

No. 609,836.

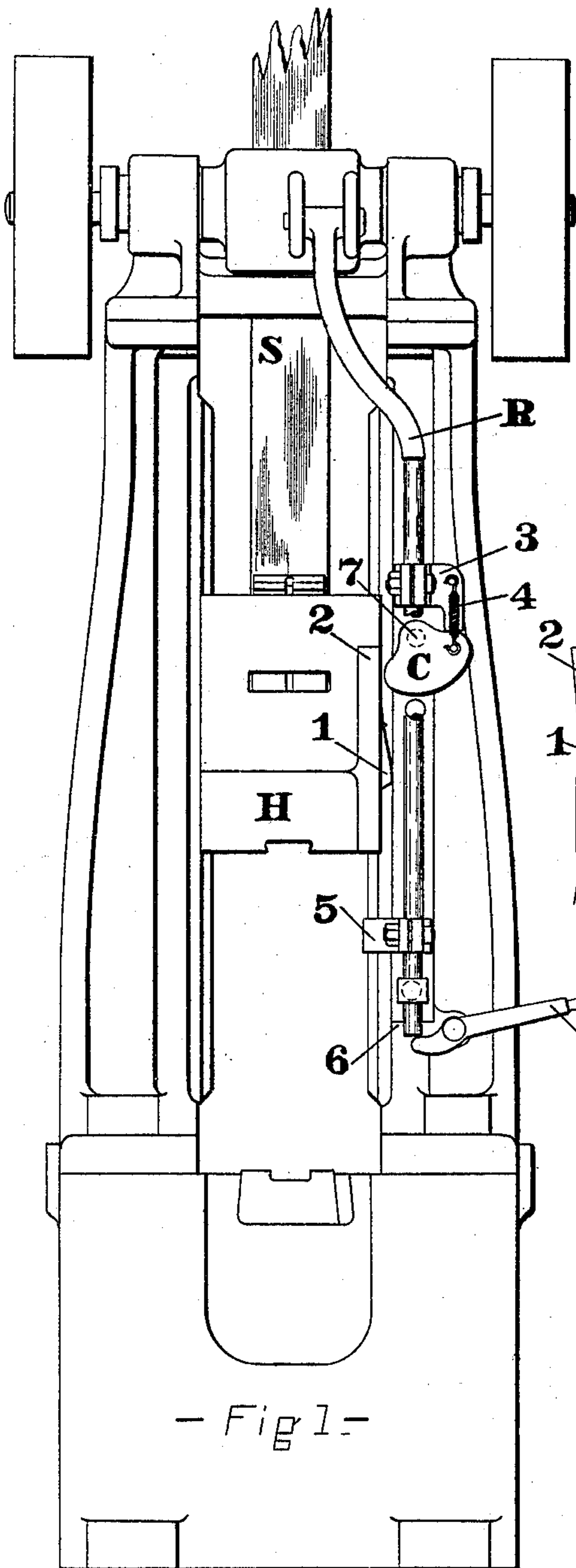
Patented Aug. 30, 1898.

G. ROWBOTTOM.
DROP HAMMER.

(Application filed Mar. 27, 1897.)

(No Model.)

