

Nov. 11, 1952

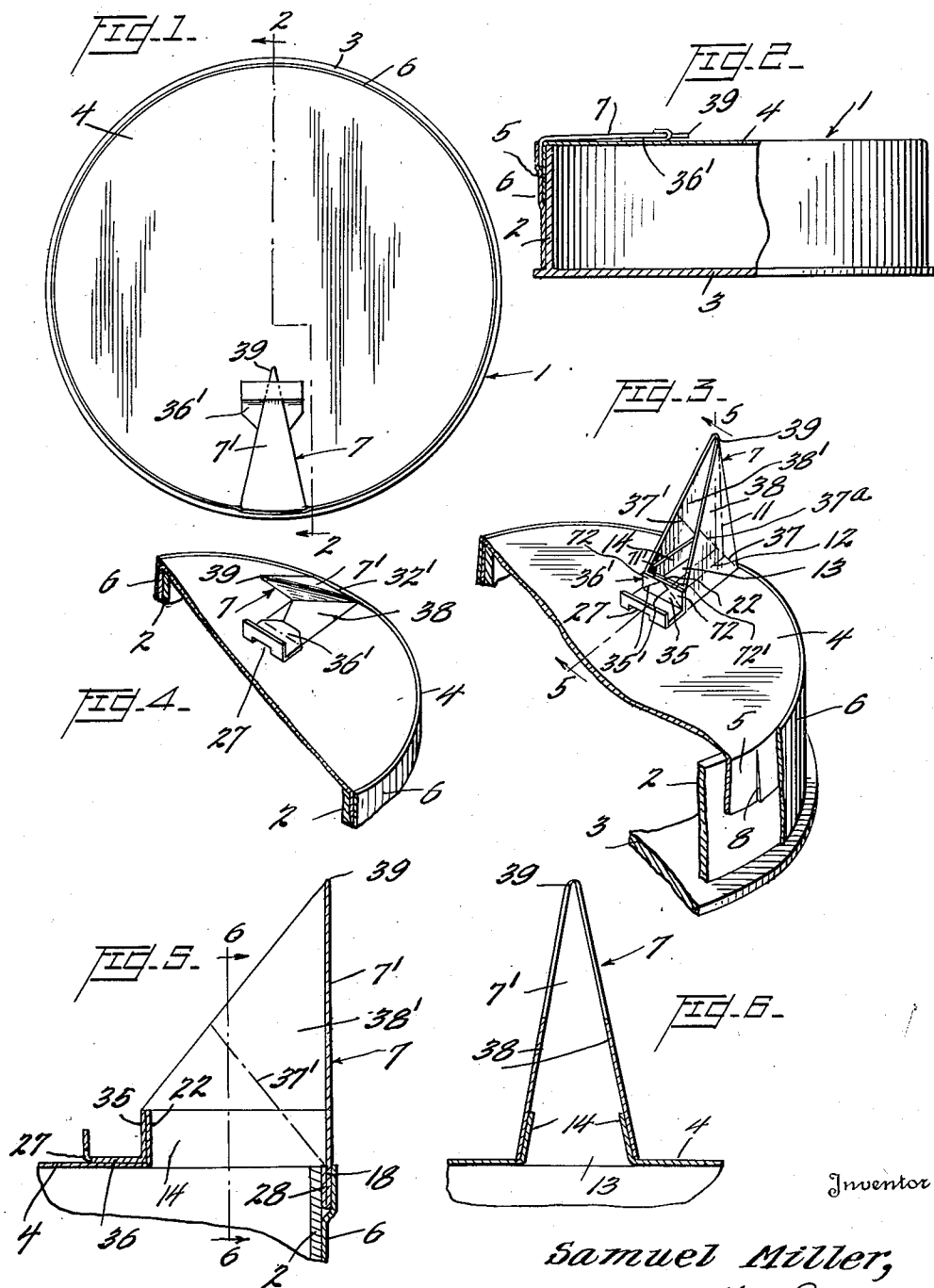
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2,617,563

FOLDABLE DISPENSING AND CLOSURE DEVICE

Filed Jan. 4, 1946

4 Sheets-Sheet 1



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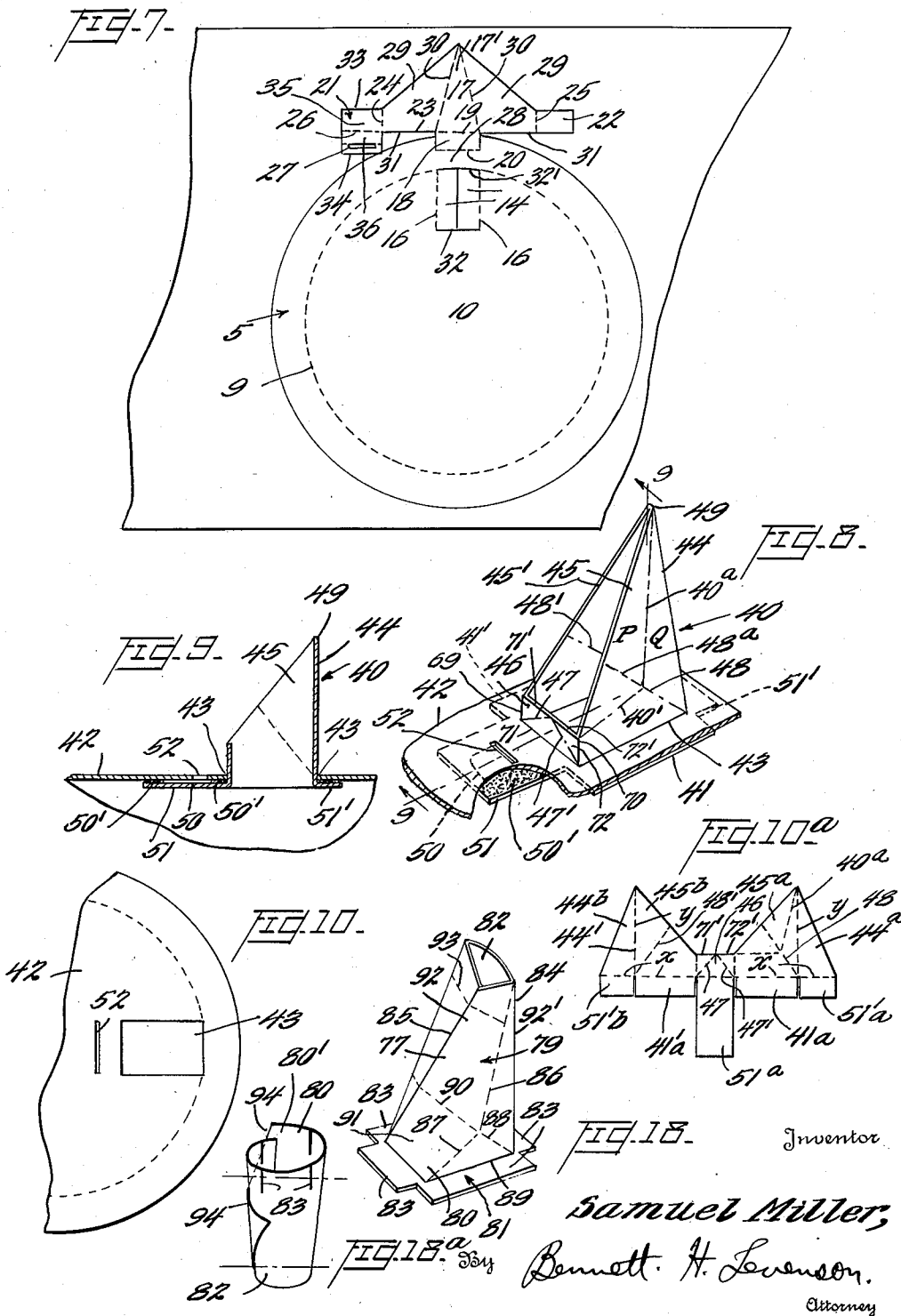
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FOLDABLE DISPENSING AND CLOSURE DEVICE

