

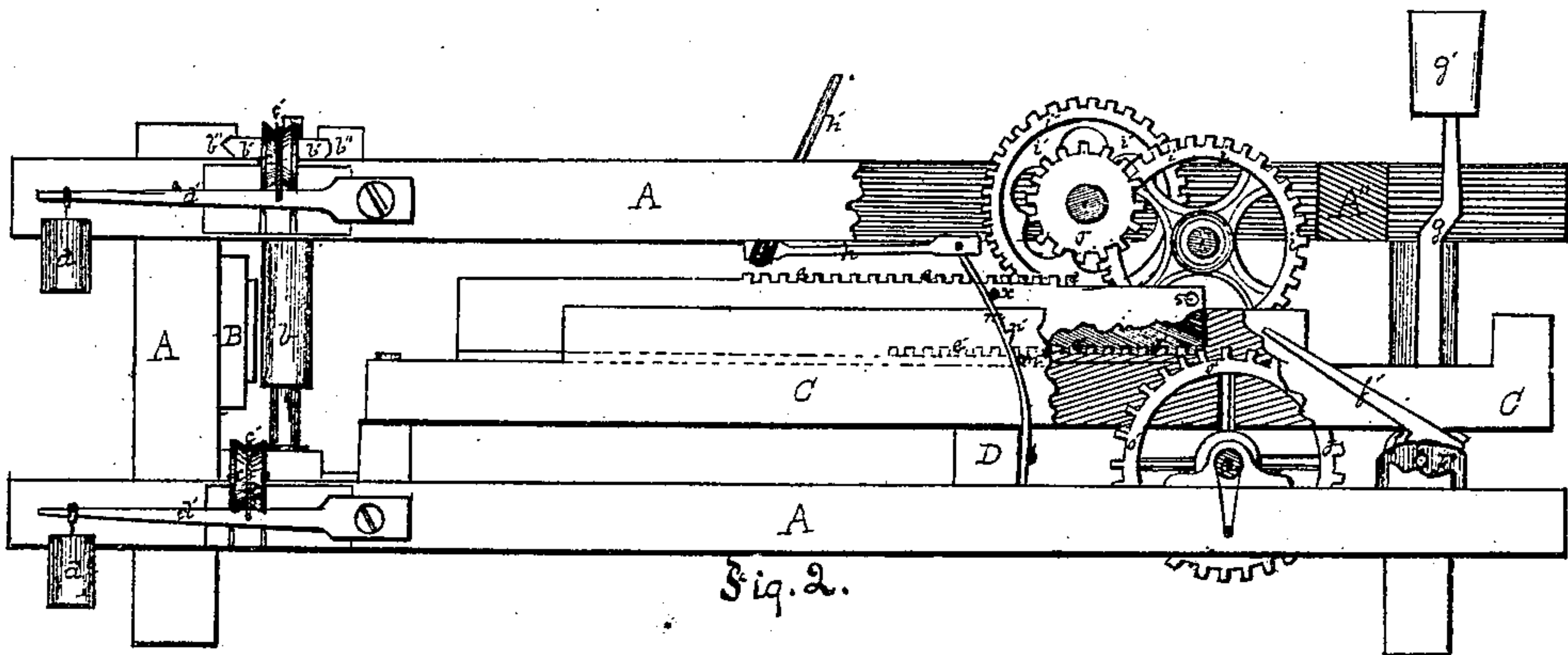
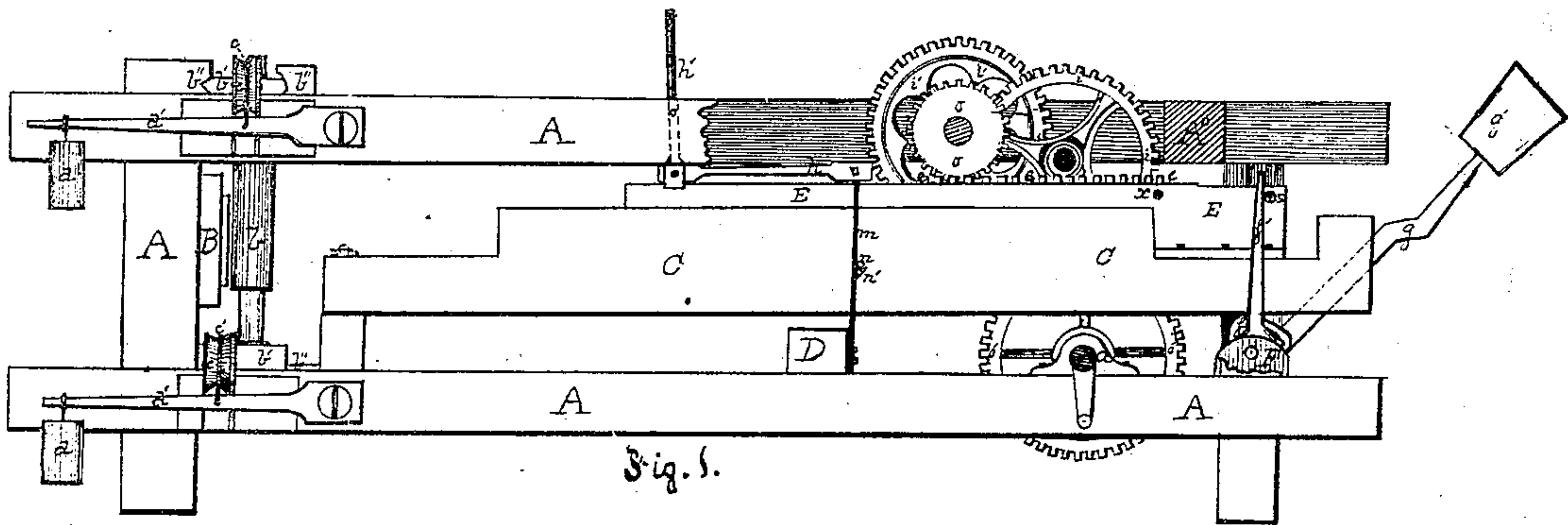
M. P. Adams,

