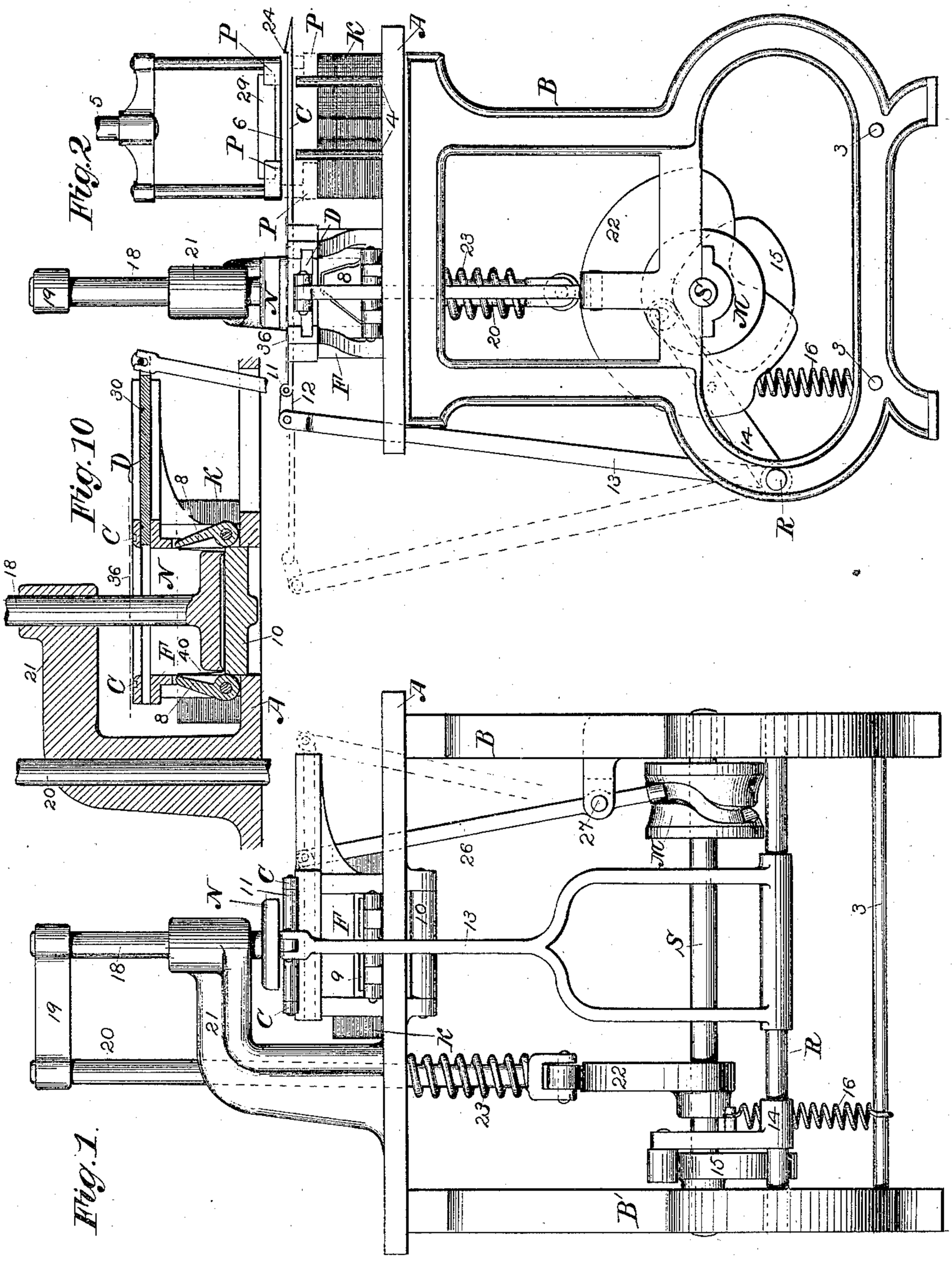
(No Model.) 2 Sheets—Sheet 1.

F. H. RICHARDS.

ENVELOPE MACHINE.

No. 343,855. Patented June 15, 1886.