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4 Sheets-Sheet 2



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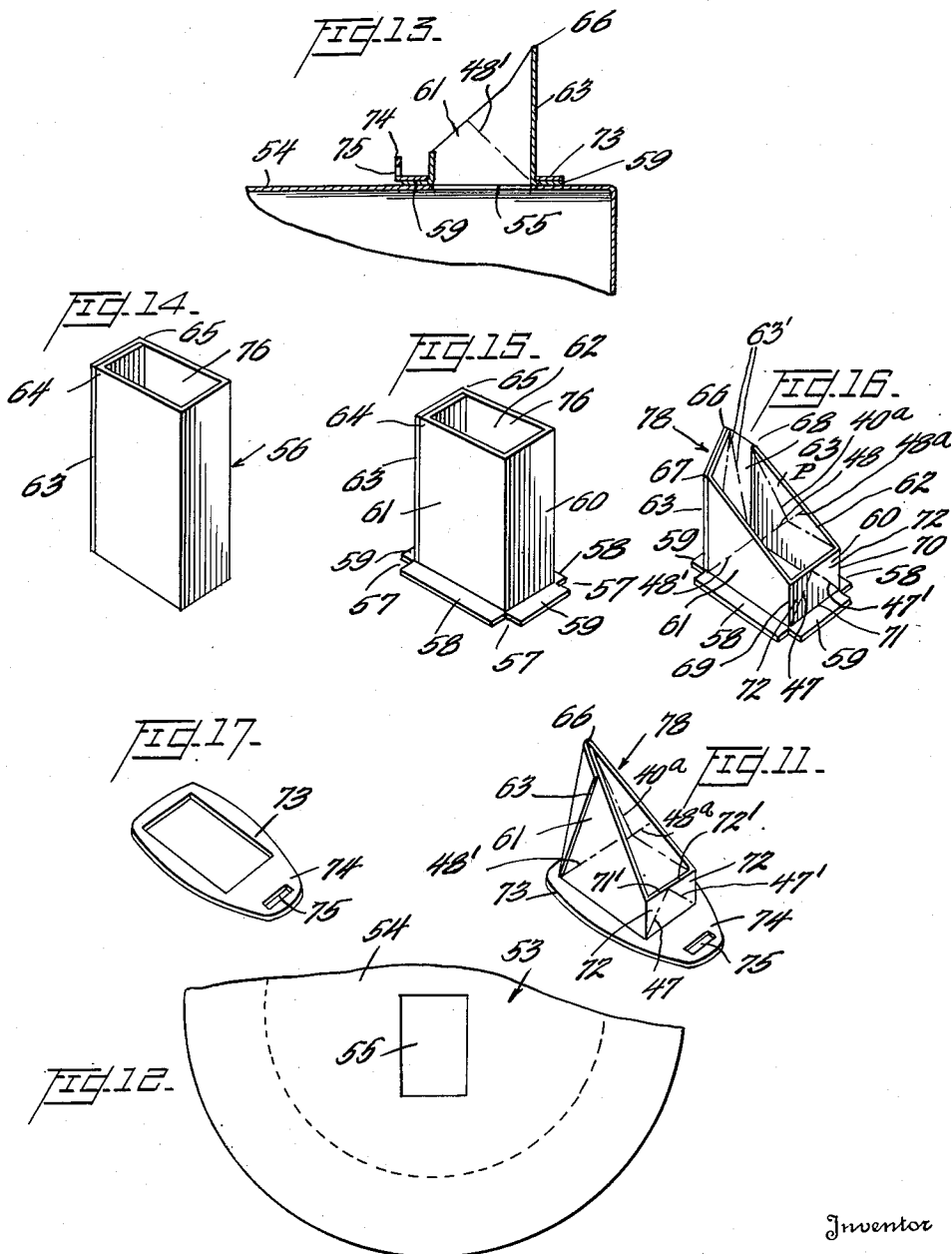
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FOLDABLE DISPENSING AND CLOSURE DEVICE

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4 Sheets-Sheet 3



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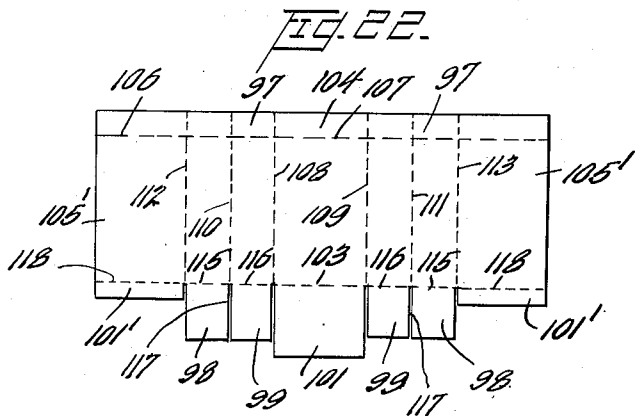
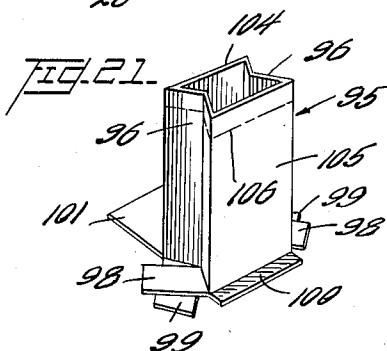
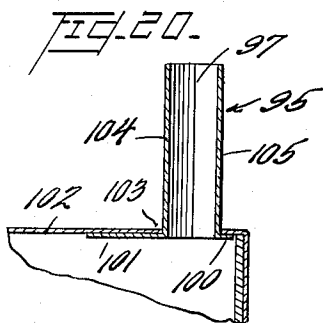
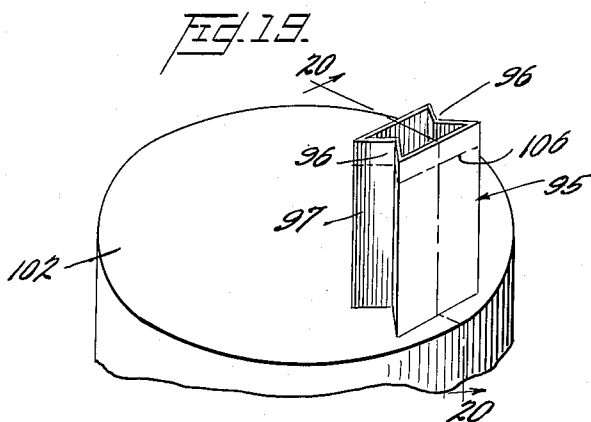
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FOLDABLE DISPENSING AND CLOSURE DEVICE

Filed Jan. 4, 1946

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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FOLDABLE DISPENSING AND CLOSURE
DEVICE

Samuel Miller, Washington, D. C.

Application January 4, 1946, Serial No. 639,099

14 Claims. (Cl. 222—528)

1

This invention relates to the art of dispensing pulverulent materials. More particularly it relates to a novel dispensing and closure device, especially applicable to containers for extremely finely divided solid particles. Indicative of a particular adaptation of the invention, and illustrative of a preferred embodiment thereof, it pertains to cosmetic powder containers.

The prevailing tendency for impalpable powders to scatter and diffuse as a dust during a dispensing operation, as from a conventional package, is a matter of general recognition. This situation is effectively illustrated in connection with the removal of a cosmetic powder from its container. These powders are usually packaged in containers having a paper cover or seal completely enveloping the open end or top and which is permanently attached to the container walls. Accordingly this paper seal, integral with the walls, functions to completely enclose the impalpable powder and comprises a surface of the container. The container cover is normally designed to telescope over the lateral walls of the container in a close concentric fit, and is thereby superimposed on the said paper seal.

