June 19, 1923. 1,459,415

F. J. PARKS

PROCESS OF AUTOMATICALLY MANUFACTURING ENVELOPES.

Original Filed April 11, 1917

Fig. 1,

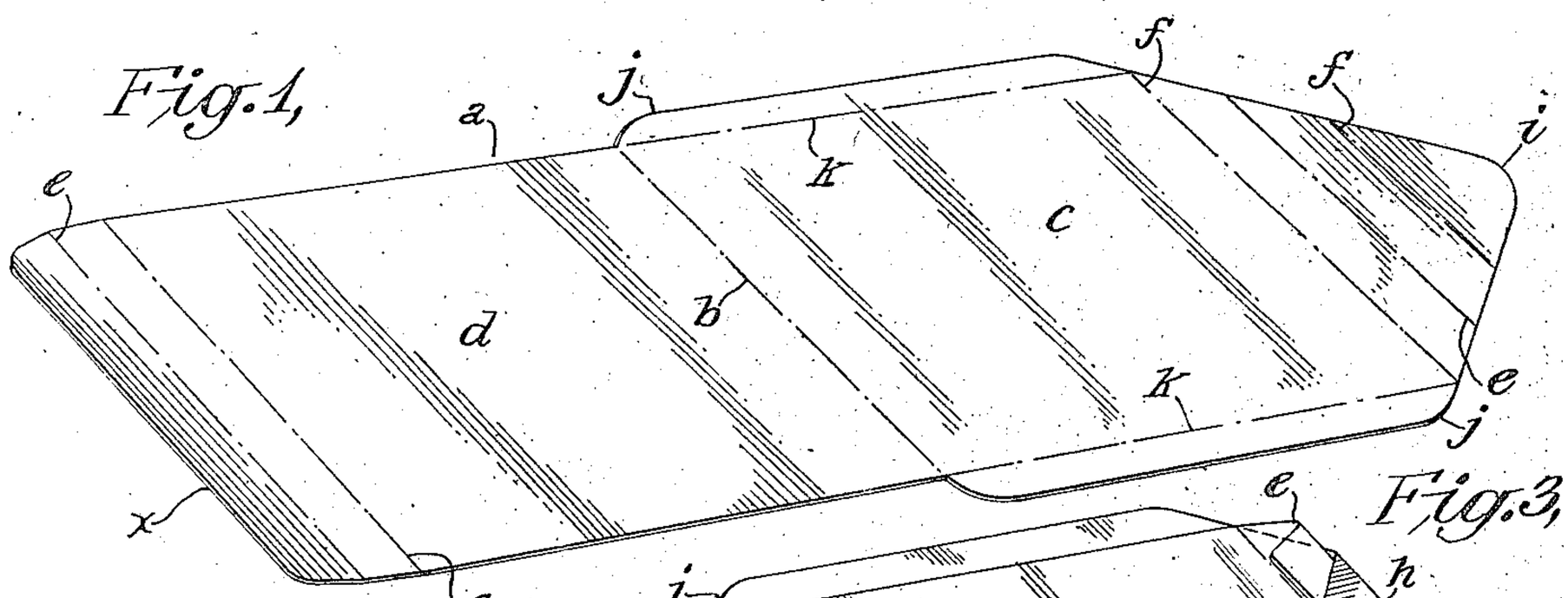


