No. 648,674. Patented May 1, 1900.

J. A. SHERMAN.

ENVELOP MACHINE.

(Application filed Jan. 3, 1900.)

(No Model.) 3 Sheets—Sheet 1.

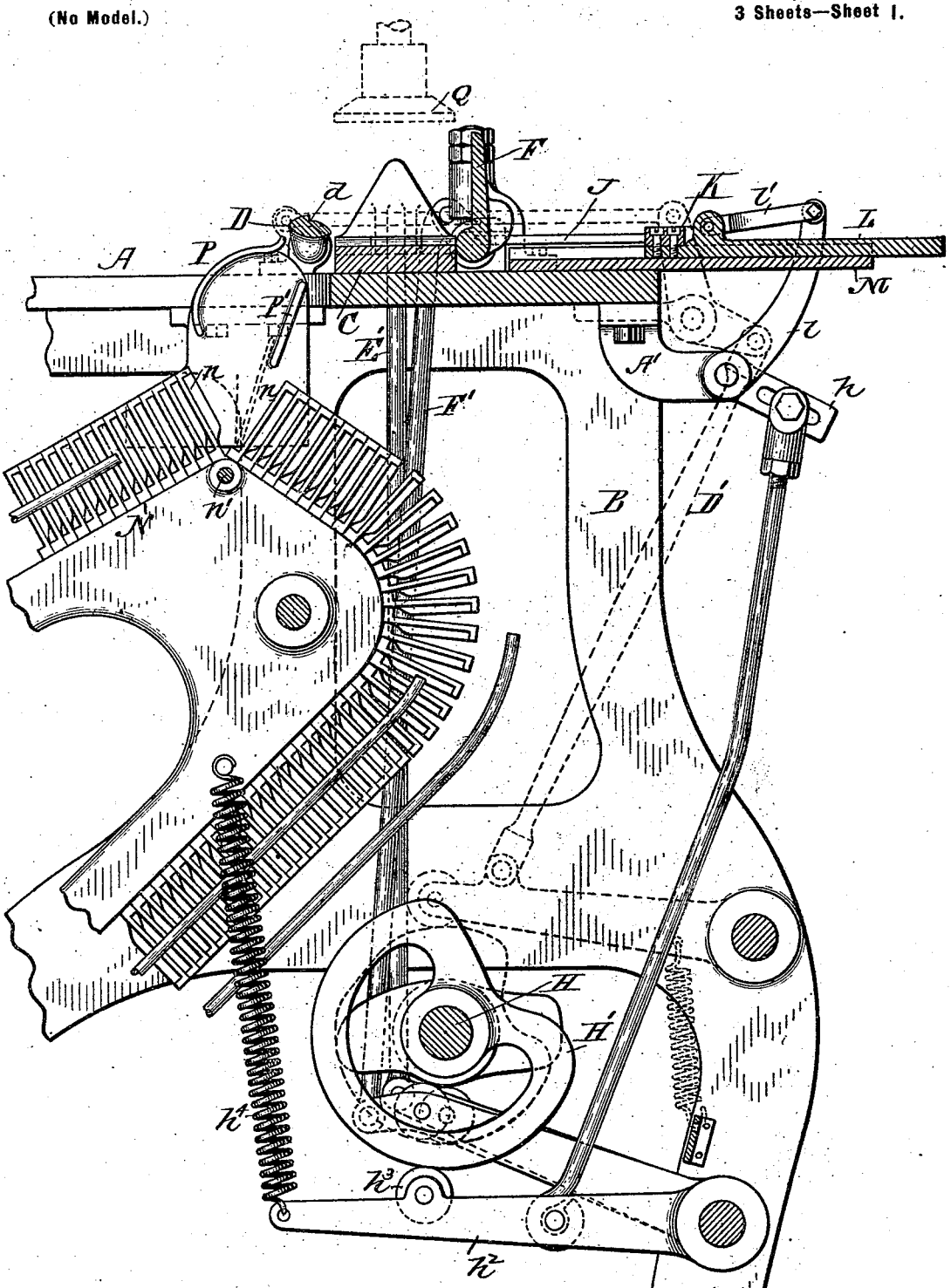

Fig. 1.