In removing facial powder from a previously unopened container, it is necessary to first provide an opening or slit in the paper seal to permit the powder to flow through. When the container is tilted, for example, to transfer the powder through this opening or slit to a compact or vanity case, the diffusion characteristics of the finely divided material inevitably result in an uncontrolled dispersal or scattering of some powder, with an attendant dusting or soiling of any objects within reasonable proximity to the dispensing operation, usually clothes, furniture, upholstery, rugs, the floor, et cetera.

In addition there is a generally objectionable dissipation of some of the material, particularly over the surface of the paper seal. Since the powder dispersed on the seal cannot be effectively returned through the slit or opening to the container thereunder and remains generally unconfined, this functions to aggravate the obnoxious dusting and soiling tendency during any subsequent dispensing operation. Moreover the diffusion characteristics of this unconfined powder on the seal surface persist even with the container cover securely in position, when the container is subjected to any undue disturbance or movement.

It is an object of this invention to obviate such difficulties and uncertainties as hereinabove indicated.

2

Another object is to attain a dispensing device peculiarly adapted for packages containing pulverulent materials.

An additional object is a closure device especially applicable to the dispensing opening of a container for finely divided solid substances.

A further object is to devise a novel combination dispensing and closure device which is peculiarly applicable to containers for pulverulent or liquid materials.

An important object is to produce a novel collapsible spout for dispensing an impalpably fine material, such as cosmetic powder, from its container and an effective closure for the said container.

Still another object of the invention is a seal for a cosmetic powder container, with a collapsible dispenser and closure device for affording confined flow from and to the container.

A significant object is to provide a unitary blank adapted to function as a container surface and to provide a combination collapsible spout or dispenser and closure device.

Other objects, advantages and features of the invention will become apparent from the following description read in connection with the accompanying drawings, in which similar elements are designated by like numerals:

Fig. 1 is a plan view of a container of the cosmetic powder variety, showing the paper seal or covering provided with a combined dispensing spout and closure device, within the purview of the invention, in closed position.

Fig. 2 relates to a side view, partly in section, taken along the line 2—2 of Fig. 1.

Fig. 3 presents a fragmentary perspective of the uncovered container, showing the dispenser, in open position, integral with the package seal, the details being applicable to the dispenser modification attainable from the illustrative blank of Fig. 7.

Fig. 4 shows in fragmentary perspective a seal similar to that of Fig. 3, with a modified dispensing spout partly folded or collapsed.

Fig. 5 is a radial section on line 5—5 of Fig. 3.

Fig. 6 sets forth a fragmentary section on line 6—6 of Fig. 5, showing a coordination of the package seal and the dispensing funnel or spout.

Fig. 7 reveals a unitary blank modification of the package seal and the dispensing funnel, adapted to function as a collapsible package closure.

Fig. 8 indicates in perspective one modification of an independent type of dispensing funnel and closure device in attachment with a package seal fragmentarily shown.

Fig. 9 shows a sectional elevation taken along 9—9 of Fig. 8.

Fig. 10 is a fragmentary plan view of the seal and its opening to which the dispenser of Figs. 8 and 9 are attached.

Fig. 10a relates to a blank adapted for forming the dispenser of Figs. 8 and 9.

Fig. 11 shows in perspective a dispensing funnel and closure generally similar to that of Fig. 8, adapted for attachment to a package seal in superimposed relationship with the seal opening in predetermined position.

Fig. 12 presents a fragmentary plan showing of the opening in the seal adapted for association with the dispensing funnel of Fig. 11.

Fig. 13 deals with a sectional detail of the dispenser of Fig. 11 correlated with the seal opening of Fig. 12.

Fig. 14 relates to a perspective of a blank folded into a tubular form of rectangular cross section with the free edges attached, indicating a preliminary stage of the formation of the dispensing device of Fig. 11.

Fig. 15 pertains to the provision of flange means by slitting the corners at one end of the form of Fig. 14.

Fig. 16 shows the form of Fig. 15 cut on a bias in the course of preparing the dispenser.

Fig. 17 is a collar independently cut and adapted for overlying the flanges shown in Figs. 15 and 16.

Fig. 18 presents in perspective another modification of independent dispensing funnel and closure adapted for attachment to a package seal opening.

Fig. 18a indicates in perspective a modification of blank in a formative stage applicable to the dispenser of Fig. 18.

Fig. 19 comprises an additional dispenser modification shown in perspective together with the package seal to which it is attached.

Fig. 20 is directed to a cross-sectional view of dispenser of Fig. 19 taken along the line 20—20.

Fig. 21 provides in perspective the dispenser modification of Fig. 20, showing structural features thereof independently of the seal.

Fig. 22 is drawn to an illustrative blank and fold lines from which the dispenser of Figs. 19—21 may be derived.

Referring more particularly to the features of invention embodied in the modifications shown by the various figures of the drawings, 1 designates a cosmetic powder container of cylindrical configuration, with 2 indicating the lateral walls thereof. The cover of the container, not shown, may be of the type which is provided with downwardly extending flanges, similar to lateral walls, and is adapted to telescope over walls 2 in a close fit, the free edge of the flanges or walls of the cover seating on flange 3 of the container. Package seal 4 is permanently attached to lateral walls 2 of the container in any expedient manner, as by resort to an adhesive applied to pleated portion 5 of the seal, whereby the said seal in effect comprises an upper wall of the container. Any decorative or ornamental covering 6, usually paper, may then be superimposed over said portion 5, and affixed thereto as well as to lateral walls 2 in any desired fashion, as by an appropriate adhesive composition.

The dispensing funnel or spout 7 of Figs. 1—6 is shown as an integral part of package seal 4, being made from the same unitary blank. Referring to Fig. 7, the blank generally designated as 5, is stamped or cut from a sheet, fragmen-

tarily shown, of any flexible or foldable material, desirably paper of predetermined characteristic and texture. Fold or crease line 9 determines the top surface 10 of the package seal 4.

An opening 13 is determined in the seal by flaps 14, which are adapted for folding along crease or score lines 16. The segment 17, which includes the generally triangular portion projecting beyond the circular part of blank 5 shown in Fig. 7, is foldable relative to projecting portion 18 along crease line 19, and this projecting portion is in turn foldable along crease line 23.

Segment 17 is further provided with two additional rectangular shaped projections 21 and 22, extending from opposite apices at side 23 of the segment. Projection 21 is foldable relative to segment 17 along crease line 24, while projection 22 is foldable with respect to segment 17 along crease line 25. Projection 21 is further supplied with a fold line 26 as well as a slit 27, the purport of which will be apparent from the description hereinbelow.

In forming the dispensing funnel 7, projection 18 is folded over on crease line 20 so as to be superimposed on portion 28 of the blank, fold line 19 then substantially coinciding with fold line 9, or crease line 32' representing the pertinent portion of said fold line 9. While projection 18 may be adhesively attached to portion 28 of the blank, this expedient is not essential since in the ultimate positioning of seal 4 on the container, as shown in Fig. 3, the ornamental material 6 will be superimposed over the correlated association of 18, 28 and will retain them in position against lateral walls 2 of the container. It will be noted that the surface area of projection 18 is such as to correspond essentially with the surface area of blank portion 28.

