C. B. COTTRELL.

PRINTING PRESS.

No. 114,268. Patented May 2, 1871.

Fig. 1.

Section on x, x,

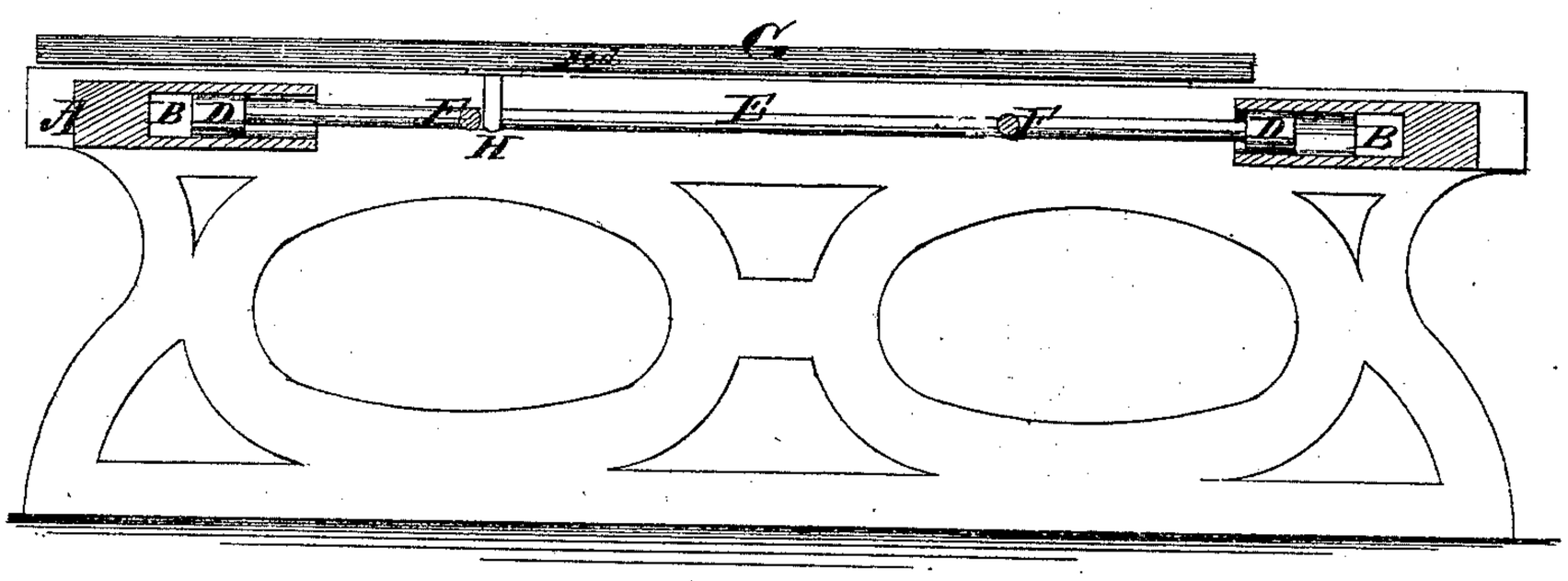


Fig. 2.

