F. L. SCHMIDT.

DISCHARGING DEVICE FOR ENVELOP MACHINES.

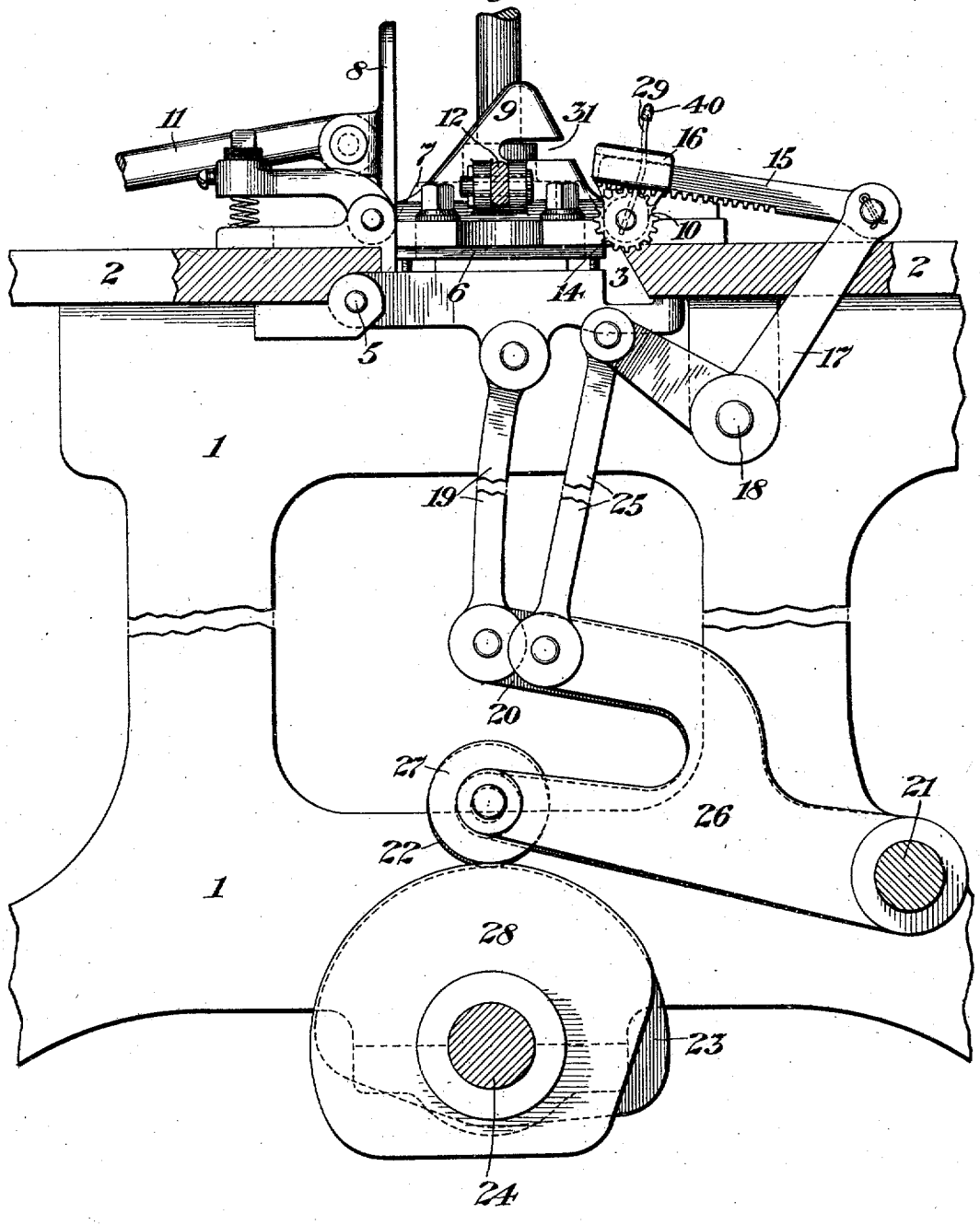
APPLICATION FILED JUNE 20, 1907.

956,736.

Patented May 3, 1910.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses:
Chas. F. Clagett
M. E. Stanton

Inventor
Ferdinand L. Schmidt
By his Attorney
Chas. F. Clagett

F. L. SCHMIDT.

DISCHARGING DEVICE FOR ENVELOP MACHINES.