At this stage, segment 17 is pivotable along score or crease line 19 at the edge 9 of the package seal and, therefore, adjacent opening 13 of the seal. Portions 29 of segment 17, foldable along crease lines 30, are affixed to flaps 14 of opening 13 by adhesive or the like. In this connection, the dimension of line 31 on each side of projection 18 desirably corresponds with the length of the flaps 14, corresponding with fold line 16. Accordingly the attachment of the flaps 14 to the respective portions 29 of segment 17, these parts being appropriately faced and aligned relative to each other with lines 31 coinciding with fold lines 16, results in projections 21 and 22 being free at this stage of the dispenser construction. Folding projection 21 along line 24 to a position at right angles to flap 14, and thus into a position to span the edge 32 of opening 13, portion 35 forms a wall or guard means relative to opening 13 and opposite to that determined by segment 27', which is that portion of 17 bordered by line 19 and lines 30.

The edges 33, 34 of projection 21 are of essentially the same dimension as edge 32 of opening 13, and crease line 26 will, therefore, coincide with edge 32 under these conditions. Portion 36 of projection 21 is attached to the top 10 of seal 4 by any expedient adhesive material, with crease line 26 coordinated with said edge 32 of opening 13. In affixing portion 36, a part thereof embracing edge 34 and slit 27 should be free from adhesive and thereby remain unattached and foldable relative to the other attached part of portion 36 of projection 21. Portion 35 thus serves essentially as a guard or edge wall of opening 13 and corresponds with element 36' of Fig. 3.

After folding projection 22 along crease line 25,

it is adhesively attached either to the front side or the rear side of portion 35 of projection 21.

The segment 17, which determines the conveying surface of the funnel is provided with crease lines 30, whereby, when the funnel is folded into its ultimate shape for use, conveying surface 17 assumes a substantially triangular configuration and corresponds with wall 7'. Lateral walls 38, 38' of the dispensing funnel may be folded along their respective crease lines 37, 37a and 37', with wall 38 being also foldable along crease lines 11 and 12; thus it will be noted that the fold lines on the respective walls 38 and 38' are quite differentiated. Similarly the wall or guard 36', determined by portions 35, 22 integrally attached to each other, is foldable to a substantially triangular shape along lines 35', although there is no intent to be restricted to this particular configuration.

The crease lines of Fig. 3 correspond in their function with those shown on Fig. 8. In this connection, crease lines 11, 12 of Fig. 3 correspond with lines 40a, 40' of Fig. 8, and transverse fold line 37' of Fig. 3 is equivalent to transverse line 48' of Fig. 8. Likewise lines 35, 35' of wall 36' of Fig. 3 are analogous to lines 47', 47' of wall 46 of Fig. 8. The remaining elements of significance in the collapsing of the dispenser shown in Fig. 3 to a closure device have been designated by similar numerals to those shown on Fig. 8, embracing the corner areas 72, vertical edges 69, 70 and horizontal edge portions 71', 72' of the guard wall.

The manner of folding the dispenser of Fig. 3 along its respective crease lines may desirably follow the procedure described hereunder in the detailed consideration presented relative to the functioning of the dispenser shown in Fig. 8, and it is therefore discussed only generally at this point. In collapsing the dispenser, wall 38' may be caused to overlap wall 38, the latter having desirably been at least partially folded over onto itself by the expedient of its crease lines 11, 12 as well as lines 37, 37a. Thus wall 38 is ultimately folded over on itself, through the expedient of its crease lines, while wall 38' may similarly be in effect doubled over with the upper portion thereof superimposed upon the lower portion, but the respective walls are subject to folding through the expedient of different crease or fold lines. The ultimate result comprises the collapse of the dispenser with wall 38' being interposed within the folded wall 38, the contact of the respective walls being on their reverse or inner surfaces.

At the same time, end areas 72 of guard wall 36' are folded inwardly to a position adjacent the inner surface of this wall and desirably caused to overlap somewhat, and may result in a substantially triangular form for said guard wall 36', defined by lines 35'. At this point the overlapped lateral walls 38', 38 have their upper portion in a comparatively vertical plane and their lower portion adjacent guard wall 36' in a comparatively horizontal plane. Guard wall 36' folded as aforesaid may then be pivoted along line 32 to overlie the said horizontal portion of the overlapped walls 38', 38. The vertical or apex portion of the overlapped lateral walls may then be pivoted along line 32' to be folded over the comparatively horizontal portion, and thereby caused to overlie the horizontally positioned folded guard wall 36'. The apex 39 may then be inserted in slit 27 for retaining the dispenser in its position as a closure device. It will be noted that

lines 16 correspond with the pivotal axes for the lateral walls 38, 38'.

Thus the rear wall 7' is positioned at the top of the collapsed dispenser, thereby being superimposed over the folded lateral walls 38, 38' as well as the folded guard wall 36'. The end portion 39 of the dispenser is adapted for insertion in the slit 27 to provide a closure device, i. e. for retaining the funnel in collapsed position until the dispensing of powder is desired.

The blank comprising the seal 4 and dispenser 7 assembled as hereinabove described, is positioned over the opening edge of lateral walls 2 of the container, the seal surface 10 coinciding with the container opening. The blank is folded along the crease or score line 9 to bring portion 5 into contiguity with lateral walls 2. In order to effectuate the attachment of portion 5 to walls 2 by adhesive or otherwise, and in a manner to attain a suitable fit, portion 5 is provided with a plurality of pleats 8. As previously indicated, ornamental cover 6 is positioned over the lateral walls 2 and portion 5 of the seal, thereby serving to conceal the pleats 8. There is no intent however, to be restricted to any particular manner of attaching the seal to the container.

It will thus be seen that the dispenser 7 is adapted to supply powder through the funnel essentially without danger of dissipating the material. During the dispensing, the powder is guided by the sidewalls 38, 38' and at the termination of the pouring action, any residual powder remaining in the funnel may be returned to the container through opening 13 substantially without diffusion or loss by spillage, in view of the guard 36'. In effect lateral walls 38, 38', guard wall 36' and the conveying surface 17 which corresponds with rear wall 7' determine a perimetric enclosure at the base or inlet portion of the dispenser. On completion of the dispensing operation, the spout may be collapsed to a horizontal position along the surface of the package seal and retained in this position. Accordingly where a container cover is contemplated, irrespective of the design of this cover or the manner in which it fits over the opening, the dispensing device will not interfere therewith.

The device of Fig. 4 is generally similar to that of Fig. 3 with respect to its fundamental structure and functioning characteristics. However it represents a modification of the funnel or spout shown in Fig. 3 to the extent that the crease lines on the respective walls are reversed, with the result that the funnel of Fig. 4 folds in precisely the opposite direction to that of the funnel shown in Fig. 3. Thus crease lines corresponding to 11, 12, 37, 37a, shown on lateral wall 38 of Fig. 3, are positioned pursuant to Fig. 4 on lateral wall 38'; similarly the equivalent crease line 37' indicated on wall 38' of Fig. 3 occurs in Fig. 4 on wall 38. Accordingly in folding the funnel of Fig. 4, wall 38 will overlie wall 38', whereas in Fig. 3, wall 38' overlies 38.

Figs. 8, 9 and 10 present a dispensing funnel which is constructed independently of the package seal, and is adapted for attachment to the seal in a correlated association with any predetermined opening provided in the seal surface. The general structure of this funnel 40 is similar to that indicated in Figs. 1-7, and in its completed form, it is shown by the perspective of Fig. 8. The fragmentary disclosure of the seal surface is designated as 42, and the opening therein is 43.

Referring to the funnel or dispenser in its open position as shown in Fig. 8, 44 designates the rear

wall, while the side walls are indicated as 45, 45'. The rear wall 44 determines the conveying surface in this modification, and the guard wall is designated 46. This dispenser is attached to the seal 42, shown in fragmentary proportion, by causing flanges 41, 41', 51, 51' to adhere to the undersurface of the seal.

