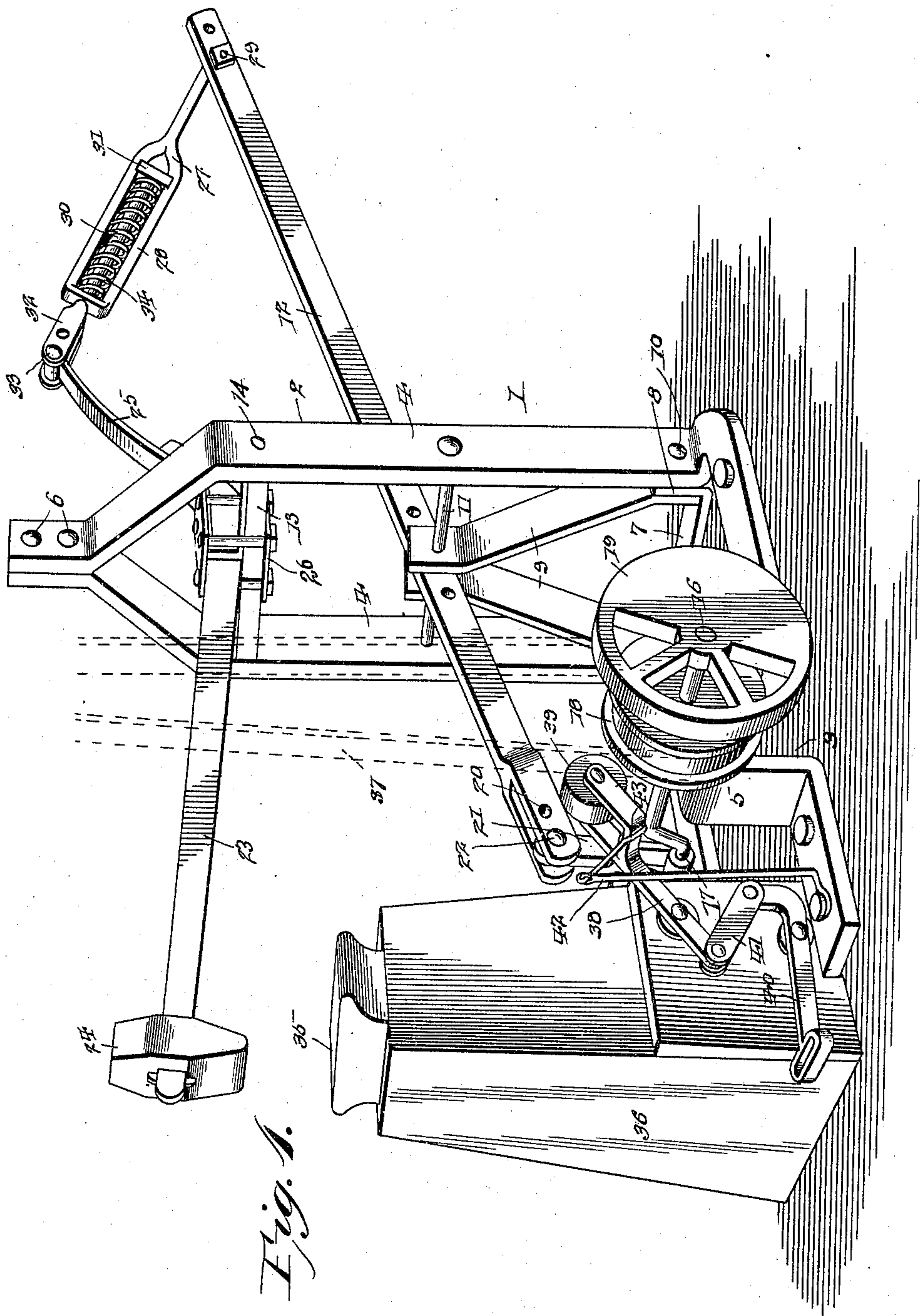


Fig. 1.