Witnesses:
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John Johnston

Inventor:
Francis H. Richards.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

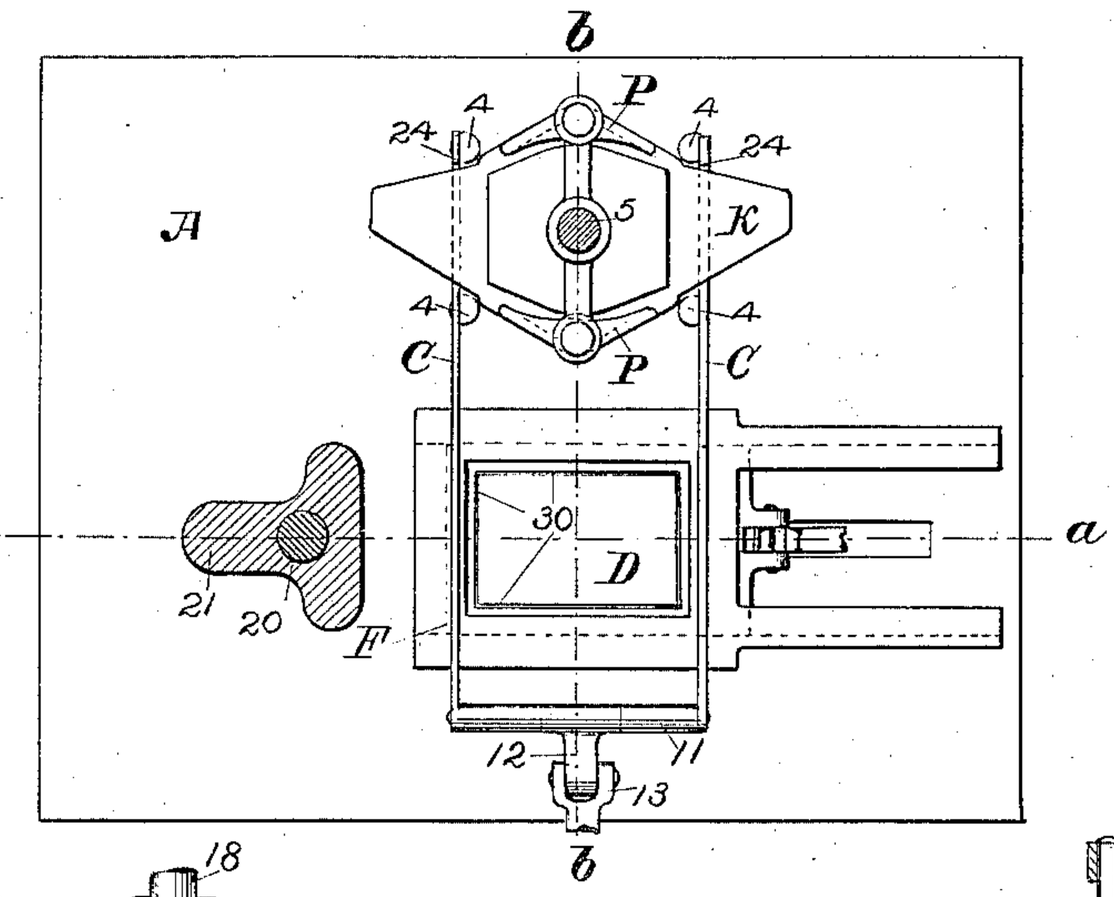


Fig. 4

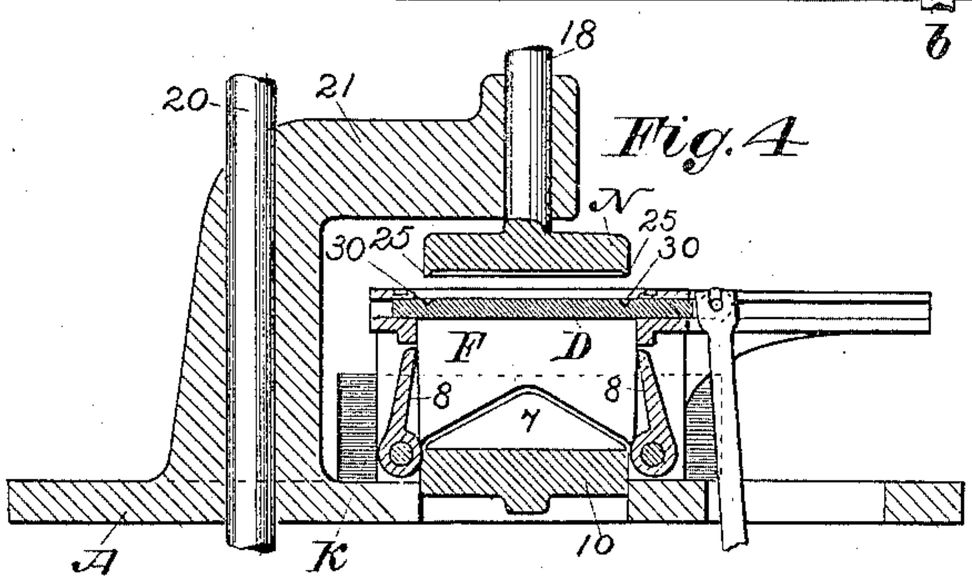


Fig. 5

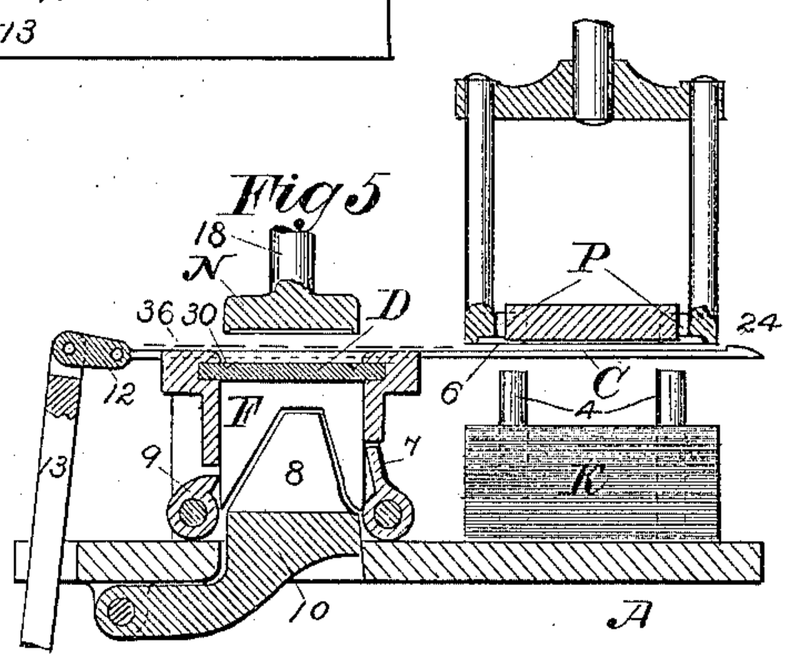


Fig. 6

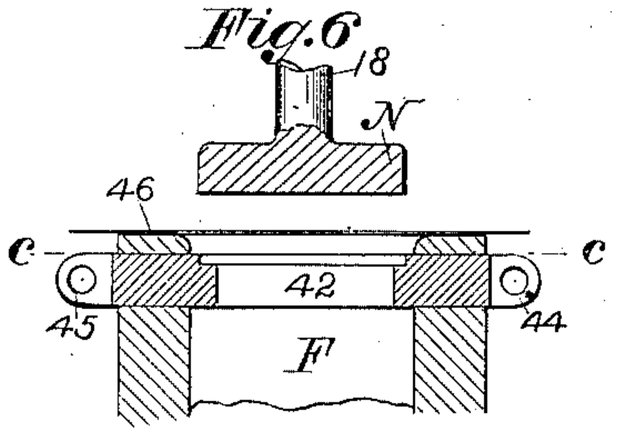


Fig. 7

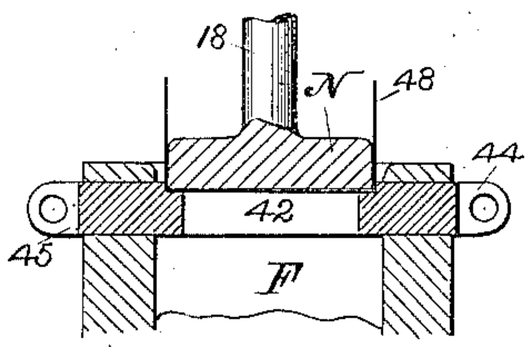


Fig. 8

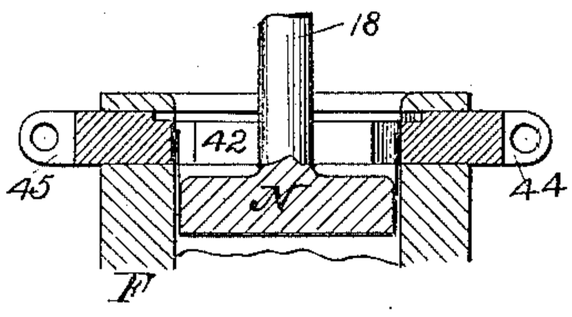
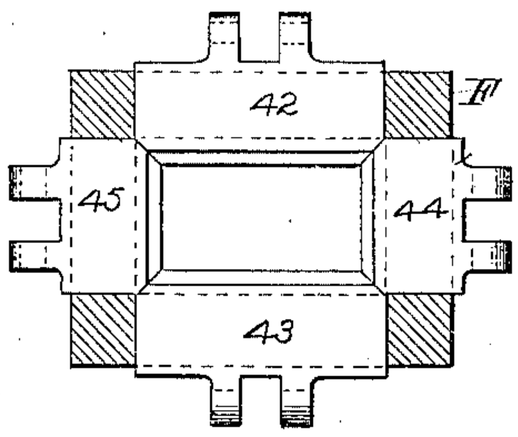


Fig. 9



Witnesses:
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John Johnston.

Inventor:
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UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF SPRINGFIELD, MASS., ASSIGNOR OF ONE-HALF TO THE PRATT & WHITNEY COMPANY, OF HARTFORD, CONN.

ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 343,855, dated June 15, 1886.

Application filed September 21, 1885. Serial No. 177,755. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden, State of Massachusetts, have invented certain new and useful Improvements in Envelope-Machines, of which the following is a specification.

