

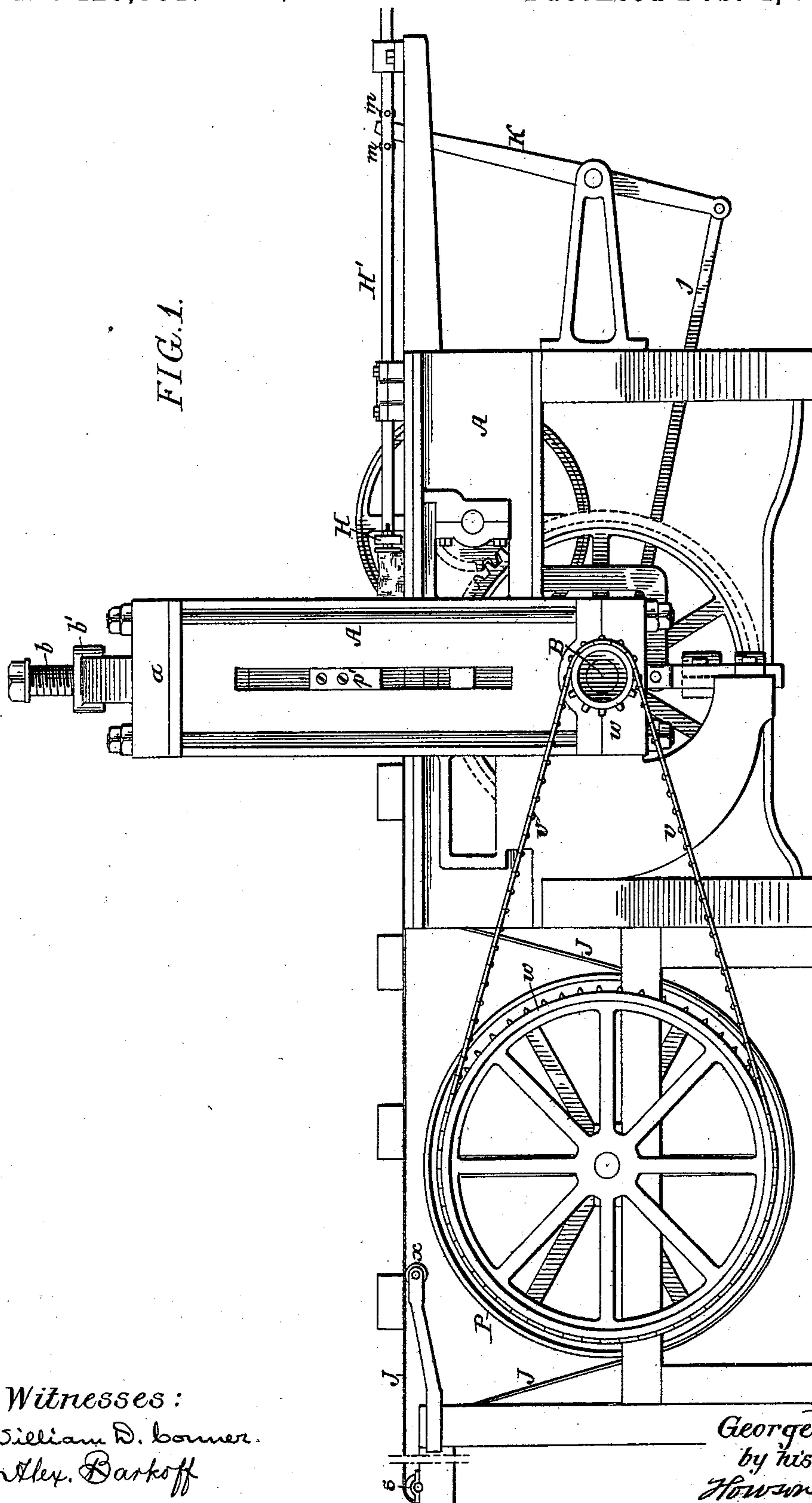
(No Model.)

