

(No Model.)

2 Sheets—Sheet 1.

W. A. CORNBROOKS.
DROP HAMMER.

No. 524,311.

Patented Aug. 14, 1894.

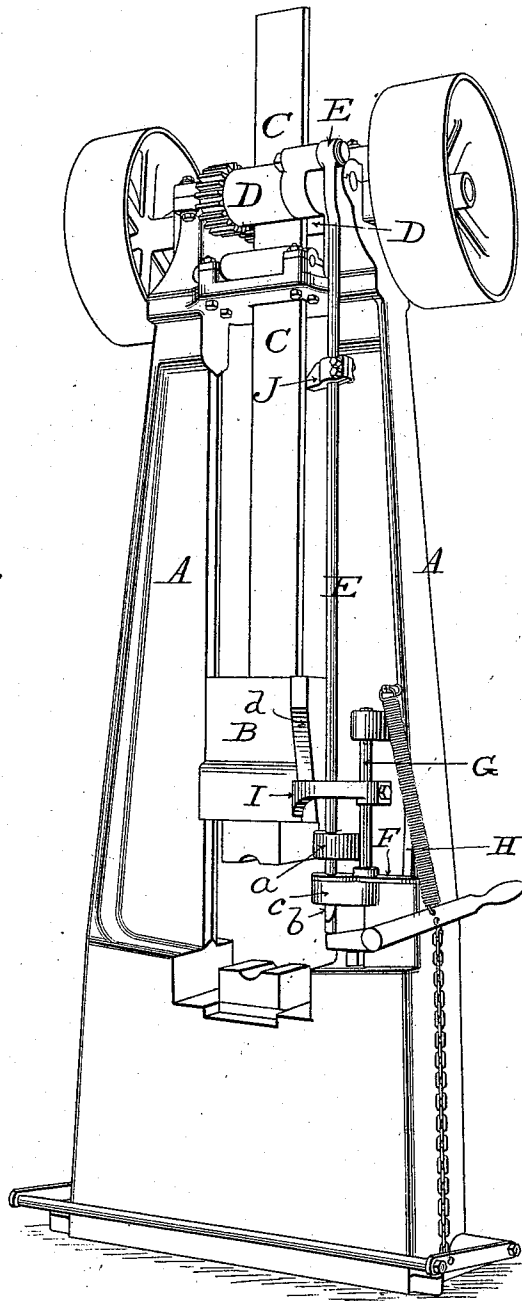


Fig. 1.

William A. Cornbrooks,
Inventor

Witnesses
C. C. Burdine.
C. B. Bell.

by Dodge & Sons,
Attorneys.

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Fig. 2.

Fig. 3.

