(No Model.)

J. S. SAMMONS.

Copying Press.

No. 235,966. Patented Dec. 28, 1880.

Fig. 1.

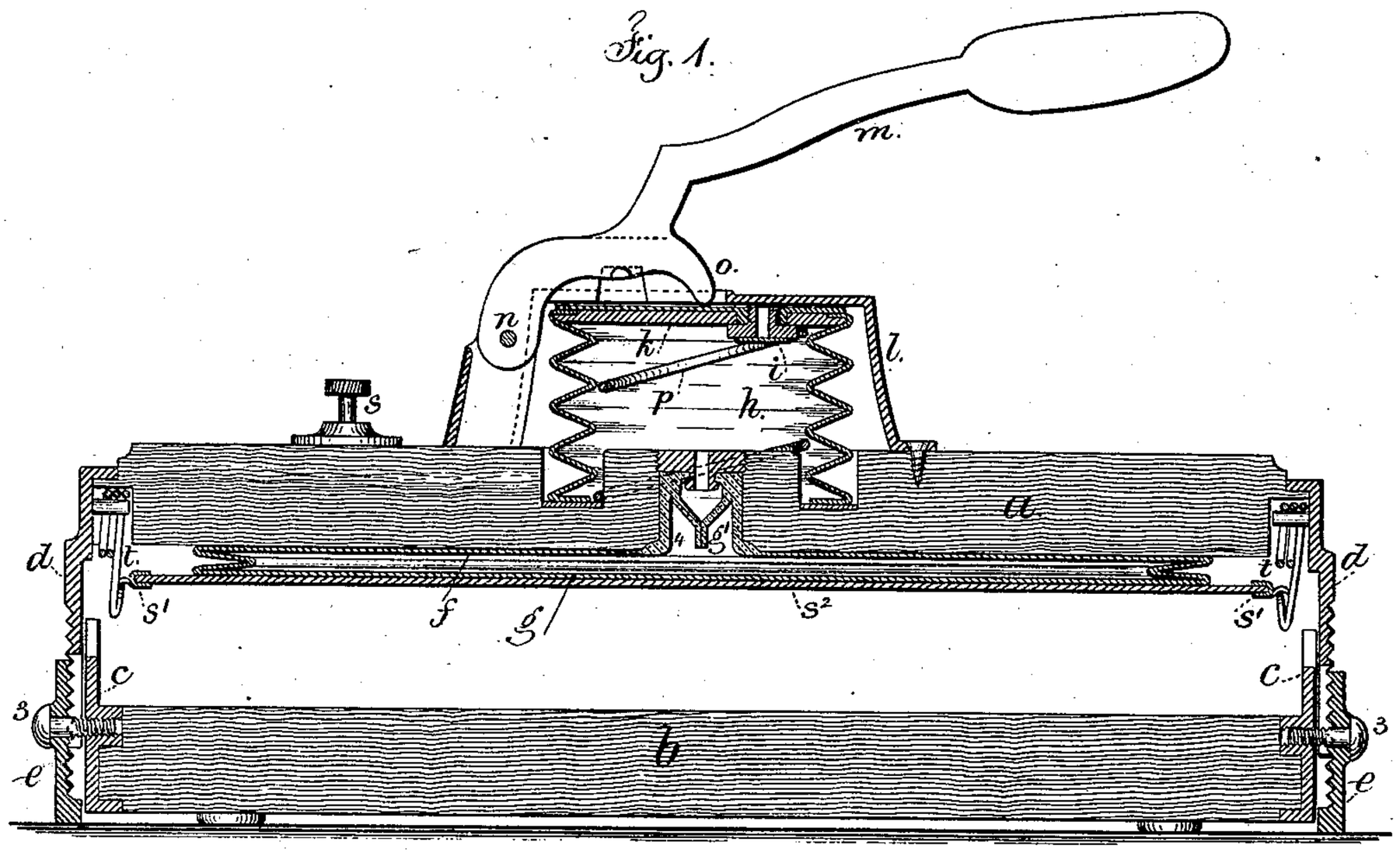


Fig. 2.

