

C. B. COTTRELL.

Improvement in Piston Packing for Printing Presses.

No. 125,177.

Patented April 2, 1872.

Fig. 1.

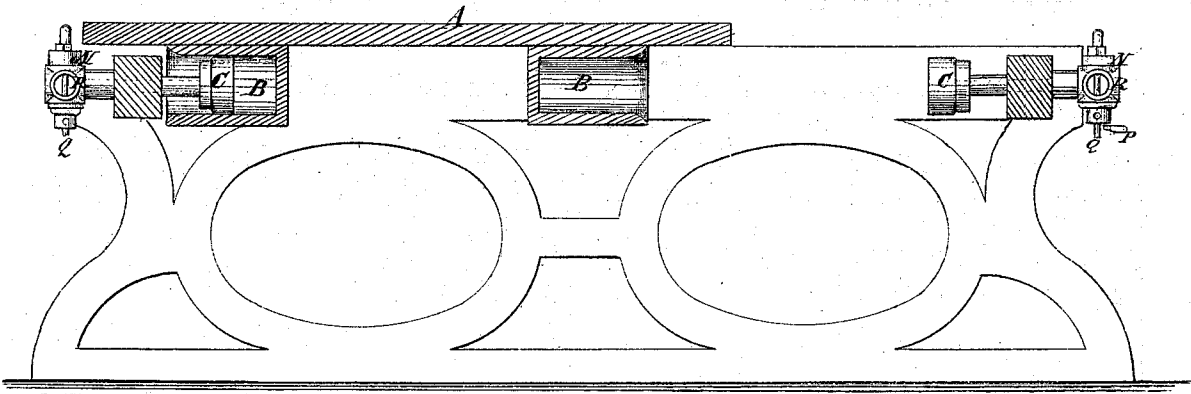


Fig. 4.

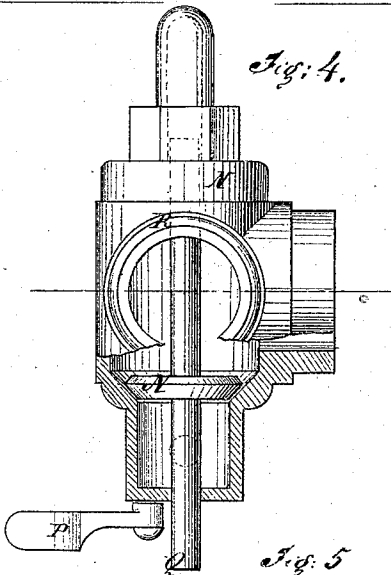


Fig. 2.

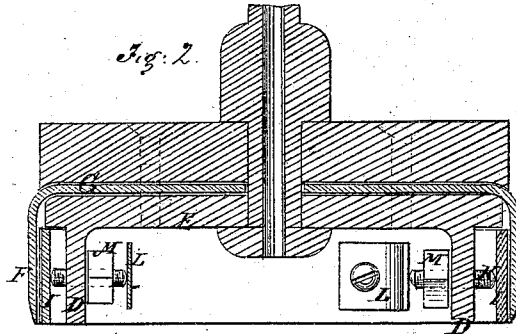


Fig. 3.

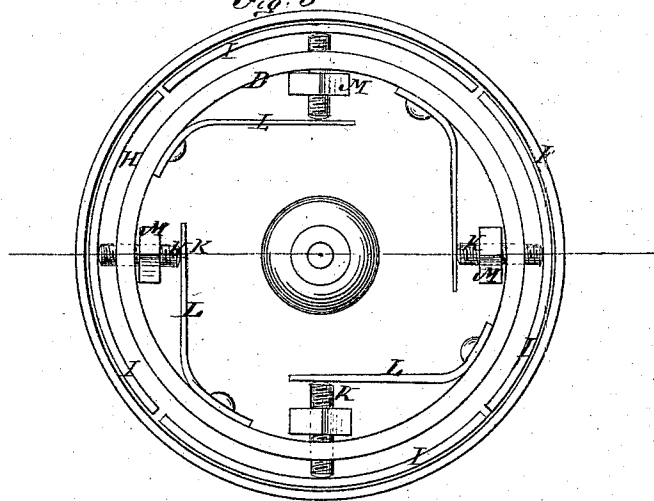
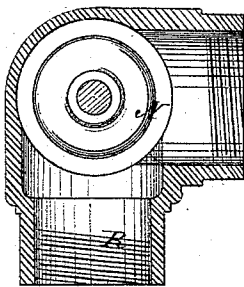


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

IMPROVEMENT IN PISTON-PACKINGS FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. 125,177, dated April 2, 1872.