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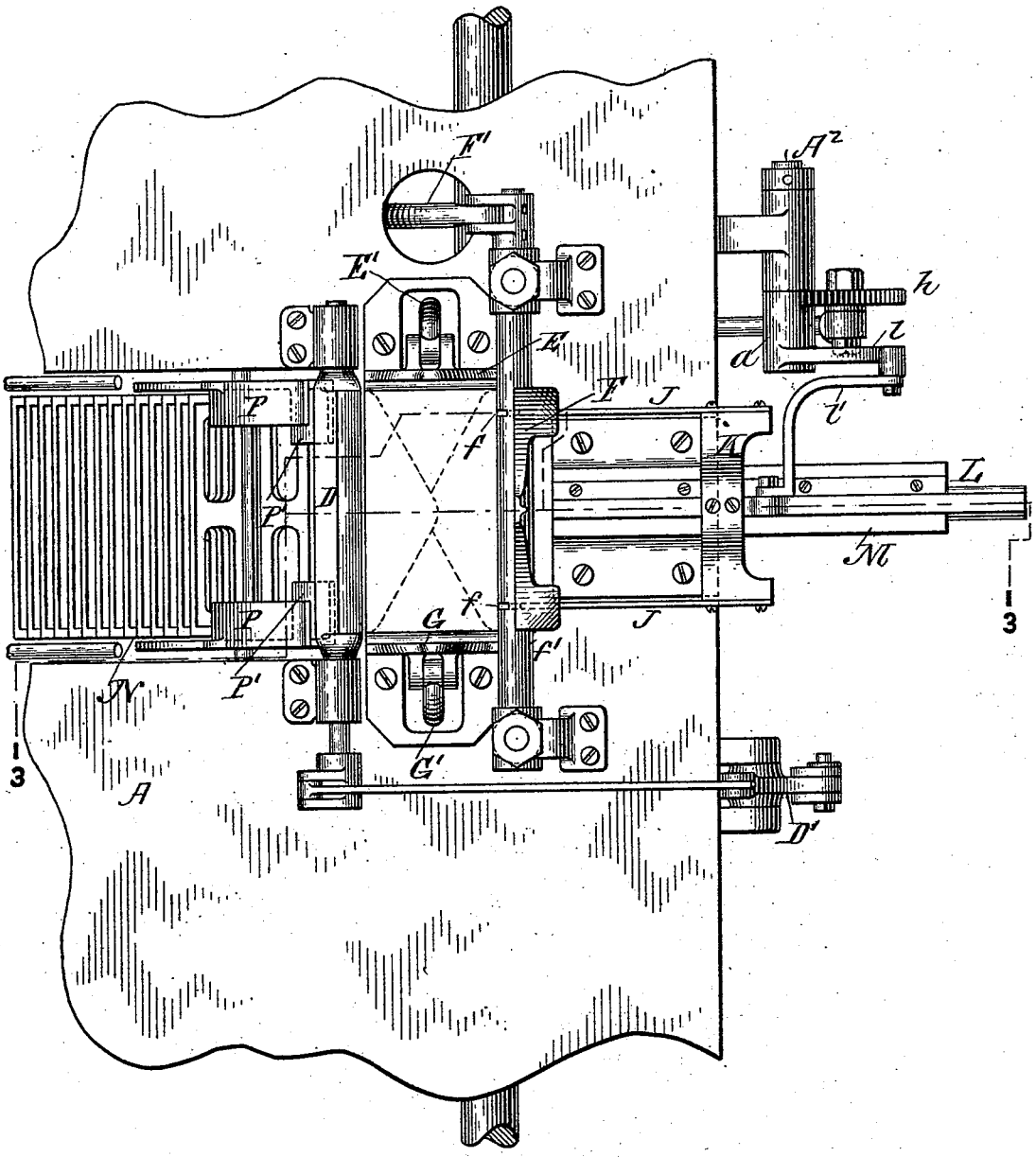

Fig. 2.