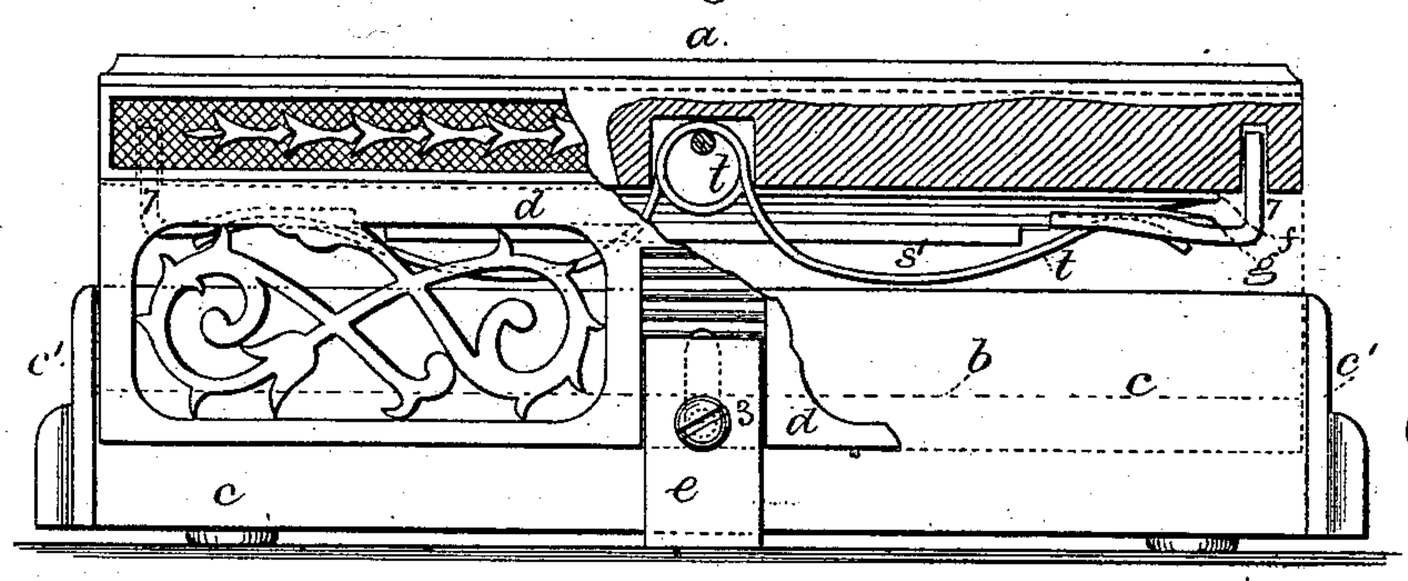


Fig. 3.

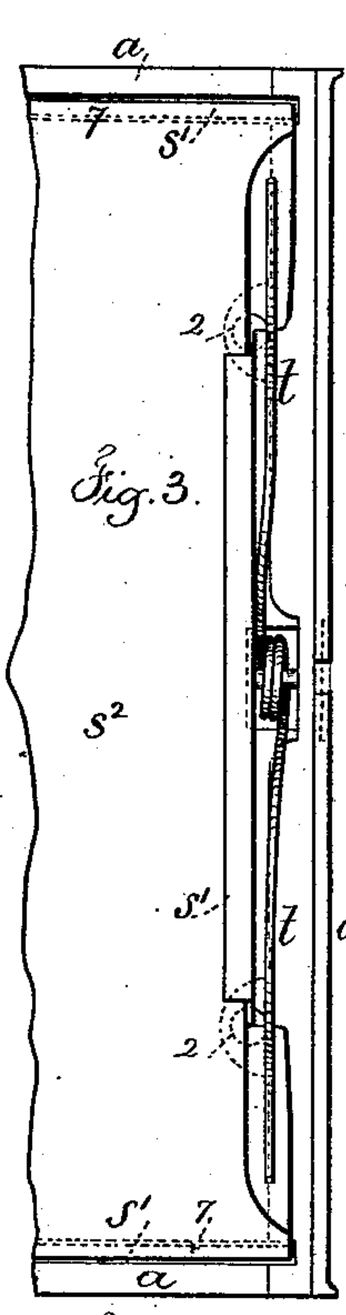
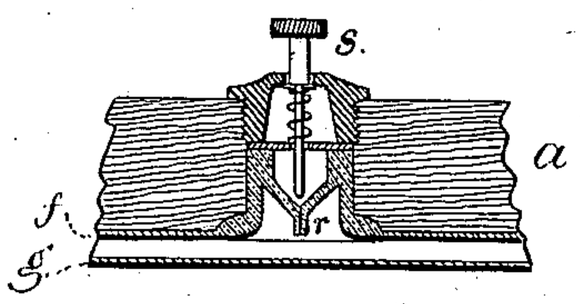


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JACOB S. SAMMONS, OF NEW YORK, N. Y.

COPYING-PRESS.

SPECIFICATION forming part of Letters Patent No. 235,966, dated December 28, 1880.

Application filed April 28, 1880. (No model.)

To all whom it may concern:

Be it known that I, JACOB SIDNEY SAMMONS, of the city and State of New York, have invented an Improvement in Copying-Presses, of which the following is a specification.

Heretofore letters and other matters written with copying-ink have been impressed upon thin moist paper to take a transfer of the ink, and for this purpose heavy metal presses have usually been employed. An air-bag has also been used between two platens with an air-forcing device.

My invention is an improvement upon the presses heretofore made.

