Nov. 18, 1941. J. A. NEUMAIR 2,262,774

PACKAGING CIGARETTES AND THE LIKE

Filed July 7, 1937 6 Sheets-Sheet 1

FIG. 1

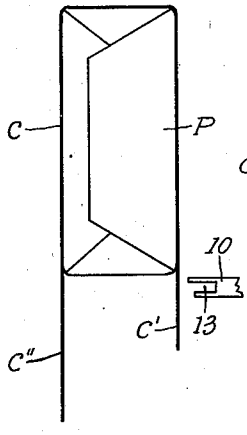


FIG. 2

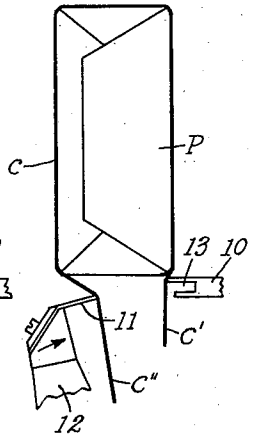


FIG. 3

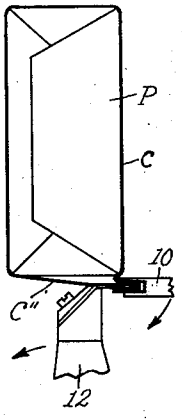


FIG. 4

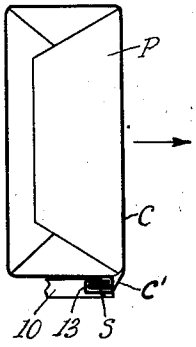


FIG. 6

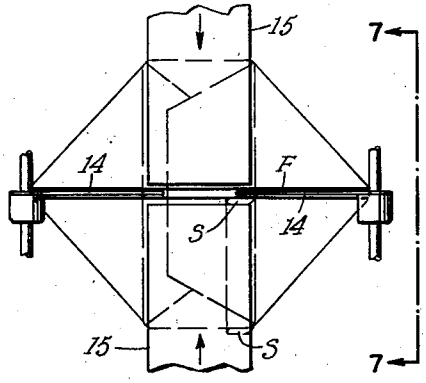


FIG. 7

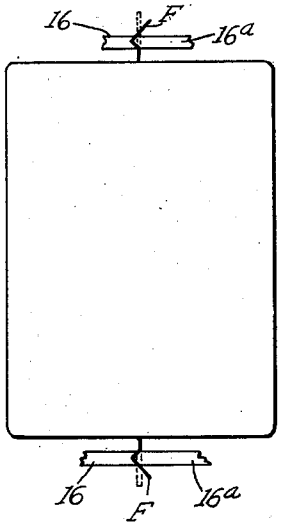
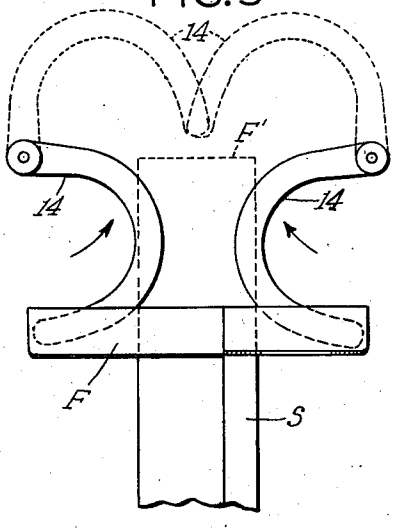