Fig. 3,

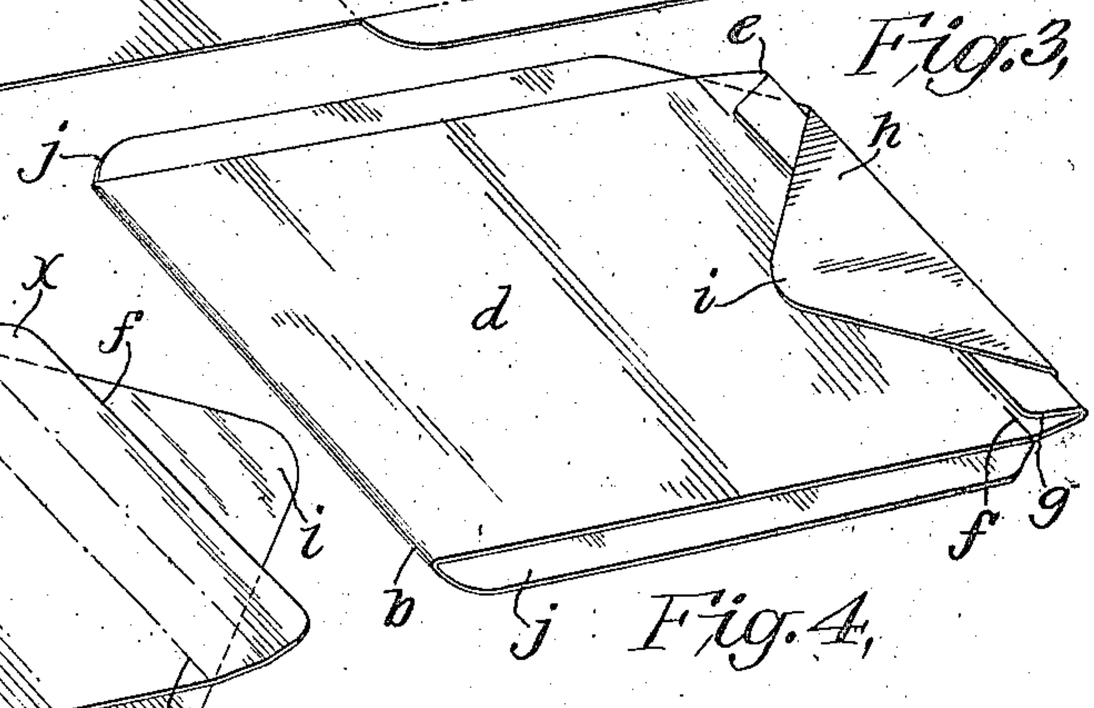


Fig. 2,

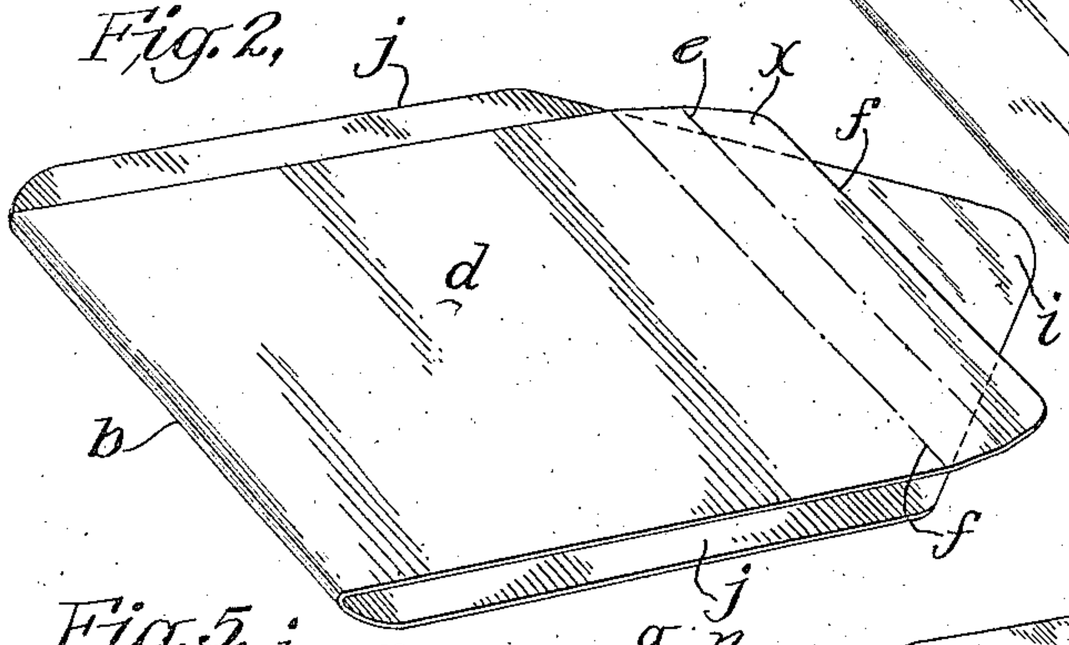
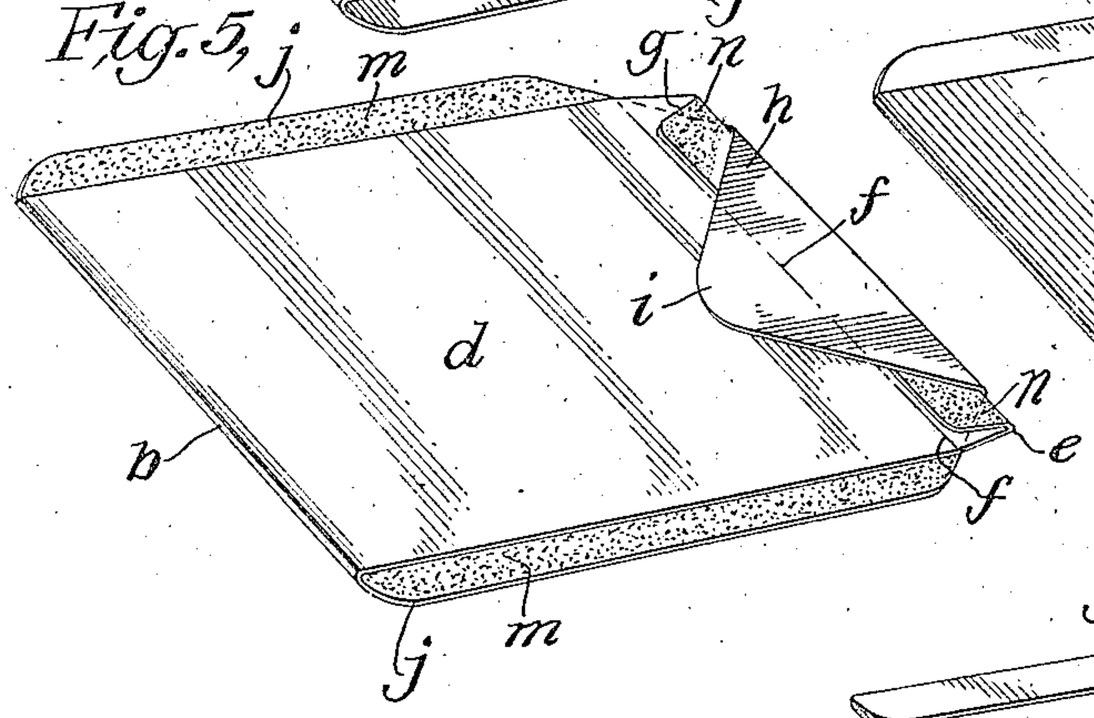