Witnesses
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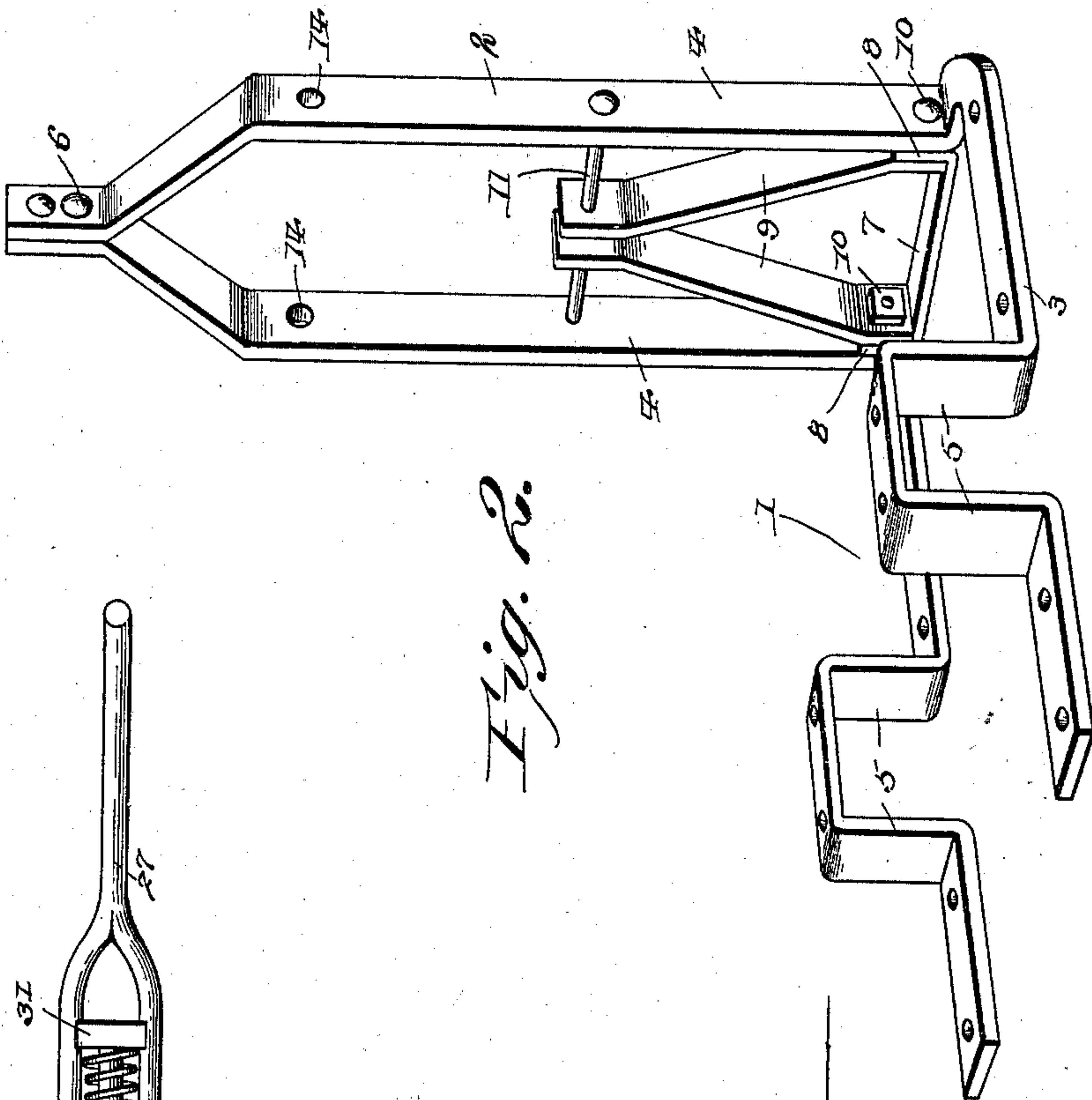


Fig. 2.