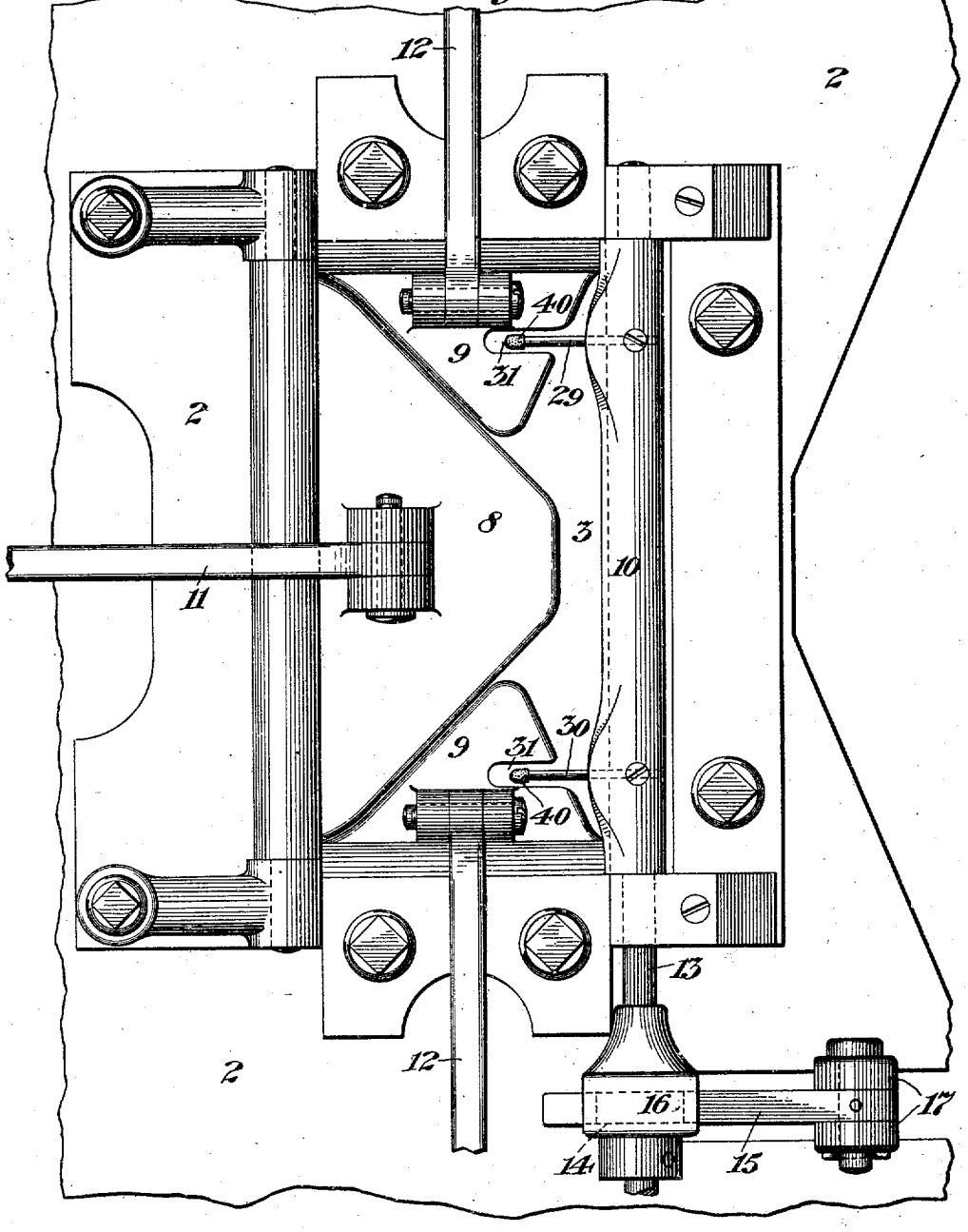
APPLICATION FILED JUNE 20, 1907.

956,736.

Patented May 3, 1910.

3 SHEETS—SHEET 2.

Fig. 2



Witnesses:
Chas. F. Clagett
M. E. Stanton

Inventor
Ferdinand L. Schmidt
By his Attorney
Chas. F. Clagett

F. L. SCHMIDT.

DISCHARGING DEVICE FOR ENVELOP MACHINES.