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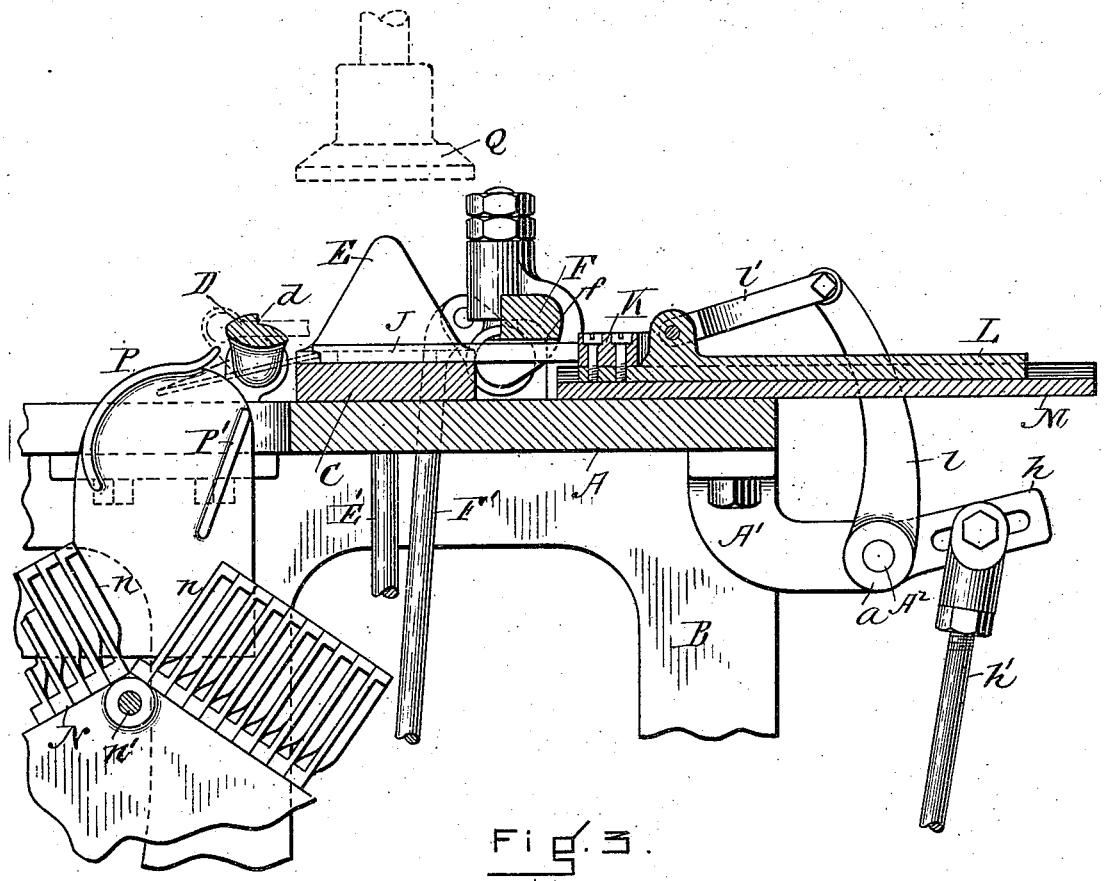

Fig. 3.

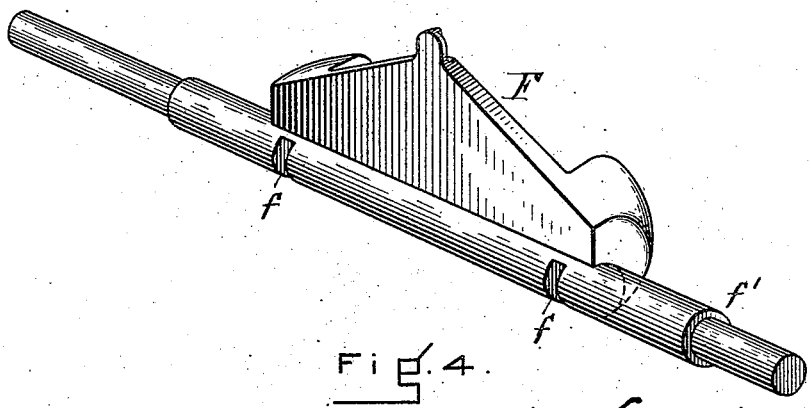

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN A. SHERMAN, OF WORCESTER, MASSACHUSETTS.