FIG. 5



INVENTOR
Joseph A Neumair
BY George S. Hastings
ATTORNEY

Nov. 18, 1941. J. A. NEUMAIR 2,262,774

PACKAGING CIGARETTES AND THE LIKE

Filed July 7, 1937 6 Sheets-Sheet 2

FIG. 8

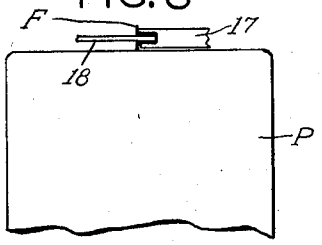


FIG. 9

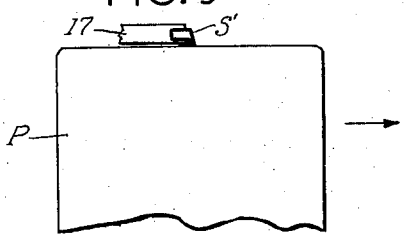


FIG. 10

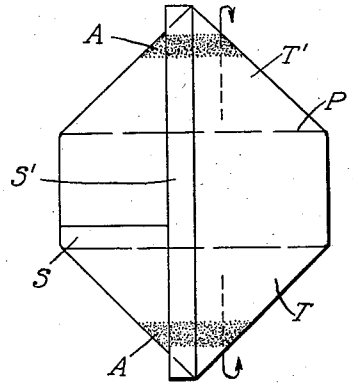


FIG. 11

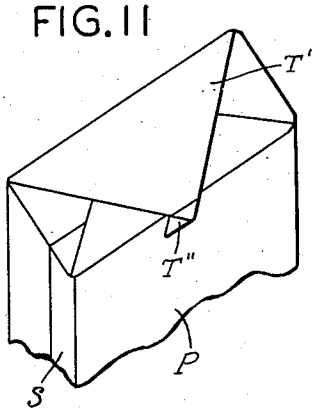


FIG. 12

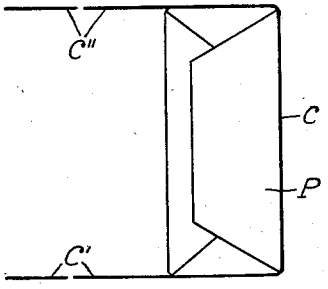


FIG. 13

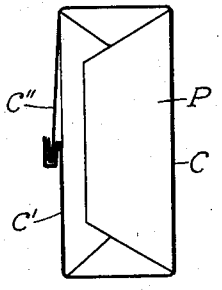
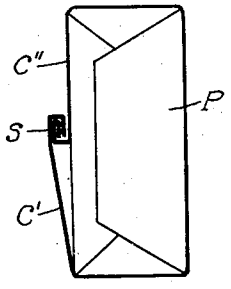


FIG. 14



INVENTOR
Joseph A Neumair
BY Georges Castonguay
ATTORNEY

Nov. 18, 1941. J. A. NEUMAIR 2,262,774

PACKAGING CIGARETTES AND THE LIKE

Filed July 7, 1937 6 Sheets-Sheet 3

FIG. 15

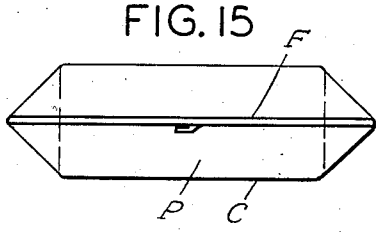


FIG. 16

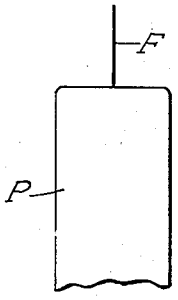


FIG. 17

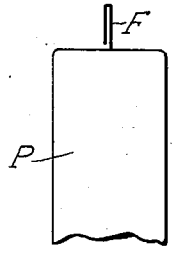


FIG. 19

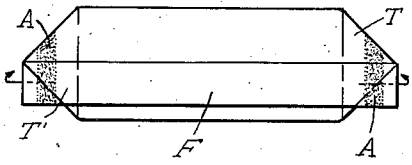


FIG. 18

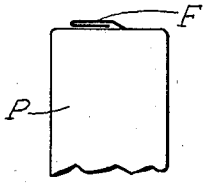
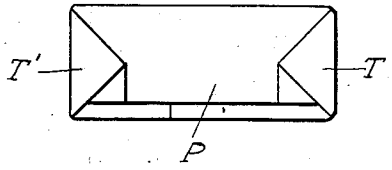


