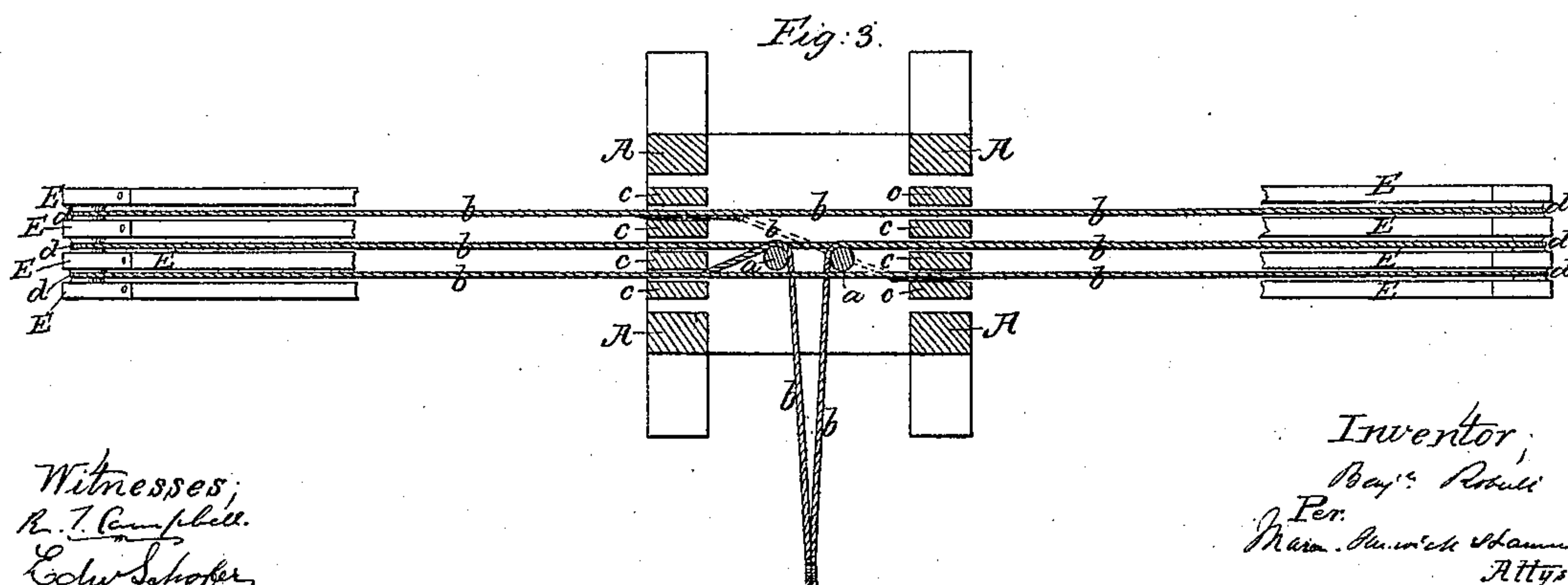
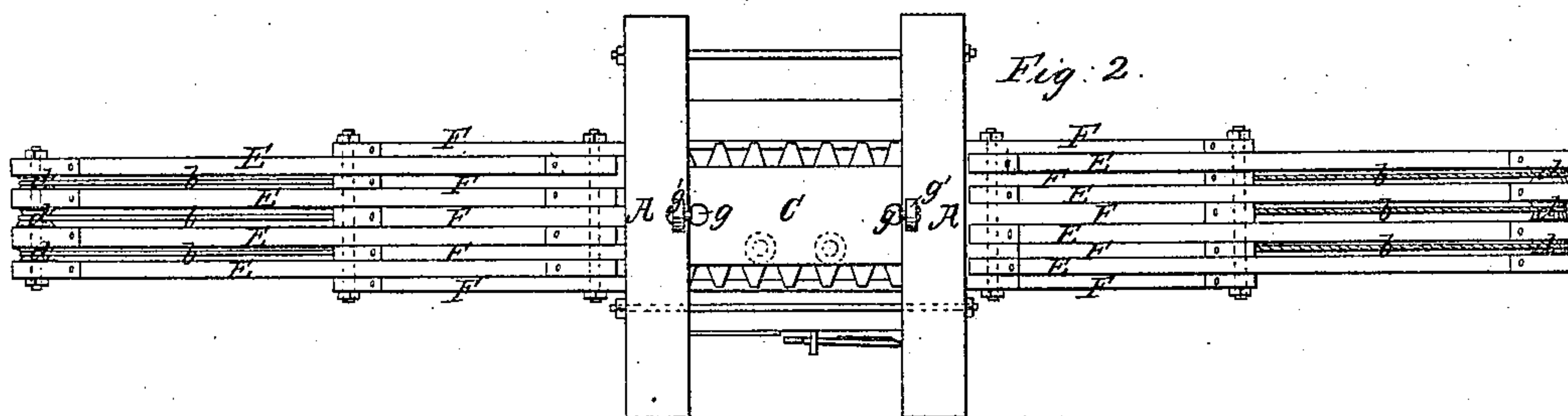
