(151.)

CALVERT B. COTTRELL.

Improvement in Pistons for Printing Presses.

No. 121,759. Patented Dec. 12, 1871.

Fig. 1.

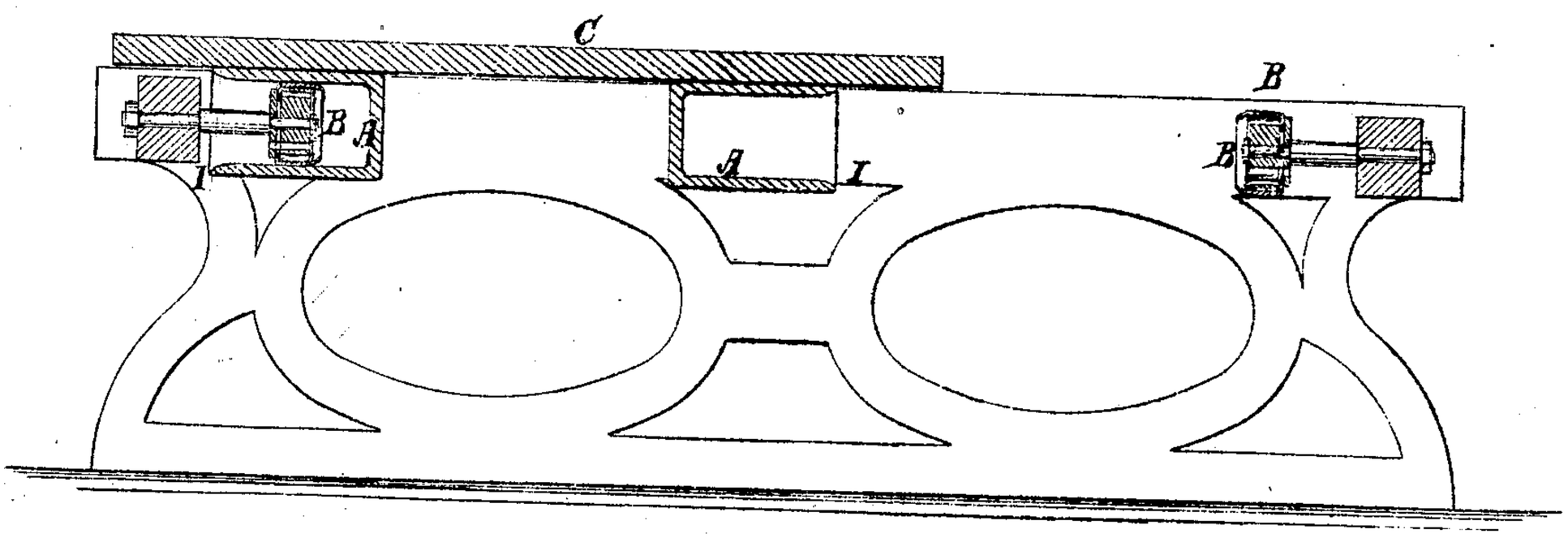


Fig. 2.

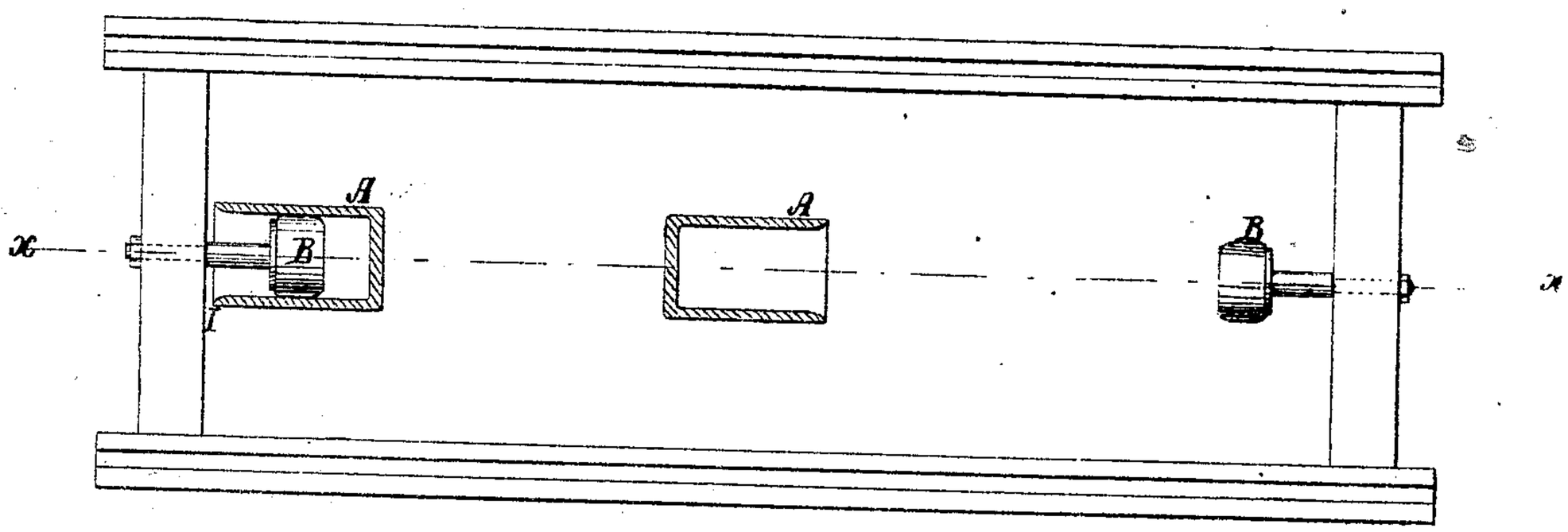


Fig. 3.