FIG. 20



INVENTOR
Joseph A Neumair
BY George S Harding
ATTORNEY

Nov. 18, 1941. J. A. NEUMAIR 2,262,774

PACKAGING CIGARETTES AND THE LIKE

Filed July 7, 1937 6 Sheets-Sheet 4

FIG. 21

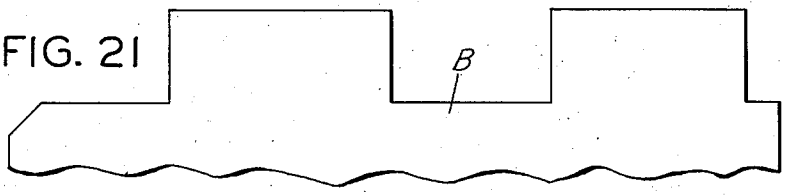


FIG. 22

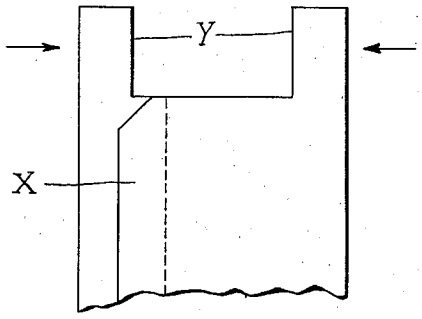


FIG. 23

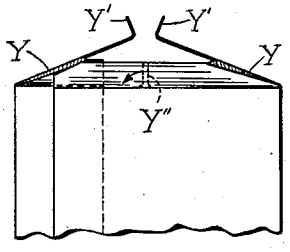


FIG. 26

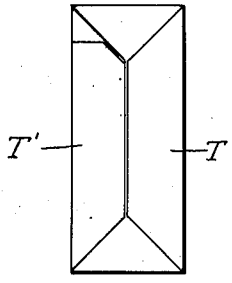


FIG. 25

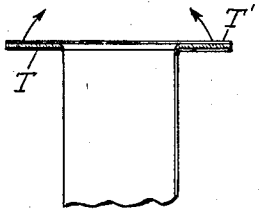


FIG. 24

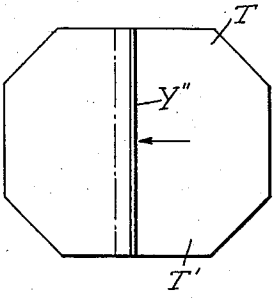


FIG. 27

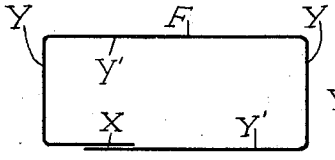


FIG. 28

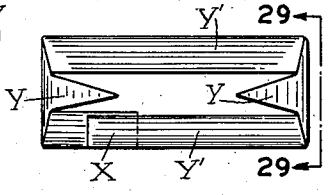


FIG. 30

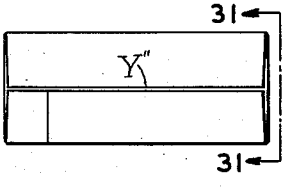


FIG. 29

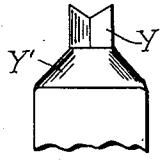


FIG. 31

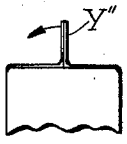
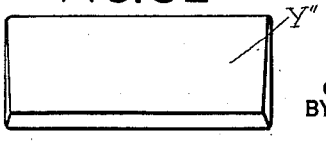


