

No. 751,486.

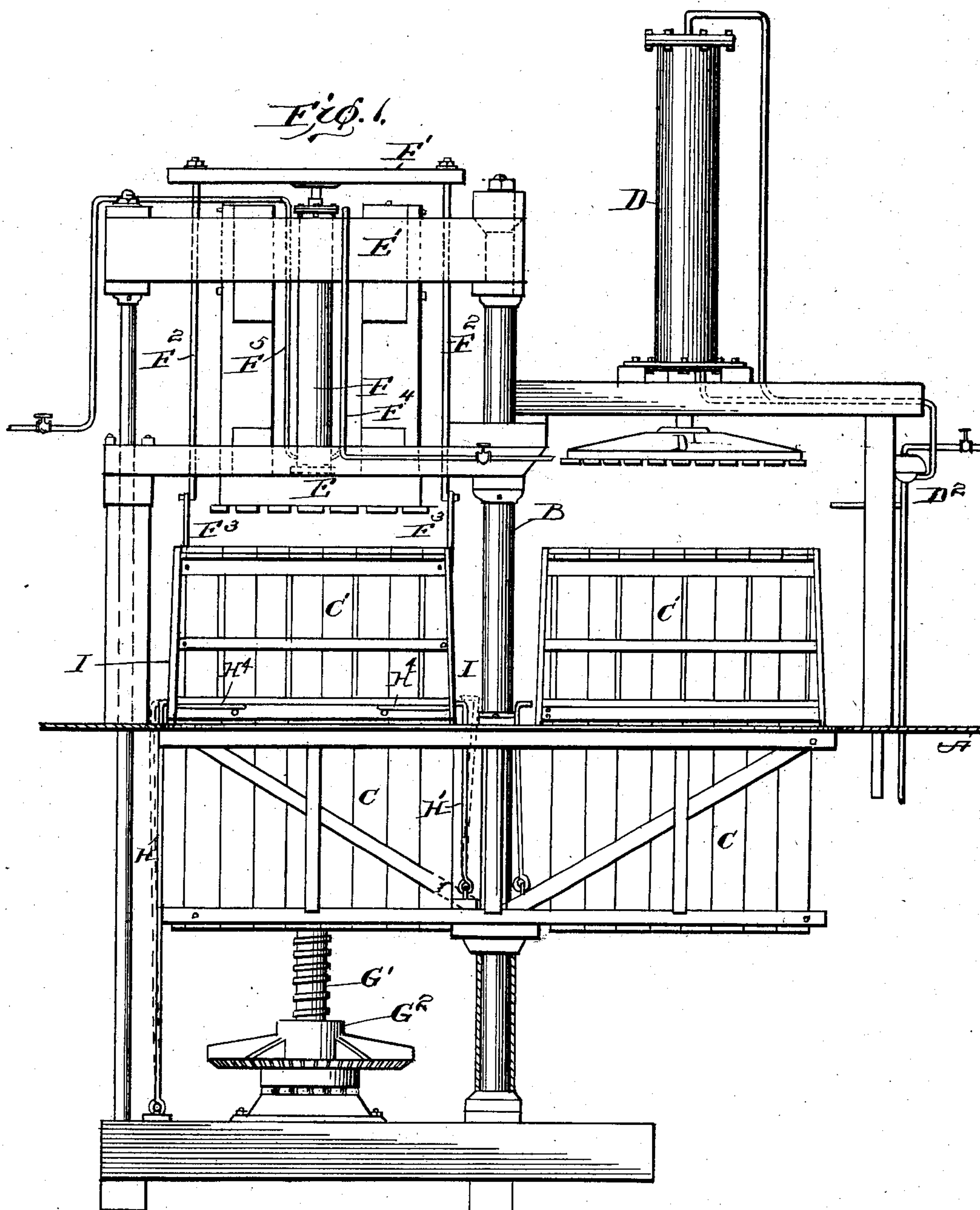
PATENTED FEB. 9, 1904.

W. E. ELAM.
BALING PRESS.

APPLICATION FILED MAY 9, 1903.

NO MODEL.

6 SHEETS—SHEET 1.



Inventor

William E. Lane

Witnesses

Witnesses
J. M. Fowler Jr.

J. Jerome, Lightfoot.

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Wallace Greene,

Attorney

No. 751,486.

