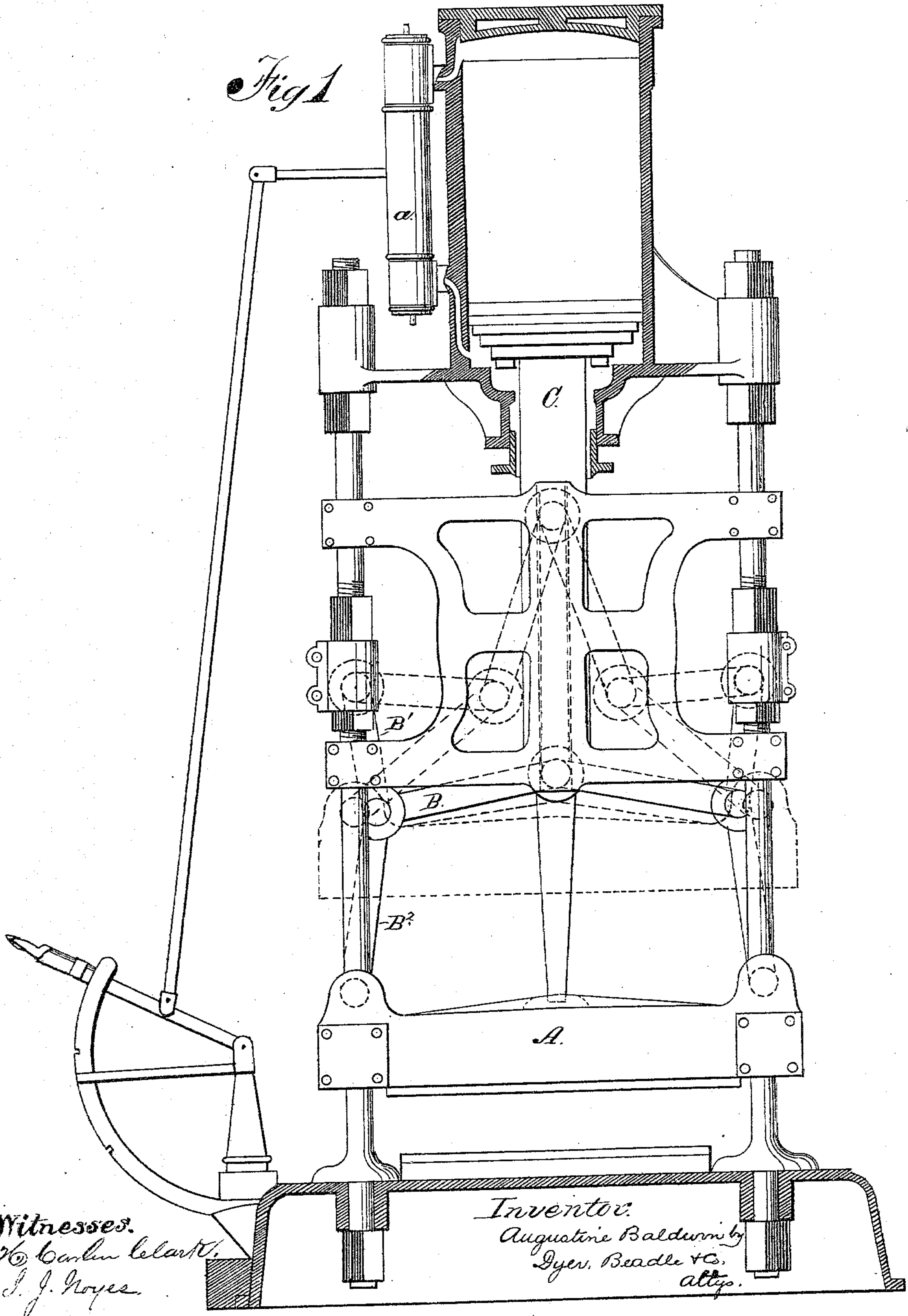


A. BALDWIN.
Improvement in Steam-Presses.