FIG. 32



INVENTOR
Joseph A Neumair
BY Jerges & Hastings
ATTORNEY

Nov. 18, 1941. J. A. NEUMAIR 2,262,774

PACKAGING CIGARETTES AND THE LIKE

Filed July 7, 1937 6 Sheets-Sheet 5

FIG. 33

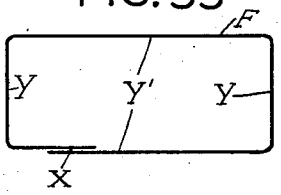


FIG. 34

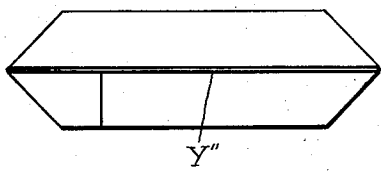


FIG. 35

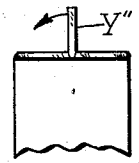


FIG. 36

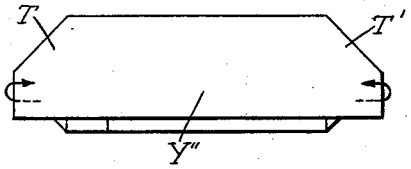


FIG. 37

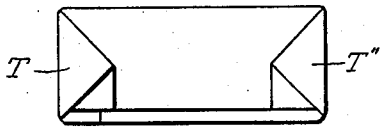


FIG. 38

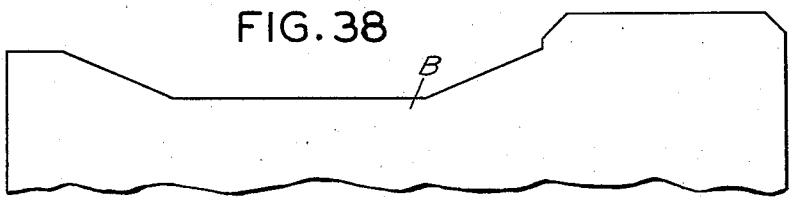


FIG. 39

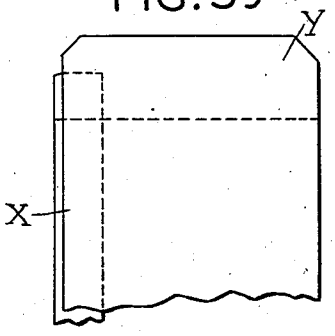


FIG. 40

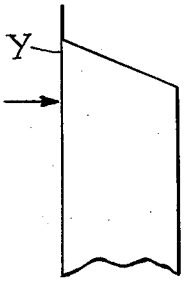


FIG. 41

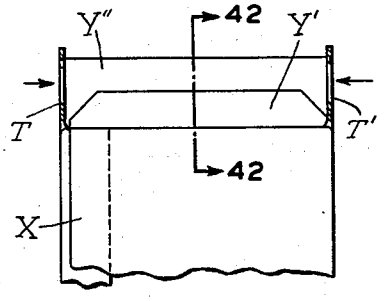


FIG. 42

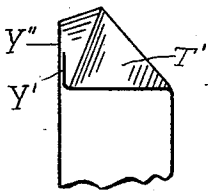


FIG. 43

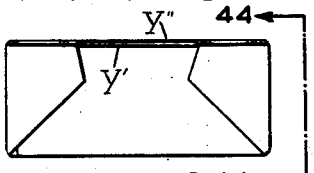


FIG. 44

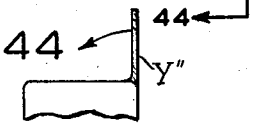
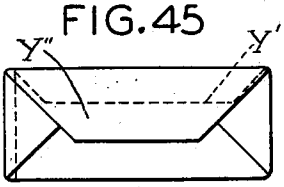


