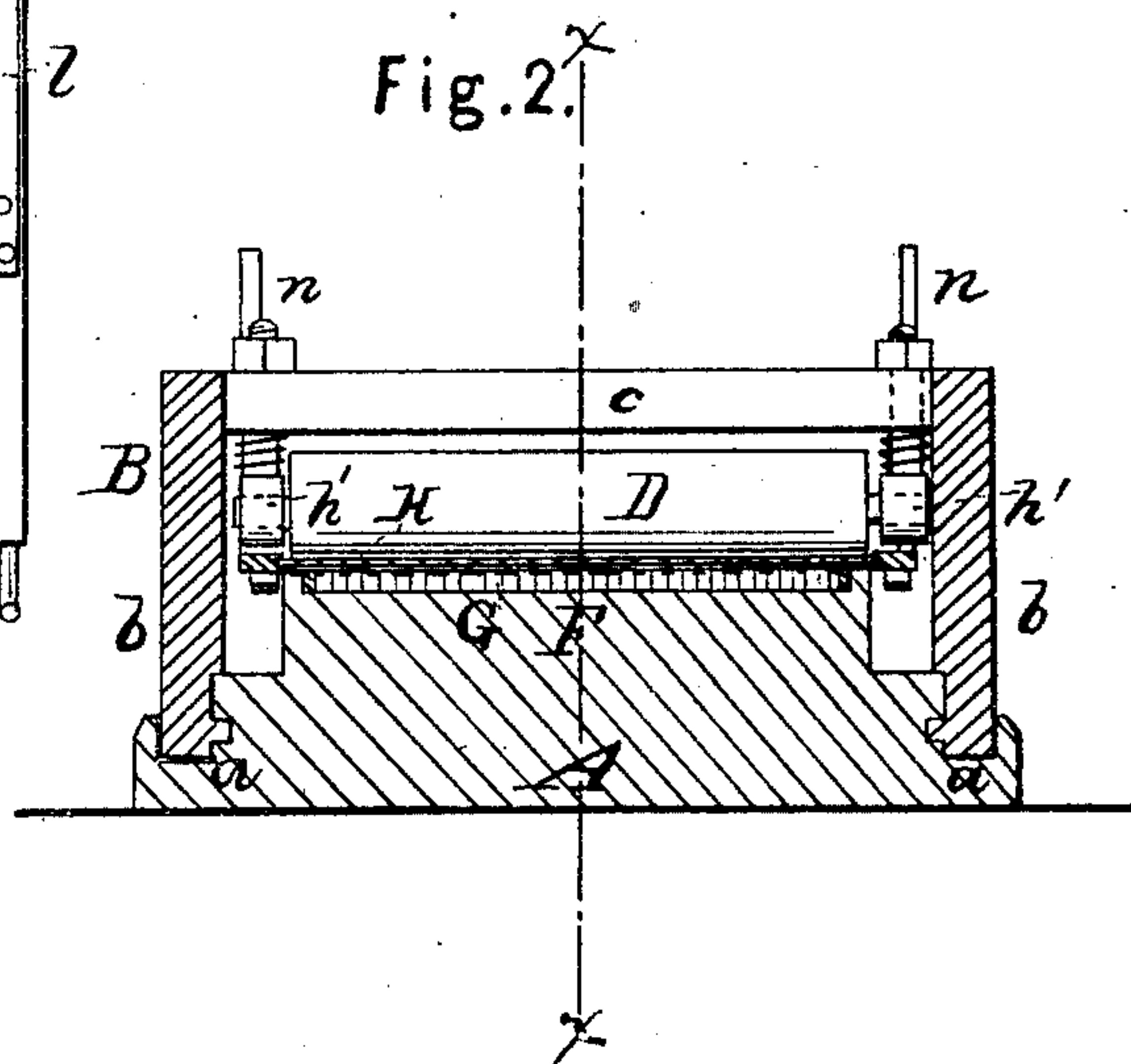
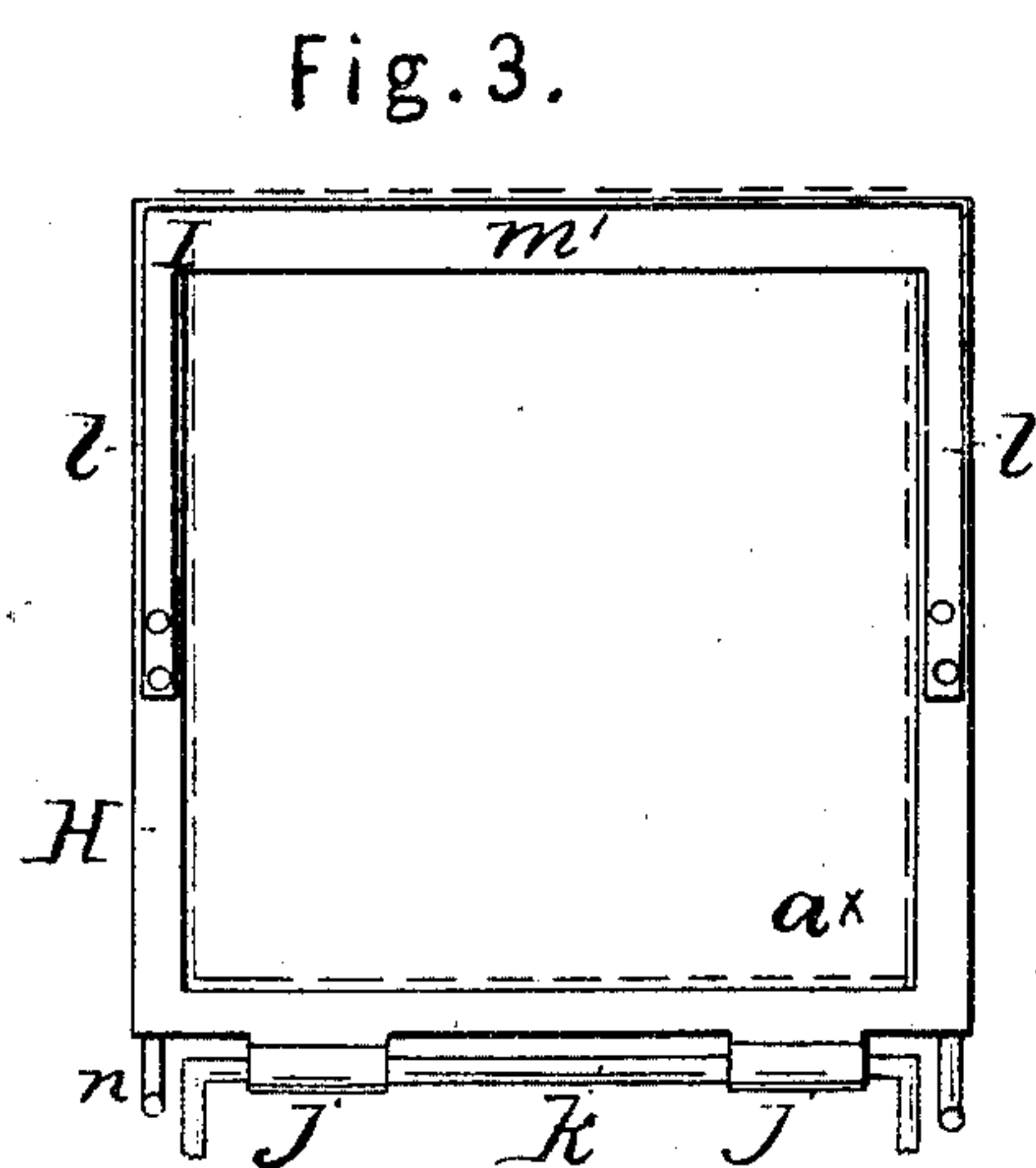