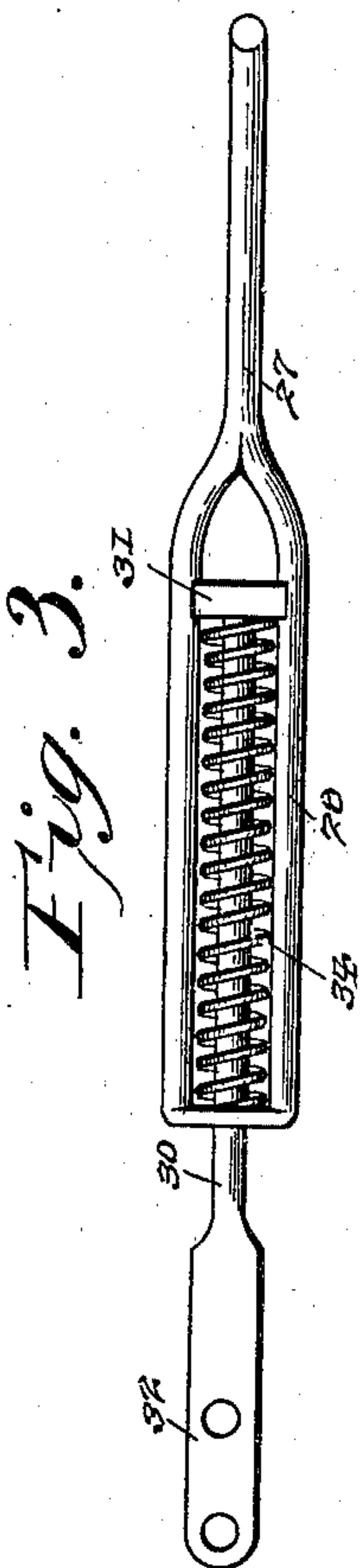


Fig. 3.

