

L. L. WHITLOCK.
Drop-Hammers.

No. 148,867.

Patented March 24, 1874.

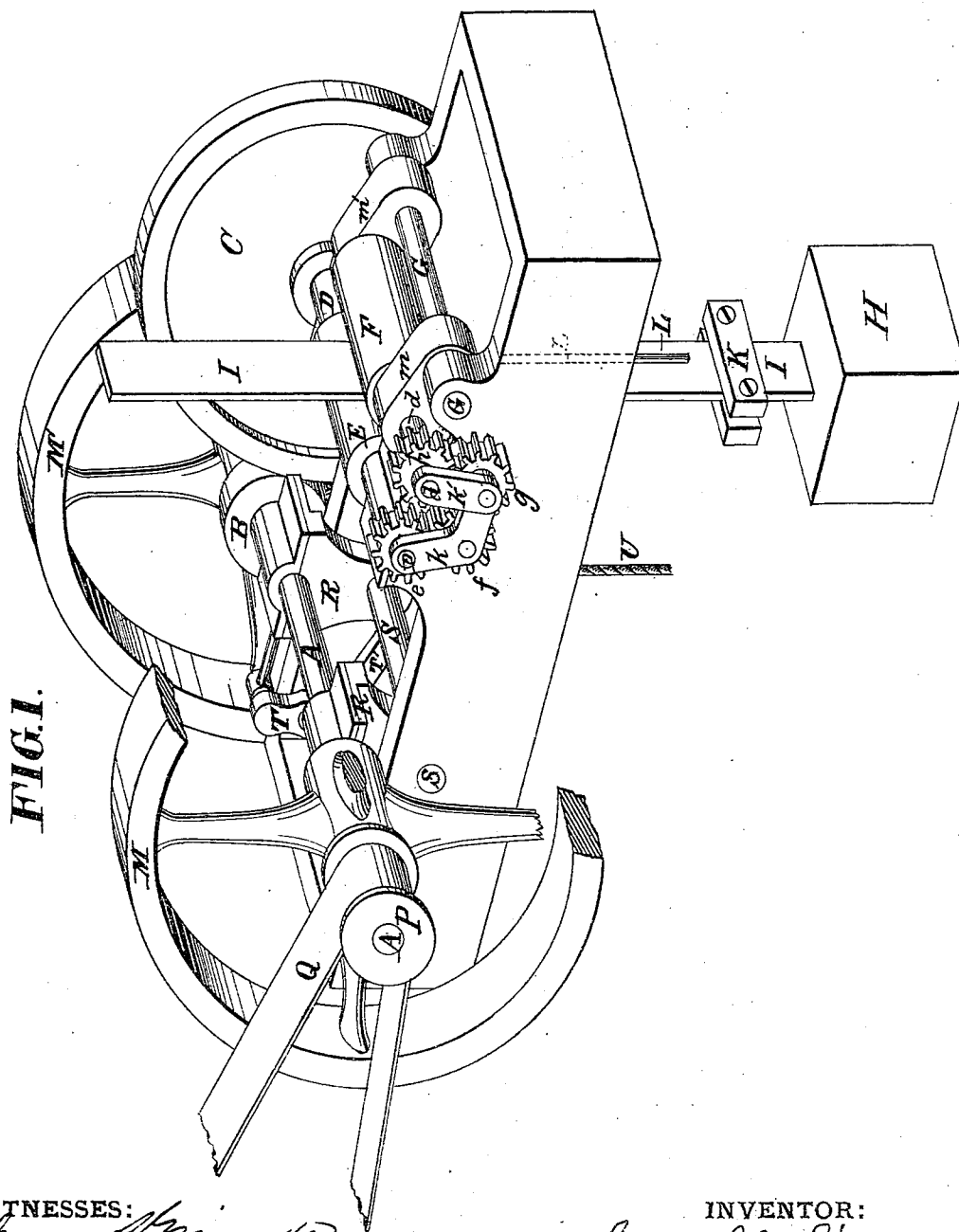


FIG. 1.

WITNESSES:

James M. Smith
Thos. Jewell

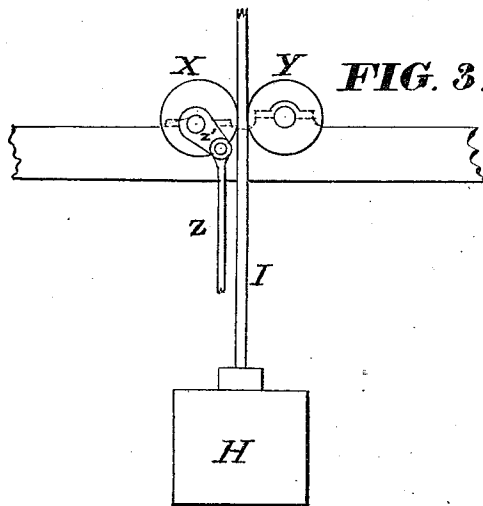
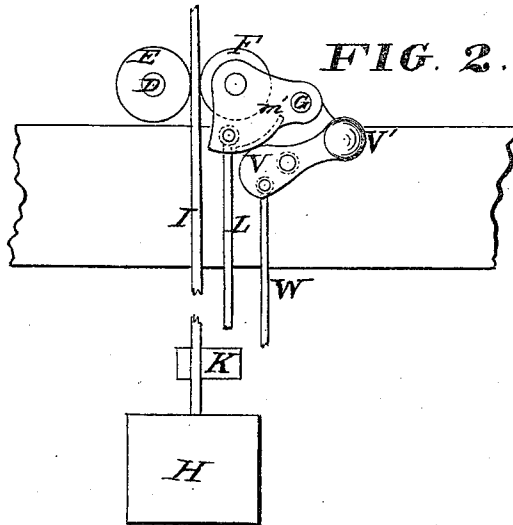
INVENTOR:

Lewis L. Whitlock
By *Attorneys.*

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UNITED STATES PATENT OFFICE.

