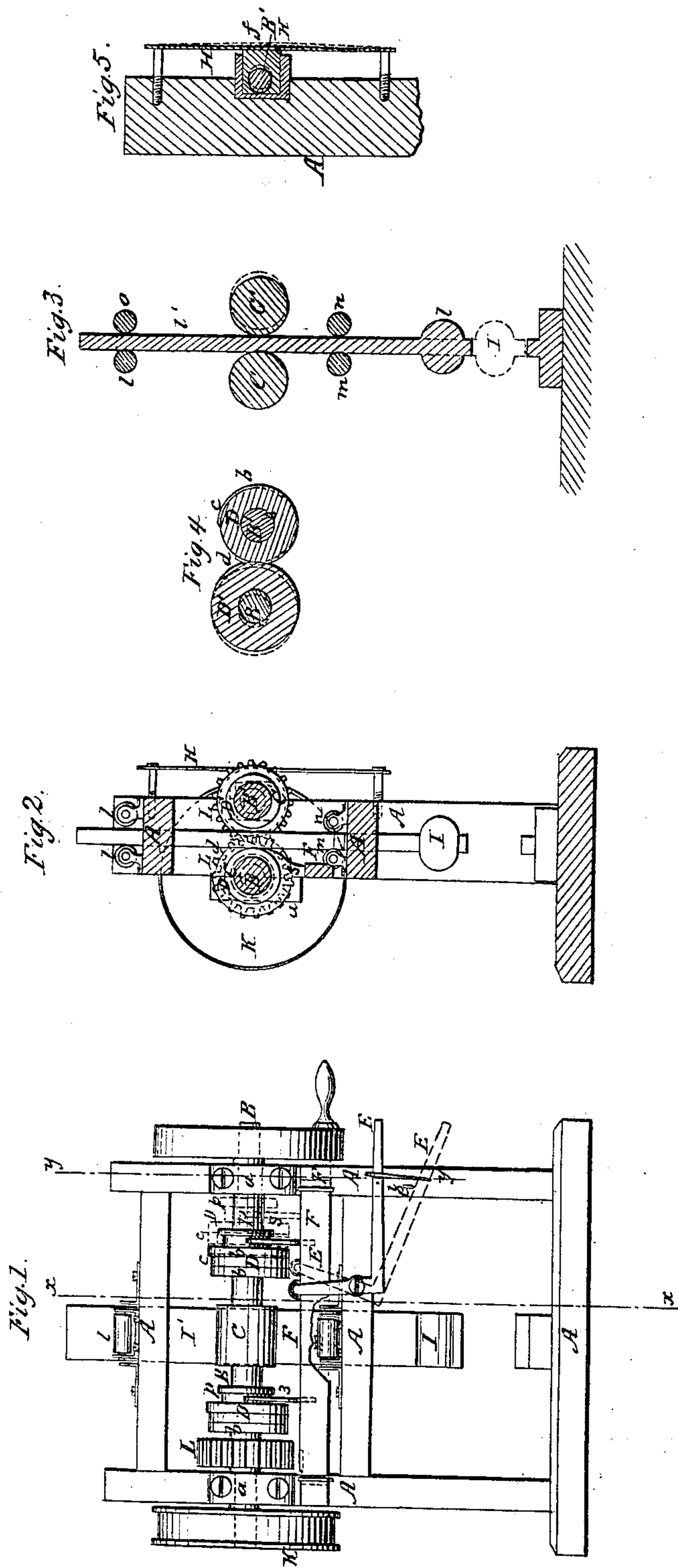


STEBBINS & HOLMES.

Drop Hammer.

No. 8,989.

Patented June 1, 1852.



UNITED STATES PATENT OFFICE.

PETER STEBBINS AND JOHN HOLMES, OF SCHENECTADY, NEW YORK.

VERTICAL TRIP-HAMMER.

Specification of Letters Patent No. 8,989, dated June 1, 1852.

To all whom it may concern:

Be it known that we, PETER STEBBINS and JOHN HOLMES, both of Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Trip-Hammers; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of one of our improved trip hammers; this view shows the hammer in an elevated position, and ready to give a light blow. And also shows the position that the recessed rollers occupy, when it is desired to give a very powerful blow, in dotted lines. Fig. 2, is a vertical transverse section of the same, taken in the line *x, x*, in Fig. 1. Fig. 3, is a detached view showing the lifting rollers and the hammer in section, and the position that one of the rollers occupies, when thrown out by the recessed rollers, in red lines, which are somewhat exaggerated so as to show more distinctly the manner in which the hammer is allowed to fall and assume the position shown in dotted lines. Fig. 4, is a detached section of one of the recessed and plain rollers that cause the lifting rollers to take hold of the handle of the hammer when it is desired to raise it, the dotted lines in the view showing the position of the revolving shaft and plain roller when the hammer is falling, and Fig. 5, represents a broken vertical section, taken in the line *y, y*, in Fig. 1, this view shows a portion of the frame and one of the sliding boxes and springs for operating upon, or causing them to slide in, after the hammer has fallen.

Similar letters of reference indicate corresponding parts in each of the several figures.

The nature of our invention consists 1st. In the employment of recessed rollers, which operate in combination with plain rollers, springs, and sliding boxes, etc., for controlling the operation of the lifting rollers. 2nd. In regulating the force or blow of the hammer, by making the recesses in the periphery of the recessed rollers of different lengths; or rather making the first recess extend nearly one half the distance around the circumference of the recessed rollers, the second recess one third, and the third recess one quarter the distance around the same, according to the force of blow re-

quired. To accomplish this object effectually it is necessary for the recessed rollers to be movable so as to slide on their shaft back and forth; when the lever is raised or lowered.