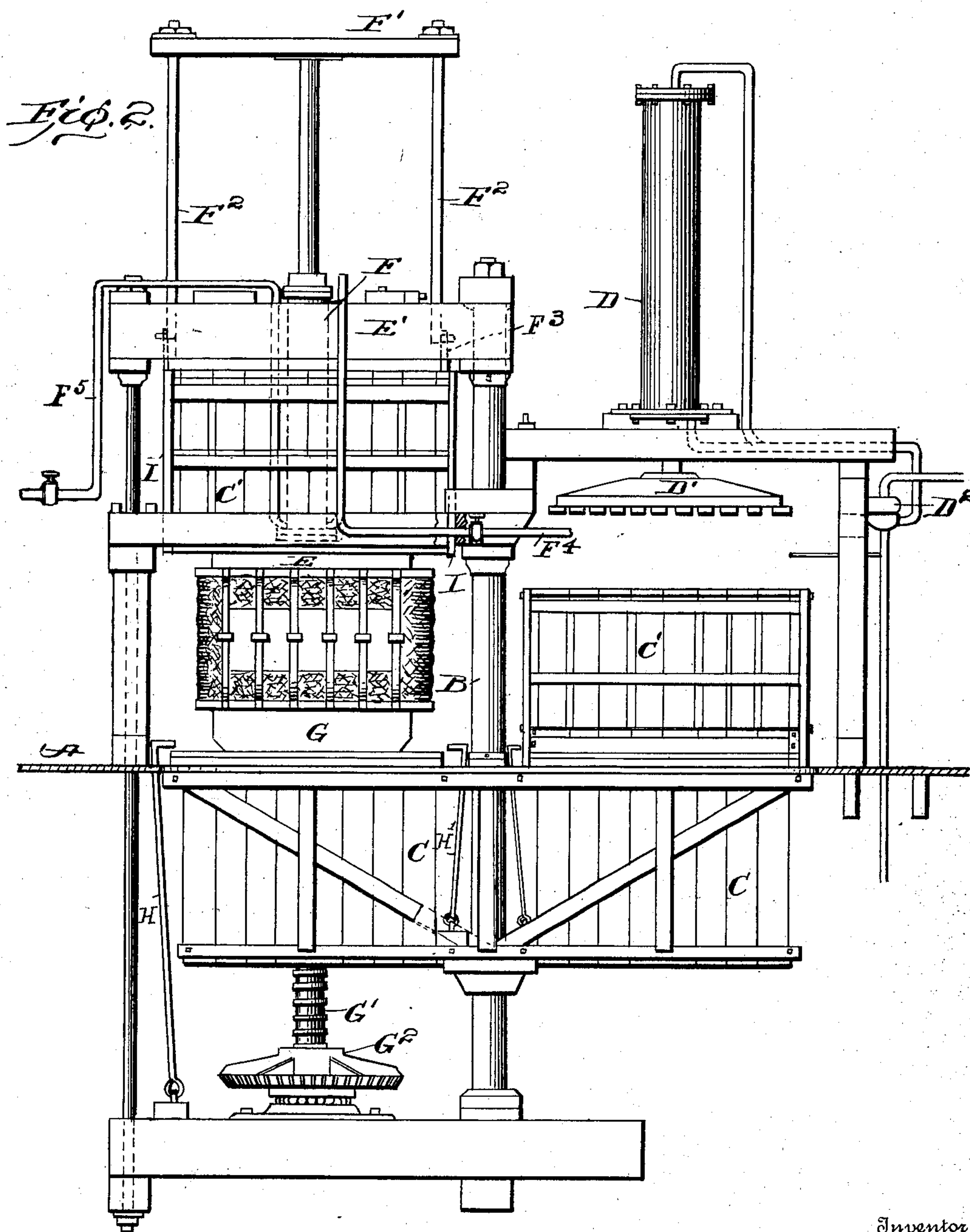
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6 SHEETS—SHEET 2.



Inventor

William E. Elam

Witnesses

J. M. Fowler Jr.

J. Jerome Lightfoot

By

Wallace Greene,

Attorney

No. 751,486.