Fig. 4,

Fig. 5,



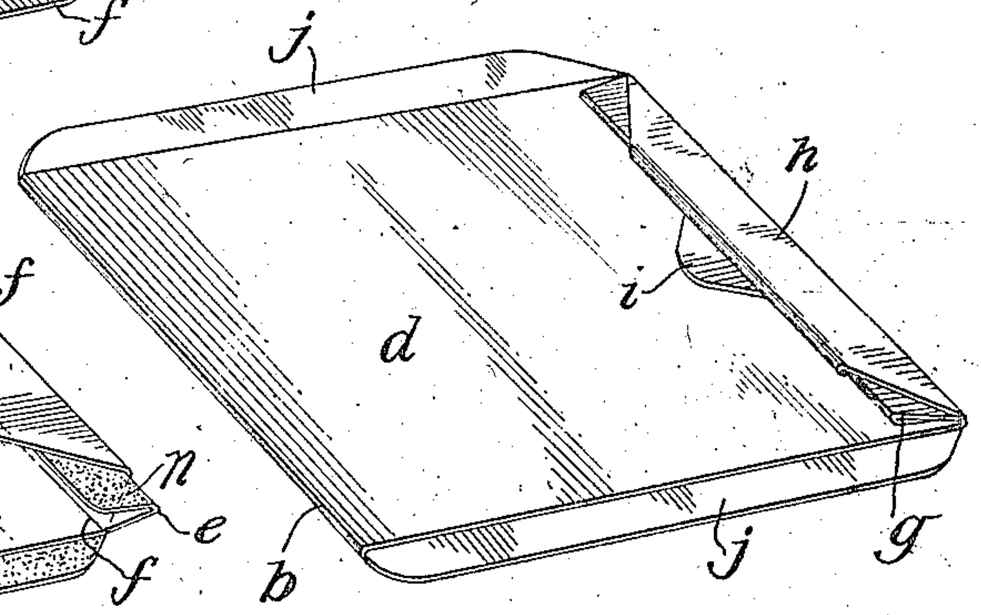


Fig. 6,

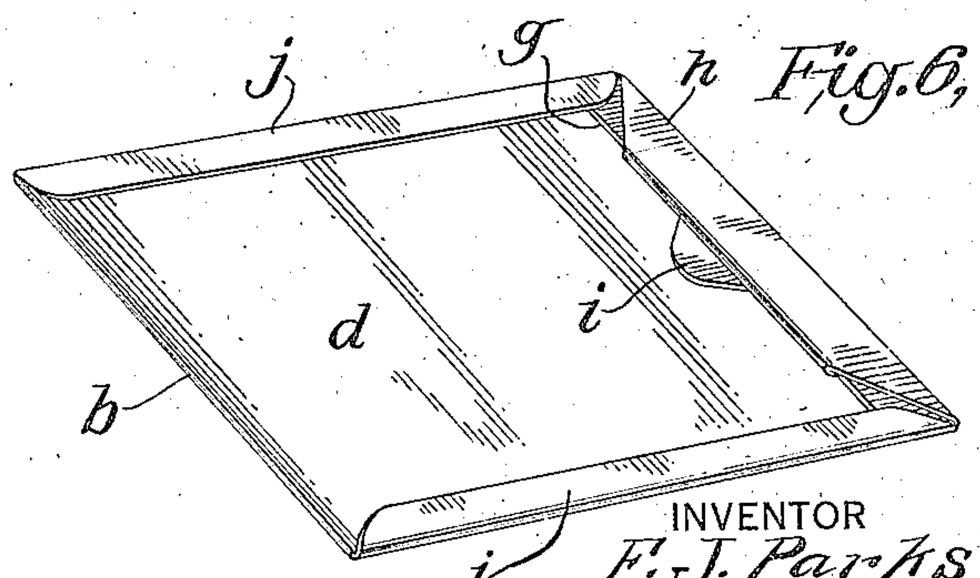
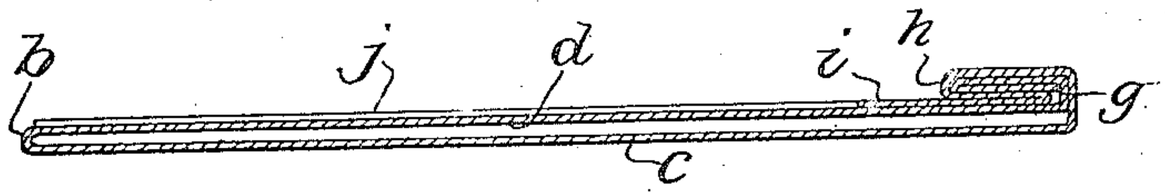


Fig. 7,



INVENTOR
F. J. Parks

BY

ATTORNEY

Patented June 19, 1923. 1,459,415

UNITED STATES PATENT OFFICE.

FREDERICK JAMES PARKS, OF NEW YORK, N. Y.

PROCESS OF AUTOMATICALLY MANUFACTURING ENVELOPES.

Original application filed April 11, 1917, Serial No. 161,166. Patent No. 1,316,737, dated September 23, 1919. Divided and this application filed August 23, 1918. Serial No. 251,174.

To all whom it may concern:

Be it known that I, FREDERICK JAMES PARKS, a citizen of the United States, and a resident of the city and State of New York, have invented certain new and useful Improvements in Processes of Automatically Manufacturing Envelopes, of which the following is a specification.

This is a division of my patent application, Serial No. 161,166, filed April 11, 1917, covering an improved machine for making envelopes.

The invention relates particularly to the manufacture of envelopes wherein a pocket is provided upon the envelope body for the reception of part of a closing flap, in such a manner that the same may readily be withdrawn to permit inspection of the enclosure by the postal authorities, and thereafter reinserted for transmission through the mails. The object of the invention is to provide a novel and improved method or process of producing envelopes of this type, capable of employment for their production in such a way as to afford important advantages and economies that will insure their practical or commercial manufacture.

Briefly outlined, the said method or process consists first in producing in the blank of which the envelope is formed, a series of transversely directed folds whereby correspondingly arranged closure members for the envelope are produced at the opposite ends or edges, and subsequently folding or sealing the sides of the blank to produce the lateral closures for the envelope.

The novel features of the invention will be carefully defined in the claims.

In order that my improvements may be the better understood, I will now proceed to describe the invention with reference to the accompanying drawing, wherein—

Figure 1, is a development of the preferred form of blank utilized for making the envelope, the same being shown in perspective;

Figure 2, is a perspective view of the blank doubled upon itself in a longitudinal direction, as it appears after the first transverse fold has been made therein;

Figure 3, is a similar view of the blank transversely folded at the ends thereof, which have been brought together by the first fold;

Figure 4, is a like view, showing an additional fold taken transversely of the doubled ends of the blank;

Figure 5, shows the blank likewise in perspective, with the latter-named fold open to receive some adhesive substance, which is applied to the inner face thereof, as also to the sides of the blank hitherto unfolded;

Figure 6, is a perspective view of the blank completely folded so as to constitute the finished envelope; and—

Figure 7, is a central longitudinal section of the envelope drawn on a somewhat larger scale.