2. Sheets, Sheet 1.

Stave Dresser.

No. 102,467.

Patented May 3, 1870.



Witnesses:

John L. Gill, Jr.
Thos B. Kerr

Inventor:

M. Pascal Adams,
by Bakewell, Christy,
his Attys.

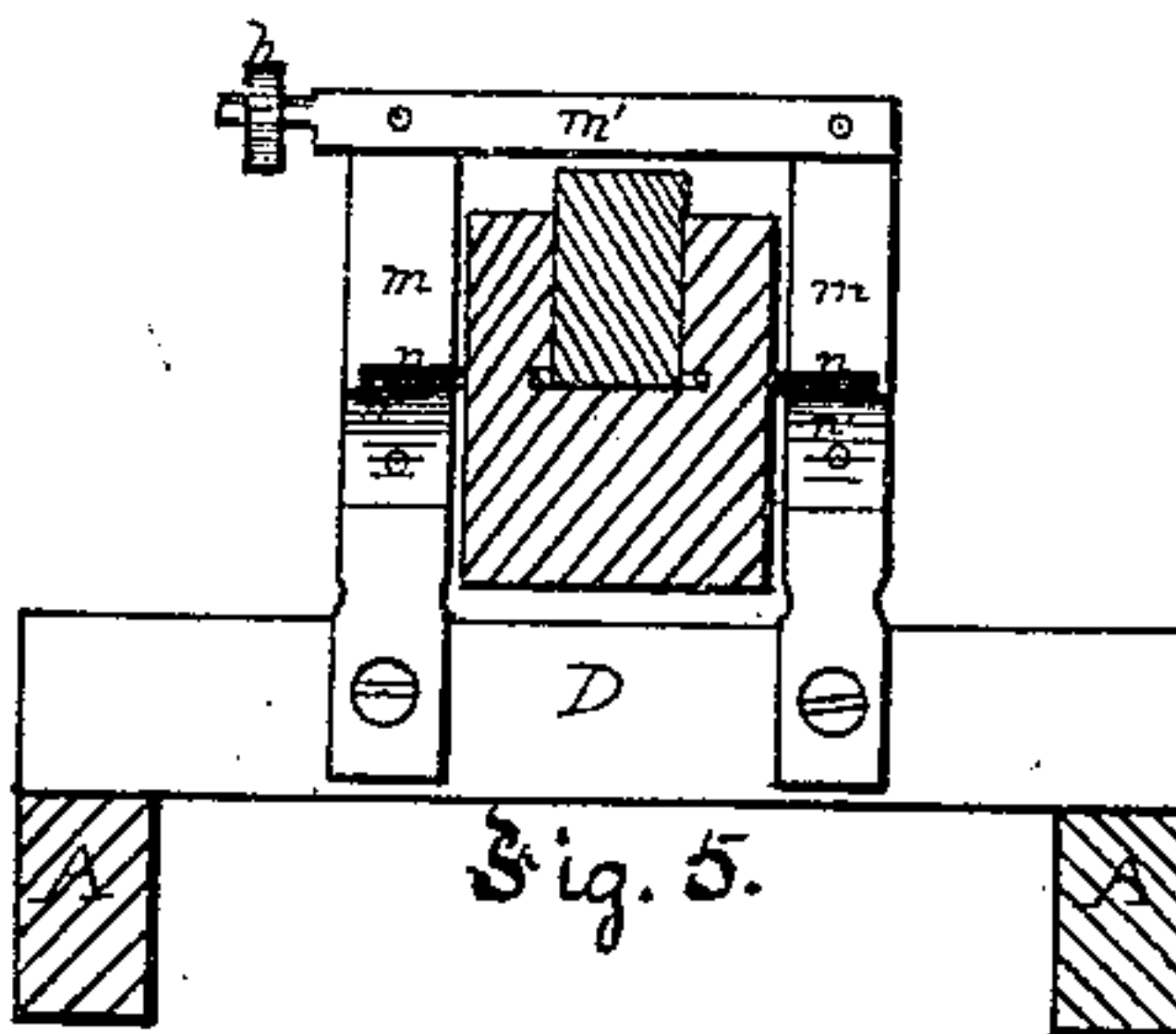