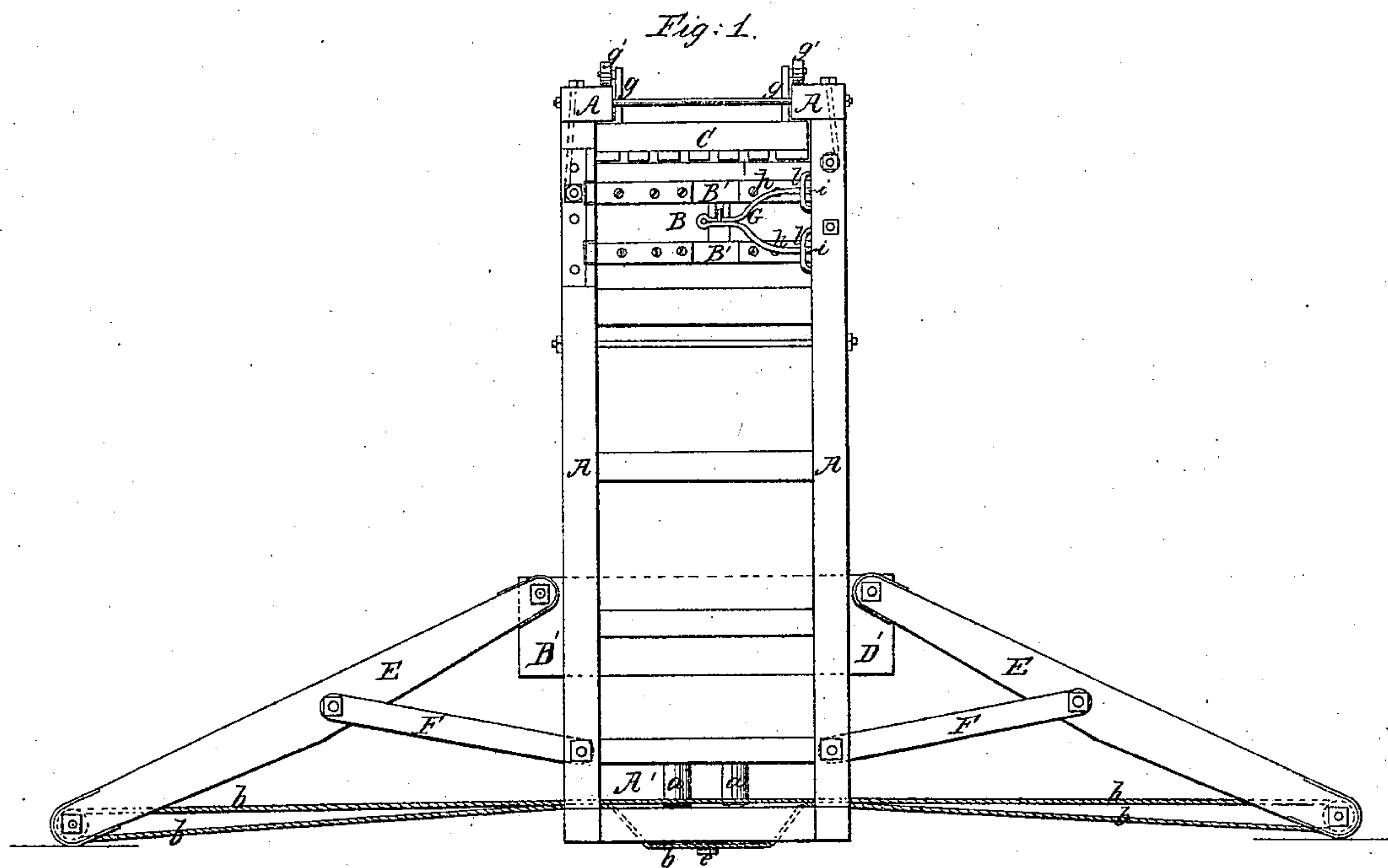