In these views, the blank from which the envelope is to be produced is designated as a whole by the reference letter *a*.

Preferably and as shown, the first step in making the envelope is to fold this blank transversely at or near the middle of the length, as indicated at *b*, whereby the front and back plies *c* and *d* are formed, together with the closure at the end or edge of the envelope opposite to its mouth. Next, the blank is given a plurality of parallel and closely related folds *e* and *f*, so that it becomes transversely folded at and adjacent to the mouth of the envelope. These folds produce a two-ply pocket *g*, integrally joined with the rear ply *d* along the envelope mouth, and a two-ply closure flap or member *h*. The latter is preferably V-shaped as shown, and interlocked with or inserted in said pocket, affording a separable closure at the mouth of the envelope, when completed. The flap *h*, it will be understood, is withdrawn from the pocket *g*, to permit the introduction of the enclosure, and after having been reinserted to prevent loss of such enclosure in the mails, can again be retracted readily, so that the required examination of the contents may be made during transit. The duplex or two-ply formation of the closure flap or member *h*, facilitates its insertion in the pocket *g*, and also assures its retention therein by reason of the increased stiffness and thickness thus imparted to it.

The formation of the blank is such that one of its extremities *i*, constituting a terminal reduced part of the flap *h* in the completed envelope, protrudes from the pocket *g* thereof so as to afford a finger hold, enabling this terminal part to be readily seized by the fingers when the flap is to be withdrawn from the pocket.

As shown, also, the blank is provided with

integral side flaps or extensions *j*, *j*, parallel with each other along the opposite lateral edges or sides. These lateral flaps or extensions are adapted, after the formation of the flap-receiving pocket as above set forth, to be folded over longitudinally of the blank and to be sealed down along the opposite sides of the envelope to close the same.

Simultaneously, the adjoining extremities of the pocket *g*, are sealed down upon the underlying portion of the back ply *d*, to hold them firmly in position.

The improved process or method of manufacturing envelopes herein described may be practiced by hand, if desired, but is best carried on with the aid of suitable machinery, a convenient form of which has been exemplified in the aforesaid patent application Serial No. 161,166.

By preference, the initial transverse fold *b* is taken on a line that bisects or divides the blank *a* into two unequal parts, so that when the plies *c* and *d* are superimposed one upon the other, the V-shaped section of the blank, constituting the outer end of the front ply *c* will project beyond the adjacent extremities of the back ply *d*. Figures 1 and 2. This provides one end closure for the envelope at *b*, and at the same time leaves the superposed extremities of the front and back plies of sufficient length, respectively, to produce the before mentioned two-ply pocket *g*, and two-ply closure flap *h*, together with the pull-out portion *i*.

The second transverse or pocket forming fold *e* is produced in the end portions of both the plies *c* and *d* of the blank so that the terminal of each is folded over upon the back of the envelope, as represented in Figure 3.

The terminal portion of the ply *d*, thus folded over, forms the inner thickness of the two-ply pocket *g*, whilst the terminal portion of the ply *c*, simultaneously folded over, forms part of the closure member or flap *h*.

It will be observed that the fold *e* alone affords a pocket though of single thickness, at the free end of the back ply *d*, and that such a pocket would be capable of retaining the portion *i* of the front ply *c*, if this portion of the blank were tucked into it, and the ends of the pocket sealed. But, the present invention contemplates the employment of the parallel folding *f* in addition.

By taking the third transverse fold *f*, across the doubled ends of the blank, the terminal portion of the ply *d* is again turned upon itself to complete the two-ply pocket *g*, and the superjacent terminal of the ply *c* engaged therewith automatically becomes inserted in this pocket, where it constitutes the two-ply closure flap or member *h*, the extremity *i* of which protrudes outwardly to afford a finger hold as hereinbefore set forth. See Figure 4.

It will be noted that the second and third transverse or pocket forming folds *e* and *f* are both produced from the rear surface of the blank first doubled at *b*. This is the surface of the back ply *d* of the envelope.