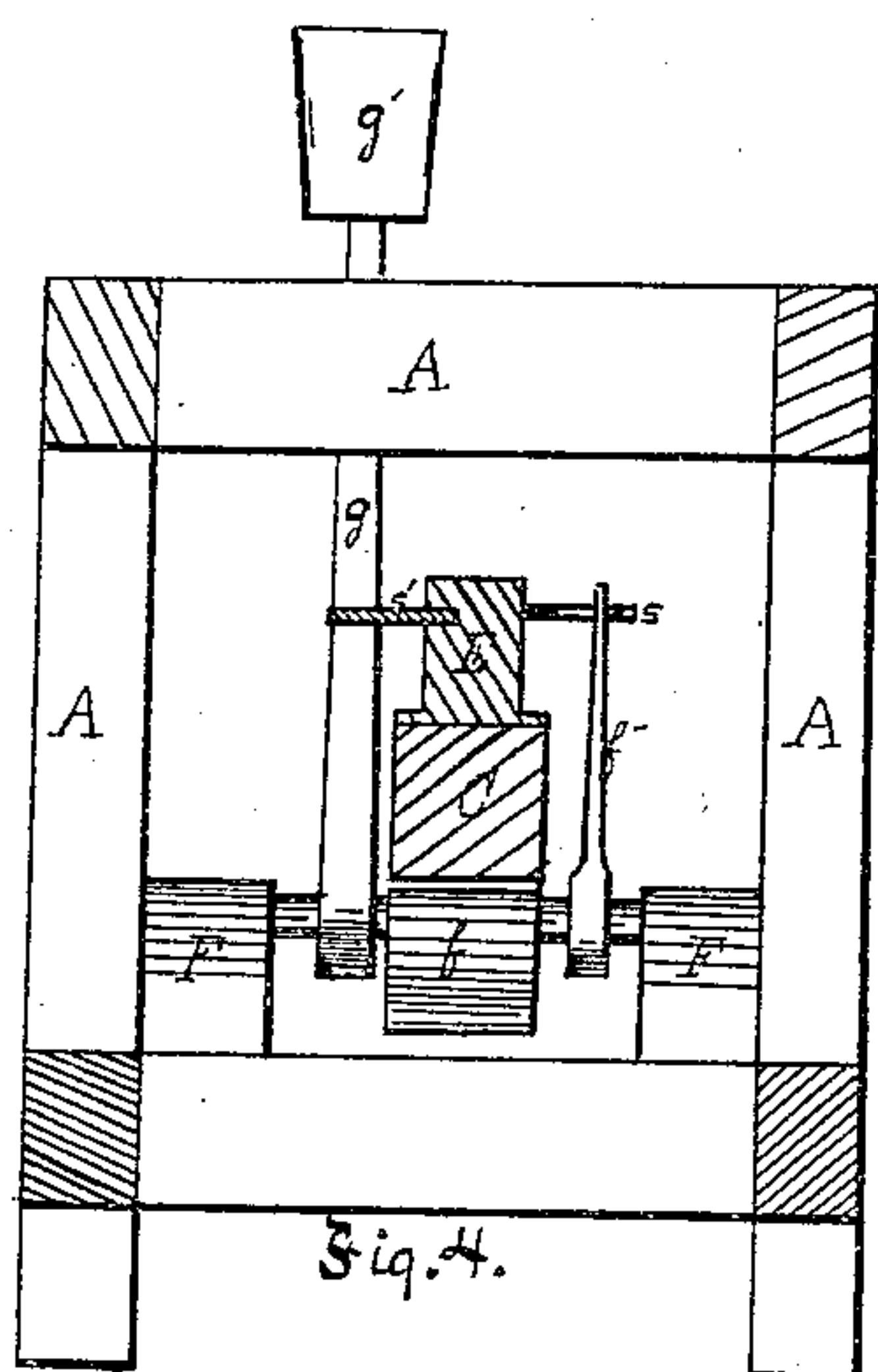
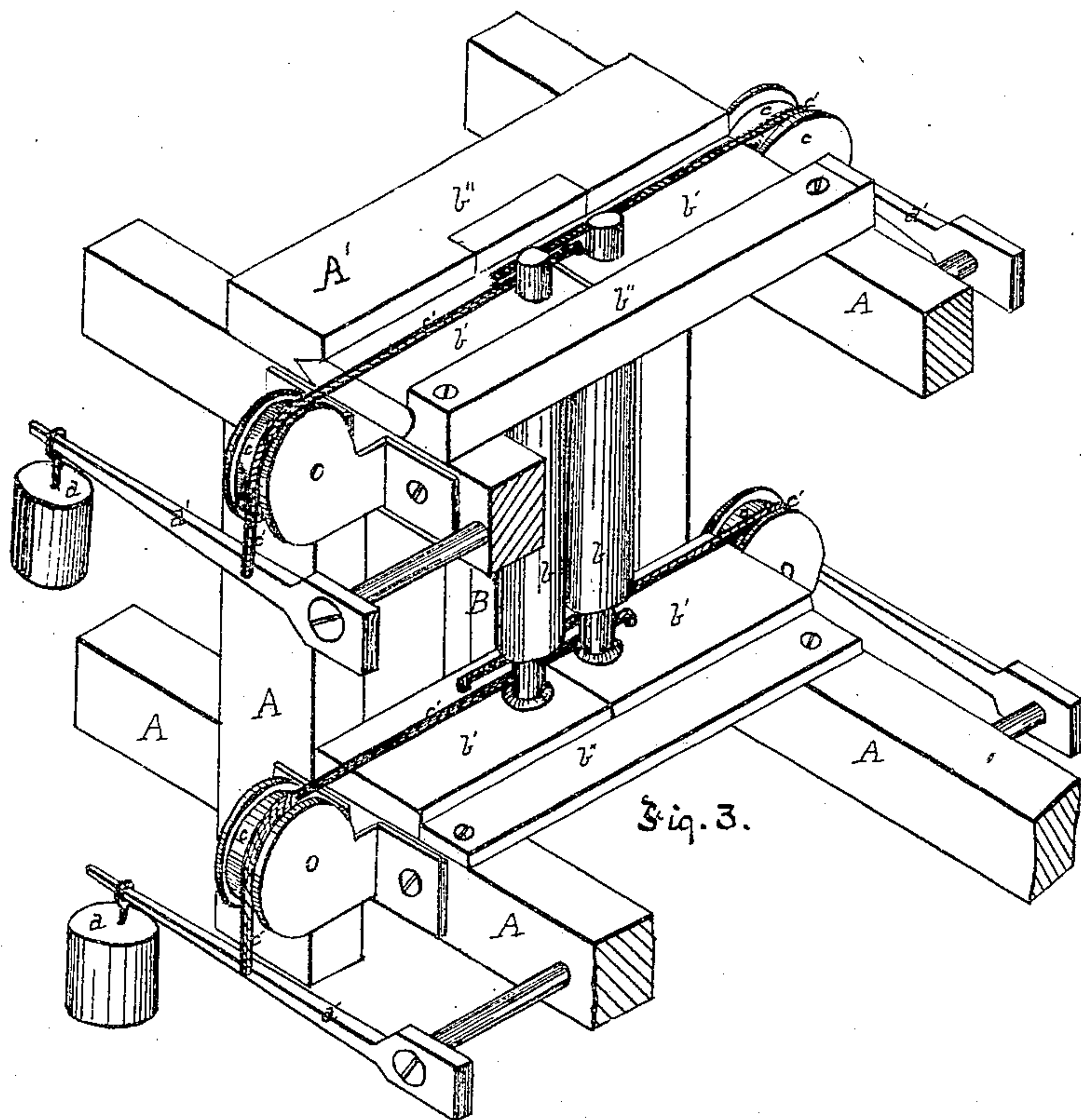
M. F. Adams,