3 Sheets—Sheet 1.

G. CARNELL.
BRICK PRESSING MACHINE.

No. 420,861.

Patented Feb. 4, 1890.



Witnesses:
William D. Warner.
Alex. Barkoff

Inventor:
George Carnell
by his Attorneys
Howson & Moore

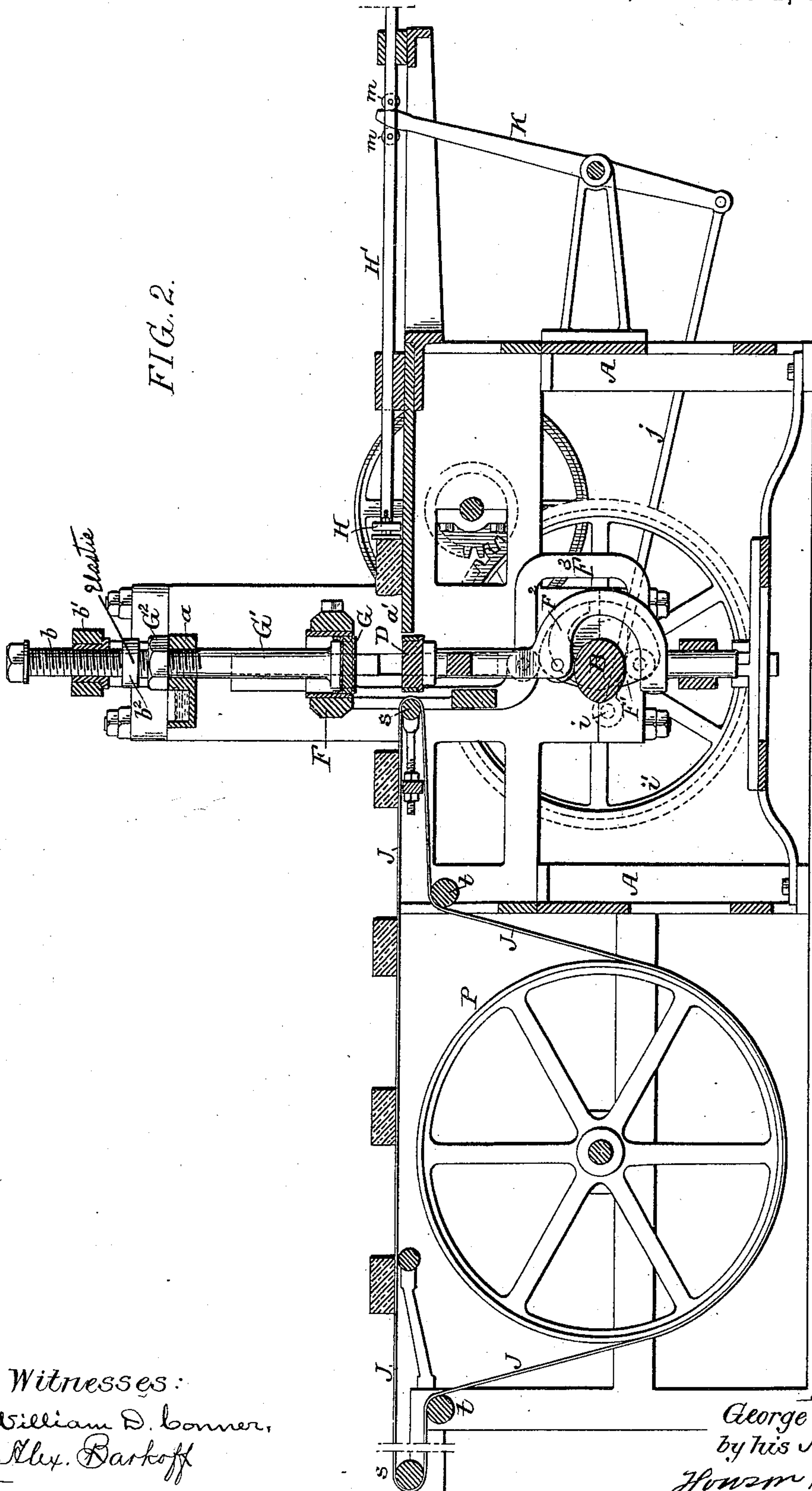
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3 Sheets—Sheet 2.