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Fig. 2

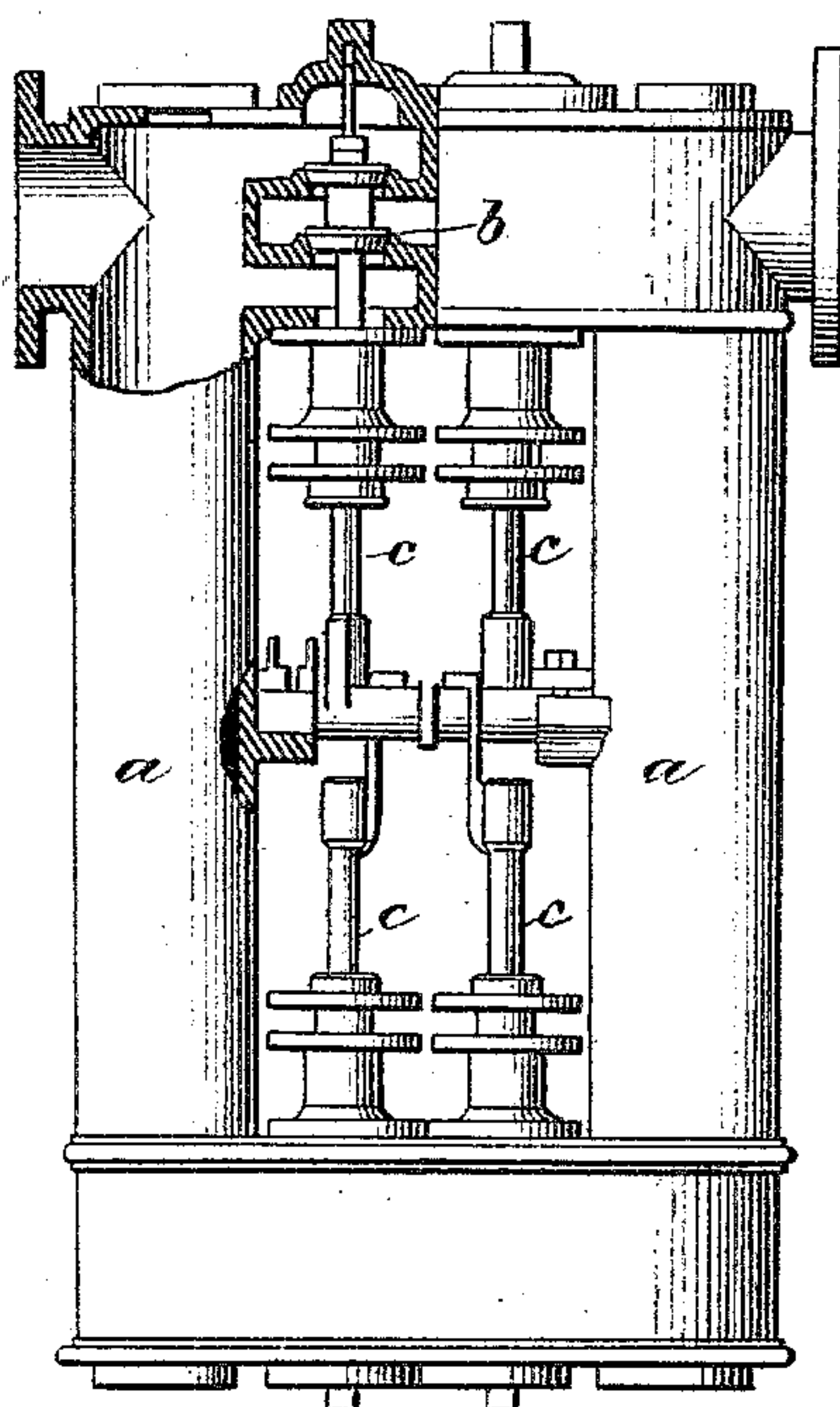


Fig. 3.