Lateral wall 45' is subject to being folded along transverse crease line 48'. Side wall 45 is provided with transverse fold lines 48, 48a, these being in effect coextensive when the wall is extended after in the position shown in Fig. 8. Accordingly and as pointed out above in the description relating to Fig. 3, the crease lines on the respective lateral walls 45 and 45' are not symmetrical, since they differ as to their number and manner of functioning. In addition, wall 45 is shown to have fold or crease lines 40a, 40', these lines being essentially a continuation of each other and embracing the longitudinal dimension of this lateral wall substantially from its apex portion 49 to guard wall 46; however, as will be noted from the drawing, fold line 40' is angularly disposed relative to fold line 40a and the angular association may approximate that of a right angle or a somewhat obtuse angle when the wall is in an extended position as in Fig. 8, but there is no intent to be restricted to any particular angle, since this may be subject to variation without deviating from the purport of the invention. The juncture of lines 40' and 40a is desirably on the transverse crease line 48, 48a.

Guard wall 46 may be foldable to a substantially triangular form by folding two areas 72 along their respective crease lines 47, 47'. Thus the area 72 determined by lines 69, 71' and 47 is foldable along line 47 by forcing this area to a position adjacent the inner surface of wall 46, at which time vertical edge 69 of wall 46 essentially coincides with line 71 contiguous the seal opening, and horizontal edge 71' of wall 46 assumes a position substantially at right angles to said line 71. Similarly the other area 72, determined by lines 70, 72', and 47' is foldable to overlie the inner surface of wall 46, with edge 70 falling along line 71 and edge 72' becoming vertically positioned with respect to said line 71. With both areas 72 folded in as described, edges 69 and 70 of wall 46 form a substantially coextensive straight line along line 71, while edge portions 71', 72' of wall 46 desirably overlap somewhat and define a line vertically disposed relative to the line determined by edges 69, 70.

In the ultimate folding of wall 45, the longitudinal area P on one side of crease lines 40a, 40' is to be folded over corresponding area Q on the other side of crease lines 40a, 40'. Thus in this overlapping of area P on Q, crease line 48a assumes an angular position relative to crease line 48; the extent of this angle is subject to variation, dependent on the degree of overlapping of area P over area Q and may desirably be an acute angle. It is not essential that P completely overlaps Q, but it is quite desirable that some overlapping be afforded throughout the length of the lateral wall, as along fold line 40a, 40'.

To collapse the dispenser, walls 45, 45' and 46 in effect simultaneously alter their relative status. As lateral wall 45 becomes overlapped on itself by folding area P over area Q along lines 40a, 40', with crease line 48a assuming an angular relationship relative to crease line 48, lateral wall 45' is in effect simultaneously folded over wall 45, crease line 48' thereby essentially overlying crease line 48a. It will also be noted that the collapsing

of the dispenser results in wall 45 being substantially folded over on itself, and wall 45' is likewise essentially doubled over, but the folding of these respective walls is attainable through the above indicated different fold lines. The ultimate effect is the interposing of wall 45' within the folded wall 45, but the contact between the respective walls is on their reverse or inner surfaces.

At the same time guard wall 46 becomes folded by the moving in of areas 72 as previously described. At this stage, lateral walls 45' and 45 are longitudinally overlapped, with the latter being folded over itself and with guard wall 46' assuming a substantially triangular form, although it may still be in a practically vertical position relative to the seal surface. This longitudinal overlapping of the lateral walls 45, 45' at this point results in the upper portion of the overlapped walls being in a comparatively vertical position relative to the lower portion of the overlapped walls which are in a comparatively horizontal position. To collapse the dispenser to a horizontal position and into essentially the same plane as that of the seal, the overlapped lateral walls 45, 45' are doubled over along the now essentially superimposed fold lines 48', 48a, with the edge of the seal opening at the base of rear wall 44 serving as a pivot line. Similarly guard 46, in its substantially triangular form, is foldable to a horizontal position in superimposed relationship to the lower overlapped, substantially horizontal portion of lateral walls 45, 45', the line of juncture between guard 46 and the seal opening providing the axis for this pivoting. The overlapped apex portion 49 is desirably caused to overlie folded guard wall 46, in its horizontal position with the apex being adapted for insertion through slit 52 of seal surface 42 to be pocketed between portion 50 of flange 51 and the under surface of the seal.

This pocket structure is attainable as a result of the manner of attachment of flange 51 to the under surface of seal 42. Referring to Fig. 8 it will be seen that portion 50 is an integral part of flange 51 intermediate the edges of said flange. While the surface of the flange is provided with an adhesive or bonded material or the like 50' for attaching the same to the under-side of the seal, intermediate portion 50 is free from any bonding or adhesive material. The dimension of portion 50, as will be apparent from the showing in Figs. 8 and 9, is such as to embrace the slit 52 as well as the length of apex 49, which is intended to protrude through the slit 52 when the funnel is attached to the seal and closed or collapsed relative thereto. Alternatively a collar may be superimposed on and attached to the dispenser flanges. The collar may then be caused to adhere either to the outer surface or to the under surface of seal 42 in coordinated association with the seal opening. If desired an independent slit for the apex portion of the dispenser may be provided by the attachment of a strip of material to the seal surface, and this expedient is applicable to any of the modifications shown. Conversely where a pocket type of slit is contemplated for the dispenser apex, an appropriate area 50, free from adhesive, is allowed on the side of the collar which is adhesively attached to either the outer or under surface of the seal to render the dispenser integral with the seal and to provide a pocket for the dispenser apex. In the latter construction, it will be understood that adhesive or bonded material is similarly omitted from that portion of the flange

51 and the overlying collar portion to provide the appropriate pocket for receiving the dispenser apex.

In the attachment of the dispenser assembly of Figs. 8 and 9 to seal 42, the funnel is passed through seal opening 43, the base portion of the funnel being desirably dimensioned to correspond with said opening 43. As a result of the adhesive or binding material 50' over flanges 41, 41', and 51', as well as over 51 previously indicated, with portion 50 free from adhesive, the flanges may be permanently affixed to the under-surface of seal 42, affording the pocket 50 relative to seal 42 for the reception of apex 49 of the funnel, and rendering the dispenser integral with said seal.

As an alternative, expedient manner of making the dispenser of Figs. 8 and 9, a blank may be formed in accordance with the showing in Fig. 10a. This blank comprises segment 51a, corresponding to flange 51 of the dispenser, and segments 51'a and 51'b which together determine flange 51'. The relatively enlarged dimension of segment 51a permits forming a pocket to receive the dispenser apex, as described above. Segments 41a and 41'a constitute flanges 41 and 41' in the completed dispenser assembly. It will be seen that a slit or a cut is provided between each of the segments 51'b, 41'a, 51a, 41a, and 51'a. Portions 44a and 44b together determine rear wall 44; while portions 45a, 45b, respectively define side walls 45, 45' of the dispenser assembly.

In the assembly of the blank, it is merely requisite to bend segments 51'b, 41'a, 51a, 41a and 51'a along fold lines *x* to a position substantially at right angles to the wall segments. Similarly, portions 44a and 44b are folded along crease lines *y* at right angles to respective portions 45a and 45b, the latter two being subject to orientation at right angles to portion 46. Portion 44a may then be overlapped with portion 44b or vice versa, and adhesively attached to each other. Similarly, segments 51'b and 51'a will be adhesively attached to each other, thereby determining flange 51', as above indicated. The crease lines on the blank of Fig. 10a are designated similarly to the crease lines applicable to Fig. 8, and when the assembled dispenser is accordingly creased, it will be adapted for a collapsed closing position. The provision of an adhesive or binding substance 50' to the respective flanges, for attachment to the under-surface of the seal 42 has been previously described hereinabove.