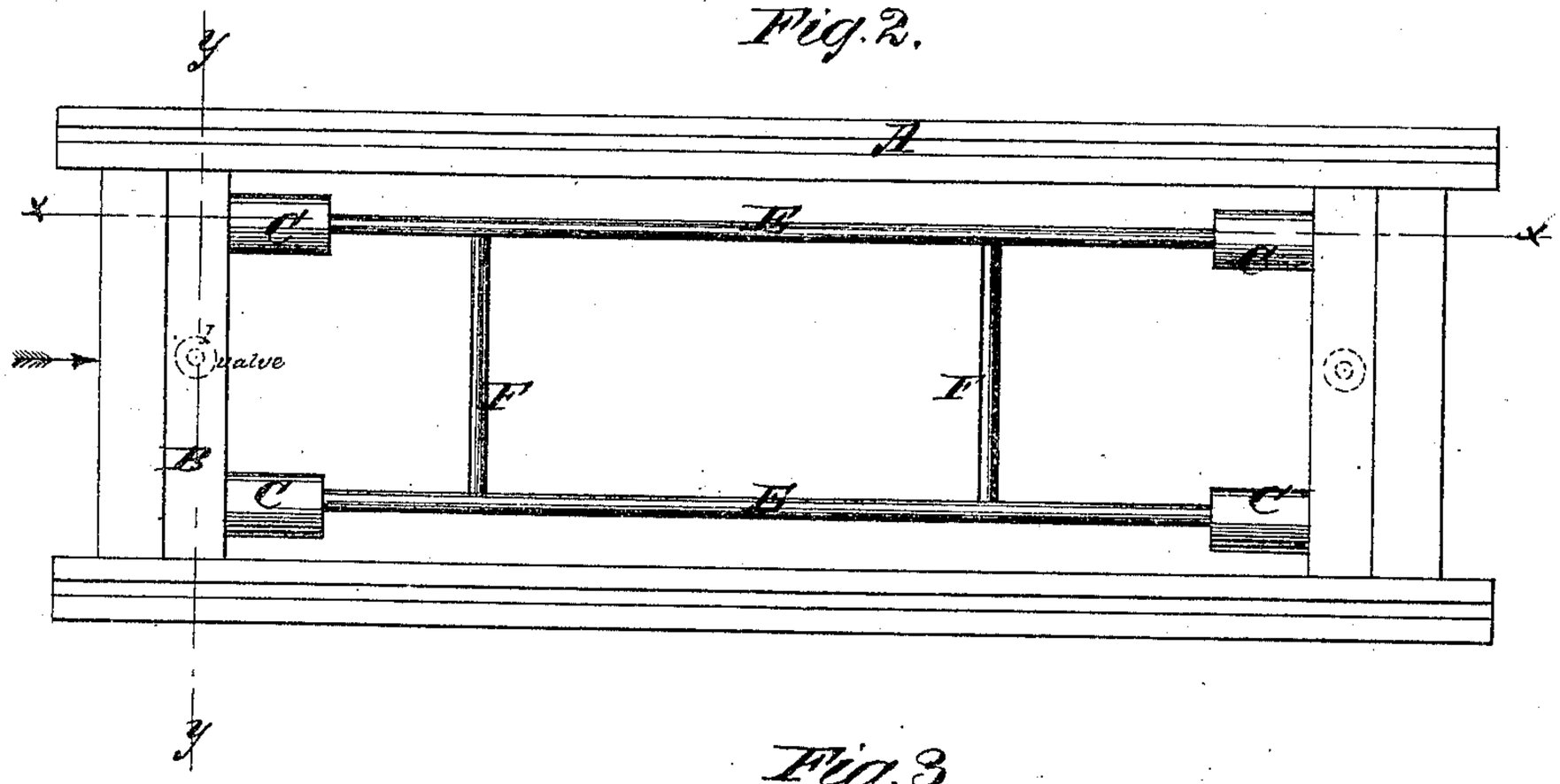
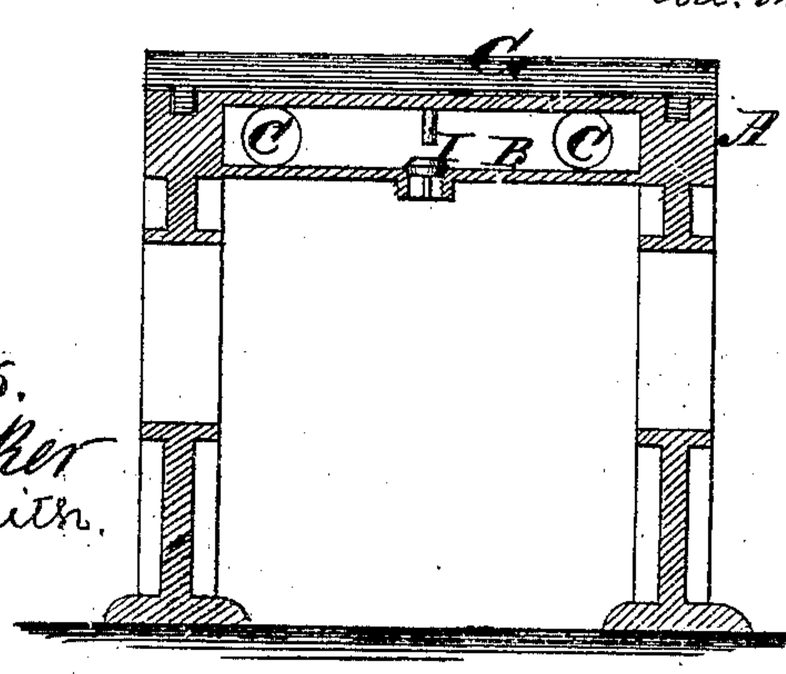