B. Roberts,

Hay Press,

N^o 54,209,

Patented Apr. 24, 1866.



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Fig. 4.

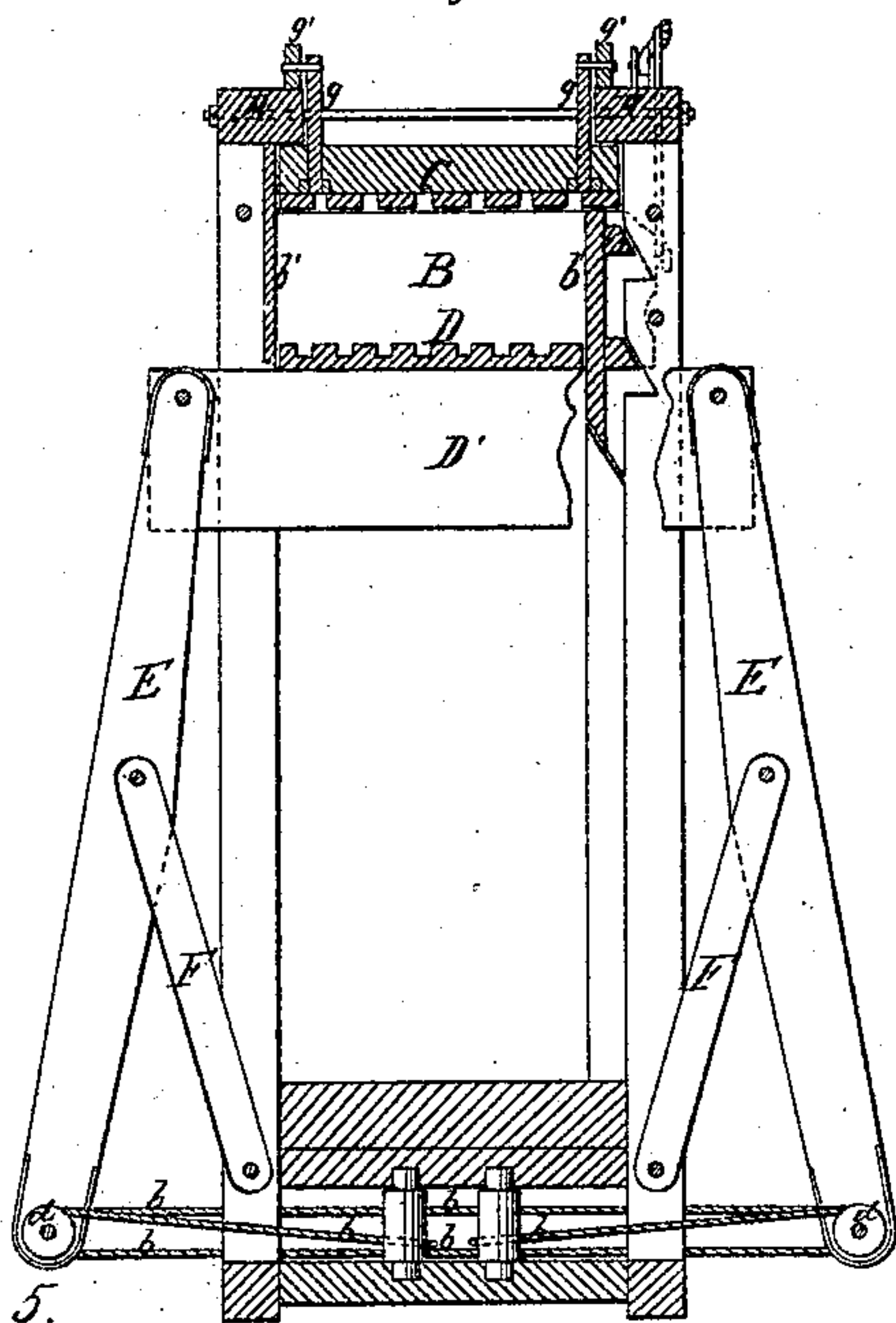


Fig. 5.