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(No Model.)

3 Sheets—Sheet 3.

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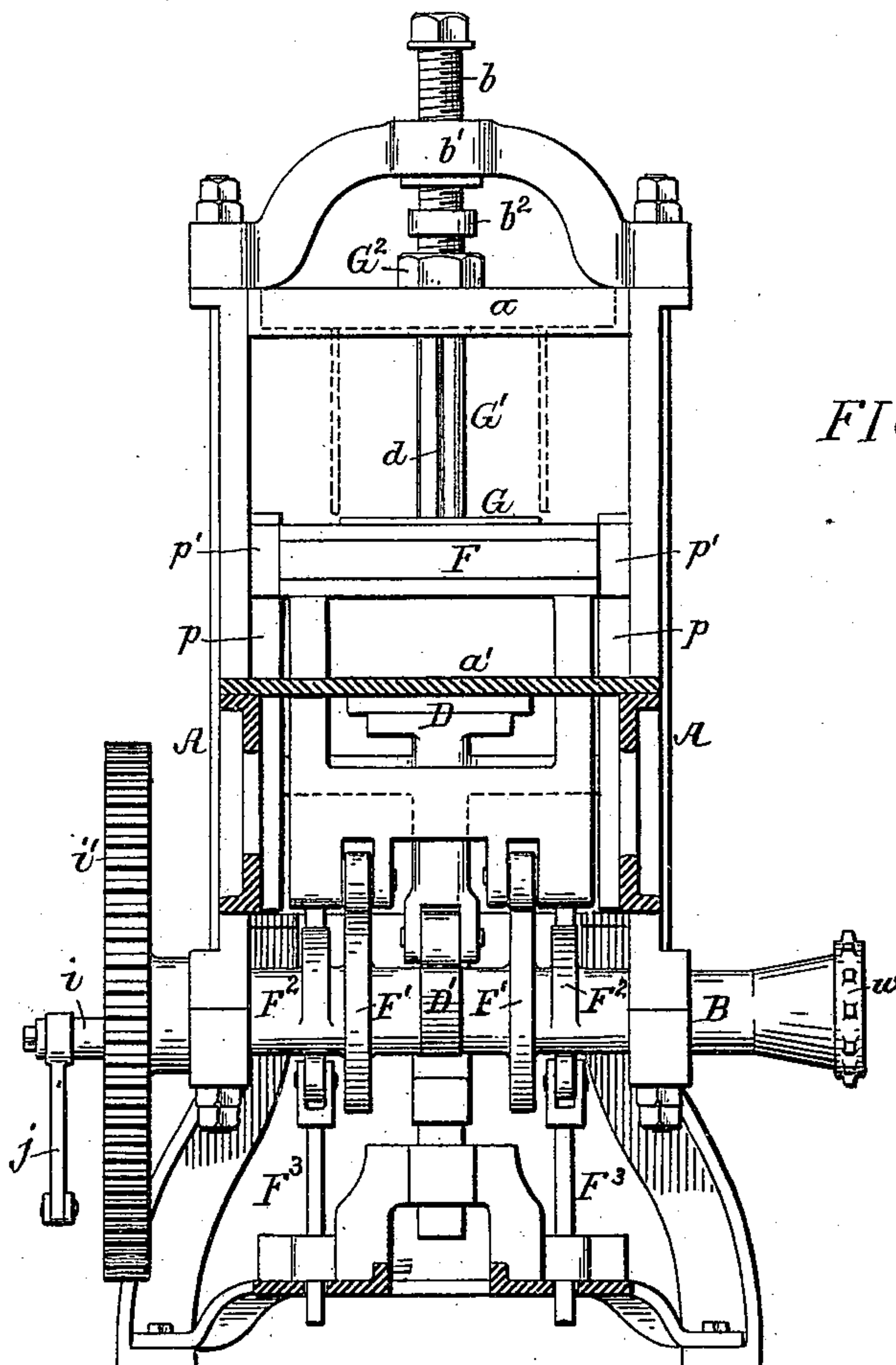