FIG. 45



INVENTOR
Joseph A. Neumair
BY Jerges & Hultman
ATTORNEY

Nov. 18, 1941. J. A. NEUMAIR 2,262,774

PACKAGING CIGARETTES AND THE LIKE

Filed July 7, 1937 6 Sheets-Sheet 6

FIG. 46

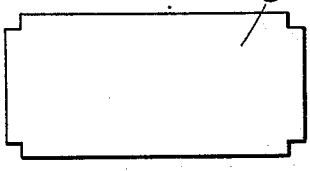


FIG. 47

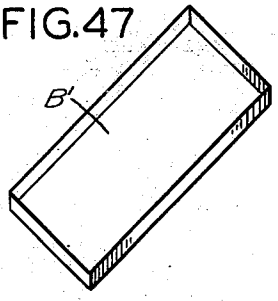


FIG. 48

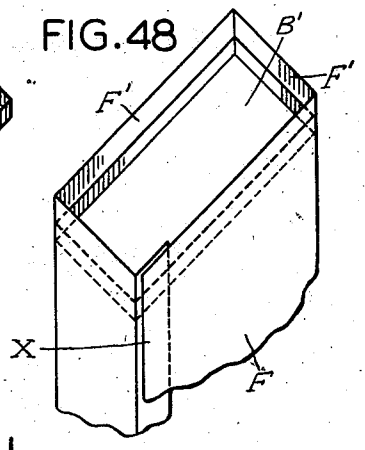


FIG. 49

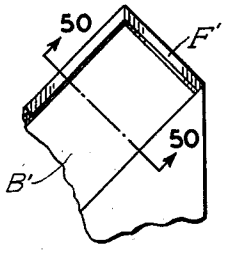


FIG. 50

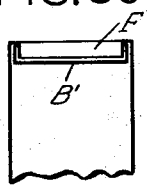


FIG. 51

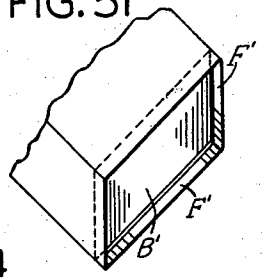


FIG. 52

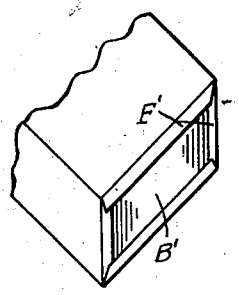


FIG. 53

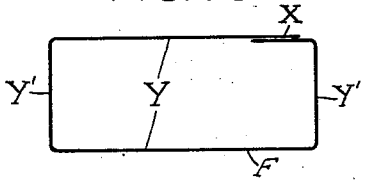


FIG. 54

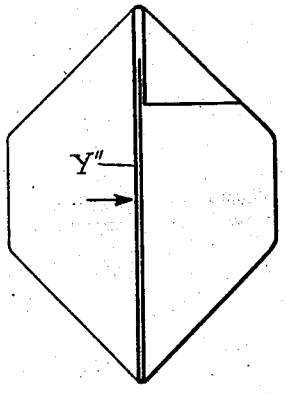


FIG. 55

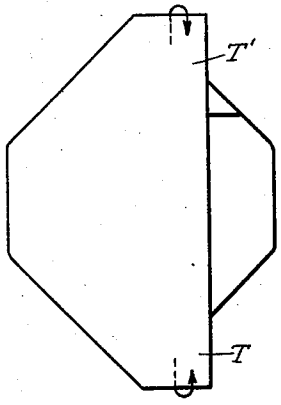
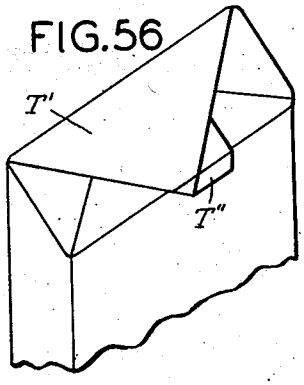


FIG. 56



INVENTOR
Joseph A Neumair
BY George S. Hastings
ATTORNEY

Patented Nov. 18, 1941 2,262,774

UNITED STATES PATENT OFFICE

2,262,774

PACKAGING CIGARETTES AND THE LIKE

Joseph A. Neumair, Hollis, N. Y., assignor to American Machine & Foundry Company, a corporation of New Jersey

Application July 7, 1937, Serial No. 152,300

2 Claims. (Cl. 229—87)

This invention relates to wrapping, more particularly to the packaging of cigarettes, cigar packages and the like. The main object of the invention is to provide a moistureproof closure of the ends of a wrapper formed of regenerated cellulose or heat-sealable foil. To this end, in the various embodiments of the invention selected for illustration herein, end flaps of the wrapper may lie folded into abutting relation and bonded together by fusion of thermoplastic adhesive previously coated on their contiguous faces. Moreover the abutting flaps may be crimped transversely or longitudinally, and the same may be folded inwardly or interlocked to form a lock seam.

A further object of the invention is to provide a hermetically sealed foil wrapper having indicia printed on one of its side faces. With this end in view, a heat-sealable foil wrapper having suitable indicia printed thereon is draped about the package and the thermoplastic coating along the contiguous faces of the longitudinal seam so formed is fused to bond the same, and certain end flaps may be folded inwardly into abutting relation, while the intermediate flaps are spread apart, and heat-sealed to form an upstanding seam which may be folded down on the end of the package. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts:

Figs. 1 to 4 are plan views illustrating the successive steps in producing a lock seam fold in the outer wrapper along one side face of the package;

Figs. 5 and 6 are side and plan views respectively, showing the means for spreading and closing the top flap of the wrapper;

Fig. 7 is a front view illustrating the creasing of the top and bottom flaps;

Figs. 8 and 9 are front views showing the means of producing a lock seam fold to the top of the wrapper;

Fig. 10 is a plan view of Figs. 9, and

Fig. 11 shows the upper portion of the completed package;

Figs. 12 to 14 inclusive, are plan views illustrating the successive stages in producing a lock seam fold in the outer wrapper on the rear face of the package;

Fig. 15 is a plan view showing the upper flaps of the wrapper spread and closed;

Fig. 16 is a side view of Fig. 15;

Figs. 17 and 18 show the steps of folding the top flap;

Fig. 19 is a plan view of Fig. 18, and

Fig. 20 is a plan view of the completed package;

Fig. 21 is a partial showing of the die cut wrapper blank;

Figs. 22 to 25 illustrate the successive stages of folding the wrapper; and

Fig. 26 is a plan view of the completed package;

Figs. 27 to 31 disclose the stages of folding the wrapper; and

Fig. 32 is a plan view of the finished package;

Figs. 33 to 36 show various stages of folding the wrapper; and

Fig. 37 is a plan view of the finished package;

Fig. 38 is a partial showing of the die cut wrapper blank;

Figs. 39 to 44 illustrate the successive steps of folding the wrapper; and

Fig. 45 is a plan view of the completed package;

Figs. 46 and 47 illustrate the manner of making the insert which constitutes the bottom end of the package;

Figs. 48 to 50 show the stages of folding the wrapper about the bottom insert;

Fig. 51 shows the finished package having extending ends which give the appearance of a tin can bottom;

Fig. 52 shows the finished package with the extending ends folded to produce a flat bottom;

Figs. 53 to 55 show the successive stages of folding the wrapper; and

Fig. 56 is a view of the finished package.