In producing the second transverse fold *e*, the projecting extremity *i* of the front ply *c* is folded back upon the rear ply *d* exteriorly of the folded terminal portion of the latter. During the third transverse folding operation, at *f*, the blank is again folded from the same side transversely across the overturned or doubled part of the front ply *c*, so that the reduced end of the blank is partly covered by the formation of the pocket *g*, and becomes the inserted closure flap *h*, with only the short pull-out portion *i* thereof protruding from the pocket.

The three transverse folds *b*, *e*, and *f* having been produced in the manner hereinabove described, the side flaps *j*, *j* of the blank are folded over and sealed down upon the lateral parts of the rear ply *d* to close the sides of the envelope, and the ends of the pocket *g*, are likewise secured to maintain them each in its proper place.

As a preliminary to this operation, the blank may be scored or creased lengthwise, as at *k*, *k*, Figure 1, along the junctures of the side flaps *j*, *j*, with the front ply *c*, so as to facilitate the folding over of the said side flaps, whether manually or through some mechanical appliance.

Any desirable adhesive substance, such as gum or the like, may be used for sealing the flaps *j*, and the ends of the pocket *g*, upon the opposite sides of the ply *d*. Preferably, the gum is applied as at *m*, *n*, Figure 5, to the flaps themselves and to the adjacent extremities of the folded blank portion wherewith the pocket *g*, is formed.

It is conceivable, however, that the gum could as well be applied to parts of the blank lying opposite on the rear ply *d*, and consequently it is not intended to limit the invention in this or any other respect.

In the production of envelopes according to the herein described invention, the blanks are first given a plurality of transverse folds, whereby absolute closures are produced for the opposite ends of the envelopes. One of such closures is of a permanent character, afforded by the central fold *b*, which closes the bottom of the envelope, as best seen in Figures 6 and 7. The oppositely arranged closure is not permanent, but is of a temporary or separable character, being formed by the plural folds *e* and *f*, whereby the pocket *g*, and the flap or member *h* interlocked therewith are simultaneously produced, by folding both plies of the blank conjointly. It will be apparent, in this connection, that both of the folds *e* and *f* need not be produced in the two-plies *c* and *d*, of the envelope, inasmuch as when a two-ply

pocket is not desired, the fold *e* may be produced only in the front ply *c*, of the folded blank, parallel with and adjacent to the terminal edge of the rear ply *d*, the latter being shortened for the purpose, for instance by severing the section marked *x*, in Figures 1 and 2, after which, upon production of the fold *f*, both plies *c* and *d* will be folded, producing a single ply pocket as previously mentioned and a scored or creased closure flap engaging the same. The transverse scoring or creasing of the closure flap being effected simultaneously with the formation of the pocket insures perfect conformity between these parts without the necessity of subjecting the envelope to further operations, which is a distinct advantage, since the independent scoring of the said flap with the pocket would be difficult to perform otherwise.

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

1. In a process of automatically manufacturing envelopes, the steps which consist, in conjointly folding the superposed ends of a doubled blank transversely at points adjacent to each other to form a separable closure member in interlocked relation with a retaining pocket; closing the lateral edges of the blank and fastening said pocket.

2. In a process of automatically manufacturing envelopes, the steps which consist, in twice conjointly folding a two-ply blank, one of whose plies has an end closure flap, transversely at points adjacent to each other, whereby the closure flap is first folded over one of the plies of the blank and then a retaining pocket produced with which said flap is detachably interlocked; closing the lateral edges of the blank and fastening said pocket.

3. In a process of automatically manufacturing envelopes, the steps which consist, in twice conjointly folding a two-ply blank, one of whose plies has an end closure flap, transversely at points adjacent to each other, the lateral edges of the respective plies being out of registry, said flap being first folded over one of the plies of the blank and then a retaining pocket produced with which said flap is interlocked; and then folding over and sealing the respective lateral overlapping blank edges upon the adjacent ply and the adjacent ends of said pocket.

4. In a process of automatically manufacturing envelopes, the steps which consist, in twice conjointly folding a two-ply blank, one of whose plies has a narrowed terminal portion provided with an end closure flap extended beyond the adjacent end of the other ply, transversely at points adjacent to each other, whereby said terminal portion is first folded over one of the plies of the blank and then a retaining pocket produced with which said flap is detachably interlocked and from which it extends; closing the lateral edges of the blank and fastening said pocket.

In testimony whereof I have hereunto set my hand and seal.

FREDERICK JAMES PARKS. [L. S.]