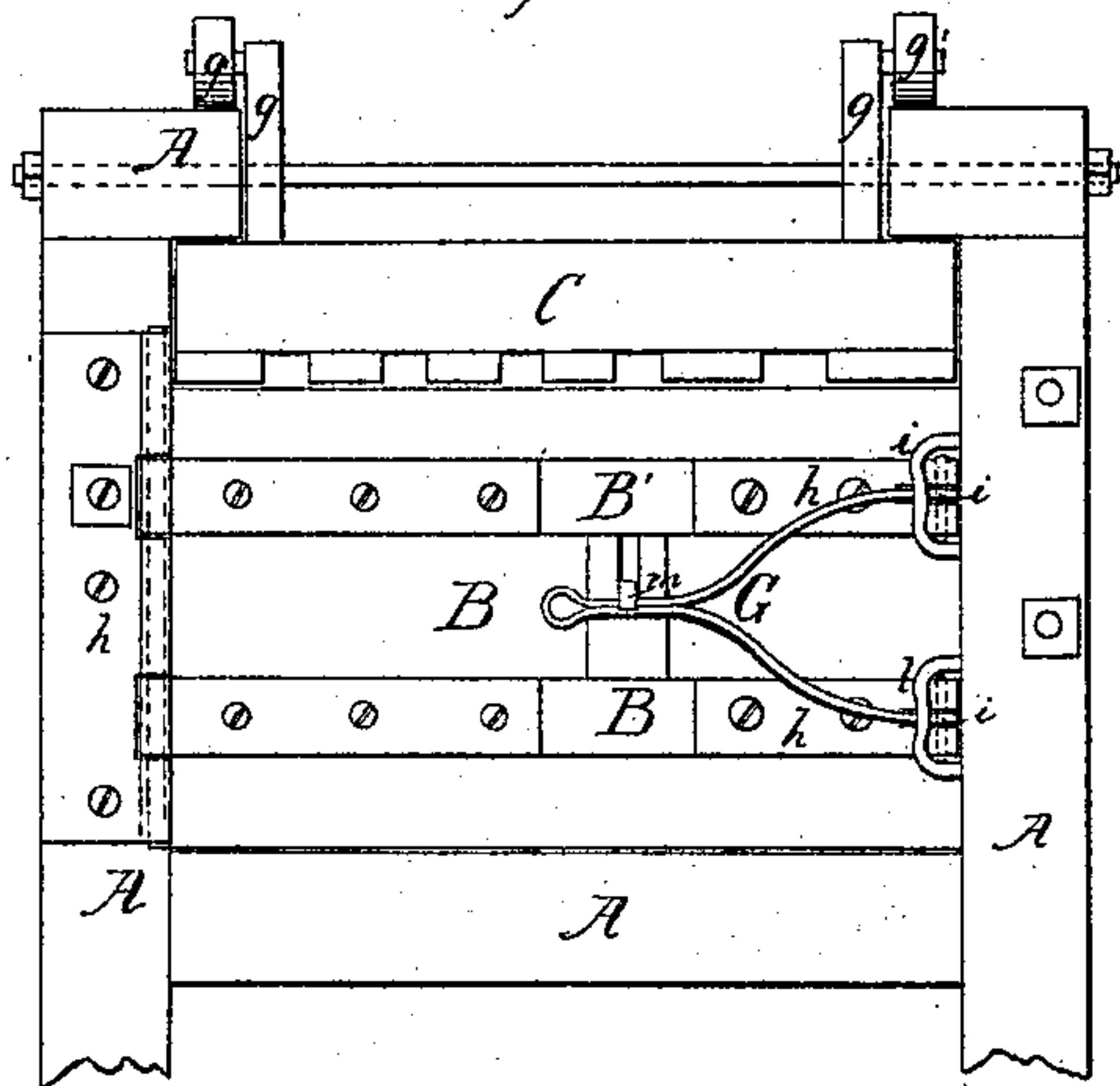


Fig. 6.