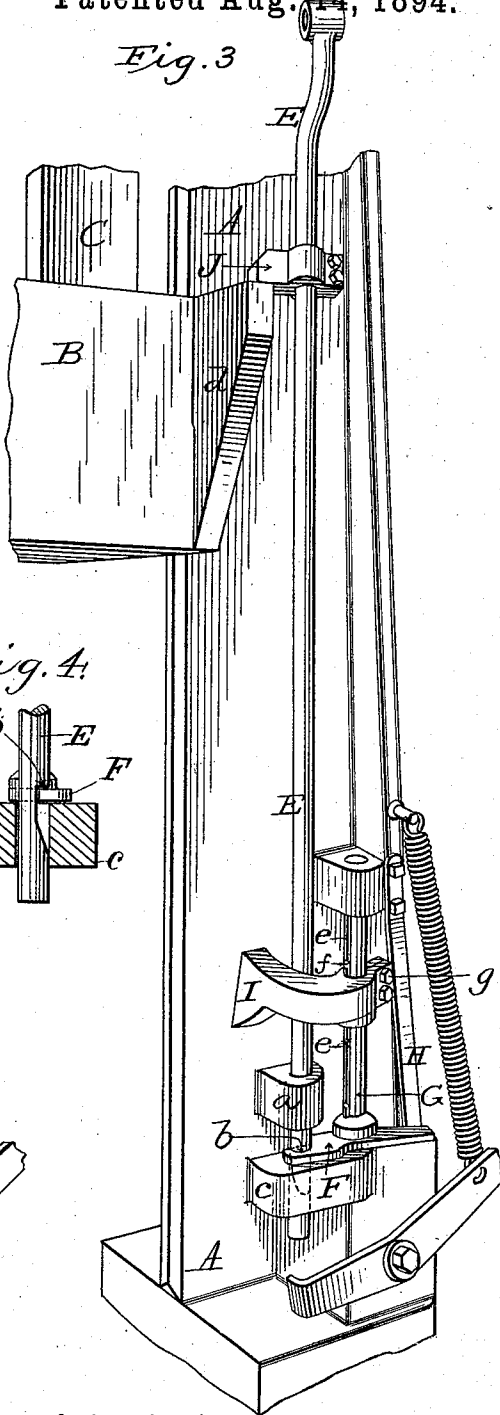
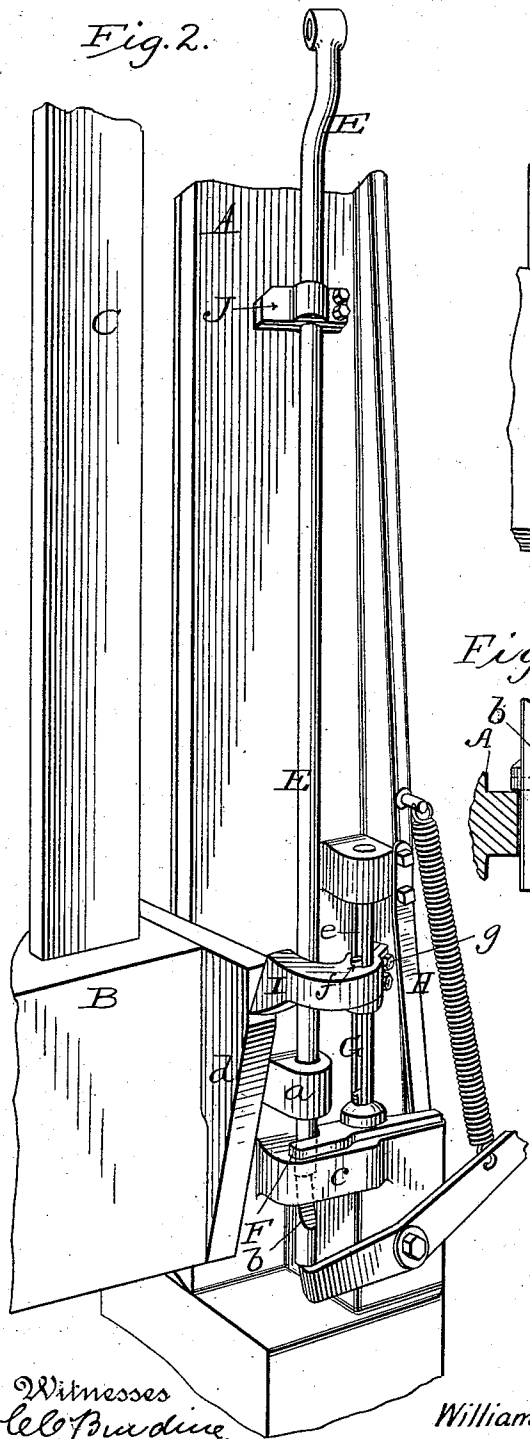
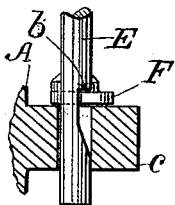


Fig. 4.



Witnesses
C. C. Prudine.
C. B. Bull.

William A. Cornbrooks INVENTOR

By Dodge & Sons, Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM A. CORNBROOKS, OF MOLINE, ILLINOIS, ASSIGNOR TO THE WILLIAMS,
WHITE & COMPANY, OF SAME PLACE.

DROP-HAMMER.

SPECIFICATION forming part of Letters Patent No. 524,311, dated August 14, 1894.

Application filed April 27, 1894. Serial No. 509,169. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. CORNBROOKS, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Drop-Hammers, of which the following is a specification.

My invention relates to drop hammers, and has reference more particularly to that class of hammers known as roller or friction drop hammers. In machines of this general character the ram or hammer-head is raised by means of rollers pressing against the faces of a board secured to the ram. It has been common to provide these machines with mechanism whereby when the ram is allowed to fall, it throws the rollers into action, whereupon the latter, acting upon the board, elevate the ram. When the ram reaches its elevated position, it throws the rollers out of action and again descends. This mechanism for throwing the rollers into and out of action is automatic in its action, and generally combined with manually-controlled mechanism by means of which the raising and releasing devices may be independently controlled.

The present invention relates to an improved automatic mechanism for throwing the raising or elevating rollers into and out of action.

In the drawings,—Figure 1 is a perspective view of my improved hammer; Figs. 2 and 3, perspective views of a portion of the same, with the parts in different positions; and Fig. 4, a detail sectional view.