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United States Patent Office.

M. PASCAL ADAMS, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 102,467, dated May 3, 1870.

IMPROVEMENT IN STAVE-DRESSING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, M. PASCAL ADAMS, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Stave-dressing Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, in two sheets, making a part of this specification, in which—

Figure 1 is a side elevation, partly in section, with the devices in proper position for a forward stroke of the ram;

Figure 2 is a like view, with the devices in position for the return stroke of the ram;

Figure 3 shows the guide-rollers and the devices connected therewith, in perspective;

Figure 4 is a vertical cross-section through $y-y$, fig. 1, as it appears in looking toward the rear of the machine; and

Figure 5 is a like section, $y'-y'$, as it appears in looking toward the guide-rollers.

Like letters of reference indicate like parts in each.

The nature of my invention consists—

First, in the use of weights or weighted levers operating by pulley-cords, or other equivalent device, on the journals of guiding-rollers, by which the stave is guided in passing through between the knives.

Second, in so combining a weighted drop-lever with the ram, or with the slide in which the ram operates, that the ram will alternately and automatically be thrown into and out of gear with different propelling gear-wheels.

Third, in a ram having a double-toothed rack with an arrangement of gear-wheels by which, at the proper points, the motion of the ram is automatically reversed.

Fourth, in the arrangement of holding and tripping devices, by which one toothed rack on the ram will be automatically thrown out of gear, and another toothed rack on the same ram will, at the same time, be thrown into gear, for the purpose of reversing the motion of the ram; and

Fifth, in the arrangement of devices for securing the return or upward motion of the drop-lever.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and mode of operation.

The devices employed are set and adjusted in any suitable frame-work A A', and the power to operate the machine is applied to a main shaft, a .

Between the cross-supports A' the knife-block B is placed, and in this stave-dressing knives, curved longitudinally and of any desirable construction, are set and adjusted in any of the ways known to the art.

Immediately in front of the knife-block, and so as

to come in front of the opening of the knives, is placed a pair of guide-rollers, b , the journals of the rollers being set in sliding blocks b' , which may move back and forth in the slide-rests b'' on the top and bottom of the machine.

The object of these sliding-blocks b' is, by the means presently to be described, to apply pressure to the journals of the rollers, so that they will take a firm bite on the stave as it passes through, and guide it properly in passing through between the knives.

From each block or bearing b' , a cord, c , passes to the side of the machine opposite thereto, and over a pulley, c .

The outer end of each cord c may be attached to a weight which hangs freely, or to a lever, d' , which is so arranged with a fixed fulcrum and weight, d , that the gravity of the weight will be brought to bear on the cord c , the weight at the same time being adjustable on its lever d' , so as to bring greater or lesser power to bear on each roller b , according as the staves are thick or thin, or to compensate for extra resistance caused by either knife becoming dull, or caused in other ways. The operator of the machine may then, by attending carefully to the adjustment of the several weights d , so regulate the pressure on the rollers b that they will guide the staves properly in being passed through and dressed.

Running lengthways of the machine, directly in front of the rollers b , is a ram-rest C, grooved in its upper face, and in the groove so made the ram C is operated, so as, by its forward motion, to drive an undressed stave through between the rollers b and the dressing-knives, and by its reverse motion to come into position for the insertion of a new stave.

It has a toothed-rack e on its upper face, by which it is propelled forward, and a similar toothed rack, e' , on its lower face, to which a reversing motion is to be applied.

The power necessary to operate the ram is communicated through an axle, a , gear-wheels a' , i i' , and o , or through other combination of gearing substantially the same; the last wheel o meshing into the toothed rack e , and imparting to it a forward motion.

At the same time I adjust on the shaft a , or on any other shaft suitably placed which will give a motion the reverse of that of the wheel o , a wheel, o' , in such position that, playing through a box in the under face of the ram-rest C, it will mesh into the toothed rack e' on the under side of the ram C, and, when in gear, operate it with a motion the reverse of that imparted to it by the wheel o . But there is a sufficient vertical distance between the working faces of the wheels o o' that the ram E, while operated by one, will play clear of the other.

To the rear of the machine are shown the devices

by which I shift the rear end of the ram-rest C up or down, and with it the ram E, so as to throw the toothed racks *e e'* of the latter alternately into or out of gear with the wheels *o o'*.