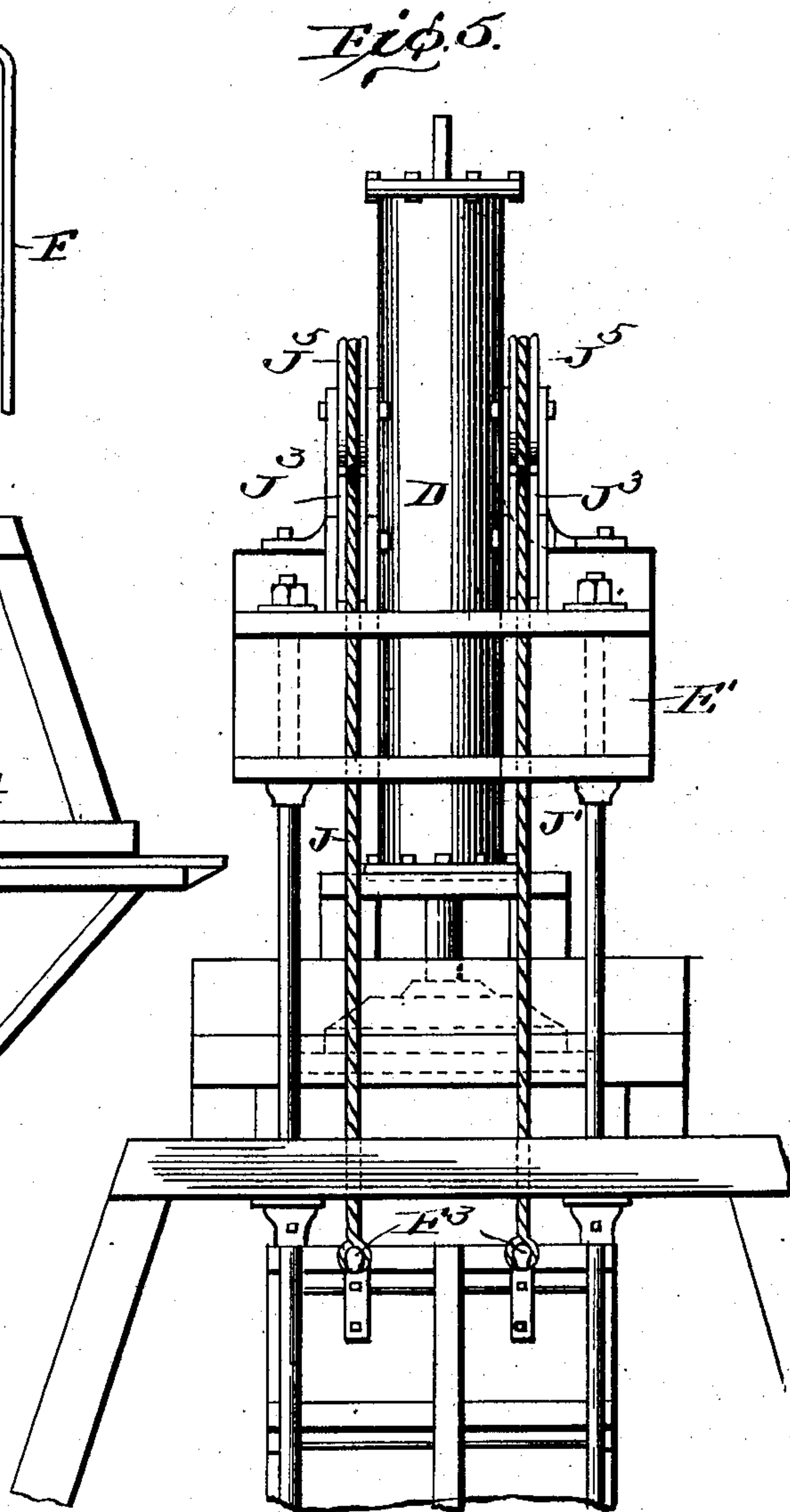
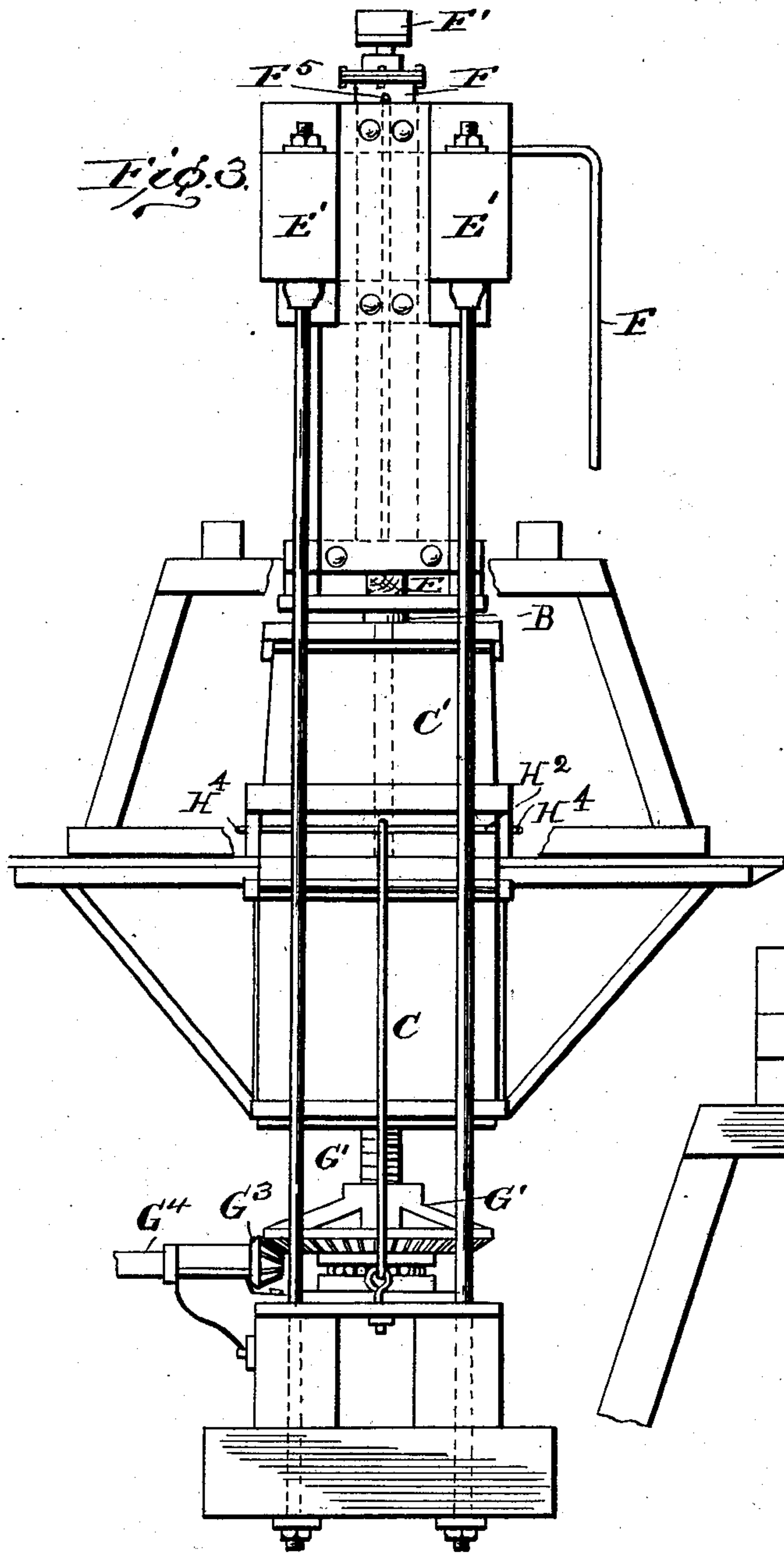
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6 SHEETS—SHEET 3.



