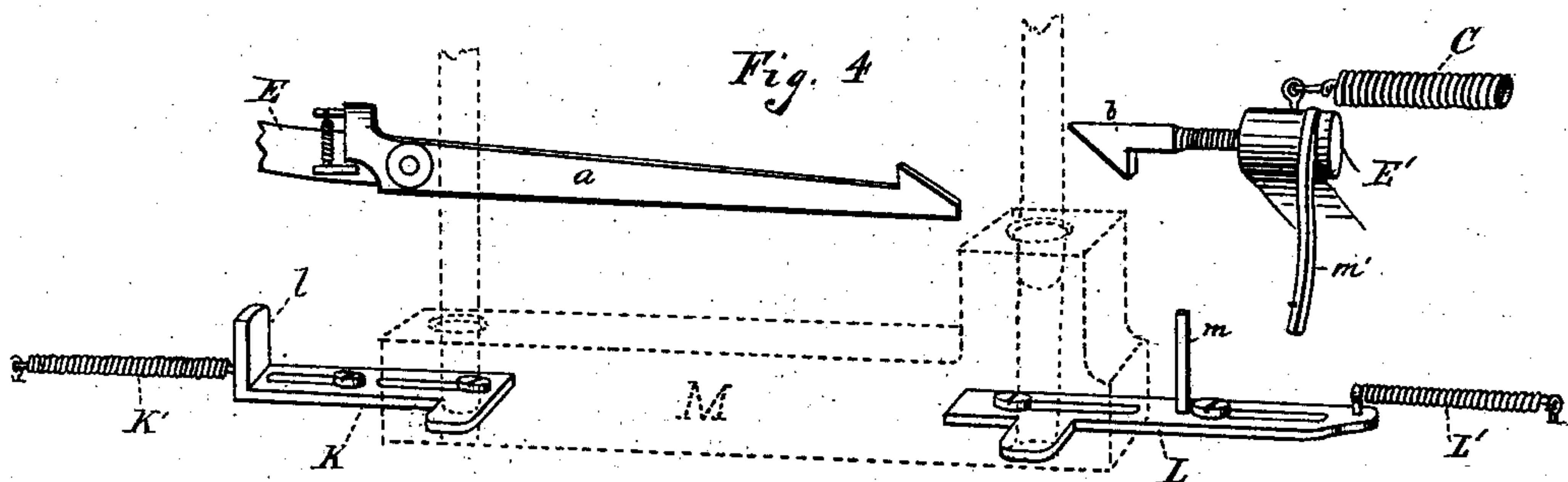
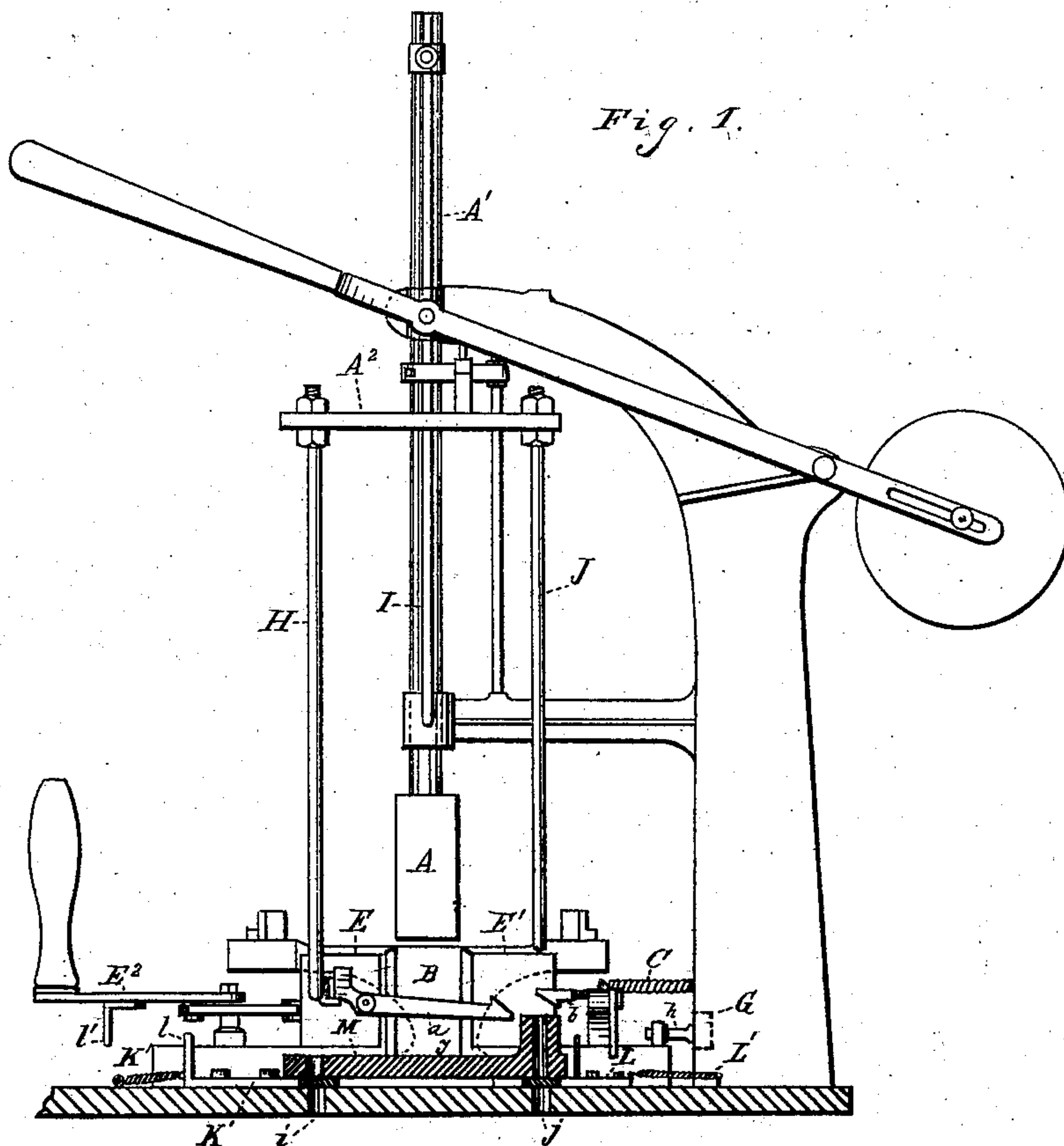