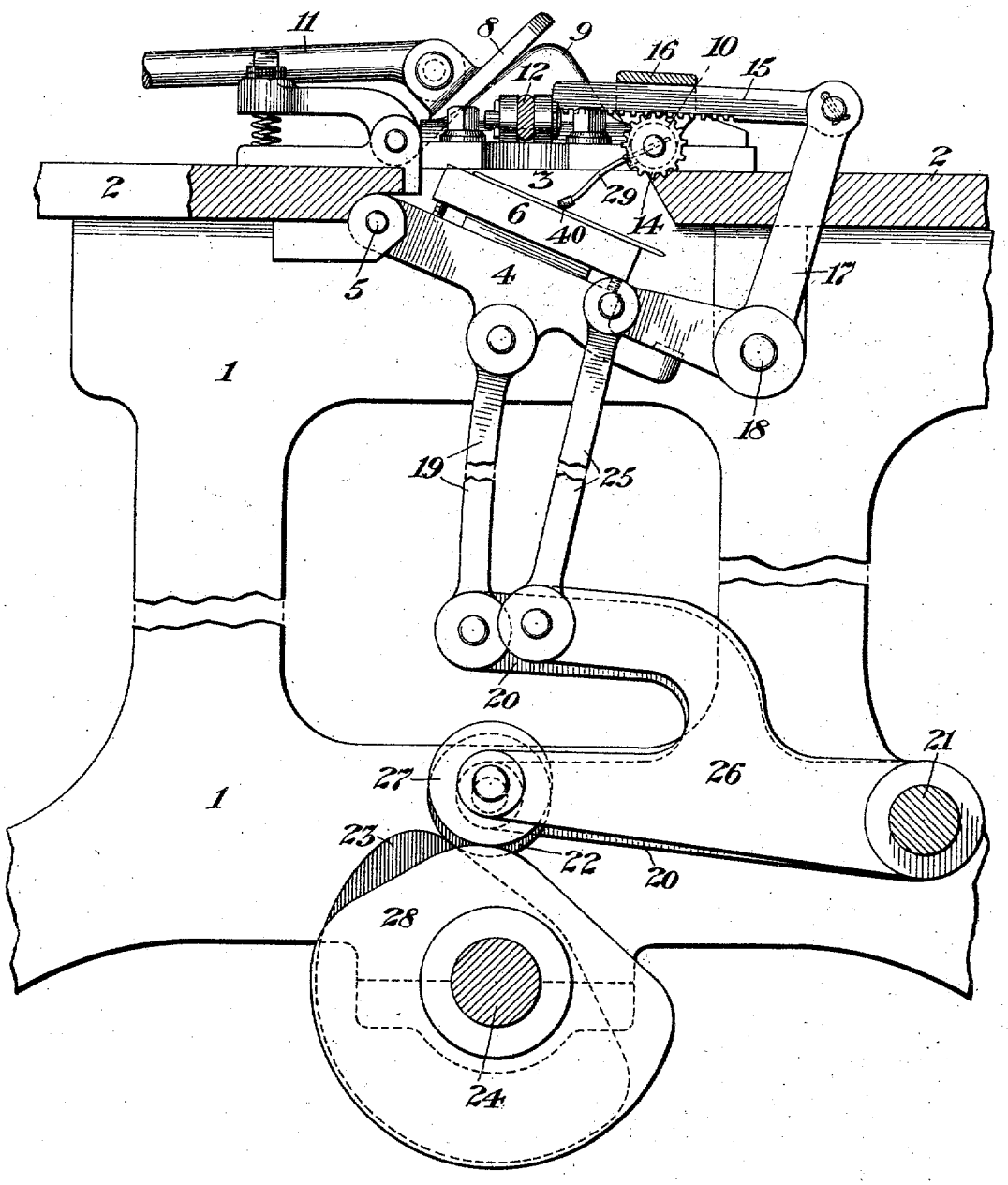
APPLICATION FILED JUNE 20, 1907.

956,736.

Patented May 3, 1910.

3 SHEETS—SHEET 3.

Fig. 3



Witnesses:
Chas. F. Clagett
M. E. Stanton

Inventor
Ferdinand L. Schmidt
By his Attorney
Chas. F. Clagett

UNITED STATES PATENT OFFICE.