FIG. 3

FIG. 4

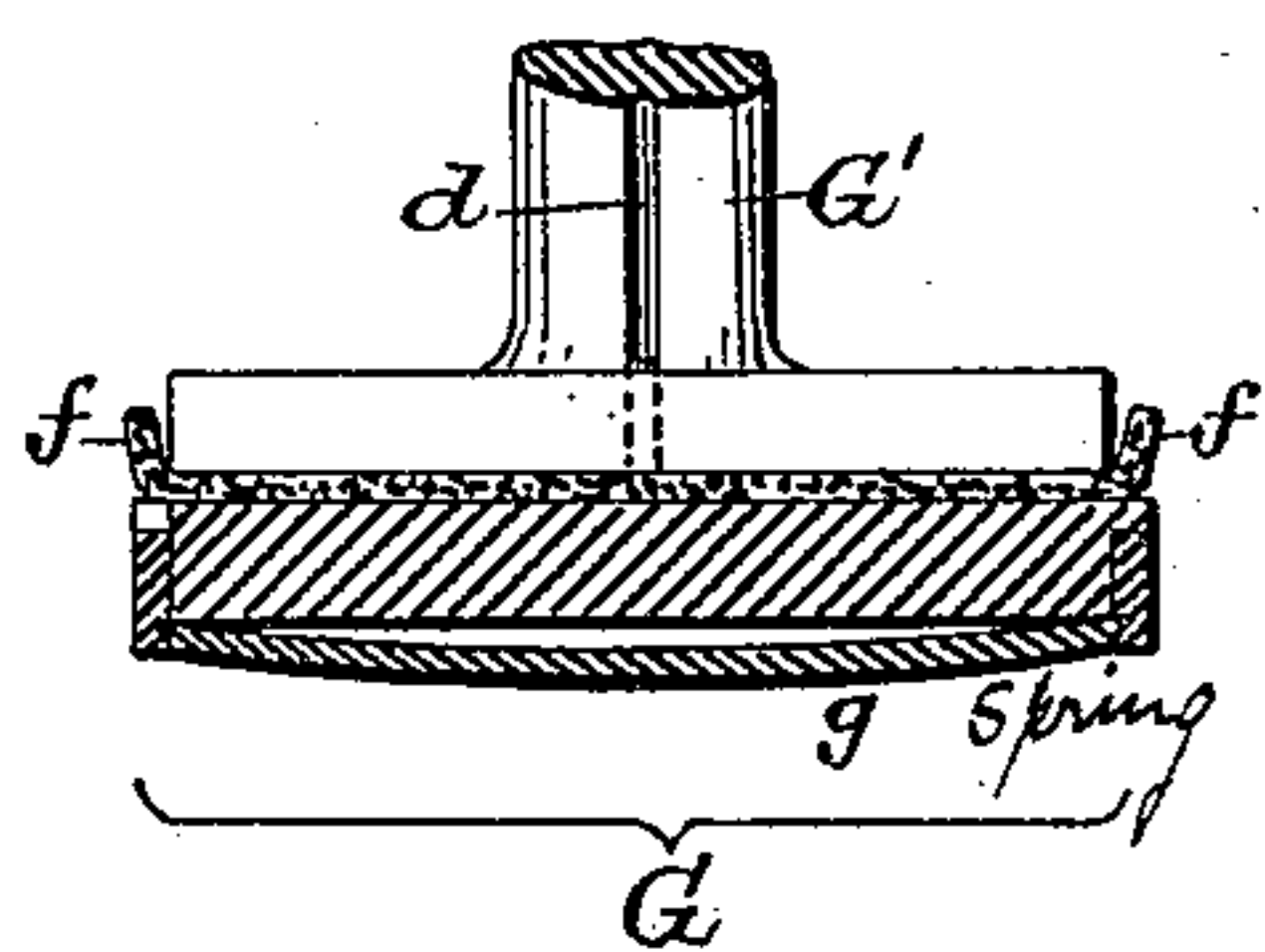