Witnesses
J. M. Fowler
J. Deane, Lightbulb

Inventor
William E. Elam
By *Wallace Prune*
Attorney

No. 751,486.

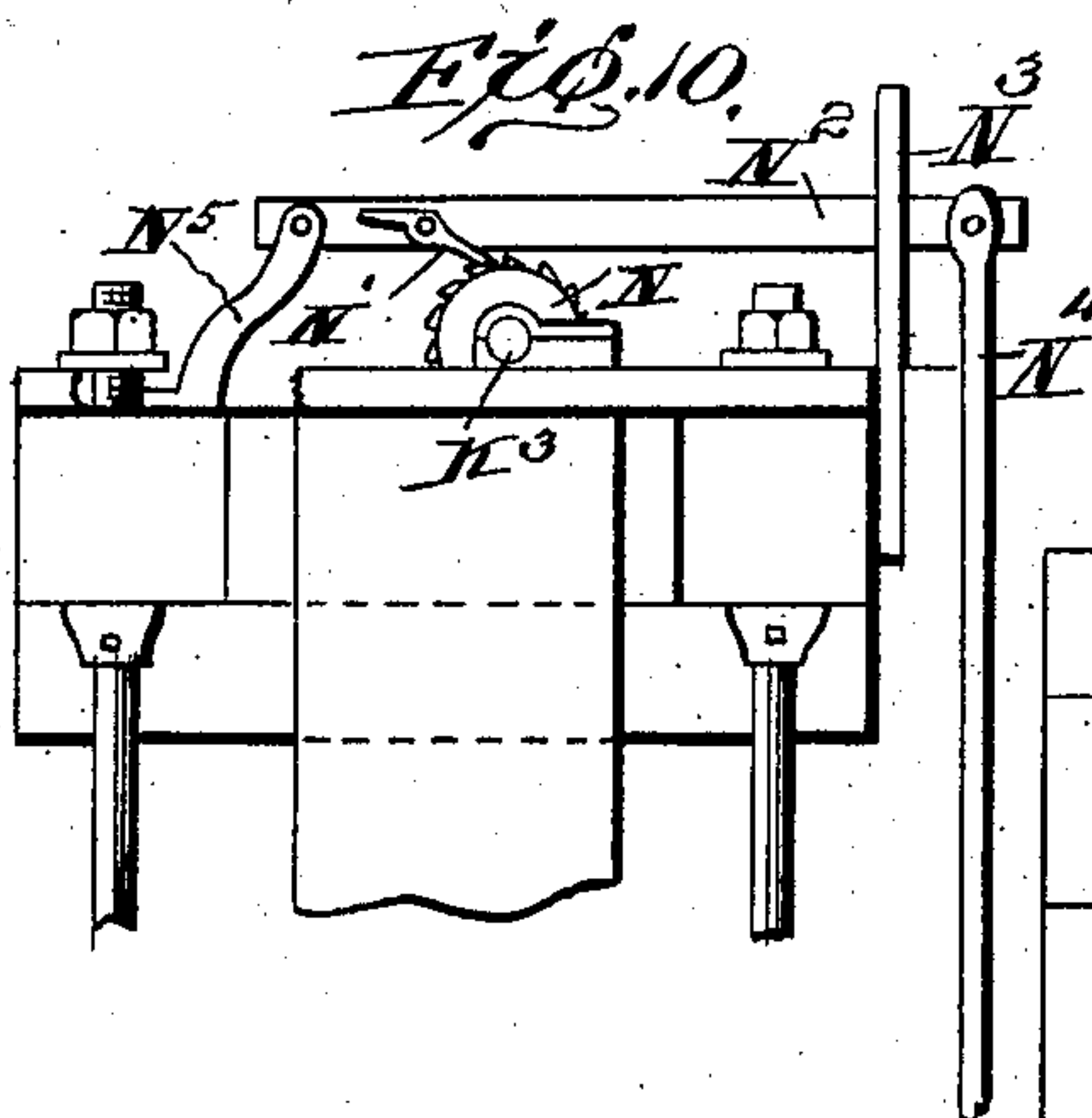