A indicates the main frame of the machine; B the ram or hammer-head; C the elevating board or strap secured to the ram; and D D the elevating rollers which bear upon the broad flat faces of the board and raise the ram. One of the rollers will be so mounted as to be capable of a slight movement toward and from its companion so as to relieve the board from pressure and allow the ram to fall; said movable roll, or the frame in which the said roll is mounted, being moved toward and from the fixed roller by means of a rod E. These parts are common and well known and need not be particularly described and shown.

Rod E is guided at its lower end by a lug *a*

and is provided near its end with a notch or shoulder *b*, which, when the rod is raised or elevated, is engaged by a horizontally-moving arm or latch F. This latch or arm F is secured to a short upright rockshaft G journaled in the main frame, and is held normally against the rod E by means of a flat spring H, secured at its upper end to the main frame and bearing at its lower end against the tail of the latch. Lever F lies flatly upon the upper face of a lug *c* so as to form a firm support for the rod and latch when they are in engagement.

Secured to the rockshaft G is an arm I which is held normally in a position to be acted upon by the incline *d*, formed upon or secured to the ram; said incline in striking the arm forces the latter outward and causes the shaft to turn in its bearings. This movement of the shaft causes the latch to be withdrawn from engagement with the rod E. Secured to the rod E near the upper end thereof, is a block J which projects into the path of the ram, so that when the ram ascends, it will strike the block, raise the rod, and throw the movable roll away from its companion. This block is adjustably secured to the rod, so that the distance the ram may fall may be readily varied or controlled.

The operation of the mechanism is as follows: In the position shown in Fig. 1 the rolls D D are supposed to be thrown apart, the latch is in engagement with the rod E, and the ram is descending. Just before the ram makes its blow its incline *d* strikes the end of arm I and throws said arm outward, and thereby turns or rocks the shaft G, the turning of the shaft causing the disengagement of the latch F from rod E, and permitting the rod to fall.

When the rod E falls, it carries the movable (eccentrically mounted) roller against the board C and causes these rollers to raise or elevate the ram. When the ram reaches nearly the limit of its upward movement, it strikes the block J and lifts the rod E high enough to bring the notch *b* therein above the upper face of lug *c*, and as soon as this is done the spring H forces the latch into the notch and holds the rod.

The parts are so arranged that the latch en-

gages the rod just at the instant that the rod is caused to carry the movable roll away from its companion, so that after the rod is engaged the ram is free to descend to again act upon the arm I. This mechanism works with less jar than in those machines wherein a rod such as E is knocked off a shelf, the inclined face of the arm I riding along the incline *d* without any difficulty. The arm I and the latch F will be made of steel, and being small parts, may be readily replaced when worn or injured.

A very important feature of the present machine resides in the fact that the arm I is made adjustable upon its shaft G.

15 If the dies are very thick they will come together before the incline *d* acts upon the arm I; and in order to avoid this, I secure the arm to the shaft in such manner that it may be raised or lowered as required, to compensate for varying thicknesses of dies.

20 The shaft G will be grooved longitudinally as at *e* to receive a key *f* carried by the arm, and the arm will be provided with screws or bolts *g* by means of which it may be clamped in any position lengthwise of the shaft.

25 In speaking of the device C as a board, I do not wish to be understood as limiting myself to a wooden board, as I use the term in a broad sense and intend to include there-
30 by any of the devices commonly employed. Neither do I limit myself to any special construction and arrangement of rollers for ele-

vating the ram, as most any of the mechanisms now in common use may be used.

Having thus described my invention, what I claim is—

1. In a drop hammer, the combination with the main frame, rollers, ram and board; of the roller shift rod E, provided with a notch or shoulder *b*; the rockshaft G provided with arm I and latch F, and a projection on the ram to engage arm I.

2. In a drop hammer, the combination with the main frame, rollers, ram, and board; of the roller shift rod E, provided with notch or shoulder *b*; the rockshaft G provided with latch F; and an arm I adjustably secured to the shaft in position to be engaged by the ram.

3. In a drop hammer, the combination with the main frame, rollers, ram, and board; of the roller shift rod E provided with a notch *b*; a lug *c* through which the rod passes; a latch F upon the upper face of the lug to engage the rod; a rockshaft G provided with arm I to be engaged by the ram, and connected with the latch; and a spring H acting upon the latch to throw it toward the rod.

In witness whereof I hereunto set my hand in the presence of two witnesses.

WILLIAM A. CORNBROOKS.

Witnesses:

JNO. J. WILLIAMS,
HARRY AINSWORTH.