ENVELOP-MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,674, dated May 1, 1900.

Application filed January 3, 1900. Serial No. 204. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. SHERMAN, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Folding-Box Mechanisms for Envelop-Machines, of which the following is a specification.

My invention relates especially to that class of folding-box in which the bottom of the box is stationary. The means generally provided for removing the envelop from such a folding-box is a forked mechanism which moves upward through slots in the bottom of the box and lifts the envelop out of the box. This usually necessitates the providing of some moving mechanism located above the box which shall receive the envelop from the forks and place it in the drier.

My invention consists in a folding-box provided with mechanism for pushing the envelop off of the folding-bed in a plane parallel with its face, so that the envelop may fall directly into the drier without the intervention of any intermediate mechanism.

It also consists of certain details of construction hereinafter to be described.

In the drawings, Figure 1 shows a vertical section of the folding mechanism of an envelop-machine embodying my invention, showing also a portion of the drying mechanism, said section being taken on line 1 1 of Fig. 2. Fig. 2 is a plan of the folding mechanism, showing also a portion of the drying mechanism. Fig. 3 is a vertical section on line 3 3 of Fig. 2, and Fig. 4 is an enlarged view in perspective of the back-flap folder.

It will be noted that portions of Figs. 1 and 3 are taken upon the same section-line, and the pushing mechanism for removing the envelop is shown in Fig. 1 in its outer position and in Fig. 3 in its inner position.

A is the table, suitably supported in the ordinary manner upon frames B. Upon this table is mounted the stationary bed C of the folding-box. About this bed are mounted the four folders D E F G, each of these folders being journaled in suitable bearings carried by the table A in the usual manner and being given the ordinary oscillating movement, such as is customary in envelop-machines, by means of suitable cams on the cam-shaft H, the rods connecting the folders with the cams or cam-levers being lettered D′, E′, F′, and G′, respectively. The folder F is of usual construction, except that its shaft f' is provided with slots f of such size and so located that when the folder is in a vertical position the pusher-arms J, the forward ends of which lie in said slots, may move forward through the slots and on being withdrawn again into their rearward position will not interfere with the free oscillation of the folder F.

The pusher J, which constitutes the main novelty of my present invention, is preferably made with two arms J J, as shown, which project from a cross-bar K, carried by a slide L, suitably mounted in ways M, supported upon and extending from the table A.

Motion is given to the slide L and pushers J in the following manner: From the under side of the table A projects a bracket A′, in which is mounted a stud A^2, which carries a rocking sleeve a, having two rocker-arms, one, l, projecting upward and connected by a link l' with a slide L, and the other, h, projecting outward and connected by means of a connecting-rod h' with the cam-lever h^2, pivoted at B′ to the frame B. The cam-lever h^2 carries a cam-roll h^3, engaging with the cam H′ and held against the cam by means of the spring h^4.

The folder D is of that class of folders which while it is suitably journaled at each end and is provided with a suitable bead by means of which to give a sharp edge or fold to the fly-flap of the envelop when in its folding position, is cut away underneath, as will be seen from Figs. 1 and 3, so as to provide ample space for the envelop to be pushed under it when the folder is in its open position. I have shown portion of a drier N, located below an opening in the table A and in position to receive the envelop as it is pushed from the folding-bed, n n being the fingers of the device, and n' a supporting-roll on which it turns. Suitable means may be provided—for example, the shields P P′—to guide the envelop into the drier after it leaves the folding-box, the shield P being located in the path of motion of the removed envelop and the shield P′ providing a means to guide said envelop by its under side to the drier.