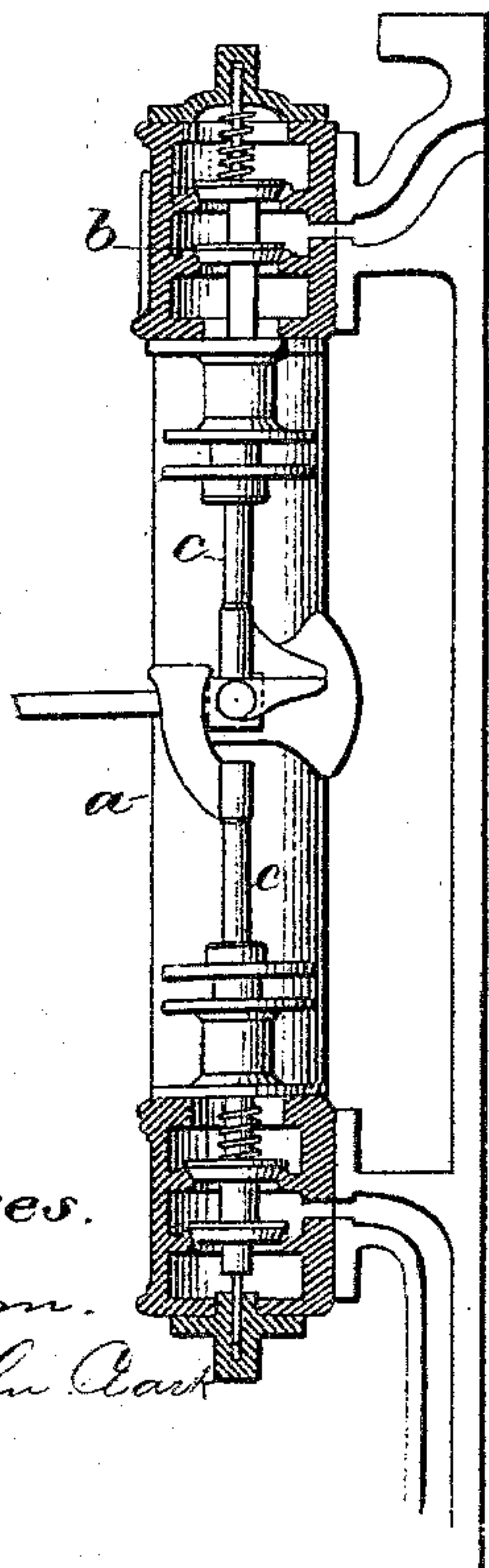
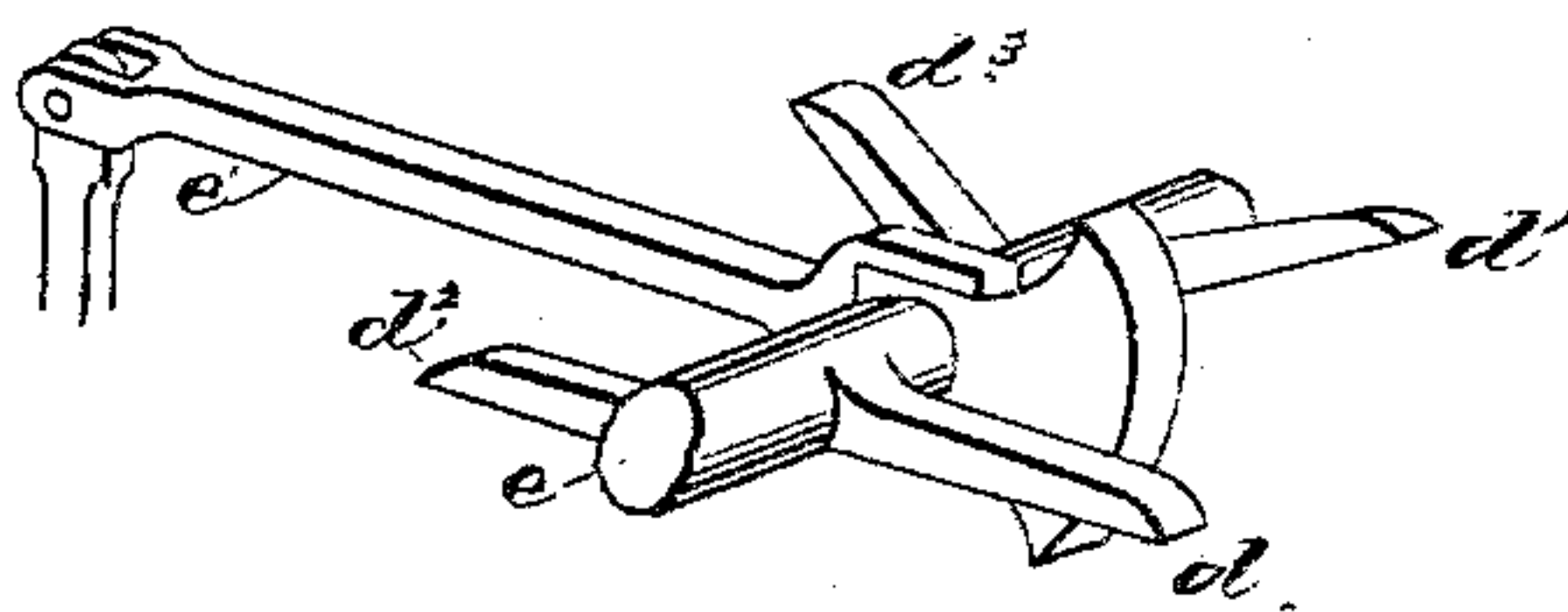


Fig. 4



Witnesses.