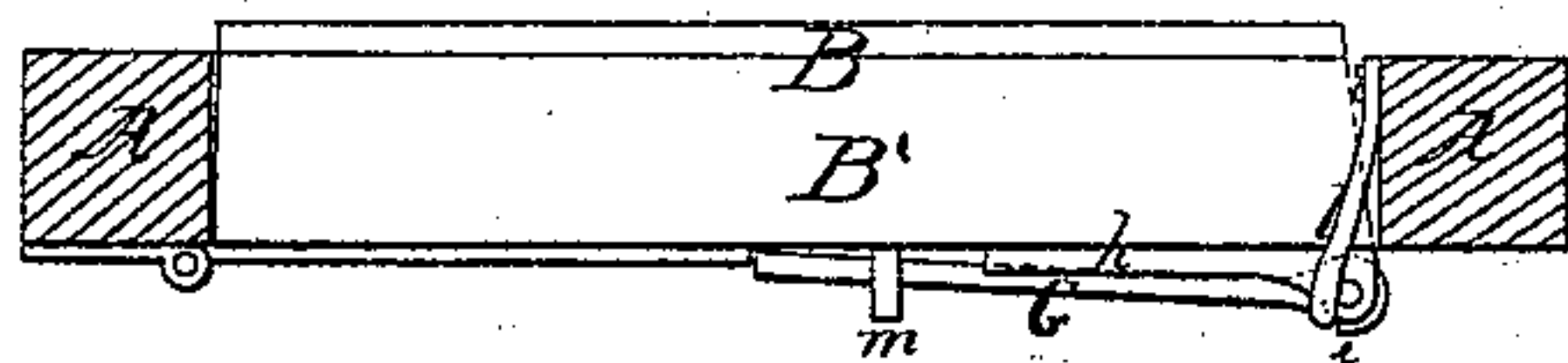
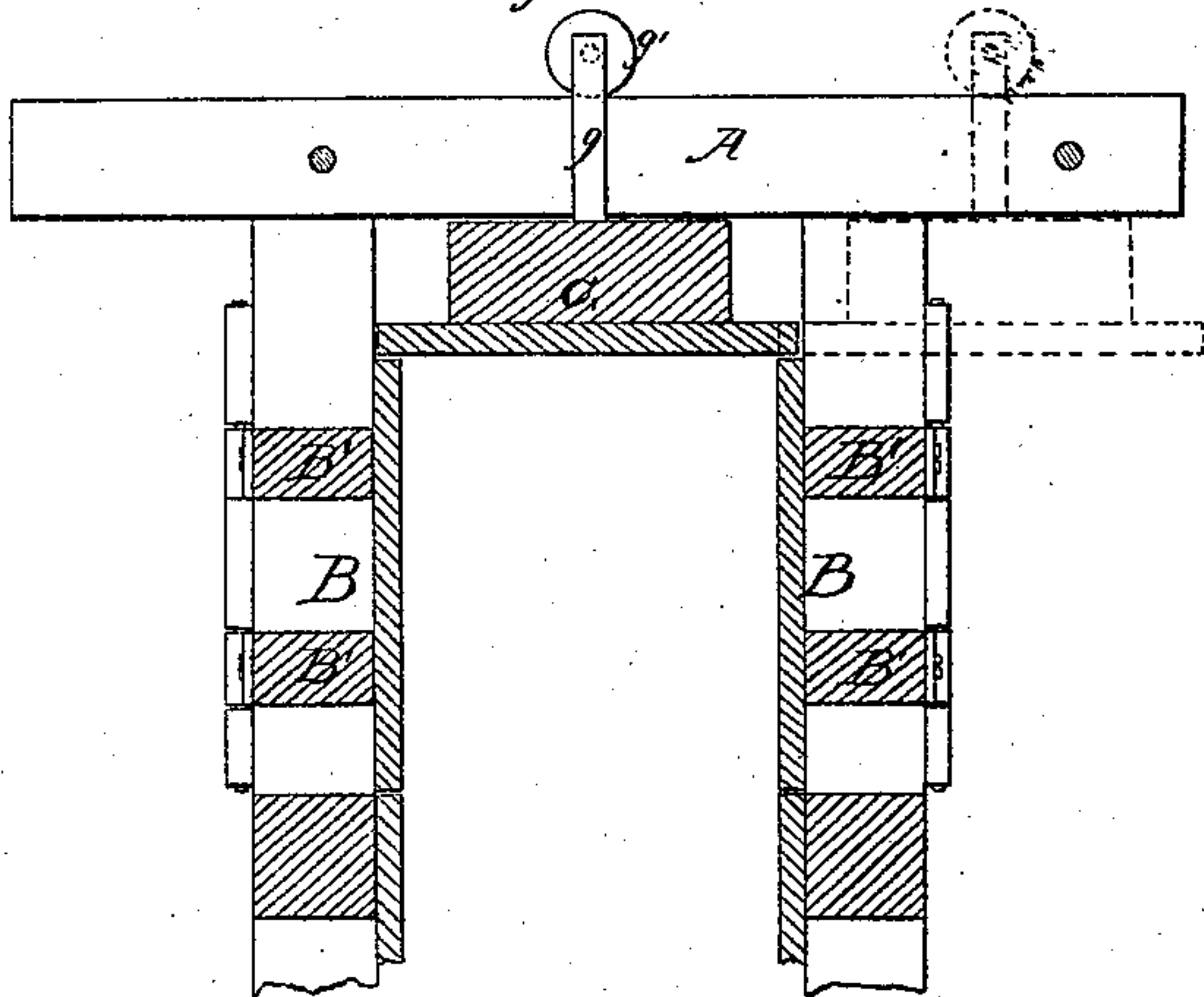