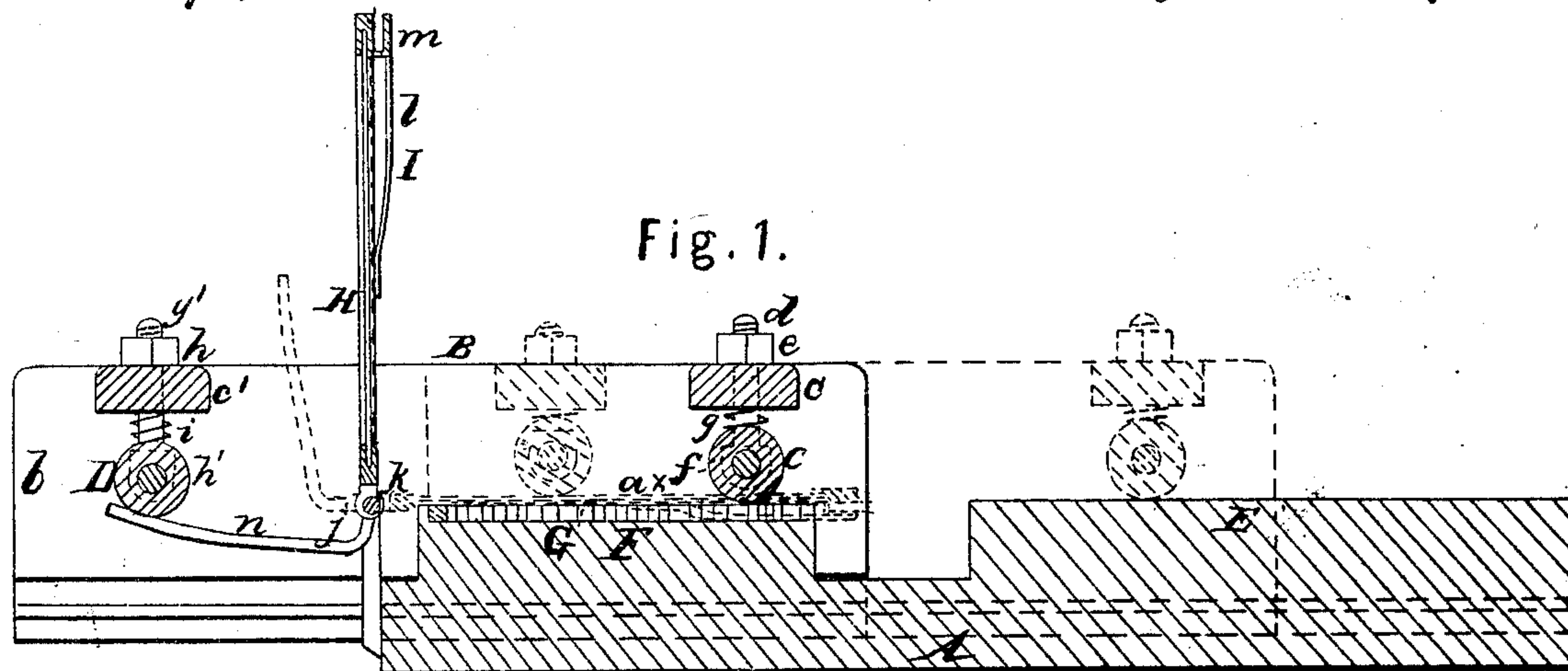