To enable others skilled in the art to make and use our invention we will now proceed to describe more fully its construction and operation.

A, represents the frame which may be of the form represented, or of any other more suitable.

B, B', are the horizontal shafts on which the lifting rollers C, C', recessed and plain rollers D, D, D', D', are hung or secured. The shafts B, which we will suppose to be on the front part of the machine, has its journals secured and turning in stationary bearings or boxes *a, a*, of the frame A, and on the first shaft the lifting roller C, is secured, near its center, and also the two recessed rollers D, D. Secured on it, near its ends, these rollers all turn with the revolving shaft B. By examining the drawing Figs. 1, 2, and 3, the peculiar form of the rollers D, D, will be clearly seen, these rollers may each have one, two, three, or more recesses *b, c, d*, cut in their periphery, and that lettered *b*, may be double the length of that lettered *d*, and that lettered *c*, may be one third longer than that *d*; the object in making these recesses of different lengths around the periphery of the rollers, is that of regulating the blow of the hammer when it is desired to forge different kinds of work. It will be understood if it is desired to forge light work it is not necessary to change the position of the recessed rollers D as they are now in the position to give the lightest blow, but if it is desired to forge heavy work and a very powerful blow of the hammer is required, it will be necessary for the operator to lay hold of the lever E, and pull or press it down to the position shown in dotted lines in Fig. 1; this will cause the shifting bar E, to which the lever is attached, to slide, horizontally, and assume the position shown by dotted lines in the same figure; thereby causing the recessed rollers D, D, which are connected to this shifting bar E, by forks *s, s*, which fit around the collars *p, p*, of the said rollers in the manner represented in Figs. 1 and 2; to assume or occupy the position shown, in black dotted lines and to act in combination with the plain rollers D'. When this has

taken place the lever is secured under the stop or projections *e*, or *i*, and the machine is set in operation. The other horizontal shaft B^1 , which is back of that B , has its journals secured and turning in movable bearings or boxes *f*, and has the lifting roller C^1 , secured on it, in line with that *e*, and has, also, the plain rollers D^1 , secured on it, near its ends and directly opposite the recessed rollers, in such a position that no matter what may be the position of the recessed rollers, they will operate in combination with them, these rollers also turn with the revolving shafts B' , and, as before stated, operate in combination with the lifting roller C , and recessed rollers D , D , and thereby raise or lift the hammer I , to any desired height and also allow of its falling at the proper time.

H represents springs, which may be attached to the frame A , in the manner represented in the drawing or in any more suitable way; these springs, it will be seen, are so placed or arranged that they are made to bear on, or touch one end of the sliding or movable boxes in which the journals of the shaft B' are secured. The object of these springs is that of forcing or pressing the shaft B' , or boxes *f*, back to their proper position, as the hammer is being raised, and also allowing the shaft B' , and boxes *f*, to be forced outward to the position shown in red lines in Fig. 5, so as to permit the hammer to fall to its position on the anvil at the proper time.

l , m , n , o , are rollers which serve to guide shaft I' , of the hammer I , and also to diminish friction when the hammer is rising or falling.

Operation: We will suppose the hammer to be raised nearly the desired height, and that the recessed rollers, are about to assume the position shown in dotted lines in Fig. 4; As soon as the recessed rollers have occupied the position just mentioned, the boxes *f*, shaft B' , lifting roller O , and springs H , will occupy the position shown in red lines in Figs. 3, and 5; the projections of the recessed rollers having caused the lifting roller O' , and plain rollers D' , D' , to recede from the rollers on the shaft B , and consequently the hammer is allowed to fall. As soon as the hammer falls the springs H , expand and operate upon the shaft B' , upon which the lifting roller C' , and plain rollers D' , D' , are hung, and cause it to be thrown toward the shaft B , and also cause the lifting roller in connection with

that C , to grip the handle I' , of the hammer, and again raise it. As the hammer is being raised the power from the springs keep the rollers close together and cause them to grip the handle of the hammer more firmly.

The objects effected by the use of our hammer are these: 1st. This hammer can be constructed very cheap and at the same time be very durable. It is not liable to get out of order as it is very simple and compact and is very effectual in its operation. 2nd. Any degree of blow may be obtained by the use of our hammer, for by the simple manner of constructing, also regulating the position of the recessed rollers, any degree of blow required can be obtained in the shortest space of time and without much delay.

This machine may be either driven by hand or steam power, motion being communicated to the pulley K , which communicates motion to the cog gearing L , L , arranged on the shafts B B' .

We are aware that vertical trip hammers elevated by friction rollers are not new; neither are cams for regulating the elevation to which such hammers shall be lifted, and therefore we do not claim them, but

What we do claim as our invention and desire to secure by Letters Patent is,—

1. The recessed rollers D , D , in combination with the plain rollers D' , D' , and springs H , or their equivalents, for controlling the operation of the lifting rollers, the projections on the Y of said recessed rollers causing the shaft B' , lifting roller C' , and plain rollers, D' , D' , to recede or move from the rollers on the shaft B , and thereby allow of the hammer fall, the whole being constructed and arranged and operating substantially as herein described.

2. The manner herein described of regulating the blow of the hammer by making the recesses *b*, *c*, *d*, in the periphery of the rollers D , D , of unequal lengths, and making the said rollers movable on their shaft, so that either projection can be brought opposite to and made to act in combination with the plain rollers D' , D' , in the manner herein set forth.

PETER ^{his} × STEBBINS.
JOHN HOLMES. ^{mark}

Witnesses:

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