I employ a bed, which is preferably of wood, with metal end pieces, and a platen above this, also of wood, with metal end pieces. These metal end pieces connect the bed and platen, and there are screws and slots and clamping-pieces with teeth, by means of which the bed and platen are firmly connected and the distance between them varied, as may be required to suit different thicknesses of books with which the press is to be used. The pressure of air from a bellows or pump is made use of for applying the force to the book that is required for making an offset or copy from the ink to the moist paper. This pressure is applied by means of an air-bag, into which the air is forced, and said bag is between the book and the platen and acts with the required force and with great uniformity, because the bag accommodates itself to the shape of the book, and the air, being of uniform pressure throughout, exerts the same force on each part of the book.

The air-forcing device is upon the top of the platen and inclosed within a metal cup, and consists of a small circular bellows, of india-rubber, with its lower edge confined in a circular recess in the platen. The lever by which this is operated is pivoted upon the cap-piece and presses upon the center of the upper part of the bellows. There is an inlet-valve to the bellows and an outlet-valve in the opening that passes through the wood platen to the india-rubber neck of the air-bag. An escape-valve is provided and a press-button to open the same, so that the air may be allowed to escape after the copy has been made.

In order to lift the air-bag out of the way, I use an open metal frame, over which is stretched a piece of enamel-cloth or similar material. The edges of this frame pass up into grooves in the platen, and there are springs that tend to lift this frame and the air-bag, but these yield as the bag is expanded by the air-pressure.

In the drawings, Figure 1 is a vertical section of the press. Fig. 2 is an end view, partially in section. Fig. 3 is a partial inverted plan at one end of the platen. Fig. 4 is a section of the air-escape valve.

The platen *a* and bed *b* are preferably of wood. The end pieces, *c* and *d*, are of metal, and trough-shaped, so as to receive and hold securely the wood, and the connection of the wood and metal is made by lugs and screws 2.

The metal end pieces, *c d*, are preferably open-work, so as to be of ornamental appearance. The end piece *d* slides within guides *c'* on the end piece *c*, so as to be kept in position laterally. The clamping-pieces *e* are provided with teeth to engage similar teeth in *d*, and 3 are screws by which the clamping-pieces are secured, such screws passing through slots in *d* and entering into the end pieces. This allows the platen to be raised or lowered and firmly held at any desired place, so as to receive books of greater or less thickness.

The air-bag is made of the upper fabric, *f*, and lower fabric, *g*. These may be connected together at their edges; but I prefer to employ a folded strip, like a bellows. The whole is made of rubber and air-tight. The neck 4 of the air-bag passes into a hole through the platen *a*, and it is provided with a valve at *g'*. I prefer to make this valve as a tube with a cone, terminating in two flat lips that close upon each other. The air, however, as it is forced into the conical side of the valve, opens the lips and enters the air-bag *f g*.

The air-forcing device is a bellows or pump. I prefer the bellows *h*, of rubber, made circular, and its lower edge received into a circular groove in the top of the platen. The disk *k* at the top of the bellows is made in two parts, screwed together, so as to clamp the edges of the rubber bellows, and there is a hole in the disk for admitting air, and a flap-valve at the inner surface of the disk, as at *i*.

The bellows is preferably covered with a

metal case, *l*, like an inverted cup, and the lever *m* is pivoted at *n*, and has a pressing-finger, *o*, that acts at the center of the bellows, and the lever, near the finger, is T-shaped, so as to limit its upward movement by coming into contact with the case *l*. The spring *p* is used to raise the bellows as it takes in the air.

There is a valve, *r*, similar to the valve *g'*, secured to the air-bag, and the valve-opener *s* is in the form of a spring-rod passing through a hole in the platen, and when the same is depressed the rod forces the flexible lips of the valve apart and allows the air to escape from the air-bag after the copying has been done.

To protect the air-bag, and also to raise it up out of the way of the book, I use the metal frame *s'*, across which is stretched a piece of enamel-cloth or similar material, s^2. The edges of this frame are vertical at the front and back of the platen, as at 7, (see Fig. 2,) and pass into deep grooves in the under surface of such platen, so that the frame can rise and fall with the air-bag, and there are coiled springs *t*, with arms that extend out and bear against the under side of the frame *s'* and tend to lift the same. The coils of these springs are in recesses in the platen and held in place by pins passing through the coils.

I claim as my invention—

1. The bed *b* and platen *a*, in combination with the end frames, *c* and *d*, and the clamping-pieces *e*, and screws 3, substantially as set forth.

2. The combination, with the platen *a* and bed *b*, of the connecting-frames *c* and *d*, air-bag *f g*, bellows *h*, and lever *m*, substantially as set forth.

3. The bellows, made of india-rubber, and inserted at its lower end into a recess in the platen, and having a top disk and inlet and outlet valves, in combination with the cap or cover *l*, the actuating-lever *m*, and the air-bag *f g*, substantially as set forth.

4. The combination, in a copying-press, of the bed, the platen, an air-bag, an air-forcing device, the frame *s'*, and springs *t*, substantially as set forth.

Signed by me this 24th day of April, A. D. 1880.

JACOB S. SAMMONS.

Witnesses:

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WILLIAM G. MOTT.