2 Sheets—Sheet 1.

PAPER BOX MACHINE.

Patented July 11, 1882.



WITNESSES
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(No Model.)

2 Sheets—Sheet 2

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PAPER BOX MACHINE.

No. 260,800.

Patented July 11, 1882.

Fig. 2.

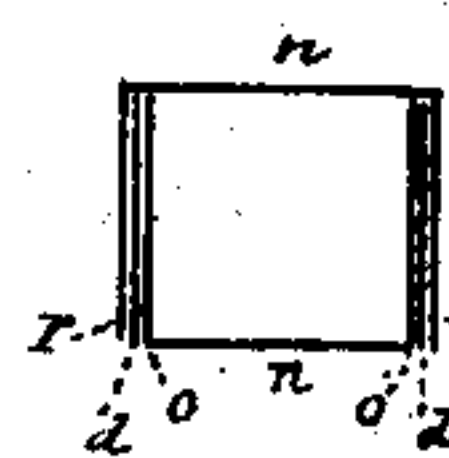
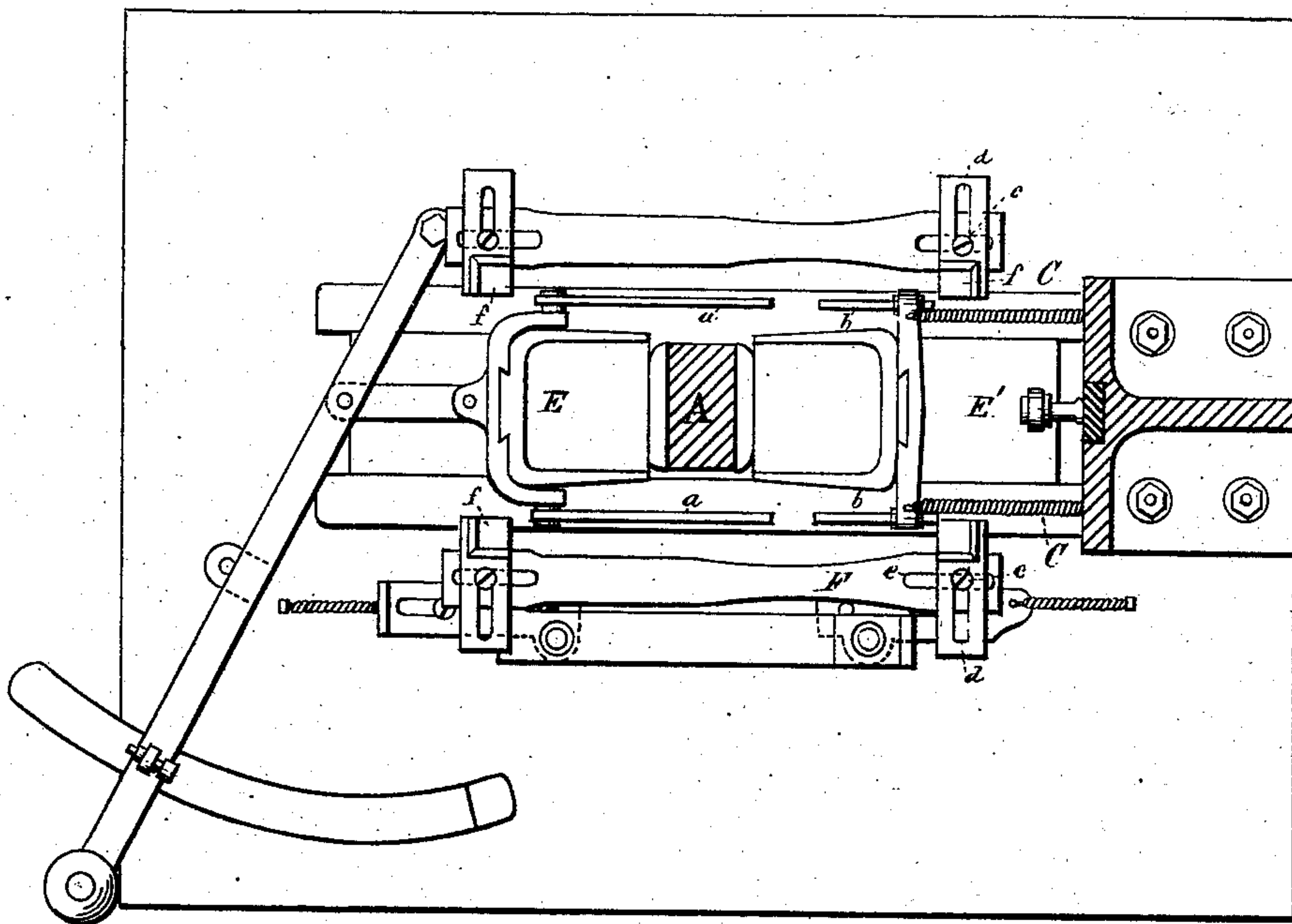


Fig. 9.

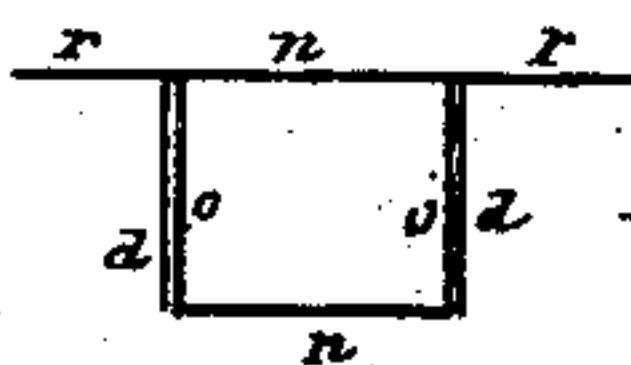


Fig. 8.

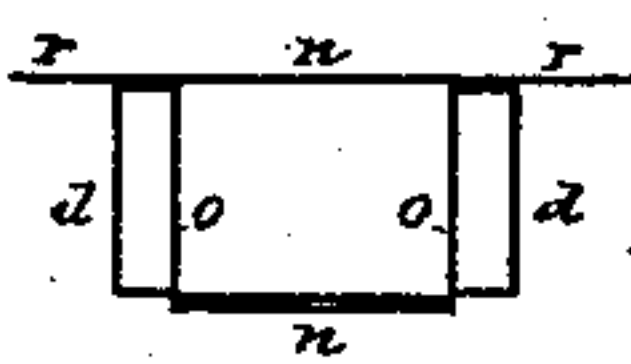


Fig. 7.