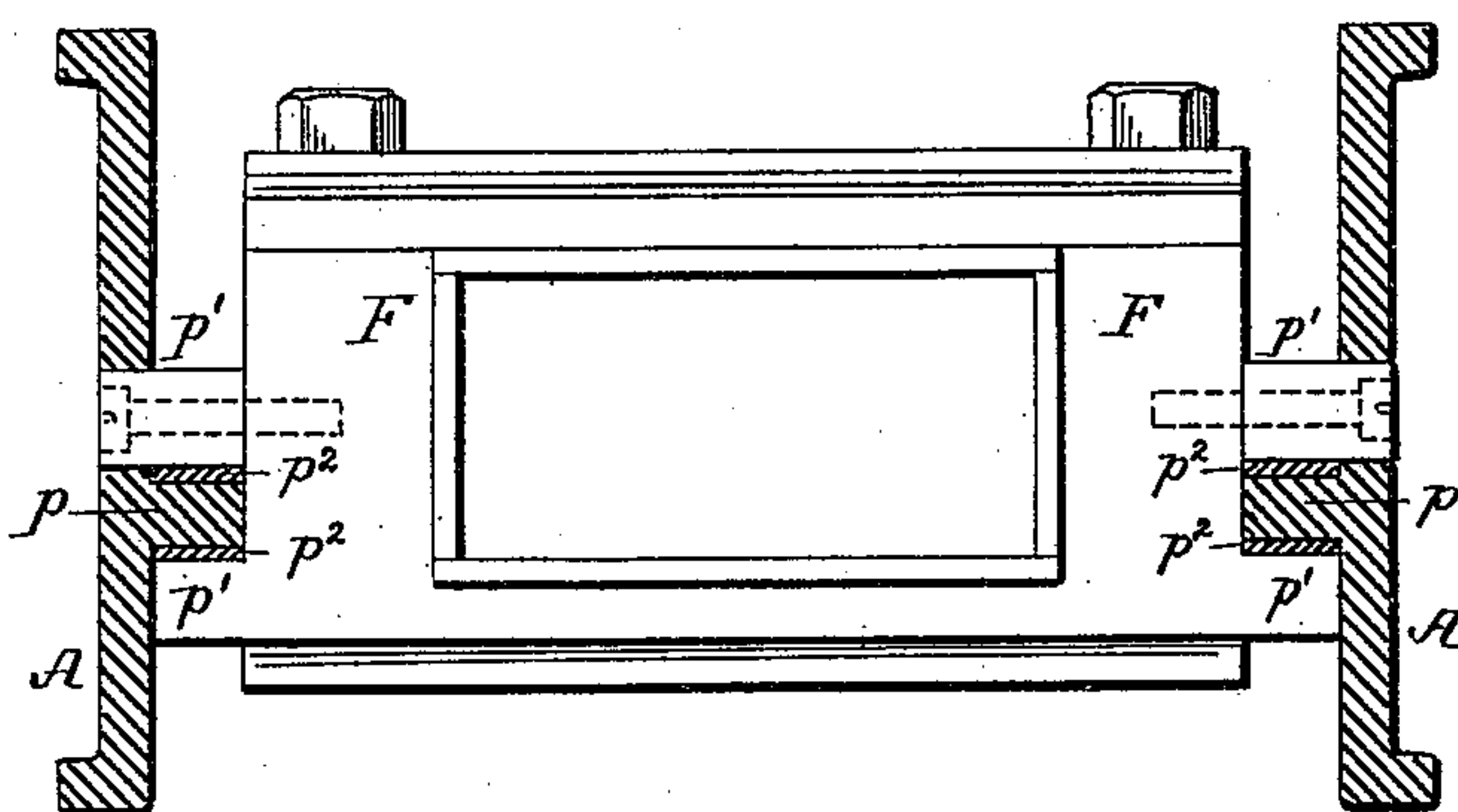