C. F. Brown.

H. Carlin Clark

Inventor.

Augustine Baldwin

by his Atty

Dyer, Bead & Co.

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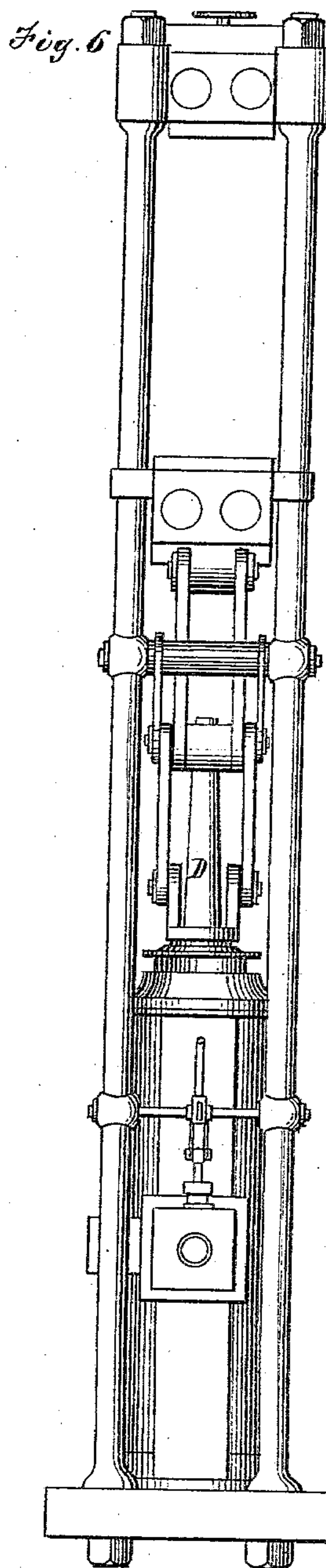
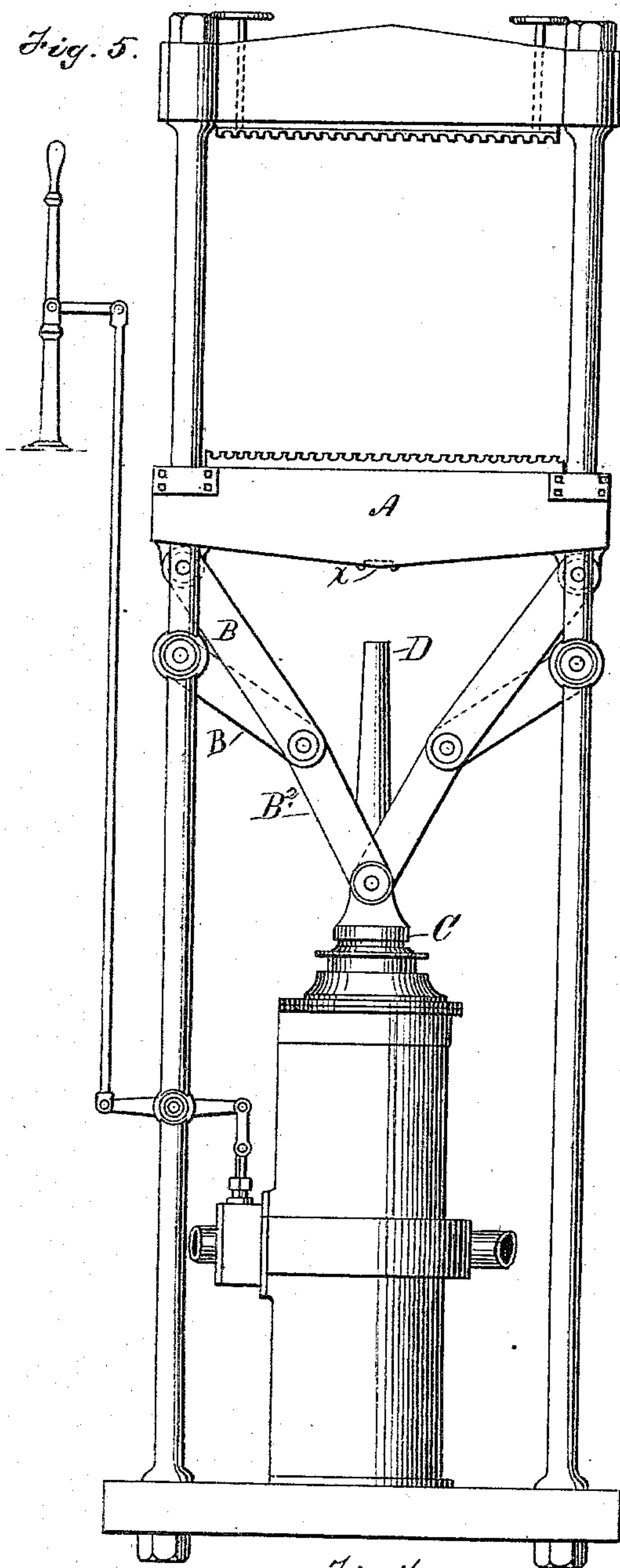
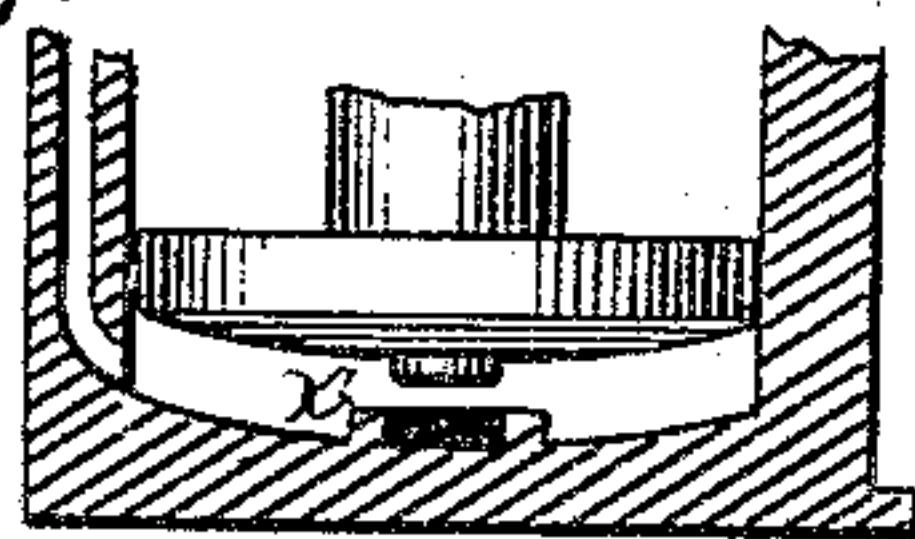