The dispensing device of Figs. 11-17 which is structurally independent of any package seal blank, is adapted for attachment to a seal when and in the manner desired. Referring to Fig. 12, the seal 53, having the top surface 54, is provided with an opening 55. An expedient manner of forming a dispenser funnel for coordination with this opening involves starting with a blank sheet of paper of predetermined dimension and shape; while a rectangular configuration is desirable, there is no intent to be restricted to this form. This rectangular sheet of paper, not shown in the drawings, is folded into the form of a parallelepiped, with the free edges superimposed and attached to each other to form the device 56 shown in Fig. 14. By slitting each of the four corners 57, flanges 58, 59 are obtained, these determining and extending from opening 55' which comprises the inlet or opening of the funnel or dispenser shown in Fig. 16 as well as Fig. 11. Wall 63 is then cut on a bias to eliminate corners 64, 65 and resulting in the apex

66. Walls 61 and 62 are then cut on a bias downwardly from corners 67 and 68 toward wall 60, which is also cut, as indicated by Fig. 16, to an extent corresponding with the aforementioned bias cutting of walls 61, 62.

The result is a device as shown in Fig. 16. In completing the dispenser formation wall 63 may be recressed to a substantially triangular form as shown in Fig. 11, resulting in walls 61 and 62 being shifted somewhat forwardly, substantially without any effect on the structural features of the device. Thus the edges of wall 63 are displaced pursuant to the showing of Fig. 11 as a result of the said wall being inwardly folded along lines 63'.

Collar 73, in Fig. 17, may be cut from a separate sheet of paper or the like and is adapted to overlie flanges 58, 59 for adhesive attachment thereto. Flap 74 comprises the portion of collar 73 which extends beyond front flange 59, and is intended to be free from attachment to said flange. Slit 75 is provided in flap 74, and is adapted for receiving the apex portion 66 of the funnel, when it is collapsed to function as a closure means. Collar 73 is shown attached to flanges 58, 59 in Fig. 11, and this assembly is adapted for association, as by adhesive attachment, with seal 53 in coordination with the seal opening 55, which desirably corresponds in dimensions and configuration to the inlet end opening 55' of the dispenser. Thus except for the tip of collar 73, the under surface of collar 73 may be adhesively or in any other expedient manner attached to the surface of seal 53 in perimetric relationship to seal opening 55, said seal opening being coincident with dispenser opening 55'. As for this tip portion extending from slit 75, at least in sufficient extent to provide a pocket for funnel apex 66, it is free from attachment to the seal surface.

However, it will be clear that it is not necessary to have the dispenser inlet correspond in dimension with the seal opening, since the device will be equally operative despite a variation in the corresponding sizes of the seal opening and said inlet. Generally any such discrepancy may be compensated by the dimension of the collar 73. For example, where the inlet end of the dispenser is smaller than the seal opening, the collar may be designed to overlap the seal opening and thereby allow for the prevailing difference.

Illustrative of the attachment of dispenser 73 to the seal, it may be superimposed over opening 55, with the flanges 58 and 59 as well as any free portions of collar 73, excepting portion 74 thereof, being attached to surface 54 of the seal by any appropriate adhesive or bonding material. The apex 66 of dispenser 73 may then be retained in closed position through the expedient of slit 75 of collar 73. Conversely the dispenser may be projected through the seal opening, and the collar portion may then be caused to adhere to the under surface of the seal. In this latter situation, it may be desirable to provide for means to receive the apex portion 66 of the dispenser, as by affixing an independent slit to the surface of the seal, or by devising a pocket adapted to receive said apex portion between the collar and the under surface of the seal, in accordance with the details of construction as described in connection with Fig. 8 hereinabove.

Dispenser 73 may be effectively provided with crease or fold lines similar to those shown in Fig.

8. The crease and fold lines designated on Figs. 11 and 16 have been numbered similarly to the corresponding means shown on Fig. 8, and since the functioning is essentially the same, no additional consideration is directed to the manner of collapsing dispenser 78.

Although the crease or fold lines and the features relating to collapsing the dispenser modifications shown in Figs. 1-17 have been described in generally similar details, there is no intent to be restricted to these illustrative characteristics of the invention. Variations in the positioning of the fold or crease lines will be apparent to one skilled in the art without deviating from the features of the present invention. Thus the fold lines shown on the respective lateral walls of the dispensers described may be reversed to attain an overlapping of the dispenser walls in the reverse direction. Referring to Fig. 8 by way of illustration, the crease lines occurring on lateral wall 45 can be instead applied to wall 45', while that on the latter would be provided on wall 45. Under these circumstances, wall 45' would be caused to overlap itself with wall 45 overlying wall 45 on collapsing the dispenser. Similarly the particular design of the dispenser may be subject to change without avoiding the inventive features herein. Likewise the slit or means for retaining the apex portion of the dispenser may be subject to substantial variation, or even omitted within the purport of the present disclosure.

The dispenser modification of Fig. 18 is also applicable for attachment to any appropriate seal opening. This dispenser 79 embraces the funnel portion 77 which may be of substantially tubular configuration having a curvilinear surface; however there is no intent to be restricted to any particular form or shape for this funnel modification.

Desirably base portion 81 is comparatively large with respect to the outlet or discharge opening 82, but this dimensional distinction is not essential since inlet opening 80 and discharge end 82 may be of similar dimension. The funnel assembly may be affixed to the seal by projecting it through any predetermined opening of a size comparable with the base portion 81, and causing the flanges 83, coated with adhesive of any type, to adhere to the under-surface of the seal, in appropriate coordination with the seal opening. Alternatively funnel 79 may be affixed to the seal through the expedient of a collar superimposed on and attached to flanges 83, and coordinated with the seal opening, or by directly attaching the flanges to the seal. Where the seal opening is larger than base portion 81 of the dispenser, flanges of appropriately large dimension or a collar of appropriate size bonded to the flanges may be relied upon to obviate the dimension discrepancy.

When not in use, the funnel may be collapsed by bringing rear wall surface 84 into a contiguous relationship with portion 92 of front surface wall 85 along crease lines 86, located on opposite longitudinal surfaces, these contiguous surfaces being essentially vertically disposed from crease line 90 upwardly when extended relative to the dispenser base. The lower portion 91 of the funnel, primarily embracing the front surface from the base to crease line 90, is at the same time folded to a substantially horizontal plane along lines 87, 88, 90, being in effect pivotable relative to base 89 and flattened toward base portion 81. By further folding the thus collapsed funnel along crease line 90, the upper portion 92 may assume

a substantially horizontal position in superimposed relationship to the lower portion surface 91 of the funnel, or it may assume an acute angular disposition with respect to said portion 91. In order to diminish the length of the dispenser in its collapsed horizontal position, and to afford a closure means for preventing the passage of any powder through the funnel, the apex portion is desirably folded on crease line 93 to overlie or be angularly disposed relative to front wall surface 92. Accordingly when the funnel is fully folded and collapsed, the folded apex portion may be positioned in proximity to, although not necessarily contiguous the base portion of the dispenser. Alternatively the apex portion may be folded on crease line 93 toward the back wall upper surface portion 92' of the funnel. In any event, this dispenser device may assume a compact form of comparatively small area, and dependent upon the fold lines and details of creasing resorted to, it may be substantially in the same plane as the seal surface or angularly disposed relative thereto. This modification obviates the necessity for a retaining slit to hold the dispenser apex in closed position when collapsed.