FERDINAND L. SCHMIDT, OF NEW YORK, N. Y.

DISCHARGING DEVICE FOR ENVELOP-MACHINES.

956,736. Specification of Letters Patent. Patented May 3, 1910.

Application filed June 20, 1907. Serial No. 379,870.

To all whom it may concern:

Be it known that I, FERDINAND L. SCHMIDT, citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Discharging Devices for Envelop-Machines, of which the following is a specification.

This invention relates to devices for discharging finished envelops from the platen of the flap-folding mechanism of an envelop machine, and has for its object to provide for quick and positive discharge of the folded envelops under all conditions of use of the machine regardless of frictional or atmospheric influences, whereby choking or clogging of the folding mechanism by discharging envelops is obviated and particularly when the envelop machine is operated at the highest practicable speed.

The invention comprises novel envelop discharging devices having one or more fingers preferably held to one of the envelop flap-folders and giving the folded envelop an initial discharging impulse carrying it marginally clear of corresponding marginal walls of the flap-folding devices and preferably also positively discharging the envelop edgewise from the platen upon which it was folded by coacting plunger and folder mechanism. The invention also includes various details of construction of the envelop discharging devices promoting their efficient operation; all as hereinafter described and claimed.

Reference is made to the accompanying drawings forming part of this specification, and in which—

Figure 1 is a partly broken-out vertical transverse section of portions of an envelop machine embodying the invention and with the flap folders shown quite fully open as when giving the first fold to the envelop blank. Fig. 2 is a plan view with the plunger removed and showing the folders closing as when giving the second or final fold to the envelop flaps and with the discharging fingers advanced about half-way preparatory to acting upon the folded envelop; and Fig. 3 is a broken-out vertical transverse section showing the fingers acting to finally discharge the finished envelop.

The machine frame 1 has a top bed-plate 2 formed with an opening 3 accommodating the usual tilting frame 4 which is pivoted at 5 to the bed-plate and carries an adjustable platen 6 with which coact a plunger 7, a wide flap-folder 8, opposite end flap-folders 9, 9, and a shorter sealing-flap folder 10; all of said folders being pivoted in bearings on the bed-plate in any approved manner. Rods 11, 12, 12, respectively couple the folders 8, 9, 9, to the usual or any approved mechanism adapted to turn these folders from the vertical positions shown in Fig. 1, to the approximately horizontal positions shown in Fig. 2 of the drawings. To the shaft 13 of the short sealing-flap folder 10 is fixed a toothed wheel or pinion 14 which is normally engaged by the teeth of a rack-bar 15 which is held to the pinion by an overlying flanged guard 16 held to the shaft 13. The outer end of the rack 15 is pivoted to one arm of an elbow lever 17 which is fulcrumed at 18 to the machine frame 1 and is rocked in properly timed relation to the tilting or yielding of the frame and platen 4—6, with which the plunger 7 and all four flap-folders coact for folding the flaps of the envelop blank. Motion may be imparted to the tilting frame 4 and its platen 6 by any suitable mechanism such as a rod 19 coupled to an arm 20 hung on a shaft 21 journaled in the frame 1 and carrying an anti-friction roller 22 upon which acts a cam 23 fixed to a driving shaft 24 of the envelop machine. A rod 25 couples the short arm of the elbow lever 17 with another arm 26 hung on the shaft 21 and carrying a roller 27 acted upon by a cam 28 on the shaft 24 for operating the flap-folder 10.

As thus far described in detail the envelop machine is substantially similar in structure and operation to prior machines of this class having a tilting or yielding platen, an opposing plunger and a series of pivoted flap-folders. In these prior machines it is customary to employ one or more laterally movable so-called "discharge-hooks" arranged near the hinged edge of the platen for striking and positively discharging the folded envelop edgewise from the lowered platen after the envelop has gravitally dropped from those marginal parts of the folders which correspond in outline with the margin of the folded envelop. This gravital release of the envelop from the folding flaps is not always quick and certain and atmospheric conditions at times induce air currents which impede discharge of the fully

folded envelops which are liable to be caught by the retracting platen and thus choke or stop the machine and entail loss of time and waste of envelop material. These disadvantages are quite fully obviated by this invention which provides for giving the folded envelops an initial discharging impulse carrying them marginally clear of corresponding marginal walls of the flap-folding devices and preferably also provides for giving positive edgewise final discharging movement to the folded envelop.