Fig. 7.



Witnesses.
C. F. Murray
H. Carlin Clark

Inventor.
Augustine Baldwin
by his Attys.
Dyer, Beade & Co.

UNITED STATES PATENT OFFICE.

AUGUSTINE BALDWIN, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM PRESSES.

Specification forming part of Letters Patent No. 132,131, dated October 15, 1872.

To all whom it may concern:

Be it known that I, AUGUSTINE BALDWIN, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Presses; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention is an improvement upon the press covered by Letters Patent No. 103,123, issued May 17, 1870; reissued to me May 28, 1872, No. 4,913; and consists, mainly, first, in the arrangement of the valves and their connections, by means of which steam is admitted to the cylinder; second, in the arrangement of the lever-arms which connect the movable platen to the piston, as will be fully described hereinafter.

In the drawing, Figure 1 represents a side elevation, with the cylinder in section, of a down-working press with my improvements applied thereto; Fig. 2, a side elevation, partially in section, of the side pipes of the press, which are provided with my improved arrangement of valves; Fig. 3, an end elevation of the same partially in section; Fig. 4, a perspective view of the shaft and its immediate connections, which operate the valves; Fig. 5, a side elevation of an up-working press having my improved arrangement of levers applied thereto; Fig. 6, an end elevation of the same; and Fig. 7, a partial sectional elevation of the lower portion of the cylinder, with the piston in full elevation.