*S. D. Learned.*  
*Hand Press.*

*N<sup>o</sup> 17405.*

*Patented May 26. 1857*





# UNITED STATES PATENT OFFICE.

S. D. LEARNED, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO A. C. LEARNED, OF NEW YORK, N. Y.

## PRINTING-PRESS.

Specification of Letters Patent No. 17,405, dated May 26, 1857.

*To all whom it may concern:*

Be it known that I, S. D. LEARNED, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and  
5 Improved Printing-Press, Designed Chiefly for Printing Cards; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of  
10 this specification, in which—

Figure 1 is a longitudinal vertical section of my improvement, the plane of section being through the center, as indicated by the line *x, x*, Fig. 2. Fig. 2, is a transverse vertical section of ditto, *y, y*, Fig. 1, showing  
15 the plane of section. Fig. 3, is a detached face view of the tympan with frisket attached.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the combination of a horizontal reciprocating frame, which is furnished with an inking and an impression roller, with a stationary horizontal inking surface and type bed, furnished with a  
25 movable tympan, in the manner and for the purposes hereinafter set forth, whereby the whole operation of printing, viz: the inking of the form, the placing of the sheet of paper upon the form by the action of the  
30 tympan, the pressure of the sheet of paper upon the form, and the throwing up of the tympan after the sheet is printed, is performed by the reciprocating movement of the frame above mentioned.

This invention is designed chiefly for printing cards, circulars and similar small work or articles and it is intended to work the frame directly by hand.

40 To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a bed of rectangular form, and of a suitable length. This bed has a  
45 groove or guide *a*, at each side in which the lower ends or sides *b, b*, of a frame B, fit and work. The frame B, is formed of the two parallel sides *b, b*, connected at their upper parts by cross pieces *c, c*<sup>1</sup>, a cross piece being at each end of the sides *b*. Through  
50 each end of the cross piece *c*, a screw *d*, passes. These screws have nuts *e*, on their upper ends and heads *f*, on their lower ends and each screw has a spiral spring *g*, around  
55 it—the upper ends of said springs bearing

against the under side of the cross piece *c*, and the lower ends against the heads *f*.