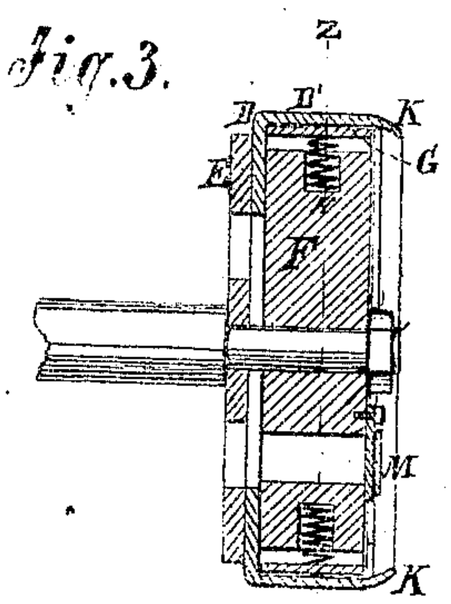


Fig. 4.

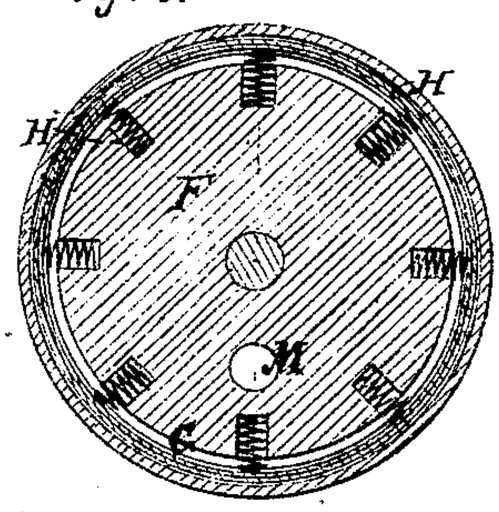
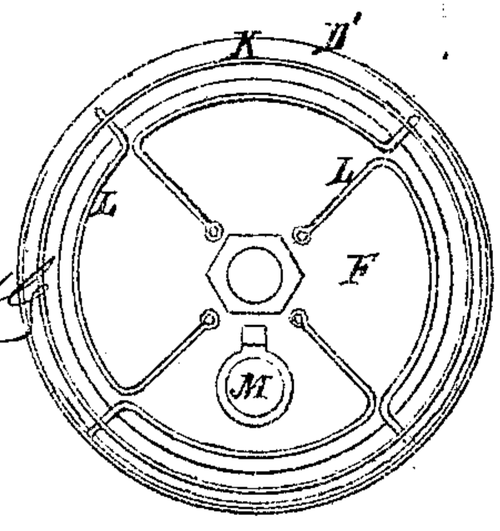


Fig. 5.



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UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

IMPROVEMENT IN PISTONS FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. 121,759, dated December 12, 1871.

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.

My invention consists in improving the construction of pistons which are reciprocated in cylinders and employed to form air-cushions to arrest, at each movement, the reciprocating table of a printing-press bed. The object is to prevent stoppage by a paper getting between the piston and cylinder, and to allow the piston to be wholly withdrawn from the cylinder and yet readily reentered. Thus it will be easily relieved of any obstruction.

Figure 1 is a longitudinal section of a part of a printing-press on the line *x x* of Fig. 2, showing my improvement. Fig. 2 is a horizontal section. Fig. 3 is a section through the piston on the line *y y* of Fig. 4. Fig. 4 is a section on the line *z z* of Fig. 3; and Fig. 5 is a side elevation of the piston.

A represents the cylinders, and B the pistons employed in these presses to effect the stoppage of the table by the compression of the air in the cylinders behind the pistons. Heretofore the pistons have been solid, or, at least, so unyielding that the paper falling in front of a cylinder so as to be forced into it would pack so hard as to stop the press, requiring great force to release the piston, and sometimes breaking the cylinder and other parts. Now, I propose to construct these pistons with such capacity for yielding radially that the packing which works against the wall of the cylinder will yield when any such matters are encountered by the piston so as not to obstruct the working of the press. This I propose to accomplish by a leather or other flexible packing, D, clamped between wood or metal disks E F, which are considerably smaller than the cylinder, and shaped in cylindrical form in the part D′ which acts upon the cylinder, which part I stretch or adjust over a flat coiled spring, G, or other equivalent support therefor arranged on the periphery of disk F, and sustained a considerable distance therefrom by the radial coiled springs H, or in any other way, so that the said spring G, or other device or devices used instead, may have considerable movement radially when required. The coiled flat spring G may be sufficiently strong to hold the elastic packing against the cylinder with sufficient pressure without the aid of the springs H, which will be needed more in case segmental plates or blocks of any kind be used instead of the spring G. The flexible packing D′ will be contracted a little at the side of the piston which enters the cylinder first, as shown at K, to prevent catching on the rim of the cylinder, and the latter will be reamed out, as at I, for the same object. In this example I have represented spring-pins L attached to the side of the piston for holding the spring G from escaping by their radial points passing through a flange of the disk F and projecting in front of the edge of said springs. The pistons will be provided with a valve, M, to admit air behind them, when withdrawing, to supply the place of that escaping past the packing when the piston goes in, to prevent the action of a vacuum against the piston when withdrawing.

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

1. A flexible packing, D D′, clamped between disks and expanded by a flat spring, G, coiled around the disk F, as described, for the purpose set forth.

2. The flexible packing D D′, the flat spring G, the spring-pins L, and the auxiliary springs H, all combined and applied together as and for the purpose set forth.

The above specification of my invention signed by me this 5th day of July, 1871.

CALVERT B. COTTRELL.

Witnesses:
GEO. W. MABEE,
T. B. MOSHER.

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