This invention relates to that class of envelope-machines in which the blank is creased in the folding-lines prior to the folding operation, the object being to provide mechanism specially adapted for creasing the blanks, as aforesaid, which shall be applicable to the ordinary envelope-machines.

To this end the invention consists in the combinations hereinafter set forth.

In the drawings accompanying and forming a part of this specification, Figure 1 is a front elevation of so much of an envelope-machine as embodies my improvements. Fig. 2 is an elevation of that side of the same which is at the right hand in Fig. 1. Fig. 3 is a plan view in which some parts, including the plunger, are broken away. Fig. 4 is a vertical section in line *a a*, Fig. 3, including the plunger. Fig. 5 is a similar section in line *b b*, Fig. 1. Figs. 6, 7, and 8 are three similar views illustrating the operation of a modified construction of the creasing apparatus. Fig. 9 is a horizontal section of this modification in line *c c*, Fig. 6. Fig. 10 is a view similar to Fig. 4, showing the parts at a different stage of the operation.

Similar characters designate like parts in all the figures.

The frame-work for carrying the several details of my improved envelope-machine may consist, as in ordinary practice, of the top plate, A, supported at either end on legs B and B′, which are tied together near the bottom by rods 3 3.

S designates the usual driving-shaft, carrying the operating-cams.

R is the ordinary rock-shaft, connected to the blank-carrier.

K is the pile of blanks, placed, as usual, near the front of the machine, between guides 4.

P P are an ordinary pair of pickers connected to a vertically-reciprocating spindle, 5, whereby they are operated. In Fig. 2 they are shown by dotted lines resting on the blank pile, from which they are supposed to have taken a blank and lifted it up to position 6.

F designates the folding-box, which is furnished with an ordinary set of folding-wings, 7, 8, and 9, and trap-door 10.

Inasmuch as my improvements do not at all relate to or modify the usual cams and connecting devices for operating the aforesaid trap-door, folding-wings, and pickers, said cams and devices and other parts are not shown in the drawings, being left out to give clearer illustration of my improvements than could otherwise well be done. Said wings, door, and pickers may, however, be operated by the mechanism shown for similar purposes in United States Patent No. 177,048, dated May 2, 1876.