C, is a roller the axes or journals of which are fitted in the heads *f*, of the screws *d*.

Through each end of the cross piece *c*<sup>1</sup>, a  
60 screw *g*<sup>1</sup>, passes. These screws are provided with nuts *h*, and heads *h*<sup>1</sup>, and also have springs *i*, on them, arranged precisely similar to those on the screws *d*.

D, is a roller the axes or journals of which  
65 are fitted in the heads *h*<sup>1</sup>, of the screws *g*<sup>1</sup>.

On the bed A, an elevated flat plate or ledge E, is formed—said plate forming an inking bed—and a similar plate or ledge F,  
70 is also formed on the bed A, a short distance from the plate or ledge E. The plate or ledge F, serves as a bed for the form or type G.

To one end of the bed A, a tympan H, is hinged, said tympan having sockets or eyes  
75 *j*, attached to its lower end, the sockets or eyes being fitted on a horizontal rod *k*, secured to the end of the bed A. The tympan H, is quite near the outer end of the type or form bed F, as shown clearly in Fig. 1. The  
80 tympan H, may be constructed in the usual manner—viz: a light frame covered with elastic or other cloth. To the inner side of the tympan a frisket I, is attached. The frisket is formed of two elastic bars *l, l*, the inner  
85 ends of which are attached to the side bars of the tympan. The outer ends of the bars *l, l*, are connected by a plate *m*. To the inner end of the tympan H, there are attached two bent rods *n, n*, one at each end.  
90

The operation is as follows: The type or form G, is secured upon the bed F, and a requisite quantity of ink is placed upon the bed E. The frame B, is moved back and forth by hand. When the frame B, is in  
95 the position shown in black, Fig. 1, the ink roller C, is on the form and inks the same as it is shoved over it. When the frame B is brought back, the tympan H, is thrown down, the sheet of paper *a*<sup>\*</sup>, shown in red,  
100 being secured to the tympan by the frisket I. The sheet *a*<sup>\*</sup>, is consequently laid upon the form G, by the downward movement of the tympan and is properly adjusted upon it when the roller D, passes upon the end of  
105 the tympan. The roller D, in passing over the tympan gives the requisite pressure to the sheet so that it receives the impression from the form. The pressure of the roller D, upon the sheet on the form may be gradu- 110



ated by turning the nuts *h*, and the pressure of the inking roller C, upon the form may be graduated by turning the nuts *e*. When the frame B, is shoved back and just before  
5 it reaches the termination of its backward stroke the cross piece *c*<sup>1</sup>, strikes the rods *n*, *n*, and throws up the tympan, as shown in black Fig. 1, and the ink-roller C, then passes over the form and inks it. As the  
10 frame B, is drawn back, the cross piece *c*<sup>1</sup>, throws down the tympan and the roller D, passes over it.

This press is extremely simple and perfectly automatic in its action. It may be  
15 constructed at a moderate cost, there are no parts liable to get out of repair and it will work rapidly and well.

I am aware that numerous automatic hand printing presses have been devised,  
20 but they are quite complicated, expensive to manufacture and liable to get out of repair. Considerable care is also required in operating them as the parts are liable to become damaged.

25 I am aware that in the device of T. H. Dodge, rejected 1852, an inking and an impression roller attached to a rotating shaft are used. This combination is different from mine, and not productive of equally  
30 advantageous results, because the tympan rises between the rollers, and the main shaft

being directly above, the access to the tympan and types in placing on and removing the cards is inconvenient and slow. But in my improvement there is no interposition of  
35 a cross shaft, and the tympan rises up above the other parts, and access to it is clear and open. Dodge's is a rotary but mine is a reciprocating press. My invention is a new  
40 combination, producing highly useful results. No press has ever been arranged and combined like it, to the best of my knowledge and belief.

I do not claim separately any of the parts herein described, for they have all been  
45 used in presses under various forms of arrangement with other parts—but,

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:  
50

The reciprocating frame B, provided with the inking and pressure rollers C, D, in combination with the ink and form beds E, F, and tympan H, provided with the rods *n*, *n*, and frisket I, the above parts being arranged  
55 to operate conjointly as shown, for the purpose set forth.

S. D. LEARNED.

Witnesses:

H. G. PARKER,  
T. W. CLARKE.