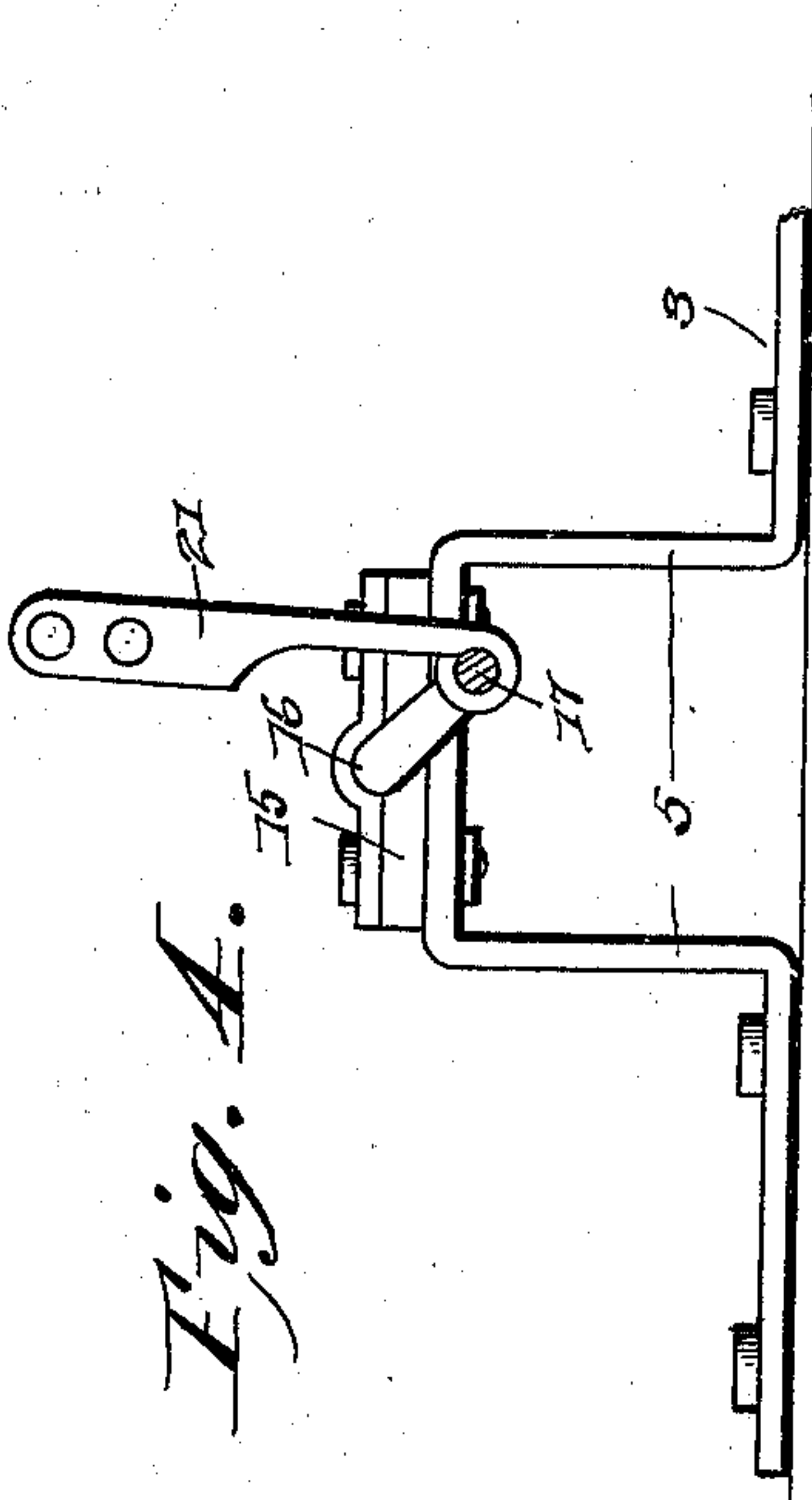


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

MARTIN ERICKSON, OF WAUBAY, SOUTH DAKOTA.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 686,275, dated November 12, 1901.

Application filed July 30, 1900. Renewed June 8, 1901. Serial No. 63,783. (No model.)

To all whom it may concern:

Be it known that I, MARTIN ERICKSON, a citizen of the United States, residing at Waubay, in the county of Day and State of South Dakota, have invented a new and useful Power-Hammer, of which the following is a specification.

My invention is an improved power-hammer; and it consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claims.

One object of my invention is to provide a power-hammer in which the hammer is comparatively heavy and is operated at a comparatively low rate of speed and in which the parts are few, of simple construction, and compactly disposed, so that the machine will take up but little room.

A further object of my invention is to effect improvements in the construction of the supporting-frame.

A further object of my invention is to effect improvements in the mechanism for operating the hammer.

In the accompanying drawings, Figure 1 is a perspective view of a power-hammer embodying my improvements. Fig. 2 is a detail perspective view of the frame. Fig. 3 is a detail elevation of the yielding spring-link which connects the hammer-arm with the operating-lever. Fig. 4 is a detail elevation, partly in section, of the power-shaft, the link to connect the crank thereof to the operating-lever, and one of the bearings of the power-shaft.

In the embodiment of my invention I provide a supporting-frame 1, which comprises a vertical section 2 and a horizontal section 3. The sides of the vertical and horizontal sections of the frame are made of two bars 4, formed as shown. The horizontal sections of the frame are fashioned with inverted-U-shaped standards 5, formed integrally with the said bars 4, and the latter have their upper ends bent inward into engagement with each other and bolted together, as at 6. Hence the upper end of the vertical section of frame 1 is arched. A cross-bar 7 connects the bases of the side members of the vertical section 2, the ends of the said cross-bar being upturned, as at 8, and disposed within and in contact with the bars 4. Upwardly-converging brace-

bars 9 have their lower ends disposed within the upturned portions of the cross-bar 7, and bolts 10 secure the bars 4, cross-bar 7, and brace-bars 9 together, as shown. A tie-rod 11 passes through the sides of the vertical section 2 of frame 1 and through the upper portions of the brace-bars 9, the latter converging upwardly and between the said upper ends of the said brace-bars, and on the said tie-rod 11 is fulcrumed an operating-lever 12. A rock-shaft 13 has its bearings in the vertical section of frame 1, near the upper end thereof, as at 14.

Suitable bearing-blocks 15 are bolted on the standards 5, and in said bearing-blocks is journaled a power-shaft 16, which is provided at a point intermediate of said bearing-blocks with a crank 17. On one end of said power-shaft is a power-pulley 18 of suitable diameter and width, and a balance-wheel 19 is also secured on said power-shaft. The inner end of the operating-lever 12 is forked or bifurcated and provided with a series of adjusting-openings 20. A link 21 has its upper end pivotally connected with the inner end of said operating-lever by a bolt 22, which is disposed in appropriate openings 20, and the lower end of said link engages the wrist of the crank 17. It will be understood from the foregoing that upon the turning of the shaft 16 the lever 12 will be operated and that the stroke of the latter may be regulated at will.