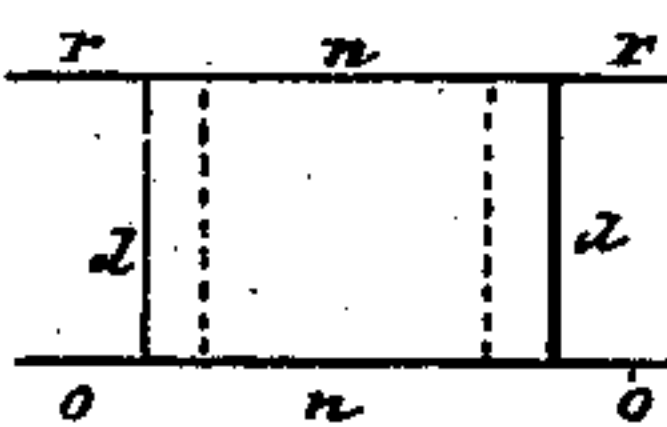


Fig. 6.

Fig. 3.

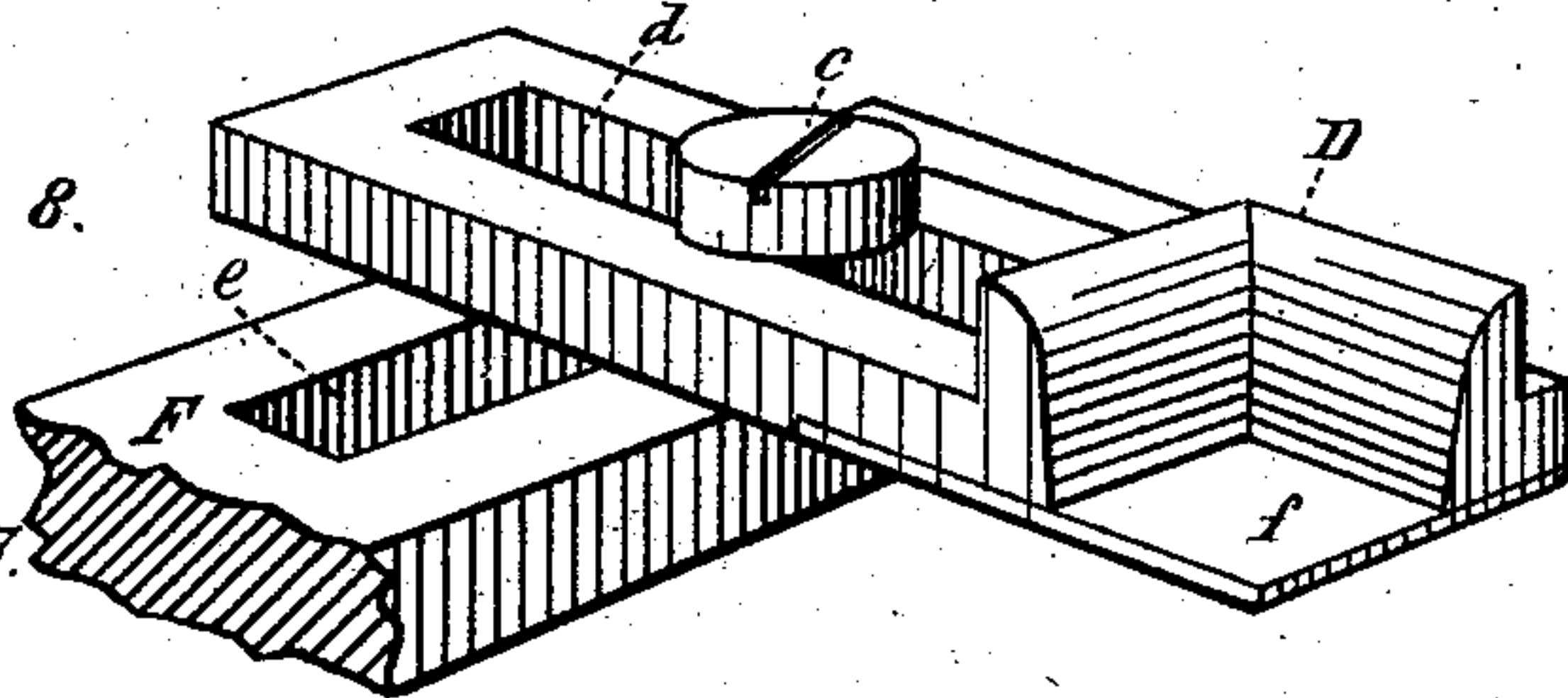
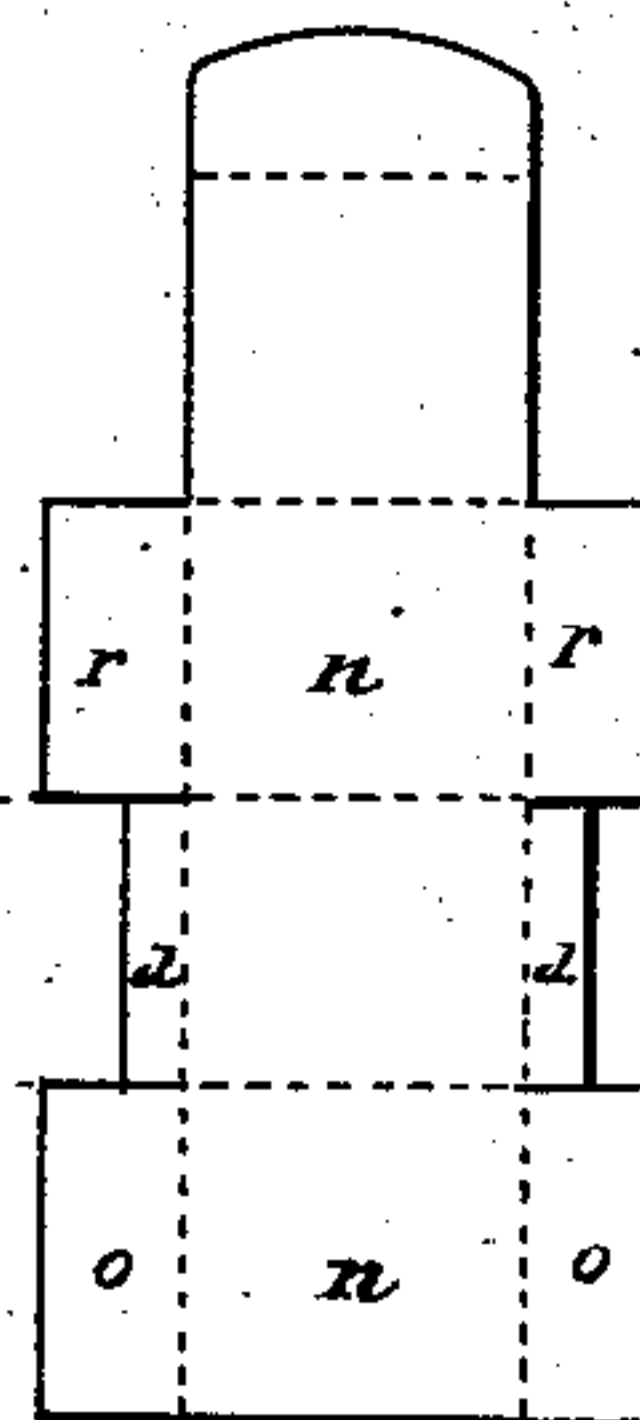