An illustrative blank for making this funnel modification is shown in Fig. 18a. It may be a conventional sheet of appropriate material of preferred fabrication, the requisite being that it is susceptible to folding or bending in accordance with the requirements of the invention. The sheet may be rolled to the shape generally indicated by Fig. 18a, with its edges 94 desirably overlapped to a sufficient extent for permitting the permanent attachment of the overlapped portions by adhesive or the like. Inlet end 80 of the tube may be comparatively large with respect to discharge end opening 82, although it is not intended to be restricted to this particular configuration since ends 80 and 82 may be of substantially equivalent dimensions. The protruding portion 80', which may occur at either or both ends of the blank may desirably be cut off to provide the substantially uniform circular inlet and/or outlet opening. At the opening 80, slits 83' are cut to form flanges 83. It is then merely necessary to provide the crease or fold lines as previously indicated, in order to position the flanges at substantially right angles relative to the lateral wall surfaces.

The structural modification shown in Figs. 19-22 provides another desirable embodiment of dispenser device. The dispenser 95 may be of rectangular cross-section which is in an open position, and is provided with pleats 96 in its side walls 97, whereby walls 104 and 105 may be positioned substantially contiguous each other on collapsing the dispenser. The base portion of the dispenser has two overlapped flanges 98, 99 on each side, the overlapping attained through the expedient of causing the under-surface of flange 98 to adhere, as by resort to an adhesive material, to the upper surface of flange 99, or vice versa. The other two flanges are designated as 100 and 101.

The cross-sectional detail shown in Fig. 20 indicates the attachment of the flanges to the under-surface of the seal 102. By resort to a crease line 103 at the lower portion of wall 104, the dispenser lends itself to closing merely by causing it to assume a horizontal position contiguous the surface of the seal. A secondary closure, to obviate the possibility of any powder issuing through the dispenser in its closed position, may be attained by folding walls 104, 105, when the dispenser is in collapsed position, along crease or fold line 106 at the upper por-

tion of wall 105, although it will be understood that a complementary crease line 107 will similarly be present on wall 104 with crease lines 106 and 107 coinciding with each other.

The discharge end of the dispenser may thus substantially overlie wall 105, or if desired wall 104, in the event the discharge end is folded in the reverse direction. It may quite effectively serve as a dispenser closure however by being angularly disposed relative to said wall 105 or even wall 104. Without intending to be restricted to any particular angular relationship between the discharge end and the wall surfaces of the dispenser, a right angle or an acute angle have both provided satisfactory results as a closure expedient. Where a container cover is contemplated, the positioning of the cover over the seal and the dispenser coordinated therewith will not necessarily affect this angularly disposed relationship between the dispenser discharge and the collapsed walls in view of the usual space which occurs between the cover and the seal. At the most, the discharge end will be caused to contact the adjacent wall surface as a result of the container cover forcing the discharge end toward the said wall surface.

A blank for the expedient production of the dispenser shown in Figs. 19-21 is indicated in Fig. 22. As in the case of the description of the finished structure, the wall portions of the blank are designated as 104, 105, and the two sets of flanges 98 and 99 are similarly shown, as well as flange 101. In assembling the blank, it is folded along crease lines 108 and 109 to thereby determine wall 104. A further fold along lines 110 and 111 respectively results in the formation of pleats 96 in side walls 97. Creasing the blank along lines 112 and 113 respectively will result in obtaining wall 105, after the two faces 105' are overlapped and adhesively attached. Fold line 103 determines flange 101, and crease lines 115, 116 respectively define flanges 98 and 99. Since flanges 98 and 99 are distinct elements determined by a cut-along line 117, they may be coordinated with each other, as shown in Fig. 21 by overlapping them and causing the under-surface of one to adhere to the upper surface of the other, in a manner as shown in the perspective view. Flange 100 will be determined by folding blank portions 105' along crease line 118, and causing the segments 101' to be superimposed and adhere to each other corresponding to the overlapping of blank portions 105' to determine wall 105.

In assembling the completed dispenser shown in Fig. 21 to the seal, the funnel portion of the dispenser is inserted through the appropriate opening of the seal from the under-surface thereof outwardly, until the flanges 98, 99, as well as flanges 100 and 101 are contiguously positioned relative to the under-surface of seal 102, as shown in the sectional view of Fig. 20. The upper surface of the flanges will desirably be provided with an adhesive material, desirably of the pressure-sensitive type, which will provide a permanent attachment on the application of pressure between the seal and the flange surfaces.

While the dispenser modifications of Figs. 8-22 are described as intended for attachment to a container seal, representing a significant adaptation of the invention, it will be clear that these complete, integral devices are not restricted to this particular use, and are adapted for attachment to various forms of containers or packages, as will be apparent to one versed in the art.

Moreover, the features of dispensing device and closure, as well as the seal and blank details embraced in the invention, are indicative of optimum or preferred adaptations illustrative of desired embodiments, but are not to be taken as restrictive of the scope of the invention.

Thus the particular configurations of the various dispenser devices as a whole, or of their respective surfaces, including their walls, base portions or the like, may be subject to variation within the purview of the invention, and the same applies to the crease or fold lines shown or described. Similarly the material from which the dispenser devices are fabricated is not of critical significance except to the extent that it affords the requisite shape retention properties as a dispenser device and the flexibility or resiliency which permits folding or collapsing along predetermined crease lines to a closure device of the type disclosed. While for cosmetic powder packages, the material is desirably paper of predetermined texture, it will be clear that it is subject to change determined by the dictates of contemplated usage and the characteristics desired. Illustrative of the materials, which may be utilized in addition to paper are leather, fabric especially the type which has been treated to provide the aforementioned properties, synthetic resins, laminated stock material including metal foil, et cetera.

Although the invention has been illustratively described in connection with its desirable adaptation as a dispenser for pulverulent materials, such as cosmetic powder, it is in no sense restricted thereto. Thus it will be understood that it is similarly applicable to the handling of liquid materials or the like.

Pursuant to the invention, a novel, compact and expedient device is obtained which is particularly effective for dispensing an impalpable powder, and is at the same time adapted for collapsing into the form of an efficient closure for a container, such as that utilized in the packaging of cosmetic powder. The dispensing and closure means of the present invention is novel as to structural features, and efficient closure for a container, such as that utilized in the packaging of cosmetic powder. This dispensing and closure means of the present invention is novel as to structural features, and efficient as to its operation.

The terminology in the claims is subject to an appropriate latitude of construction pursuant to the scope of the invention described herein. Thus the expression "container surface" is contemplated as generically embracing any wall surface or seal determining an enclosure comprising the container.

While I have described my invention in accordance with desirable embodiments, it is obvious that many changes and modifications may be made in the details of construction, and in the combination and arrangement of parts without departing from the spirit of the invention as defined in the following claims.

Having thus set forth my invention, I claim:

1. A dispenser device, adapted for coordination at its inlet opening with an opening of a container, comprising walls of flexible material determining a conveying surface and flow-confining surfaces, said wall surfaces defining and circumventing at least the inlet opening of the dispenser and determining the outlet thereof when said dispenser is open for the passage of material therethrough, fold lines on said wall sur-

faces for collapsing said dispenser in an overlapping coordination of at least a portion of said wall surfaces to provide a closure device adapted to substantially prevent the flow of material therethrough, said dispenser when collapsed having the inner surfaces of at least a portion of two opposing walls substantially overlying each other along the longitudinal dimension of the dispenser, and having each of two opposing walls of the dispenser respectively bent over itself along a transverse fold line to substantially effect an external surface contiguity of adjacent portions of each of said opposing walls.