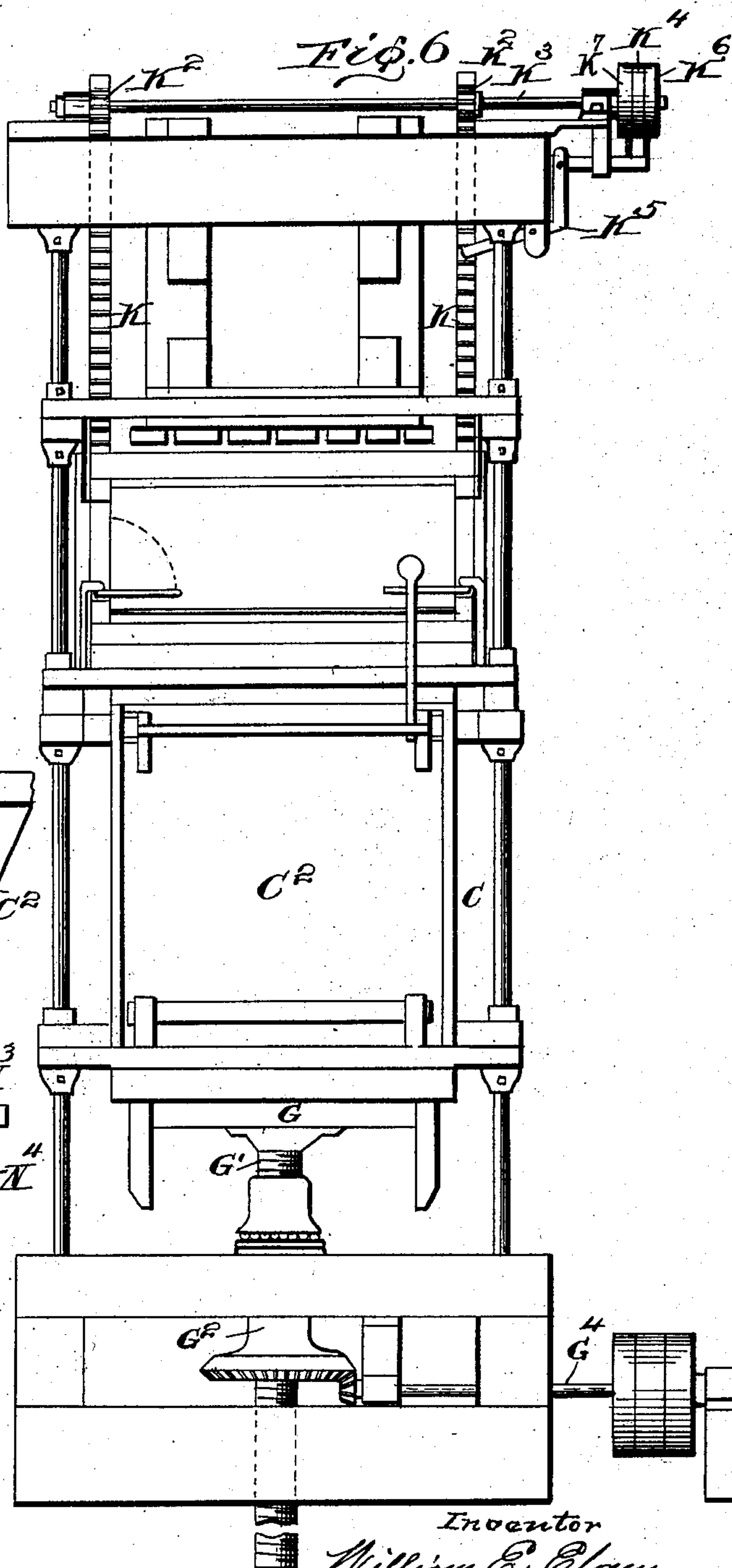
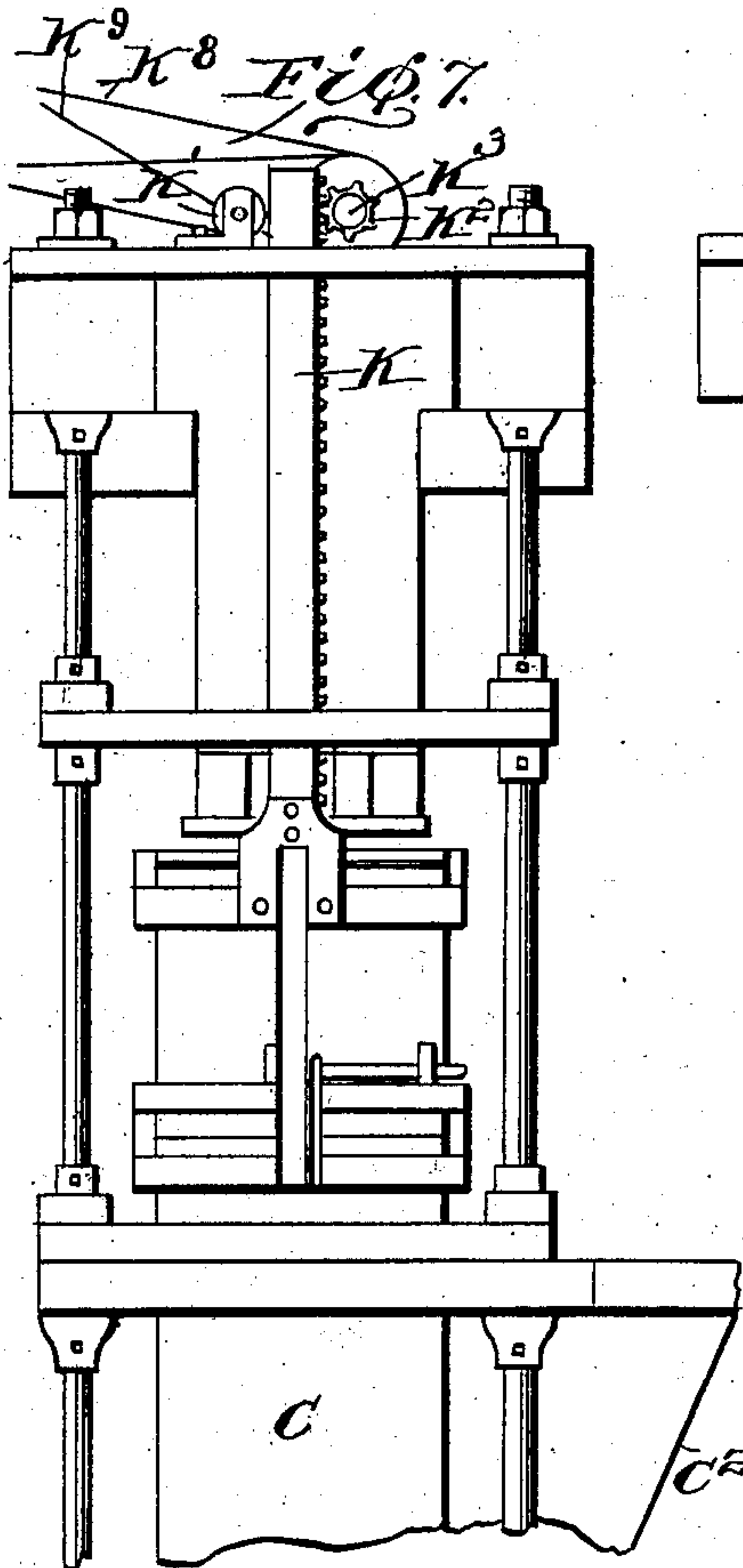
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NO MODEL.