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK H. STRIEBY AND MATTHEW RANKIN, OF CLEVELAND, OHIO.

PAPER-BOX MACHINE.

SPECIFICATION forming part of Letters Patent No. 260,800, dated July 11, 1882.

Application filed August 30, 1881. (No model.)

To all whom it may concern:

Be it known that we, FRANK H. STRIEBY and MATTHEW RANKIN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Paper-Box Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to paper-box machines, and is an improvement on patent granted to George Boyce, dated March 30, 1880, and numbered 225,915.

Our invention consists in the peculiar improvements, as will be hereinafter shown and described.

In the drawings, Figure 1 is a side elevation, partly in section, of a paper-box machine embodying our invention. Fig. 2 is a plan view with parts removed. Fig. 3 is an enlarged detached view of guide, showing its construction. Fig. 4 is an enlarged detached view of a part of our machine. Figs. 5, 6, 7, 8, and 9 are views showing the blank and manner of folding the same.

A is the plunger.
E is the front folder, and E' is the back folder. B is a tubular die-block.

a is a spring-catch, which is pivotally attached to the front folder, E. b is another catch, which is rigidly attached to the rear folder, E', and which is adapted to engage with the spring-catch a.

C are coil-springs, which are attached to the rear folder, E', and also to the frame of the machine, so that when the catch a is disengaged from the catch b the said springs will act to pull the rear folder, E', back again.

E² is a lever, which is attached to the front folder, E, and serves to operate the said front folder and also the rear folder, E', by means of the catches a and b. D are guides, the construction of which is shown more clearly in Fig. 3, and the manner of attaching the same to the machine is shown in Fig. 2.

F is a stand, which is attached to the bed of the machine, and to which are adjustably secured the holders D by means of the screw-

bolts c and the slots d and e, and hence these guides D are adapted to be adjusted to any sized blank.

f is a plate, which is secured to the under side of the guide D, (see Fig. 3,) and is adapted to support the corners of the blank.