Fig. 3. *Section on y, y.*



WITNESSES.
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CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

Letters Patent No. 114,268, dated May 2, 1871.

IMPROVEMENT IN PRINTING-PRESSES.

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, CALVERT B. COTTRELL, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in the air-cushioning apparatus used on printing-presses to arrest the movements of the bed whereon the type are carried; and

It consists in a connection of the air-compressing cylinders with an air-chamber arranged for affording greater elasticity than is afforded by the present arrangements;

It also consists in the application, to the cylinders or the air-chambers, of valves for admitting air to make up the losses of air from the cylinders by leakage around the pistons, for preventing the vacuums caused by such leakages, and which neutralize a considerable amount of the power appl'd to the machines; and

It also consists in an arrangement of the pistons with the cylinders whereby they are not withdrawn from the cylinders, as in the machines as at present made, and which is very objectionable on account of the falling of sh'ets of paper, or broken tapes, or other objects between the pistons and cylinders when separated, causing damages to the machinery.

Figure 1 is a longitudinal sectional elevation of the frame and the bed of a machine on the line *x x* of fig. 2.

Figure 2 is a plan view.

Figure 3 is a transverse section on the line *y y* of fig. 2.

A is the frame of the machine, on which at each end I propose to apply an air-chamber, B, extending across from side to side, and on this, fronting the center and near each side, I arrange a cylinder, C, and in each cylinder is a piston, D, on one end of a rod, E, extending from one to the other of the cylinders fronting toward each other, and so arranged as to length that when one piston is at the inner end of its cylinder the other will be at the outer end of the one to which it belongs, but not disconnected.

The two rods E are connected by rods F, and the bed G is provided with a stud, H, for coming in contact with the said rods F just previous to stopping, and moving the pistons into the cylinders to compress the air and thereby stop the bed. Said rods F may be adjustable on rods E.

As the air escapes past the pistons considerably, so that vacuums are formed behind the pistons when moving out, which greatly retard the action of the machine, I propose to arrange valves I in the chamber B, to rise during the outer movements and admit air to take the place of that escaping, or these valves may be arranged in the pistons.

In the machines as at present arranged, the air-cylinders are attached to the bed and the pistons to the frame, and so arranged that during the greater part of the movement of the bed they are separated from the pistons. This I have found in practice to be very objectionable, because it frequently happens that sheets of paper, broken tapes, or other objects accidentally get between them and cause breakages, damage, or obstruction to the machine, all of which is avoided by my arrangement, whereby the pistons are left at rest during the greater part of the movements of the bed, and in the cylinders at all times, so that nothing can get between them.

My arrangement is also designed to relieve the bed of the weight of the cylinders, for lessening the power required in starting, moving, and stopping the bed, which is of considerable amount when the bed moves quickly and the cylinders are large and heavy, as must be the case when the bed works quick.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The combination, with the cylinders employed in connection with the reciprocating bed G of a printing-press, for arresting it by compressing the air in said cylinders, of the auxiliary air-chambers for increasing the elasticity of the cushion, substantially as specified.

2. The employment, with the cylinders and pistons used for arresting the bed by an air-spring, of the valves I for admitting air behind the pistons, substantially as specified.

3. The arrangement of the cylinders and pistons whereby they are supported independently of the bed and not separated from each other in the back stroke, and whereby they are operated by the contact of a projection from the bed with the connections of the pistons, substantially as specified.

CALVERT B. COTTRELL.

Witnesses:
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