The operation of my invention will be understood by all skilled in the art. The envelop having been gummed by mechanism suitable for the purpose is brought by suitable means under the plunger, which is indicated in dotted lines at Q and which descends at such time as the folders are open—that is, in the position shown in the drawings — and drives the blank down into the folding-box and against the bed C thereof. The folders then close successively, the two end folders closing first, if the envelop be of the ordinary character, the back-flap folder F folding next, and, last of all, the seal-flap folder, which, having but a narrow edge or bead *d*, simply turns the flap down without causing it to approach the body of the envelop so nearly as to stick. The envelop having thus been folded in the usual manner the folders open again, thus opening the passage through the slots *f* for the pusher-arms and under the folder D for the envelop, and the pusher-arms, which have heretofore been in the position shown in Fig. 1, with their front ends just in the rear of the axis of the folder F, are pushed forward into the position shown in Fig. 3, passing through the slots *f* in the shaft of the folder F. This drives the envelop out, as is indicated in dotted lines in Fig. 3, under the folder D, against the guide P, which turns its advancing edge downward, so that the envelop falls into the drier N between the fingers *n n* and into the position shown in Fig. 1. The pusher-arms are then withdrawn again into the position shown in Fig. 1 and the mechanism is then ready to receive another blank from the plunger Q.

It is evident that the pushers may be operated in a different manner from that shown and may in themselves be different in construction, one arm with a broad face being used instead of two, the novelty of my invention consisting, broadly speaking, in the use of a pusher of some form to push the folded envelop off from the bed of the folding-box in a plane parallel with the plane of the bed.

What I claim as my invention is—

1. In an envelop-machine, an envelop-folding box having a solid bed, in combination with mechanism for pushing the envelop therefrom, consisting of a reciprocating pusher movable in a plane parallel with the face of the folding-bed and in close proximity thereto, whereby it is adapted to engage the adjacent edge of the folded envelop and push it therefrom, as set forth.

2. In combination with the bed of an envelop-folding box, a series of oscillating folders and a pusher adapted to reciprocate upon the folding-bed and under one of said folders, said folder being suitably shaped to allow said pusher to pass under it, as and for the purposes set forth.

3. In combination with the bed of an envelop-folding box, a pusher adapted to move forward and back across the face of the bed of said box, and means whereby it is reciprocated, the folder in front of said pusher being cut away as described, whereby said pusher will engage one edge of the envelop and push it across the face of said bed and under said folder, as and for the purposes set forth.

4. In an envelop-machine, a folding-box provided with a bed and four oscillating folders, in combination with a pusher adapted to reciprocate across and parallel with the face of said bed and under one of said oscillating folders, said folder being shaped to allow the passage of the pusher under it and the opposing folder being suitably shaped to allow a folded envelop to be pushed past it and off from the bed of the folding-box, as set forth.

5. In an envelop-machine, in combination with a drying mechanism, a folding mechanism comprising a folding-bed and four reciprocating folders, and a pushing mechanism consisting of a reciprocating pusher of the kind described and means whereby it is reciprocated, one of said folders being notched to allow said pusher to pass under it, and the opposite folder being cut away to allow the envelop to be pushed under it, said pusher being adapted to push a folded envelop from the face of said folding-bed and said drier being located to receive said envelop as it falls from said folding-bed, as set forth.

6. In combination with the bed of an envelop-folding box and means operating in close proximity to said bed for pushing the envelop therefrom in a plane parallel therewith and engaging the adjacent edge of the envelop, and a drying mechanism located to receive the envelop as it falls from said folding-bed, a shield located in front of the path of motion of said envelop as it is pushed from said folding-bed and adapted to direct it downward into said drier, as and for the purposes set forth.

7. In combination with the bed of a folding-box and means operating in close proximity thereto for engaging the adjacent edge of a folded envelop and pushing the same in a horizontal plane therefrom, a drier located to receive said envelop as it falls from said folding-bed, and means to guide the envelop by its under side into said drier, as set forth.

In testimony whereof I have hereunto set my name this 20th day of December, 1899.

JOHN A. SHERMAN.

Witnesses:

J. EDW. SHERMAN,

A. L. MAXWELL.