In a preferred adaptation of the invention, one or more fingers are attached to one of the envelop flap-holders or to the folder shaft; two fingers 29, 30, being shown fixed to the sealing flap-folder 10 and projecting laterally therefrom so as to reciprocate in a half-circle arc and through the bed-plate opening 3. These discharging fingers 29, 30, also preferably move through slots 31, provided in the end folding flaps 9, as more clearly shown in Fig. 2 of the drawings. The fingers 29, 30 are shown as round wires but they may have narrow plate or other suitable form and they also may have rubber or leather tips, such as indicated at 40, to increase their frictional hold on the envelop they finally discharge from the tilted platen 6.

In operation, an envelop blank is fed horizontally by any suitable devices between the fully raised plunger 7 and the folders 8, 9, 10, which with the fingers 29, 30, then have the raised positions shown in Fig. 1 of the drawings. The plunger now descends to carry the blank to the raised platen 6 and down between the raised folders 8, 9, 10, which gives the first fold to all four flaps of the envelop blank. The plunger now rises clear of the flap folders which then swing forward on their pivots to give the final fold to the flaps, and the fingers 29, 30, swing downward and through the slots 31 of the folders 9 and strike the fully folded envelop about as the frame and platen 4—6 begin to yield or swing downward on their pivots 5. The fingers 29, 30, strike the folded envelop in the direction of motion of the plunger, or about at right angles to the face of the envelop, as will be understood from Fig. 2 of the drawings, and positively force the envelop downward from the under face of the folders, to which it may possibly have a tendency to cling by reason of air pressure or by adhesion caused by accidental presence of gum or other adhesive on the folders, and also force it from the marginal walls of lower parts of the folders which are or may be in frictional contact with the margin of the envelop. As the platen 6 with the folded and now freed envelop upon it continues its downward tilting movement the fingers 29, 30, follow the envelop as shown in Fig. 3 of the drawings, and preferably continue their hold upon the envelop until the platen 6 approaches the limit of its downward movement when the fingers 29, 30, reach the limit of their rotative movement and positively discharge the envelop edgewise from the tilted platen. The fingers are retracted in time to pass above the platen 6, and the parts again assume relative positions permitting feeding of the next envelop blank to be folded and discharged in manner above described.

It is obvious that the ordinary discharge-hooks hereinbefore mentioned may be used with and supplementary to the discharging fingers 29, 30, which in that case may be shorter so as to act only to give the initial discharging impulse to the fully folded envelop, or these fingers 29, 30, may have the full length shown in order first to give the margin-freeing impulse to the folded envelop and then coact with the said old-style discharge-hooks for positively discharging the envelop from the platen 6, or from any equivalent yielding support.

Various modifications of the envelop discharging mechanism of this invention may be made, and said novel mechanism may be used with variously constructed and differently operated envelop flap-folding devices, within the scope of one or more of the appended claims.

I claim as by invention.

1. The combination of a movable platen and envelop flap folders, of a discharging device carried by one of said flap folders and operating in the direction of discharge of the envelop to insure the detachment of the envelop from said folders and discharge the same from said platen.

2. The combination of a movable tilting platen and envelop flap folders, of a discharging device fastened on one of said flap folders and operated positively by the oscillation of said flap folder to engage with and insure the detachment of the envelop from said folders and discharge the same from said platen.

3. The combination with a tilting platen and envelop flap folders provided with slots, of envelop discharging devices carried by and moving with one of said folders, said devices adapted to pass through said slots and insure detachment of the envelop from the folders and discharge the same from the platen.

4. The combination with a tilting platen and envelop flap folders, one of said folders having capacity of movement in excess of that necessary to fold the envelop flap, of envelop discharge fingers rigidly attached to said folder and movable in the direction of the discharge of the envelop and operating to insure detachment of the envelop from the folders and discharge the same from the platen.

5. The combination of a movable platen and envelop flap folders, of a discharging device comprising fingers fixed on one of said flap folders and movable therewith in the direction of the discharge, said discharging device adapted to engage said envelop and force it from the platen.

Signed at New York, in the county of New York, and State of New York, this 15th day of June A. D. 1907.

FERDINAND L. SCHMIDT.

Witnesses:

CHAS. F. DANE,

MAY E. STANTON.