Referring to the drawings, Figs. 1 to 11 disclose a method of applying a transparent envelop or wrapper to a package in a manner to obtain hermetic or moistureproof closure of said package. The wrapping material C, which may be regenerated cellulose such as Cellophane or any suitable transparent material, is draped around three sides of package P as seen in Fig. 1. A folder plate 10 then moves towards the projecting side flap C' and creases the same over the corner of the package (Fig. 2) while a folding finger 11 attached to oscillating arm 12 swings and presses the projecting side flap C''

against the flap of web C', eventually lodging both flaps in a folder slot 13 (Fig. 3) extending across the free end of folder plate 10. The flaps are thus creased and doubled back on each other. Arm 12 then moves in the opposite direction to withdraw folder 11 from the folder slot, folder 10 being then turned 180° to interlock the folded flaps C' and C'' (Fig. 4) and thereby produce a lock seam S. Package P is now moved in the direction of the arrow and in so doing the lock seam S is withdrawn from folder slot 13. The folder 10 having performed its duty then returns to its starting position in readiness for the next package. The projecting end flaps of the package are next folded to complete the closure of the same. As seen in Fig. 5 only the top end of the package is illustrated but it should be understood that the bottom end is folded in the same manner about to be described. The projecting end F' of the wrapper indicated in dotted lines (Fig. 5) is spread transversely of the broad faces of the package by arms 14 which enter the open wrapper end and engage the broad flaps thereof adjacent their bases, and at the same time a pair of tuckers 15 move inwardly from the narrow sides of the package whereby the edges of the wrapper are brought into abutting relation to form a seam F. Arms 14 and folders 15 then return to their starting position, whereupon sets of creaser members 16 and 16*a* engage and crease the seams F on the top and bottom ends of the package (Fig. 7). In this manner the seams F are pinched together to form tails which tend to remain closed. Upon retraction of members 16 and 16*a*, sets of folders 17 and 18 (Fig. 8) move inward to engage the tails F, one folder 18 of each set inserting the tail F into the folder slot of the respective member 17. Member 18 is then withdrawn and folder 17 then turned 180° to complete the lock seam S' as shown in Fig. 9. Upon movement of the package P in the direction of the arrow, the interlocked seam is withdrawn from the folding slot, the folder 17 then returning to its previous position. A stripe of adhesive A applied to each of the triangular flaps T and T' produced during the formation of the seams F (Fig. 10) serves to secure the flaps to the underlying portions of the wrapper when said flaps are folded inwardly to complete the package as shown in Fig. 11. The projecting tab T'' of flap T' permits opening of the package with ease and convenience.

If desired, the wrapper material may be printed, heat-sealable foil having a thermoplastic coating on portions or the entirety of its inner faces. In this case the transparent wrapper may be dispensed with and the wrapper will be folded around a hollow mandrel in the same manner as previously described. Following the completion of the lock seam S along one side face of the mandrel the bottom flaps only of the package are spread transversely of the broad sides of the package by arms 14 (Fig. 5) at the same time the folders 15 tuck the wrapper inwardly over the outer end of the mandrel, thereby forming and closing the seam F. The seam F, after retraction of arms 14 and folders 15, crimped and heat-sealed by suitable heated members (not shown), similar to those shown in Fig. 7, and the tail F thus formed is then operated upon similarly to the manner shown in Figs. 8 and 9, to produce the lock seam S'. The triangular flaps T and T' are next folded inwardly one over the other, and a suitable heated member (not shown) engages the end of the wrapper so closed to activate the stripe of adhesive A and fuse together the contiguous surfaces between the various overlapping folds thereof. The wrapper, which is still open at one end, is removed from the mandrel when its contents, for example cigarettes, are inserted from the inner end of the mandrel and ejected through the other end. The open end of the wrapper is then closed and sealed in the same manner as above described, or its flaps may be merely folded in the conventional manner.