A hammer-arm 23 is secured to the rock-shaft 13 by any suitable means, and said hammer-rod carries a hammer 24 of suitable weight—usually of about the weight of forty pounds. To the outer end of the hammer-arm 23 is secured an extended spring-arm 25, the same being, in the form of my invention here shown, clamped on the outer end of the hammer-arm by clip-bolts 26, which also serve to secure the hammer-arm to the rock-shaft 13. A link 27 connects the outer end of the spring-arm 25 to the outer end of the operating-lever 12. The said link comprises a yoke 28 of the form shown, the lower end of which is connected to and adjustable on the operating-lever 12 by a bolt 29 and a rod 30, which has at its lower end a head 31, that is guided in the yoke 28. The said rod operates in an opening in the upper end of the yoke, has a bifurcated head 32, and said head is connected to

the outer end of the spring-arm 25 by a bolt 33. A coiled extensile spring 34 on the rod 30 bears between the upper end of the yoke and the head 31. Said spring is a cushioning-spring, and the said link 27, as will be understood, is extensible in length. The spring-arm 25 also serves as a cushioning-spring to deaden the concussion of the hammer on the anvil.

The anvil 35 may be of any suitable form and is supported on an anvil-block 36, which block is disposed between the outer ends of the horizontal sections of the frame 1. Said horizontal section of the frame is bolted to the floor when the machine is set up for operation, as shown in Fig. 1.

A power-belt 37, which is indicated in dotted lines in Fig. 1, engages the power-pulley 18 and communicates power thereto from a suitable overhead pulley. (Not shown, as the same will be understood.) Normally the power-belt 37 will slip on the pulley 18 and the shafts 16 will not be rotated.

A lever 38 is fulcrumed to one side of the anvil-block, and the said lever carries an antifriction-roller 39, which is adapted to bear against one lead of the power-belt. A foot-lever 40, which is also fulcrumed to one side of the anvil-block, has its inner end connected with the inner end of the lever 38 by a link 41. A spring-standard 42 has its base bolted to the horizontal section of the frame 1, and the upper end of said spring-standard is connected to the free end of the lever 38, as at 43.

In order to set the power-hammer in operation, it is only necessary for the operator to depress the outer end of the lever 40 with his foot, thereby causing the lever 38 to apply the antifriction-roller 39 to the power-belt 37 and tighten the latter on the pulley 18, so that the shaft 16 will be set in operation. To discontinue the operation of the power-hammer, the operator removes his foot from the lever 40.

Owing to the weight of the hammer and the construction of the operating mechanism therefor, the hammer delivers heavy blows upon the work, which when finished by the hammer is nearly perfect and requires but little subsequent grinding and polishing.

Having thus described my invention, I claim—

1. The frame 1, having the vertical section and horizontal section, and comprising the bars 4 fashioned as described to form the

arch at the upper end of the vertical section, and the standards 5 in the horizontal section, the cross-bar 7, and the brace-bars 9, said bars 4, 7, and 9 being bolted together at the base of the vertical section of the frame, in combination with the power-shaft having its bearings on said standards 5, and provided with the power-pulley and crank, the operating-lever fulcrumed in the vertical section of the frame, the link connecting the inner end of said lever to the wrist of the crank, the shaft having its bearings in the said vertical section of the frame, the hammer-arm secured on said rock-shaft, carrying the hammer and having the outward-extending spring-arm 25, the longitudinally-extensible spring-retracted link 28 connecting said spring-arm 25 to the outer end of the operating-lever, the anvil-block disposed between the outer ends of the horizontal section of the frame, the lever 30 fulcrumed on said anvil-block, and having an antifriction-roller adapted to engage a power-belt which operates the power-pulley, the foot-lever also fulcrumed to said anvil-block and the link connecting said foot-lever to the lever 38, substantially as described.

2. In a power-hammer, the combination of the frame, the power-shaft, having its bearings thereon and provided with the power-pulley and the crank, the operating-lever fulcrumed in the frame, the link connecting the inner end of said lever to the wrist of the crank, the rock-shaft having its bearings in the frame, the hammer-arm secured on said rock-shaft, carrying the hammer and having the outward-extending spring-arm 25, the longitudinally-extensible, spring-retracted link 28 connecting said spring-arm 25 to the outer end of the operating-lever, the anvil-block disposed between the outer ends of the horizontal section of the supporting-frame, the lever 38 fulcrumed on said anvil-block, and having an antifriction-roller adapted to engage a power-belt which operates the power-pulley, the foot-lever also fulcrumed to said anvil-block, and the link connecting said foot-lever to the lever 38, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MARTIN ERICKSON.

Witnesses:

J. M. REXFORD,

DEWITT CHURCHILL.