LEWIS L. WHITLOCK, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN DROP-HAMMERS.

Specification forming part of Letters Patent No. 148,867, dated March 24, 1874; application filed May 29, 1873.

To all whom it may concern:

Be it known that I, LEWIS L. WHITLOCK, of Brooklyn, Kings county and State of New York, have invented an Improved Lifting Device, of which the following is a specification:

My invention relates and is applicable to drop and trip hammers especially, but it may be also applicable to a variety of other purposes, as pile-driving and the like. My invention consists in the machinery hereinafter more particularly described, reference being had to the drawings, Sheets 1 and 2, forming part of this specification, in which like letters refer to like parts.

Figure 1, Sheet 1, is a perspective view of a machine embodying my invention. Fig. 2, Sheet 2, represents the device for holding the hammer suspended at any desired point. Fig. 3 shows the device for throwing and keeping the rolls out of contact.

A is the main driving shaft, having its bearings in a rocker-box, R, already patented by me. This box, with the shaft A and driving-wheels M M', oscillates upon the shaft S, fast in the frame A'. Upon shaft A is pinion B, gearing with wheel C, preferably by friction V-gearing, but which may be by cog-gearing. Shaft A is thrown forward and into contact with wheel C by an elbow-lever, T T', operated by and connected to a treadle or hand-lever by wire rope U. Upon shaft D, carrying said wheel C, is attached a friction-roller, E. This shaft has stationary bearings, and drives the movable friction-roller F at the same speed by the four gear-wheels e, f, g, and h. These latter are so fastened together by links k k' as to allow the roller F to move upon its shaft G, having also stationary bearings in the frame A'. m m' are oscillating bearings upon shaft G, and carry the shaft d, on which is fastened the roller F. The strap I, to which is attached hammer H, is held by friction firmly between rollers E and F. The heavier the hammer the firmer the bite of said rollers upon the strap. To disengage these rollers with their hold upon the strap, a rod, L, is attached to the oscillating bearings m m', or either of them. When hammer H is raised sufficiently, a clamp, K, adjustable upon strap I, comes in contact with

the rod L, elevates roller F, (shown in Fig. 2,) and allows the hammer to drop. Instead of operating the lifting-rod L and its roller F automatically by means of the stop K, the said roller F may be raised by a treadle-lever handle, or any suitable equivalent. To prevent roller F from falling again into contact with the strap before the hammer strikes, a weighted cam, V V', Fig. 2, is provided. This cam, by the gravity of weight V', acts as a button to hold up the bearings m m' with their roller F. To permit hammer H to fall, the cam V is disengaged. This may be effected by a wire rope, W, of sufficient length attached to clamp K, or by any equivalent method. This allows the roller F, by its gravity, to fall again into contact with strap I and roll E, upon which the hammer again ascends. Thus it will act automatically as long as wheel C is driven.

I do not propose limiting myself to this method of operating the wheel C, as I may elect between operating said wheel C by friction with the pinion B, or by direct belt attachment to the wheel C; or the wheel C and pinion B may engage by gearing, or any other suitable device.

When it is desired to hold suspended the hammer H, the mechanism shown in Fig. 3 is used. This consists of a loose roller, Y, on one side of strap I, acting in connection with another roller, X, hung eccentrically. The eccentric is operated by the crank Z', attached to a treadle (not shown) by means of the rod Z. The weight of the crank and its attachments, rod, treadle, &c., is enough to keep the eccentric just in contact with strap I while ascending; but as soon as the weight begins to fall it is held by the cam or eccentric roll X at the will of the operator, it being disengaged by pressure upon the treadle. It may be attached anywhere to the strap I, either above or below the rolls E F.

This holding device last described is not necessarily a part of this particular mechanism, although an important adjunct thereof, but may be adapted as a holder for any other suspended weight, as elevators and hammers of all kinds.

Instead of the eccentric X, an oscillating

box like the roll F in Fig. 2 may be employed as an equivalent.

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

1. The roller F, oscillating upon the shaft G, in combination with roller E, strap I, and hammer H, substantially as described.

2. The oscillating roller F, in combination with roller E, gear-wheels *e, f, g*, and *h*, links *k k'*, and strap I, with its hammer H, substantially as set forth.

3. The roller F, with its oscillating frame *m m'* and rod L, in combination with the strap I, hammer H, and clamp-stop K, substantially as set forth.

4. The roller F, with its oscillating frame,

connecting gearing *e f g h*, links *k k'*, and rod L, in combination with hammer H and stop K, substantially as described.

5. In combination with roller F and its frame *m m'*, the weighted cam V V', or its equivalent, substantially as described.

6. The wheel C and rolls E and F, with frame *m m'*, in combination with rod L, stop K, strap I, and hammer H, substantially as described.

7. In combination with the subject-matter of the preceding claim, the latching mechanism V V' and rod W, or equivalent, substantially as herein described.

LEWIS L. WHITLOCK.

Witnesses:

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