

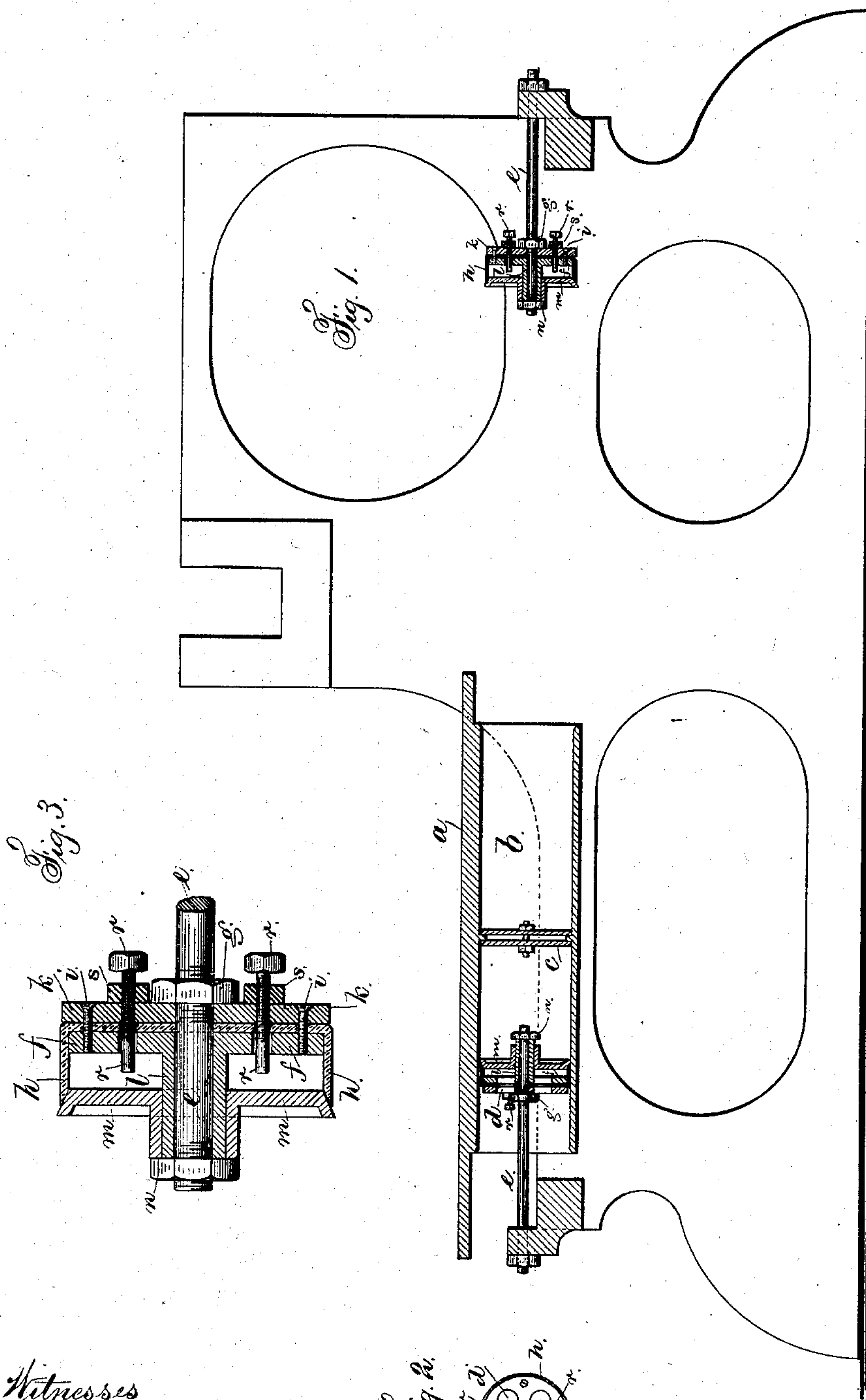
(No Model.)

J. BROOKS.

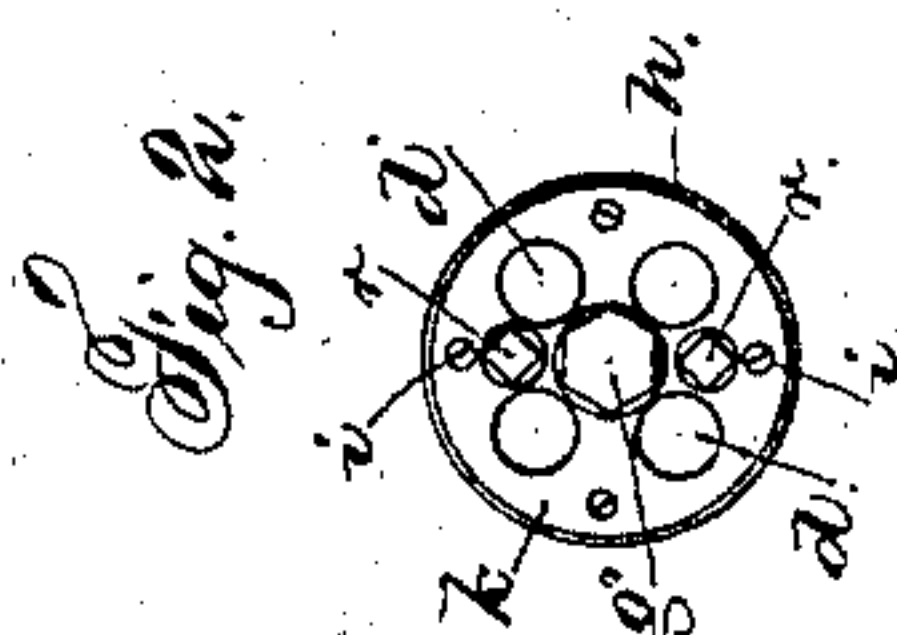
CUSHIONING DEVICE FOR PRINTING PRESSES.