FIG. 5.



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UNITED STATES PATENT OFFICE.

GEORGE CARNELL, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,861, dated February 4, 1890.

Application filed December 5, 1888. Serial No. 292,694. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CARNELL, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Brick-Pressing Machines, of which the following is a specification.

My invention consists of certain improvements in the brick-pressing machine for which I obtained Letters Patent of the United States August 21, 1883, and April 20, 1886, my present improvements comprising certain details in the construction of the machine, with the view of rendering the same more effective in operation than before, all as fully set forth and claimed hereinafter.

In the accompanying drawings, Figure 1 is a side view of the machine. Fig. 2 is a longitudinal section of the same, partly in elevation. Fig. 3 is a transverse section. Fig. 4 is an enlarged longitudinal section of the upper plunger of the machine, and Fig. 5 is an enlarged sectional plan view of the mold-box.

A represents the main frame of the machine, which, as before, has bearings for the transverse driving-shaft B, on which are cams D' and F', the former for operating the lower plunger D of the machine, and the cams F' for raising the mold-box F. There are in the present machine, however, other cams F², which act upon anti-friction rollers carried by arms F³ on the mold-box-carrying frame, so as to depress the latter, for I have found that the weight of the mold-box and its appurtenances is not sufficient to cause the descent of said box; nor is a flanged cam such as shown in my patent of April 20, 1886, effective for the purpose; hence the use in the present machine of the two independent sets of cams—one for raising and the other for lowering the box.

The upper plunger G of the machine is carried by a screw-stem G', which has at its upper end a nut G², resting upon and supported by the upper cross-head a of the frame, said stem G' being prevented from rising by a set-screw b, carried by a yoke b' at the top of the frame, an elastic block b² being, by preference, interposed between the stem and the set-screw, as in my former machines.

The cross-head a in the present instance is hollow or dished and forms an oil-reservoir,

the oil being allowed to pass slowly down through a channel d in the supporting-stem G', and being thus permitted to gain access to the wiper f, with which the upper plunger G of the machine is provided, this wiper having projecting edges which bear against the sides of the mold-box F and serve to properly clean and lubricate the same as the mold-box is moved to and fro past the upper fixed plunger.

Pipes—such as shown by dotted lines in Fig. 3, for instance—may be used to convey the oil to the wiper of the upper plunger; but the use of the recess in the supporting-stem for this purpose is preferred, as the oil can then spread over the top of the plunger and gain access to the wiper at all points around the same.

The plunger G has on the lower side a spring-plate g, the normal position of which is slightly bowed, as shown in Fig. 4, the plate being flattened when the brick is pressed against the plunger, but springing out again as soon as the pressure is removed from the brick, so that the latter is prevented from sticking to the upper plunger when the lower plunger is withdrawn.