Fig. 7.

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UNITED STATES PATENT OFFICE.

BENJAMIN ROBERTS, OF HIGHLAND, NEW YORK.

IMPROVEMENT IN HAY-PRESSES.

Specification forming part of Letters Patent No. 54,209, dated April 24, 1866.

To all whom it may concern:

Be it known that I, BENJAMIN ROBERTS, of Highland, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Baling-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of one side of the press when the follower is down. Fig. 2 is a top view of Fig. 1. Fig. 3 is a horizontal section, showing the arrangement of the rope upon the elevating levers and rollers. Fig. 4, Sheet 2, is a vertical section through the press, showing the follower up to its highest point. Fig. 5 is an enlarged view of the upper portion of the press. Fig. 6 is a transverse section taken in a vertical plane through the upper portion of the press. Fig. 7 is a top view of the fastening for the doors.

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

This invention relates to certain novel improvements on that class of baling-presses having a follower, which is moved up and down by the action of extension-levers, the baling being done at or near the top of the press and over the follower.

The object of my invention is to provide for reducing the height of vertical baling-presses of a given capacity by so arranging the ropes or chains which are used for contracting the levers and forcing the follower upward that the windlass or other power which is used to operate the press, and which has hitherto been placed beneath the press-box, can be located at any convenient distance from the press, thus enabling me to dispense with gearing and some other contrivances which are necessary to be used with vertical presses of the class above mentioned, as will be hereinafter described.

Another object of my invention is to suspend the top or cover of the press-box, which is used to resist the upward pressure, upon rollers which are arranged above this cover in such manner that the latter will be sustained upon the bars which hold it down firmly during the operation of pressing, and while this is the case the top of the press-box can be readily opened or closed, as will be hereinafter described; and another object of my invention is to provide the side doors of the press-box

with self-fastening bails for locking these doors firmly in place when they are closed, which bails are so constructed and applied to the doors as to be received by spring-loops by which the former are chiefly held, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the frame of the press-box, which is made of a suitable height and strength, it being strengthened by means of vertical and transverse bolts so as to resist the outward pressure to which it is subjected. The press-box proper extends down to within a short distance of the base of the frame A, leaving below it a short space, A', for receiving two vertical rollers, *a a*, which may be cylindrical or grooved, for receiving around them the two ends of the cord or chain *b*, by which the follower-levers are contracted and the follower moved upward.

That portion of the press-box within which the hay, cotton, or other substance is baled has for two of its sides hinged doors B B. The other two vertical sides are closed by boards *b' b'*. The top is closed at certain times by a horizontal sliding cover, C, and the bottom is formed by the followers D, as clearly shown in Fig. 4. Those sides of the press-box through which the follower-beams D' project are made up of vertical timbers *c c c*, arranged at suitable distances apart to allow of the beams D' to move freely up or down between them. Thus the timbers *c* serve as vertical guides for the follower and its beams.

To the projecting ends of the beams B' the long levers E E are pivoted at their upper ends by means of transverse bolts, as shown in Figs. 1, 2, and 4.

I have represented three follower-beams, D', and four levers, E; but it is obvious that a greater or less number of said parts may be used. To these long levers E a number of short arms F are pivoted, the lower ends of which are pivoted to the press-box frame A, near its base. The arms F are pivoted at or near the middle of the length of the levers E, and they thus form movable fulcrum for the long levers. The length of the arms F is such that when the lower ends of the levers E are drawn up to or near the sides of the press-box frame, as shown in Fig. 4, and are in or nearly

a vertical position, the follower-board D will have been forced up to the desired point for baling the pressed mass above it.