6 SHEETS—SHEET 5.



Witnesses

M. Fowler Jr.
J. J. Jones, Lightfoot

By

Inventor
William E. Elam
Wallace Greene,
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. ELAM, OF ATLANTA, GEORGIA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 751,486, dated February 9, 1904.

Application filed May 9, 1903. Serial No. 156,330. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. ELAM, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

A principal object of my invention is to obviate the necessity for using the heavy doors which usually constitute a part of the press-box, such doors being cumbrous and in many ways undesirable, whether they are hinged or detachable, or both. With this and other objects in view I divide the press-box horizontally, preferably make the upper part gradually diminish in cross-section in passing from the plane of division, and then provide for moving that part directly from its companion to leave the bale exposed while still held between the bed and platen of the press.

In the accompanying drawings, Figure 1 is a front elevation of a rotary twin-box press made in accordance with my invention, the parts of the divided box being shown in position to form a single receptacle. Fig. 2 is a similar view, the upper part of the box being raised, exposing the completed bale. Fig. 3 shows the same devices looking from the left in Figs. 1 and 2. Figs. 4 and 5 are views similar to Figs. 1 and 2, showing a different apparatus for raising the upper part of the press-box. Figs. 6 and 7 are analogous views illustrating the use of rack-and-pinion devices for lifting the press-boxes and positively lowering them to position. Figs. 8 and 9 are like views showing the upper part of the box as counterweighted and raised by cable-and-drum devices. Fig. 10 is a detail view showing devices seen also in Fig. 8. Fig. 11 is a plan view of the lower part of a press-box.

In Figs. 1, 2, and 3, A represents a floor having a preferably circular opening at the center of which is a fixed vertical post B, about which swing duplicate press-boxes, each of which is horizontally divided to form a vertically-immovable lower part C and a vertically-movable upper part C', the latter preferably gradually decreasing in cross-section in passing from the plane of division, as clearly shown in Figs. 1 and 3. Upon one side of

the post is a tramping device consisting of a closed cylinder D, supported upon a suitable frame and containing the usual piston, carrying a plunger D' in position to register with either press-box, according as one or the other is swung beneath it. Steam is admitted at will upon either side of the piston and discharged from the opposite side by means of a suitable valve D² without novelty, and thereby charges of cotton placed in the box one after the other are pressed down successively until enough for an ordinary bale has been accumulated. The plunger being then raised, the boxes are revolved about the post, bringing a duplicate box beneath the plunger and carrying the filled box into position beneath a bed E, adapted to fit the box loosely and rigidly supported from and at some distance below the upper members E' E' of a heavy press-frame, the supporting parts lying wholly within the planes of the lateral walls of the box, so that when the box is raised it will inclose the bed and the supports thereof. In the axial line of this part of the press is a cylinder F, whose piston carries a cross-head F', from the ends of which depend rods F² or the like, adapted to be at will engaged with hooks F³ upon the part C' of the box. Suitably-valved pipes F⁴ F⁵ admit and discharge steam upon either side of the piston, and thus the upper part of the press-box is raised and lowered at will, the raising being to take the part C' above the plane of the lower face of the bed. Below this bed and in registry with it is a platen G, carried by a screw-shaft G', working in a geared nut G², supported by a cone-bearing and rotated by a pinion G³ on a power-shaft G⁴. The filled box being in proper position, the geared nut is rotated in the proper direction, and thereby the platen G is forced upward into the box at least to the plane of division between the two parts of the box, the mass of cotton being compressed against the bed E until it has the thickness desired for the bale, when the rotation of the nut is arrested. The upper part of the box is then raised by engaging the rods F² with the hooks F³ and admitting steam below the piston in the cylinder F, and thereby the bale is exposed, as shown in Fig. 2. The bagging is then adjusted

and the ties are applied while the bale is still held between the bed and platen, and finally the platen is lowered and the bale is removed. The platen is then run down to a point below the part C of the box, the part C' is lowered to place again, and the rods F² are detached from the hooks, leaving the apparatus ready for again revolving the boxes to bring an empty box beneath the cylinder D and a filled one beneath the bed E. To prevent the part C' from rising with the ascending platen G, hinged rods H H' have their upper ends bent inward at approximately right angles to engage rotary horizontal rods H², mounted on the part C' and each having its outer end H⁴ bent to form a crank-like handle, by means of which either rod may be rotated to throw the corresponding rod H H' out of engagement by skid-like action. For guiding the part C' the sides of the latter are provided with vertical ribs I, which slide in grooves in the frame, as seen in Fig. 2.