No. 258,363.

Patented May 23, 1882.



Witnesses  
Charles Smith  
J. Hall



Inventor  
John Brooks  
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# UNITED STATES PATENT OFFICE.

JOHN BROOKS, OF PLAINFIELD, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO C. POTTER, JR., & CO., OF NEW YORK, N. Y., AND HIMSELF.

## CUSHIONING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 258,363, dated May 23, 1882.

Application filed December 27, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BROOKS, of Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Cushioning Devices for Printing-Presses, of which the following is a specification.

In reciprocating printing-presses a cylinder has been applied below the bed and stationary pistons, over which the cylinder runs at the ends of the stroke of the bed and confines the air, forming a cushion to stop the momentum of the bed. These cushioning devices have required valves or cocks to confine the air more or less quickly, according to the speed, or to allow of the escape of the air when the press is being moved by hand.

The object of my invention is to dispense with valves and flexible or yielding packings, and to insure the proper spreading of the cup-leather against the interior surface of the cylinder so that it may retain the air, and the parts are adjustable, so that they may be operative until worn out.

In the drawings, Figure 1 is a longitudinal section representing part of the press, bed, and the cushioning apparatus. Fig. 2 is an elevation of the piston, and Fig. 3 is a longitudinal section of the piston in larger size.

The press-bed *a*, cylinder *b*, central partition, *c*, and other parts of the printing-press are of any ordinary construction; and I remark that the cylinder *b* may be in the form shown, or it may be two separate cylinders, and these may be placed on the frame of the press instead of being upon the bed, the pistons in that case being upon the bed instead of being supported by the frame.

Each piston-rod *e* sustains a piston, *f*, the same having a tubular sleeve, *l*, around said piston-rod, and being held by clamping-nuts *g n*.

*h* is the cup-leather packing, and *k* a disk that is bolted to the piston by the screws *i*, so as to clamp the flat portion of the cup-leather firmly. There are holes *d* through the piston *f*, disk *k*, and leather *h*, so that air may pass said piston freely. Upon the tubular sleeve *l* of the piston there is a sliding expander, *m*, the movement of which in one direction is determined

by the nut *n* and in the other direction by adjusting-screws *r* passing through the piston, and provided with set-nuts *s*. The piston and cup-leather are about a sixteenth of an inch smaller than the interior of the cylinder, so that when the press is being turned by hand or running very slow there will be little or no cushioning action, because the air can pass either way between the piston and cylinder; but so soon as the speed of the bed is sufficiently fast the pressure of air against the expander moves the same toward the piston, and the edge of the expander being conical, the cup-leather is spread sufficiently to bring it into contact with the interior of the cylinder and confine the air and cushion the bed. The faster the bed is moving the sooner the expander will act to spread the cup-leather and confine the air, and the reverse. Hence this cushioning device is adapted to all speeds, and needs little or no adjustment, except to compensate for wear. As the cylinder draws off the piston the air passing through the holes in the piston and acting against the expander moves the same away from the cup-leather and allows that to contract away from contact with the cylinder, so that air may pass into the cylinder and prevent the formation of any vacuum in it as the cylinder is drawn off. The leather is not exposed to as much wear as in the ordinary cushioning apparatus.

The expander can be adjusted from time to time until the leather is worn out, and the space between the metal of the piston and cylinder is sufficient to prevent injury to the press in cases where paper may fall and be caught upon the piston and driven into the cylinder.

By my improvement I am able to dispense with all valves, cocks, and spring-packings and devices for operating the same, and to simplify the construction and lessen the cost.

It will be apparent that the expander may slide upon the piston-rod instead of upon the sleeve of the piston, and the sleeve *l* may be a part of the disk *k* instead of being upon the part *f*.

I claim as my invention—

1. The combination, in a cushioning apparatus, of a cylinder, a piston, a cup-leather,

and a disk having an inclined edge and acting within the edge of the cup-leather to expand the same, substantially as set forth.

2. The combination, in a cushioning apparatus, of the piston, the cup-leather, and an expander within the edge of the cup-leather, and actuated automatically by the pressure of the atmosphere for expanding such cup-leather or for allowing it to contract, substantially as specified.

3. In a cushioning apparatus for printing-presses, the combination, with the cylinder, of

a cup-leather packing, a piston having openings through it, a tubular sleeve around the piston-rod, an expander having an inclined edge and sliding upon the sleeve, and adjusting-screws to limit the motion of the expander, substantially as set forth.

Signed by me this 21st day of December, A. D. 1881.

JOHN BROOKS.

Witnesses:

D. E. TITSWORTH,  
A. T. GALLUP.