Between the lower ends of the levers E E are grooved pulleys *d d*, over which pass the single rope or chain *b*, by which the levers are operated. This rope or chain is applied so as to operate upon both sets of levers at the same time, as follows: It is secured at the middle of its length to a pin, *e*, in the center of the bottom board of the press-frame, as shown in Fig. 1. The ends are then passed up through holes which are made through said base-board, and carried off to the pulleys *d d*, and passed back and forth beneath the press-box from one pulley on one side of the said box to another on the opposite side thereof. The ends of the rope are then carried around the vertical rollers *a a* and connected to a winding-drum, which may be located at any convenient distance from the press. Any suitable means may be employed for operating upon the rope *b* to draw the lower ends of the levers together. I prefer to use a common drum having a sweep-lever applied to it, to which lever a horse can be attached for rotating the drum, and thus winding up the rope. Such a drum may be applied to a frame that is connected to the sill-beams of the press-frame. This arrangement I have not shown in the drawings, as I do not confine myself to any particular mechanical power for operating upon the rope *b*. It will thus be seen that I dispense with a winding-drum or windlass beneath the press-box, and employ two short rollers which occupy very little vertical space, as a means for enabling me to draw off the rope at right angles to the plane of movement of the levers E. By these means I am enabled to employ a mechanical power outside the press-frame of any suitable description for performing the operation of pressing or forcing the follower upward in the press-box. I use a single rope or chain, *b*, acting upon all the levers E equally, so that the follower must rise in a horizontal plane. If it should have any tendency to cant the ropes *b* will overcome such tendency.

The top of the press-box is closed during the operation of pressing, by means of a movable cover, C, which is composed of a stout beam having slats secured at suitable distances apart to its bottom. This cover C is suspended by means of rods *g g* and rollers *g' g'*, which latter are mounted upon the two strong horizontal beams at the top of the press-frame A. The ends of the cover C project beneath the said beams so that the latter serve to resist the upward pressure upon the cover, as well as supports for this cover. Being thus supported and suspended the cover C can be moved to one side, as shown in red lines, Fig. 6, when it is desired to expose the top of the press-box for removing the bale or

filling this box with a substance to be pressed and baled.

The side doors, B B, are both constructed and fastened alike. I will therefore describe the construction and mode of fastening one of these doors. Two horizontal beams, B' B', are used as battens for the door B, to which the leaves of the hinges are secured. At the opposite ends of the battens B to the hinges plates *h h* are secured, and to these plates a bail, G, is pivoted, as shown in Figs. 1 and 5. The pivoted ends of the bail G have hooks *i* projecting from them, as shown in Fig. 7, which hooks catch two spring-loops, *l l*, that are secured to the inside of one of the upright beams A when the door is closed. The hooks *i* will catch the spring-loops *l l* when the bail G stands nearly perpendicular to the door; then, by forcing the free end of said bail back and fastening it by the drop-latch *m*, the spring-loops *l l* will both be drawn over the ends of the battens B' B' and caused to press directly upon the plates *h h*, as shown in Figs. 5 and 7. Thus the catches or hooks *i* on the bail G will be relieved from the great strain which is upon the door during the operation of pressing. The hooked bail serves as a lever for catching and drawing the loop-holders over the ends of the battens and keeping them in this position, and said bail also serves as a means for drawing open the door.

One of the side boards, *b'*, of the upper portion of the press-box is made so that it can be moved outward from one end of the bale for relieving it and allowing it to be removed from the press. This I have shown in Fig. 4.

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

1. The arrangement of the series of levers E E F F, frame A A, *c c c c*, pulleys *d d d d*, rollers *a a*, follower-beams D' D', and endless rope or chain *b b b b*, substantially in the manner and for the purpose described.

2. The manner of arranging the cover C, in combination with the manner of suspending it from rollers *g' g'*, substantially as described.

3. The spring-loops *l l* on the frame A, in combination with the hooked bail G, so applied as to receive the ends of the battens B' B', and to sustain the door B against outward pressure.

4. The hooked bail G, pivoted to plates *h h*, in combination with loop-holders *l l*, which act upon the bails forward of their fulcras, substantially as described.

Witness my hand in matter of my application for a patent for improved hay-press.

BENJAMIN ROBERTS

Witnesses:

R. T. CAMPBELL,
EDW. SCHAFER.