The upper side of box F has formed therein ways for the ordinary reciprocating blank-carriers C C. These are united at the rear ends by rod 11, which is connected by link 12 to the upper end of a long arm, 13, fixed on shaft R, which shaft is operated, through arm 14, in one direction by cam 15 and in the other by spring 16. The carriers have the usual hooks, 24, at the front end for drawing along the blanks. For driving the blanks down into said box the machine has a plunger, N, which is affixed to a spindle, 18, connected by arm 19 to a slide, 20, that (together with said spindle) has its bearing in a bracket, 21, fixed to or framed on plate A, said slide being operated in one direction by cam 22 and in the other by spring 23. Said plunger is constructed to act also as a blank-creasing die by having an edge suitably formed thereon—as, for instance, at 25, Fig. 4. Said plunger cooperates to crease a blank with a creasing-bed, D, having a sliding movement under and from under the plunger. The bed D is operated through a lever, 26, pivoted at 27, from the cam M on the driving-shaft, or by other similar well-known mechanism. Said lever has a stroke indicated by dotted lines in Fig. 1.

In Figs. 3, 4, and 5 the creasing-bed is shown in its working position directly under the plunger. In Fig. 10 said bed is withdrawn to allow the plunger to descend into the box. The creasing of the blank is preferably effected by means of a groove, 30, into which the blank

at its folding-lines is forced by edges 25. Some kinds of paper may be creased by means of a bed covered on its upper surface with a layer of soft rubber of about one-eighth inch (more or less) in thickness, in which case no groove, 30, is necessary.

The operation of my improvements is as follows: A pile of blanks previously cut to the required shape having been placed between guides 4, the uppermost one is gummed, as usual, by pickers P, and raised thereby to position 6. Here the blank is forced off from the pickers by the usual clearer, 29, and falls onto carriers C behind hooks 24, and is carried back to position 36, immediately and centrally under the plunger. The creasing-bed being now slid in, as in Fig. 4, the plunger is brought down forcibly onto it, impressing the folding-lines into groove 30, or into the rubber when this is used. The plunger is next raised a little by cam 22, and the bed D is withdrawn, as in Fig. 10, when the plunger descends, carrying the blank down against the trap-door, as at 40. After this the plunger is raised, and the creased blank is folded and disposed of in the ordinary manner. The machine then stands ready for operating on the next blank.

It should be understood that my invention is not limited to the use of a creasing-bed constructed and operated in the particular manner above described. Its construction may be modified in various ways without departing from the spirit of my invention. In Figs. 6 to 9 I have illustrated one such way, which is of the nature of an improvement on the preceding construction. Here the creasing-bed is formed in four movable parts, 42, 43, 44, and 45, one on each side of box F. When these parts are moved or slid together to stand as in Figs. 9 and 6, a blank, 46, being laid on the box, as in Fig. 6, is forced down, as at 48 in Fig. 7, and creased. Then the said parts are moved out, as in Fig. 8, and the blank is driven by the plunger, as shown in this figure, down to its position in Fig. 10, where it is folded and disposed of, as before. In this modified construction the movable parts are supposed to be operated, each independently, or all collectively, by substantially the means shown for operating bed D.

In another application, Serial No. 177,084, I have described and claimed a blank-creasing mechanism having a creasing-bed which comprises separate movable parts, as herein described; hence, I do not in this application broadly claim such subject-matter.

Having thus described my invention, I claim—

1. The combination, in an envelope-machine, of a folding-box, a creasing-plunger for pushing blanks into said box, a movable creasing-bed, and mechanism, substantially as described, operating said bed and plunger to first crease a blank, then withdraw the bed, and then push down the creased blank into said box, substantially as set forth.

2. The combination, in an envelope-machine, of a folding-box, creasing-bed D, plunger N, carrier C, means, substantially as described, for supplying blanks to said carrier, and means, substantially as described, for operating said bed, plunger, and carrier to present a blank above said box, to crease the blank on said bed, and then to withdraw the bed and push down the blank, substantially as set forth.

3. The combination of a folding-box, a creasing-bed constructed in movable parts, one on each side, substantially as described, and plunger N, all operating substantially as set forth, and for the purpose specified.

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ROBERT L. PECK.