As in the former machine, the rough brick is deposited on the table a', and is fed by a pusher H onto the top of the lower plunger D, when the latter is depressed and the mold-box F is elevated, the mold-box being then permitted to descend, and the lower plunger rising, so that the brick is compressed between said lower plunger and the fixed upper plunger, and during such compression is confined in the mold-box, the latter rising and the lower plunger descending after the proper pressure has been imparted to the brick, and the pressed brick being discharged from the lower plunger onto a delivery-belt J as a second rough or unpressed brick is pushed onto the said lower-plunger. As the rough bricks are laid in front of the pusher and are moved by it into place, a considerable amount of movement in the pusher is required, and this movement must also push the brick gently and accurately. This requires a slow initial movement, in order that the pusher may not strike the brick and distort it, or give it such momentum as would impel it beyond the proper line.

In the present machine a positive movement in both directions is imparted to the pusher H by means of a crank-pin *i* on a wheel or disk *i'* on the shaft B, a rod *j* connecting this crank-pin to one arm of a lever K, hung to a bracket on the main frame, the other arm of the lever engaging with anti-friction rollers *m* on the stem H' of the pusher H. By this means the forward movement, whereby the rough brick is deposited on the lower plunger D of the press, gradually decreases in speed as the pusher approaches said plunger, the termination of the movement (when the crank-pin is passing the center point) being extremely slow, so that the rough brick will be deposited accurately in position on the plunger, and there will be no likelihood of said brick being moved too far, so as to fail to register properly with the mold-box. The initial movement is also slow, which prevents violent impact against the brick. Further, in order to secure an accurate movement of the flange and proper amount of motion, which cannot be secured by the link movement, I connect the lever K to the stem H' in the manner described, the stem having accurate linear movement in guides and the lever playing freely in the slot of the stem.

In order to provide for the rigid and accurate guidance of the mold-box in its reciprocating movements, the side frames of the machine are provided with projecting guide-ribs *p*, with which engage guide-ribs *p'* on the opposite sides of the mold-box frame, the guide-ribs *p* being provided on each side with steel bearing-plates *p²*, which can be readily removed and replaced by new ones when they become so worn as to fail to properly guide the box.

One of the guide-ribs *p'* of the mold-box frame is detachable, so as to permit the ready application of the said frame to and its removal from the guide-ribs *p* of the fixed frame.

The delivery-apron J, whereby the pressed bricks are carried away from the mold-box and plungers, passes around opposite end guide-rolls *s* and intermediate guide-rolls *t*, the latter being arranged in front and rear of a drive-wheel P, which is driven by a chain belt *v* and sprocket-wheels *w* from the shaft

B of the machine, this arrangement permitting the use of a drive-wheel of large diameter, and yet insuring the projection of the belt close up to the lower plunger, so that the pressed brick can be moved directly from the latter onto the belt, as shown in Fig. 2. At suitable intervals throughout the length of the belt are supporting-rollers *x*, one of which is shown in Fig. 2.

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

1. The combination of the fixed upper plunger and its wiper with the cross-head carrying the stem of said plunger and forming an oil-receptacle, and a passage through which the oil passes from said receptacle to the wiper of the plunger, all substantially as specified.

2. The combination of the fixed upper plunger and its wiper, the cross-head forming an oil-receptacle, and the plunger-stem having a recess forming a passage for the oil from the cross-head to the plunger, all substantially as specified.

3. The combination of the mold-box and plungers, the brick-receiving table, the brick-pusher having a rearwardly-projecting slotted stem adapted to slide longitudinally in bearings on the frame of the machine, a crank-pin, and a lever one arm of which is adapted to the slot in the stem of the pusher, the other arm being provided with a rod hung to the crank-pin of the machine, substantially as specified.

4. The combination of the fixed frame of the machine and its opposite projecting guide-ribs with the mold-box frame having on each side guide-ribs one of which is detachable, all substantially as specified.

5. The combination of the pressing mechanism of the machine with the delivery-belt, the driving-drum therefor, end guide-rolls for the belt, and intermediate guide-rolls, one in front and one in rear of the drum, all substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE CARNELL.

Witnesses:

WILLIAM D. CONNER,
HARRY SMITH.