2. A dispenser device, adapted for coordination at its inlet opening with an opening of a container, comprising walls of flexible material determining a conveying surface and flow-confining surfaces, said surfaces defining the inlet opening of the dispenser, said flow-confining wall surfaces comprising lateral opposing walls integral with the conveying wall surface, and a guard wall means opposite said conveying surface and integral with the said lateral walls at least at their base portion, said wall surfaces determining an enclosure for said opening at least at the base portion of the dispenser defining its inlet when said dispenser is open for the passage of material therethrough, a coordination of longitudinally extending and transversely extending fold lines on said wall surfaces for collapsing and folding said dispenser in a substantially complete overlapping coordination of said walls for providing a closure device adapted to substantially prevent the flow of material through said opening, said dispenser when collapsed having the inner surfaces of at least a portion of two opposing walls substantially overlying each other along the longitudinal dimension of the dispenser, and having each of two opposing walls of the dispenser respectively bent over itself along a transverse fold line to substantially effect an external surface contiguity of adjacent portions of each of said opposing walls.

3. A dispenser as in claim 2, wherein the conveying surface and the lateral surfaces are substantially triangular and determine a common apex portion at the discharge end of the dispenser, and wherein the guard means is substantially rectangular, said dispenser when collapsed having the inner surfaces of at least a portion of the lateral walls substantially overlying each other along the longitudinal dimension of the dispenser, and each of said overlying lateral walls being bent over itself along a respective transverse fold line for substantially effecting an external surface contiguity of one portion thereof with an adjacent portion.

4. A dispenser as in claim 3, wherein the conveying surface and the lateral surfaces are essentially triangular and determine a common apex portion at the discharge end of the dispenser, and the guard means surface is essentially rectangular, the base and inlet portion of the dispenser being integrally attached to a collar means, a slit in the portion of said collar means adjacent said guard means, said slit being adapted to receive the common apex of said triangular surfaces for removably retaining the dispenser in collapsed position as a closure device.

5. A dispenser device, adapted for coordination at its inlet opening with an opening of a container, comprising a spout of flexible material having two opposite planar wall surfaces one of which functions as a conveying surface and the other as a confining surface, and lateral bel-

lows walls for providing the other confining surfaces and for permitting the spout to collapse, with the opposite planar wall surfaces adapted to substantially overlie each other along the longitudinal dimension of the dispenser, and to thereby function as a closure device.

6. A dispenser device, adapted for coordination at its inlet opening with an opening of a container, comprising a spout of flexible material having two opposite planar walls, one of said walls functioning as a conveying surface and the other as a confining surface, and lateral bellows walls for providing the other confining surfaces and for permitting the spout to collapse with the opposite planar wall surfaces adapted to substantially overlie each other along the longitudinal dimension of the dispenser when collapsed, said conveying surface having a transverse fold line near the base and inlet portion of the spout, said surfaces having a transverse fold line at the portion of the spout near its outlet for a reverse bending of the outlet and discharge portion of the spout when it is collapsed, whereby said spout in collapsed position provides a closure device adapted to substantially prevent the passage of material therethrough.

7. A dispenser as in claim 1, wherein the inlet portion of the dispenser is integral with a collar means adapted for attachment to a wall surface of the container, in correlation with the container opening in said wall.

8. In combination with a container wall having an opening therein for the discharge of material therethrough, a dispenser device attached to said wall in coordinated association with said opening and comprising walls of flexible material determining a conveying surface and flow-confining surfaces, said wall surfaces defining and circumventing at least the inlet opening of the dispenser and determining the outlet thereof when said dispenser is open for the passage of material therethrough, fold lines on said wall surfaces for collapsing said dispenser in an overlapping coordination of at least a portion of said wall surfaces to provide a closure device adapted to substantially prevent the flow of material therethrough, said dispenser when collapsed having the inner surfaces of at least a portion of two opposing walls substantially overlying each other along the longitudinal dimension of the dispenser, and having each of two opposing walls of the dispenser respectively bent over itself along a transverse fold line to substantially effect an external surface contiguity of adjacent portions of each of said opposing walls.

9. In combination with a container wall having an opening therein for the discharge of material therethrough, a dispenser device attached to said wall in coordinated association with said opening and comprising a spout of flexible material having opposite plane walls, one of said plane walls functioning as a conveying surface and the other as a flow-confining surface, and lateral bellows walls for providing the other confining surfaces and for permitting the spout to collapse with the inner surfaces of the opposite plane walls being substantially contiguous each other along the longitudinal dimension of the dispenser, said dispenser walls defining the inlet and outlet openings of the dispenser, one of said plane walls having a transverse fold line near the inlet opening of the spout and each of said plane walls having a transverse fold line in proximity to the outlet portion of the spout near its discharge end for permitting a bending over of the outlet por-

tion of the spout when it is collapsed, whereby said spout in collapsed position provides a closure device adapted to substantially prevent the passage of material therethrough and to lie substantially contiguous the container wall surface.

10. In combination with a container seal, a dispenser device in coordinated association with an opening of said container seal, said dispenser comprising wall surfaces of flexible material determining a substantially triangular conveying surface and flow-confining surfaces, said wall surfaces defining the inlet opening of the dispenser, said flow-confining wall surfaces comprising substantially triangular lateral opposing walls integral with the conveying surface, said conveying surface and lateral walls determining a common apex portion at the discharge end of the dispenser, and a guard means opposite said conveying surface and integral with the base portion of said lateral walls, said wall surfaces and guard means together determining a circumventing enclosure at the base portion of the dispenser defining its inlet, fold lines on said wall surfaces for collapsing said dispenser in an overlapping coordination of said wall surfaces to provide a closure device adapted to substantially prevent the flow of material therethrough, the inner surfaces of at least a portion of the lateral walls overlying each other along the longitudinal dimension of the dispenser and said overlying lateral walls being bent over along their respective transverse fold lines when the dispenser is in collapsed position, whereby the dispenser is adapted to lie substantially contiguous the seal surface as a closure device.

11. A blank of foldable material, including a combination of a container wall and a dispensing device, comprising a predetermined portion of said blank including crease lines adapted to determine the top surface wall of said container, an opening in said top surface wall determined by flap portions and fold lines relative to said top surface, a projecting portion from an end of said blank in correlated relationship with said opening and flap portions, said projecting portion comprising segments with fold lines for determining the conveyor wall surface and confining wall surfaces of a dispenser device and for collapsing said dispenser in an overlapping coordination of at least a portion of said wall surfaces for providing a closure device adapted to substantially prevent the passage of material through said dispenser, said wall surfaces circumventing the inlet opening of said dispenser.

12. A blank of foldable material for a combination of package seal and dispensing device comprising a predetermined portion of said blank adapted as the seal including crease lines determining the top surface of said seal and angularly disposed lateral surfaces thereof, an opening in

said top surface determined by flap portions and fold lines relative to said top surface, a projecting portion from an end of said blank in correlated relationship with said opening and flaps, said projecting portion comprising a substantially triangular shaped segment having fold lines defining the conveying surface of said dispenser, segments adjacent said conveying surface portion determining the lateral confining surfaces of said dispenser, a segment on one base apex side of the said substantially triangular segment determining a guard surface wall for said dispenser, and a projecting segment on the other base apex side of said triangular shaped segment for determining an overlapping guard wall surface, and a slit for retaining the collapsed dispenser in removably closed position.

13. A blank for a dispenser comprising a rectangular shaped portion determining a base flange and guard wall surface of the dispenser, and a substantially triangular shaped portion on each side of said rectangular portion, said triangular shaped portions having segments at their base slitted to determine the attachment flanges of said dispenser, said triangular shaped portions determining a substantially triangular shaped conveying surface and substantially triangular shaped lateral confining surfaces of said dispenser, said various portions having defined fold lines.

14. A dispenser blank comprising a rectangular centrally positioned segment determining one plane surface of the dispenser, a rectangular segment on each side of said centrally positioned segment, said latter rectangular segments being provided with crease lines for determining a bellows pleat defining the lateral bellows surfaces of said dispenser, a rectangular end segment contiguous each of said lateral bellows segments determining the second plane surface of said dispenser, and segments slitted relative to each other on one side of said blank for determining the attachment flanges of said dispenser.

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