2 Sheets—Sheet 1.



- Fig 1 -

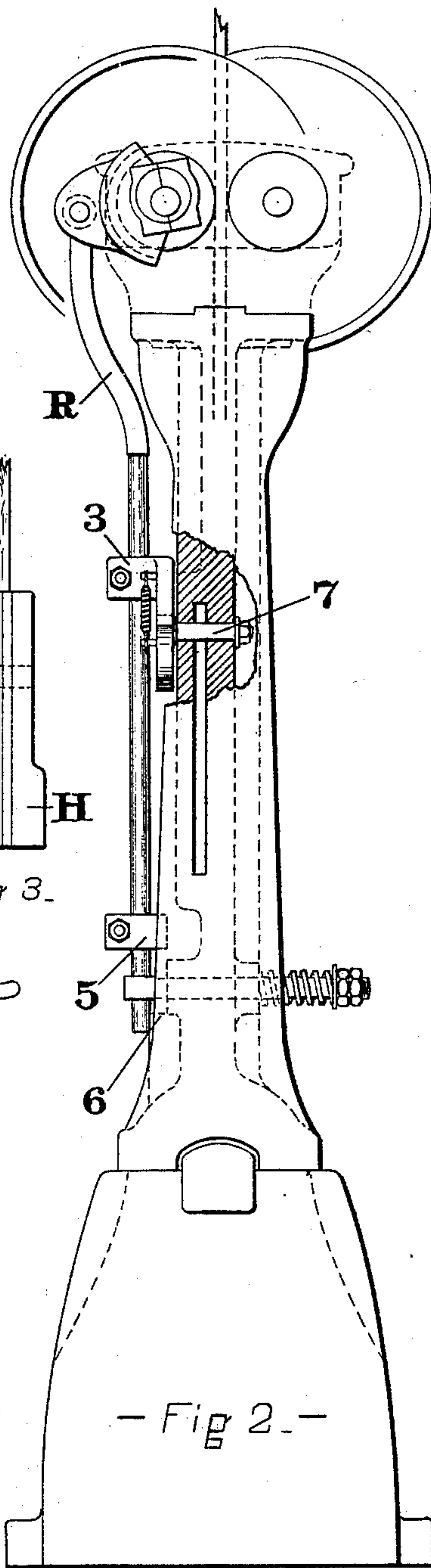


Fig 3.

- Fig 2 -

Witnesses:

E. G. Fennelly,
Edward W. Back

Inventor:

George Rowbottom
By his Attorney
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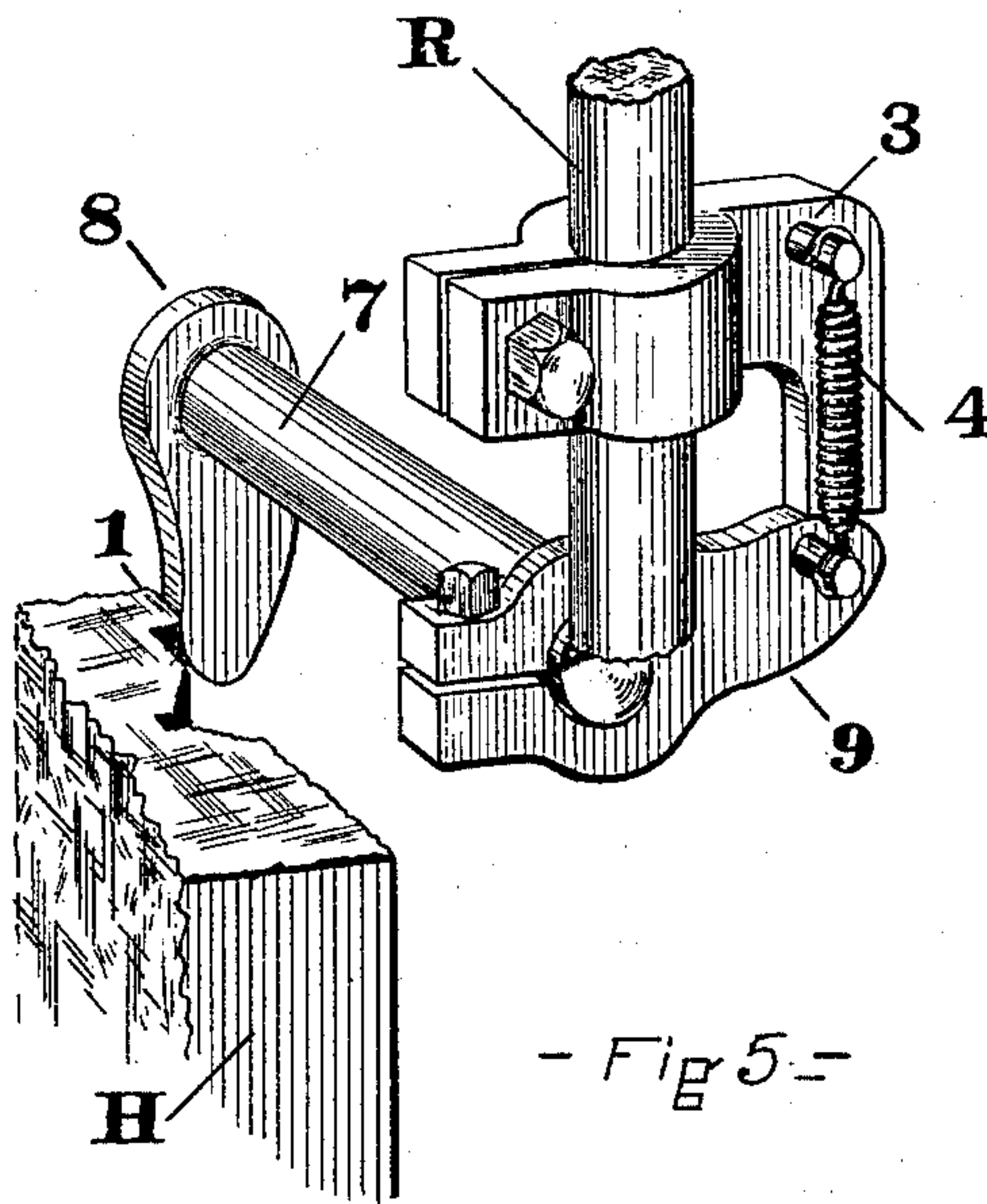
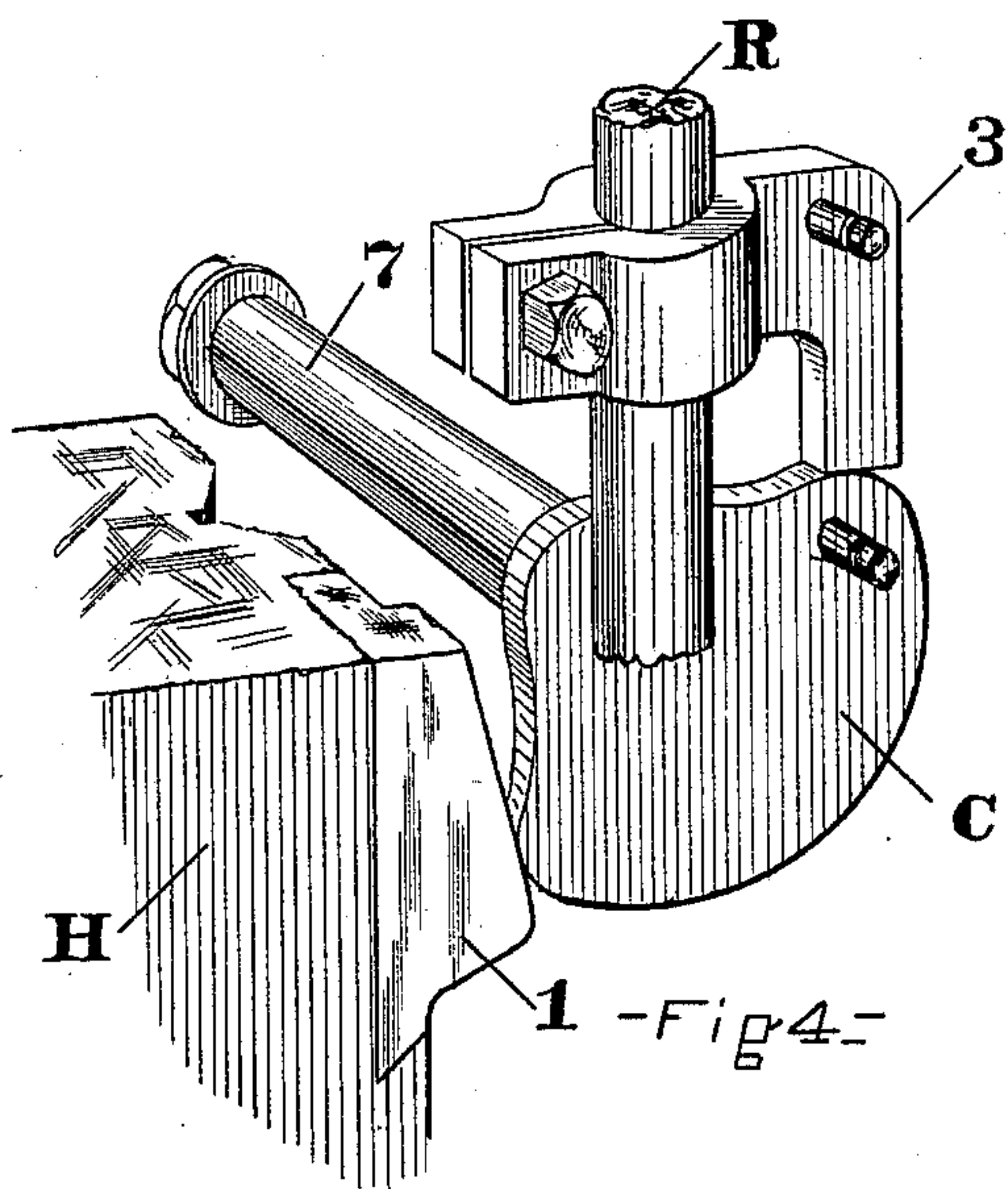
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2 Sheets—Sheet 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE ROWBOTTOM, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE
WATERBURY FARREL FOUNDRY AND MACHINE COMPANY, OF SAME
PLACE.

DROP-HAMMER.

SPECIFICATION forming part of Letters Patent No. 609,836, dated August 30, 1898.

Application filed March 27, 1897. Serial No. 629,506. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROWBOTTOM, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Drop-Hammers, of which the following is a specification.