A package wrapped according to a modified principle is disclosed in Figs. 12 to 20 inclusive, whereby the wrapper is draped around three sides of the package P as seen in Fig. 12. The projecting wrapper margins C' and C'' are folded and tucked by folders of the type described and shown in connection with the previous package during the first step in the formation of the lock seam of the wrapper along the rear face of the package as seen in Fig. 13. The slotted folder then turns 180° and interlocks the folds C' and C'' to complete the lock seam S at the rear of the package shown in Fig. 14. The projecting top and bottom flaps of the wrapper C are spread transversely of the narrow sides of the package, and at the same time the wrapper is folded inwardly from the broad sides over the top and bottom ends of the package. The seams F, are thereby formed and closed as shown in Fig. 15 at the top end of the package. The various stages in the formation of the top and bottom seams or tails F are illustrated in Figs. 16, 17 and 18. As shown, the small triangular flaps T and T' (Fig. 19) receive stripes of adhesive A serving to secure said flaps to the underlying portions of the wrapper when they are folded to complete the package as shown in Fig. 20.

A printed, heat-sealable foil wrapper, which may have a thermoplastic coating on portions or the entirety of its inner face, may be used, and the transparent wrapper just described may be dispensed with, in which case the foil wrapper will be draped around a hollow mandrel. Upon completion of the lock seam S, the flaps on the narrow sides of the bottom end only will be spread and the flaps on its broad sides will be simultaneously folded inwardly and a suitable heated member will contact and heat-seal the seam F so formed. When the seam F has been formed and closed and the triangular flaps T and T' are folded inwardly, a heated member will seal the bottom end of the wrapper by fusing together the foil between the overlapped folds thereof. The wrapper, now open at one end, is removed from the mandrel when the contents, for example cigarettes, are inserted through the inner end of the mandrel. The open end of the wrapper is then closed and sealed in the same manner as just described. Figs. 21 to 26 disclose various steps in the formation of still another type of package. One end of the wrapper blank B, which may be formed of foil having a thermoplastic coating on portions or the entirety of its inner face is cut away as illustrated in Fig. 21 to facilitate folding of the wrapper and to also reduce unnecessary bulkiness of the wrapper. It will be understood that the other end of the blank may be identically cut away to assure easy folding. The blank B is folded around the arbor and the outer edge of the longitudinal seam X is engaged by a heated member to cause it to adhere to the under lap of the wrapper. The projecting tongues Y are next

folded inward as indicated by the arrows (Fig. 22), resulting in the displacement of the ears from a vertical to a horizontal plane wherein their tips Y' are brought into vertical abutting relation (Fig. 23). The upright seam or tail Y'' so formed is engaged by a heated member to fuse together the thermoplastic coating on the inner faces of the tips Y' and thereby seal the same. The upstanding tail Y'' (Fig. 24) is then folded down as indicated by the dot and dash lines. The projecting flaps T and T' (Figs. 24 and 25) are then folded inward, completing the folding of one end of the wrapper which is then sealed by engagement of a heated member therewith to fuse the foil between the flaps T and T' and the underlying portions of the wrapper. The package is then stripped from the mandrel when the contents are inserted through the inner end of the latter, whereupon the open end of said package is folded and sealed in the same manner as above described, or in the conventional manner if desired.

Another modified form of package is disclosed in Figs. 27 to 32, in which the foil wrapper F is draped around the mandrel (Fig. 27) and its longitudinal seam X is heat-sealed. The flaps Y projecting from the narrow side faces of mandrel are tucked inward forming V-shaped folds (Figs. 28 and 29), following which the flaps Y' of the broad faces of the wrapper are folded inwardly over the end of the mandrel to form the tail Y'' (Figs. 30 and 31). The tail Y'' is heat-sealed by causing the fusion of the thermoplastic coating on the inner faces of the flaps through engagement of a heated member with the tail. It is then folded down and sealed by fusing the foil on its inner side to the underlying portion of the wrapper through the agency of a heated member contacting its outer side. The pouch is then stripped from the mandrel during the insertion of its contents, and its open end is folded and sealed in the same or the conventional manner.

Referring to Figs. 33 to 37, wherein another modified form of package is disclosed, the foil wrapper F, which may be provided with a thermoplastic coating on its inner face, is folded around the mandrel and the longitudinal seam X sealed by fusion of the thermoplastic coating on the overlapping seam edge to the underlapping edge, as seen in Fig. 33. The narrow flaps Y are then spread and the wide flaps Y' folded inwardly and pressed against the mandrel at their base, thereby forming a tail Y'' (Figs. 34 and 35) which is heat-sealed by fusion of the thermoplastic coating on the inner faces of the flaps and then folded down as seen in Fig. 36. The projecting flaps T and T' are folded inwardly and a suitable heated member fuses them to the underlying portions of the wrapper, completing one end of the package shown in Fig. 37. After removal of the package from the mandrel through insertion of its contents, the open end of said package is folded and sealed in the same or the conventional manner.