In plunger blocks F, I hang an axle which carries an eccentric or cam, *f*, and a drop-lever, *g*, the latter having at its outer end a heavy weight, *g'*. These are so adjusted to each other that, as the lever *g* goes down, the cam *f* comes up, and by coming up against the under side of the ram-rest C, at or near its rear end, raises it up, so as to make the toothed rack *e* mesh into the wheel *o*, in which position it is held by pins *n* in the sides of the ram-rest C, resting on steps *n'* in the upright spring *m*. Then, as the machine operates, the ram E is propelled forward, and it, by a lug, *s*, which engages a fixed lever, *f'*, on the eccentric shaft *f*, brings the lever *g* again to an upright position, where it remains supported by the cross-beam A" till the returning stroke of the ram E; a lug, *s'*, affixed to the ram, strikes it, throws it back, when the eccentric *f* again throws the ram into gear with the wheel *o* for a new forward motion.

To the cross-beam D I affix an upright rest and spring *m* on each side of the ram-rest C, and, the better to secure uniformity of action, bind the two together at the top by a cross-piece, *m'*.

Each of these springs has a step, *n'*, by which, when the ram is in gear with the upper wheel *o*, the ram-rest C is supported by the use of pins *n*.

In the ram E, at such points as may be necessary, so as to terminate the forward stroke of the ram E when the stave has been forced through, I insert tripper pins *x x*, which, coming against the springs *m*, force them forward, whereby the pins *n* are released from the steps *n'*.

The ram-rest C and ram E then drop. The toothed rack *e* no longer meshes into the wheel *o*, but, the toothed rack *e'*, on the under side of the ram E, is made to engage the wheel *o'*, which, by its action, reverses the motion of the ram E, and carries it back till its gearing connections are again changed, in the manner already described.

For dressing staves of different lengths I make the lugs *s'* adjustable, so as, when the ram E is making its backward stroke, to throw the lever *g* back sooner or later, as may be preferred, whereby the reverse motion of the ram is terminated, and the ram is thrown into gear for a new forward motion.

As, in case of accident, it is sometimes necessary to reverse the motion of the ram E, I provide for releasing the pins *n* from the steps *n'* by means of an arm, *h*, leading forward from the springs *m* to a lever, *h'*.

By shifting the lever-handle backward the springs *m* are thrown forward, and the gearing of the ram E

is shifted from the upper wheel *o* to the lower *o'*, and the motion is reversed.

In the use of a weighted drop-lever and cam or eccentric for shifting the gearing so as to change the motion, I do not limit myself to the exact mode of application shown, since substantially the same devices may be applied to the movable bearings of the wheels by which the ram E is driven forward and back, instead of to the ram itself, or to the ram-rest, the essential feature of my invention being, by the use of a weighted lever and cam or eccentric, to shift the gearing and reverse the motion of the machinery by which the ram is driven. It will thus be seen that the machine operates continuously and automatically, requiring only that the staves be fed in.

I am aware that springs have been used to produce a pressure against the rollers *b* in stave-dressing machines, but they are objectionable, as they do not, at different points of distension or compression, act with a uniform force.

By the use of weights attached to the ends of cords *c'*, or hung onto the levers, as shown, I am able to secure a pressure on the bearings of the rollers which is always constant and uniform, and, when levers are used, I am able to make the pressure adjustable, as above set forth. Bent levers may be substituted for the pulleys, as their mechanical equivalents.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of weights *d* adjustable on levers *d'*, bearings *b'* of a pair of feed-rollers, each weight being connected with the bearing of the opposite roller, as described.

2. A weighted drop-lever, *g'*, operating an eccentric or cam, *f*, in combination with a double-toothed rack ram, substantially as and for the purposes set forth.

3. A ram, with double-toothed rack, in combination with gear-wheels *o o'*, a tripping device to operate at one end of its stroke, and eccentric at the other end, arranged and operated substantially as and for the purposes set forth.

4. A lug, *s*, adjustable in the ram E, so arranged with reference to a weighted lever, *g*, and eccentric *f*, as, in the manner described, to terminate the reverse motion of the ram.

5. A lug, *s*, attached to the ram, in combination with a lever, *f'*, rigidly attached to the eccentric shaft, for bringing the weighted lever back to a vertical position, substantially as described.

In testimony whereof, I, the said M. PASCAL ADAMS, have hereunto set my hand.

Witnesses: M. PASCAL ADAMS.

A. S. NICHOLSON,

THOS. B. KERR.