G is an elastic cushion, which is set in the upright of the machine opposite the lug h on the back end of the rear folder, E'. The object of this cushion is to prevent the jar occasioned by the action of the springs C in pulling the said rear folder, E', back after its catch b has been released from the catch a.

H, I, and J are rods, which are attached to the plunger-rod A' by means of a bracket, A², and are adapted to move in a vertical direction with said plunger-rod A'. i and j are holes, through which the rods H and J pass when the plunger A is driven downward. These holes i and j are covered with slides K and L. (Shown more clearly in Fig. 4.) Each of the slides K and L is provided with a spring, K' and L', which acts to hold the said slides over the holes i and j. The slide K is also provided with a lug, l, which extends upward, and is adapted to engage with a lug, l', on the lever E² when said lever is moved forward in the act of driving the front folder, E; and as the said lever E² is driven forward still more the slide K is pushed from over the hole i. The slide L is provided with a pin, m, which engages with an arm, m', said arm in turn being attached to the rear folder, E'; and when the said folder E' is acting to fold the rear part of the box the said arm m' acts to push the slide L from over the hole j.

The operation of the machine is as follows: A blank, such as is shown in Fig. 5 of the drawings, is placed between the guides D and under the plunger A. The plunger is then brought down on said blank and forces it into die-block B until it has reached down to y, (see Fig. 1,) where it is stopped from going any farther by the rod H coming in contact with the slide K. This operation folds the parts n, as shown in Fig. 6. The lever E² is now pushed forward, which causes the front folder, E, to advance and fold the parts o o, as shown in Fig. 7. Now, as the folder E advances the lug l' comes in contact with the lug l and pushes the slide K from over the hole i, which

allows the rod H to pass into the said hole *i*, and also causes the catch *a* to engage with the catch *b*, thereby locking the forward and rear folders together. The plunger is now pushed downward until the rod J comes in contact with the slide L. This downward movement folds the small flaps *d d*, as shown in Fig. 8. The lever *E*² is now drawn back, and with it the folder *E* and also the rear folder, *E'*, to which it is locked by the catches *a* and *b*. This movement of the lever *E*² causes the rear folder, *E'*, to fold the parts *r r*, as shown in Fig. 9; and said parts *r r* being supplied with glue the box is held together and finished. Now, as the folder *E* is operating to fold the parts *r r* the arm *m'* comes in contact with the pin *m* and pushes the slide L from over the hole *j*, which allows the rod J to pass into said hole. The plunger is again forced downward, which acts to push the box through the die B into any suitable receptacle placed beneath the machine. As the plunger A is passed downward the rod I comes in contact with the catch *a* and disengages it from the catch *b* and allows the rear folder to be drawn back to its place by the spring C, the elastic cushion G preventing jarring or injury to the parts. The plunger is now raised, and with it the rods H, I, and J. As the rods H and J are drawn from the holes *i* and *j* the slides K and L resume their positions over the holes *i* and *j*, being operated by the springs K' and L'. The machine is now again in position to start on a new blank.

As the rods H and J are necessarily long, and when the machine is in operation they have a tendency to vibrate, and hence are liable to miss the holes *i* and *j*, we have provided a guide-piece, M, as shown in Fig. 1, and by dotted lines in Fig. 4. One end of the guide

M is made higher than the other—viz., that end under the rod J—for the purpose of holding the said rod J while the rod H is resting on the slide K. The holes in this guide M are directly over the holes *i* and *j*, and hence guide the rods H and J respectively to said holes *i* and *j*.

What we claim is—

1. In a box-machine, the rods H and J and slides K and L, said rods and slides being adapted to regulate the distance through which the plunger of said machine shall travel during the different steps of forming a box, substantially as shown and described.
2. In a box-machine, the combination of the rods H and J, guides M, slides K and L, and holes *i* and *j*, all operating substantially as and for the purpose shown and described.
3. In a box-machine, the combination of the rods H and J, holes *i* and *j*, and slides K and L, said slides being operated respectively by means of the forward and rear folders, substantially as and for the purpose shown and described.
4. In a box-machine, the combination, with the stands F, provided with elongated slots near each end, of the slotted adjustable guides D, located one on each end of said stands, and provided with the plates *f*, adapted to receive the corners of the blanks, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK H. STRIEBY.
MATTHEW RANKIN.

Witnesses:

JNO. CROWELL, Jr.,
ALBERT E. LYNCH.