My invention relates to that class of power drop-hammers in which the ram or hammer during a portion of its upward stroke acts upon and opens the driving-clutch, thereby releasing the ram, which drops by gravity; and the object of my invention is to communicate from the ram, whatever its velocity may be, the necessary force and motion to open the clutch without pounding. I attain this object by means of the mechanism illustrated in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation, and Fig. 2 a side elevation, of a drop-hammer embodying my invention. Fig. 3 is a side view of the ram, which is omitted in Fig. 2. Fig. 4 is a perspective view of my attachment removed from the frame of the machine, but showing a part of the ram. Figs. 5 and 6 represent variations in the construction of the reducing mechanism.

The drop-hammer shown in the drawings, aside from my improvements, is of well-known construction and operates in the usual way, as follows: Power is transmitted through a pair of belt-driven friction-rolls which are adapted to clutch upon a lifting-strip S, suitably attached to the ram H, by which it is raised. An eccentrically-hung yoke, (supporting one of the rolls,) from an extending arm of which is suspended a rod R, adapted by its weight to hold the rolls in forcible contact with the lifting-strip, constitutes a "driving-clutch." To open the clutch and allow the ram to drop, it is necessary to lift the rod R, which catches near its base on a ledge 6 and rests there until knocked off by the falling hammer at the bottom of its stroke. The means usually provided for thus knocking off the rod are an inclined cam 2 on the hammer and an adjustable dog 5 on the rod. Heretofore the rod has usually been lifted by direct impact of the hammer in its upward travel against a protruding dog, which was adjusted

higher or lower on the rod, according to the length of stroke desired; but the suddenness of the impact caused a pounding, which for various reasons has been objected to and which my invention is intended to overcome.

The essential parts of my invention are a laterally-projecting cam 1 on the edge of the ram, having an inclination to its vertical path of about ten degrees, and a cam-follower C, swung from a pin 7, which extends through one of several pin-holes in the side frame and supported in such relation to the path of the ram that in its upward travel the cam 1 engages with the follower, which is thereby controllably moved. The inclination given to the cam 1 may be more or less to produce the desired relative motion in the follower, which transmits motion direct to the clutch by contact of the swinging segment C with an adjustable dog 3, attached to the rod R.

A small tension-spring 4 holds the dog and segment together, as shown.

The cam 1 should be curved slightly to engage the follower at a tangent where they first come together. By this method there is nothing in the nature of a sudden blow imparted to any part of the clutch mechanism.

The construction shown in Fig. 5 is so similar to that shown in Fig. 4 that it hardly requires any description, the only difference being that the cam 1 operates a rocker 8 on one end of the pin 7, while the dog 3 is in contact with an arm 9 on the other end of the pin, an arrangement equivalent to making a very wide face on the swinging segment C.

I am aware that it is old to raise the actuating-rod of a drop-hammer by a pivotally-mounted lever which overlaps the front of the ram and is operated by a projection upon the front side thereof, which raises the lever until one portion thereof is brought abruptly against a projection on the lever, as illustrated in the patent to Whitlock, No. 579,356, dated March 23, 1897, and I do not therefore claim such a construction, but limit myself to a construction wherein the lever or cam-follower operates in front of the side frames by a cam upon the side of the ram and does not project over in front thereof and which allows the ram to pass completely by it, if necessary.

What I do claim, and desire to secure by Letters Patent, is—

1. In a drop-hammer comprising a base, side frames, one of which is provided with a series of transverse pin-holes, a ram and its actuating mechanism, the said ram provided with a laterally-projecting inclined cam-surface, the combination therewith of a partially-rotatable sector-cam, actuated by the cam upon the edge of the ram and adapted to be mounted in said pin-holes and mechanism for operating the ram-releasing mechanism adjustably secured thereto and operated by the said sector-cam, substantially as set forth.

2. In a drop-hammer comprising a base, side frames, through one of which extends a plurality of pin-holes, a ram and its actuating mechanism, the said ram having a cam upon one of its edges, the combination therewith of a cam-follower actuated by the cam upon the edge of the ram, a dog having a de-

pending arm adjustably secured to the said ram-actuating mechanism and a spring connection between the said cam-follower and dog, substantially as set forth.

3. In a drop-hammer comprising a base, side frames, through one of which extends a plurality of pin-holes, a ram and its actuating mechanism, the said ram provided with a cam upon one edge thereof, the combination therewith of the sector-cam follower C having a shank adapted to be inserted and operate within the said pin-holes and actuated by the cam upon the edge of the ram, dog 3 clamped to the actuating-rod R and having the spring 4 connecting it with the said cam-follower, substantially as set forth.

GEORGE ROWBOTTOM.

Witnesses:

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EDWARD W. BROCK.