Figs. 38 to 45 disclose still another type of package. Fig. 38 illustrates the upper end of a foil wrapper blank B, which is suitably cut away at one end and provided with a thermoplastic coating on portions or the entirety of its inner face, and it will be understood that the lower portion of the blank is cut in the same manner. The wrapper is then folded around the mandrel and the longitudinal seam X is heat-sealed as shown in Fig. 39. The long broad flap Y (Fig. 40) is tucked inwardly over the mandrel, so that its tip Y' extends upward vertically and bears against the short broad flap Y'' of the wrapper as seen in Figs. 41 and 42. A heated member then engages the outer face of the flap Y'' and fuses together the thermoplastic coating on the inner faces of flaps Y' and Y'' as well as the projecting ears T and T' formed during the tucking of flap Y at the narrow sides of the package. Upon completion of this sealing operation the ears T and T' are tucked inward as disclosed in Fig. 43. The upstanding flap Y' (Figs. 43 and 44) is next folded down and a heated member engages the flap Y' and thereby fuses its thermoplastic coating to the underlying folds and completing one end of the package. The wrapper is filled and withdrawn from the mandrel, and its open end then folded and sealed in the conventional or the same manner as seen in Fig. 45.

Figs. 46 to 52 illustrate still another modified type of package. In this form a small foil blank B cut with the configuration shown in Fig. 46, constitutes the base of the package. The blank B, when its margins are folded upwardly produces a tray-like insert B' (Fig. 47) which is placed against the outer end of the mandrel (Fig. 48) and interfolded with the flaps F' of the foil wrapper F after its longitudinal seam X has been heat-sealed in the manner described above. The portions of the flaps F' extending beyond the side walls of the tray B' are folded over and crimped to the same as shown and/or they are heat-sealed thereto by providing the contiguous surfaces with thermoplastic coating which may be suitably fused together. This type of fold produces a package end as seen in Fig. 51, having the appearance of a tin can bottom, but if this bottom is undesirable the outstanding walls may be folded down to produce a flat bottom as shown in Fig. 52. The open end of the package may be folded and sealed to produce a top fold of the conventional or any of the types previously described herein.

Referring to Figs. 53 to 56, another modified type of package is illustrated. With this type also the foil wrapper F may be folded around the mandrel and heat-sealed at the longitudinal seam X (Fig. 53). The projecting flaps Y are spread transversely of the broad faces of the mandrel and at the same time the flaps Y' are folded inwardly against the mandrel, producing a tail Y'' as seen in Fig. 54. A suitable heated member seals the tail Y'' by fusion of the thermoplastic coating on the inner faces thereof, whereupon it is then pressed down as seen in Fig. 55. The flaps T and T' are then folded inwardly into overlapped relation and sealed, by fusion to the underlying portions of the wrapper, producing a completed closure of one end of the package as seen in Fig. 56. The projecting tab T''' of flap T' may be readily grasped for opening the package. Upon removal of the package from the mandrel, the open end of the same is completed in the conventional or the same manner as described.

What is claimed is:

1. A hermetically sealed package whose breadth is greater than its thickness having a tubular wrapper whose ends have been spread transversely in a direction at right angles to its breadth and folded inwardly at right-angles to the direction of spreading to form an upstanding seam, the triangular projecting flaps so formed being overlapped and the outer flap being adhesively

secured to the inner flap and projecting beyond one broad side face of the package.

2. A hermetically sealed package whose breadth is greater than its thickness and having a tubular wrapper formed of regenerated cellulose with an adhesive free longitudinal lock seam wherein the longitudinal edges of the wrapper have been brought into abutting relationship, creased, doubled back upon each other and interlocked to form the lock seam, each end of the wrapper having been spread transversely of the package in a direction at right angles to its breadth to provide two contiguous edges at each package end which are brought into abutting relationship, creased, doubled back upon each other and interlocked to form an adhesive free lock seam and outstanding flaps projecting from the broad sides of the packages, said outstanding flaps being folded inwardly over the ends of the package into overlapping relationship and the end of the outer flap projecting beyond one broad side of the package, and the outer flap being adhesively secured to the inner flap.

JOSEPH A. NEUMAIR.