In the apparatus shown in Figs. 4, 5 the part C' is raised and lowered by cables J, attached to the platen D', passing over suitable direction-changing pulleys J² J³ J⁴ J⁵, and detachably engaging the hooks F³ temporarily when the part C' of the box is to be raised. In Fig. 4 there is shown a slide E⁵ upon the bed to be pushed out when desired beneath the lower edge of the raised part C', thereby holding this part in raised position. Obviously the use of this slide is not confined to the press shown in this figure.

Figs. 6 and 7 show a single-box press, the box being divided as before, but the cotton being put in the lower part of the box through an opening closed by a hinged door C² in successive charges and given the preliminary tramping or compressions by the same platen, G, which imparts the final compression. The part C' of the box is provided with vertical rack-bars K, whose upper portions lie between guide-rollers K' and pinions K² upon a shaft K³, driven by a fast pulley K⁴. The rotation of the shaft in the proper direction raises the part C' until the completed bale is fully exposed, when the rising box strikes a bent lever-shipper K⁵ and shifts the driving-belt K⁸ from the pulley K⁴ to the loose pulley K⁶ and the shaft comes to rest with the box fully raised. The box may be positively forced downward again by shipping either by hand or by automatic devices (not shown) the crossed belt K⁹ from the loose pulley K⁷ to the fast pulley K⁴, the crossed belt of course giving reverse rotation and forcing the racks downward. When the box is to be raised, the shipper is pulled down to the position shown in Fig. 6, this being done by hand, as must also the shifting of the crossed belt from the loose to the fast pulley. The crossed belt may, however, be shifted automatically in the contrary direction, since the box in its descent should always stop at the same point.

Figs. 8 and 9 show the press of Figs. 6 and 7 with the upper part of the box counterbalanced by weights L, connected to the upper part of the box by cables L', passing over pulleys L². The box is lifted by cables M, attached to the box and winding upon drums M' upon the shaft K³. Usually the weights do not quite balance the box-section C', and to prevent the descent of the latter when the belt is on the loose pulley K⁶, I provide the pawl-and-ratchet devices shown in Figs. 8 and 10. A ratchet-wheel N is fixed to the shaft K³, and with it engages a pawl N', mounted on a lever N², pivoted at one end to a fixed support N⁵, working in a guide N³ and provided with a pendent handle N⁴, which is pushed upward to lift the pawl when desired, thus permitting the rotation of the shaft and the descent of the box.

What I claim is—

1. The combination with a transversely-divided press-box, of means for compressing the material in the box and forcing it into one of the parts, and means for moving that part bodily in the line of compression to expose the compressed material.
2. The combination with a transversely-divided press-box, of means for keeping both parts stationary during compression, means for compressing the contents of the box into one of its parts, and power-actuated devices for then moving said part from its companion to expose the compressed material.
3. In a baling-press, the combination with a platen and a plunger coacting therewith, of a press-box transversely divided at a point normally between the platen and plunger, and means for moving one part of the box in the line of compression to expose the material held between the platen and plunger.
4. The combination with a transversely-divided press-box having one part arranged for bodily movement from its companion, means for locking said part against such movement, and means for counterbalancing the weight of such part.
5. In a baling-press, the combination with compressing and resisting members, of a transversely-divided press-box normally inclosing the space between the two and having one part arranged to move, sleeve like, over one of said members to expose material within said part before such movement.
6. In a baling-press, the combination with a transversely-divided press-box, of a platen and a coacting plunger arranged to compress the material in the box into one part of the same and hold it, a cylinder and a fluid-operated plunger therein, and means for at will operatively connecting said plunger to said box part to move the latter bodily and thus expose the material between the platen and plunger.
7. The combination with transversely-divided twin press-boxes arranged to revolve

about a common axis to bring either box in line with a reciprocating packing-plunger and the other simultaneously into line with a platen and a coacting plunger giving final compression, and devices detachably connecting the plunger first mentioned with one part of the opposite box to forcibly move it and expose the space between the platen and plunger.

8. In a baling-press, the combination with a resisting member and a coacting compressing member, of a gradually-tapered box nor-

mally inclosing the space between the two and arranged to be moved in the direction of its tapering.

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

WILLIAM E. ELAM.

Witnesses:

E. M. JOBSON,
W. A. BOYLE.