To enable others skilled in the art to make and use my invention I will now proceed to describe fully its construction and manner of operation.

I will first describe the arrangement of valves. *a a*, Figs. 1, 2, and 3, represent side pipes suitably attached to the side of the cylinder, one of which is adapted to receive and convey the live steam to the valve-chambers, and the other is adapted to convey away the exhaust. *b b*, Figs. 2 and 3, represent balanced valves, which control the parts leading to and from the cylinder. *c c* represent the valve-rods, which are operated by the valve-toes *d d¹ d² d³* upon the central shaft *e*, the latter being operated by the balanced lever *e'*, as shown. These valve-toes are arranged in pairs upon

each side of the shaft, the toes upon one side operating, when in action, to control the movement of the piston in one direction, and those upon the other side the movement in the opposite direction. It will be observed that these toes are located in different planes, so that when operated by the movement of the central shaft *e* they do not act simultaneously, but successively, upon their respective valve-rods.

The operation of the described construction is as follows: The piston being at one end of the cylinder, and it being desired to cause it to move to the other, the rock-shaft *e* is partially revolved in the proper direction, by means of the operating-lever and its connections, by which means one of the valve-toes *d* or *d²* is caused to act upon its valve-rod, and the proper valve being consequently opened, steam is admitted to the cylinder. No movement of the piston takes place, however, until a further movement of the rock-shaft in the same direction causes the following valve-toe, *d¹* or *d³*, to act upon its valve-rod, and thus open the exhaust, when, of course, the piston will be free to move under the impulse of the steam already secured. When the desired movement of the piston has taken place the lever is returned to its original position, and both valves are consequently closed. A reverse movement of the piston is obtained by moving the lever in the opposite direction, in which case the valves upon the opposite side of the shaft are operated. From this description it will be understood that the movement of the piston is regulated in effect by the exhaust, by which means great delicacy of movement is obtained with very great pressure.

I will now proceed to describe my improved arrangement of levers. The press, in its general construction, aside from the levers and some minor points hereinafter described, resembles closely the press covered by the Letters Patent before referred to, and therefore no particular description will be given of it.

A, Figs. 1 and 7, represents the movable platen; *B B¹ B²*, the lever-arms; and *C*, the piston. The construction of these parts is not changed from the construction shown in my former patent, with the exception that the arms *B²*, connected to the piston-head, are attached to the piston in line with its center, in-

stead of being attached to ears at points removed from the center, as in the former patent. The result of this change is, that the power is exerted more directly in line with the resistance, and hence it is more advantageously applied. It will be seen, upon examination, that the levers B^2 act in line directly against the point of resistance (with the exception of the slight departure from the direct line, caused by the swinging of lever B^1 in the arc of its circle,) until the lever B^1 commences the last half of its movement. By this means the desired result in this class of machines—*i. e.*, great velocity at the commencement of the stroke and during the first half of the movement, with decreasing speed and increasing power during the latter half—is most preferably obtained. D represents a buffer-rod attached to the end of the piston, which is of such length that its end bears, when the platen A has completed its forward movement upon a rubber block in the socket x , by which means the piston is prevented from coming into contact with the cylinder-head and injuring it. To prevent injury to the other head of the cylinder, the cylinder may be provided with a projection adapted to strike rubber cushion in the socket x' , as shown in Fig. 7.

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

1. The combination, with a steam-press, of the valves, rods, valve-toes, and central shafts, arranged as shown, the toes being adapted, by the movement of the central shaft, to open first, the valve controlling the live steam, and by a further movement the valve regulating the exhaust, as and for the purpose described.

2. The combination, with the steam-press, of a valve adapted to control the entrance of live steam to the cylinder, with a valve adapted to control the exhaust, the exhaust-valve being arranged to follow in its action the movement of the valve controlling the live steam, for the purpose of regulating the movement of the piston, all arranged as described.

3. The combination of the platen A, levers B^1 B^2 , and the piston C, the levers B^2 being connected to the piston in line with its center, as and for the purpose described.

This specification signed and witnessed this 19th day of July, 1872.

AUGUSTINE BALDWIN.

Witnesses:

WILLIAM C. LUSK,
CHARLES NETTLETON.