Specification describing a new and Improved Air-Spring Mechanism for Printing-Presses, invented by CALVERT B. COTTRELL, of West-
erly, in the county of Providence and State
of Rhode Island.

My invention consists, first, in the peculiar construction, hereinafter described, of elastic piston-packing for said air-spring mechanism; and, second, in the relative arrangement of the vacuum-valves with the said air-spring mechanism.

Figure 1 is a longitudinal sectional elevation of a part of a printing-press with an air-spring mechanism arranged according to my improvement. Fig. 2 is a transverse section of the piston on the line *xx*, Fig. 3. Fig. 3 is a front elevation of the piston. Fig. 4 is partly a side elevation and partly a vertical section of the vacuum-valve mechanism; and Fig. 5 is a horizontal section of Fig. 4 on the line *yy*.

Similar letters of reference indicate corresponding parts.

A is the reciprocating bed or table of the printing-press, which it is desirable to arrest by the action of an air-spring at each movement, and for which the cylinders B on the table and the pistons C on the frame are provided. For packing these pistons with an elastic rim that will be capable of yielding to such an extent that a wad of paper, or the thick tapes used for carrying the papers, or any similar object falling on the piston or cylinder, as often happens, so as to be wedged in the cylinder between it and the piston, will not break or burst the cylinder, nor to any material extent interfere with the operation of the machine; also to have the said rims so that they will not expand when wholly out of the cylinder, as they are at each movement of the table, so as to interfere with entering again; I propose, in the present case, to have a strong flange, D, or its equivalent, somewhat less in diameter than the disk E, attached to the front side of said disk, between which flange and the side F of the cup-shaped leather packing G is an annular space, H, in which I propose to arrange four, more or less, segments, I, to be held against the inner side of the packing F for pressing it outward by the pins K, sliding through said flange and pressed outward by the springs L, but limited in their outward movement by the

nuts M, which screw forward and back on said pins to change the limit of their outward movement, as required, and which come against the flange after pressing the packing F out far enough to pack properly with the cylinder, and are thus prevented from expanding it, so as to interfere with the entering of the piston in the cylinder. The springs L are capable of bending inward to a considerable extent, so as to leave the packing, as above stated. I also propose, in the present case, to attach the vacuum-valve N, used with these air-spring mechanisms, to allow air to flow in behind the piston when withdrawing from the cylinder to compensate for that lost by leakage, past the piston on the end of the piston, and preferably outside of the cross-beam of the frame instead of placing it on the piston, as heretofore, and to make the piston-rod O hollow for the air to flow through it when the valve rises. The attachment to the rod is made by screwing the valve case on the end of the piston-rod. By this plan I am enabled to arrange it to work vertically with a very simple construction, and I have better access to it for fastening it open to prevent the compression of the air, as it is frequently required to do to allow of turning the machine by hand for cleaning, repairing, &c.; and for so fastening the valve open, I provide a button, P, to be turned under the stem and hold it open after being lifted up. And in connection with the valve-case arranged in this manner, I propose to apply a pipe-connection, R, above the valve, so as to connect the compression space in the cylinder with a governor, sometimes used for regulating the pressure for different speeds, as in my patent October, 17, 1871.

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

1. The combination of the segmental rim I, dividing pins K, adjusting nuts M, flange D, and springs L, with the flexible packing rim F, substantially as specified.

2. The arrangement of the vacuum-valve upon the fixed hollow piston-rod O of the air-spring mechanism, substantially as specified.

CALVERT B. COTTRELL.

Witnesses:

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