May 19, 1936. H. W. RUEGER 2,041,024

BOX

Filed Sept. 13, 1935 2 Sheets-Sheet 1

Fig. 1.

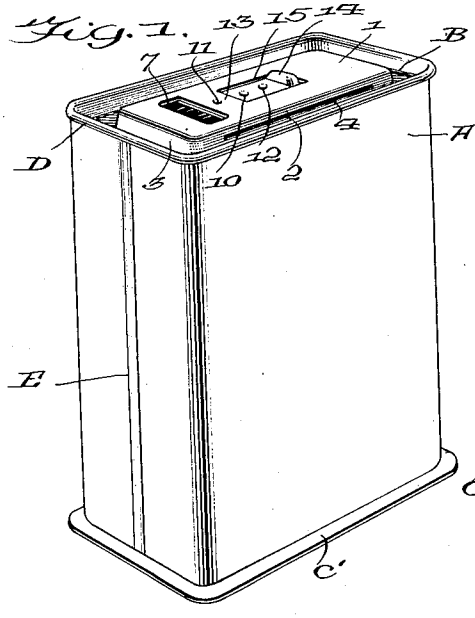


Fig. 5.

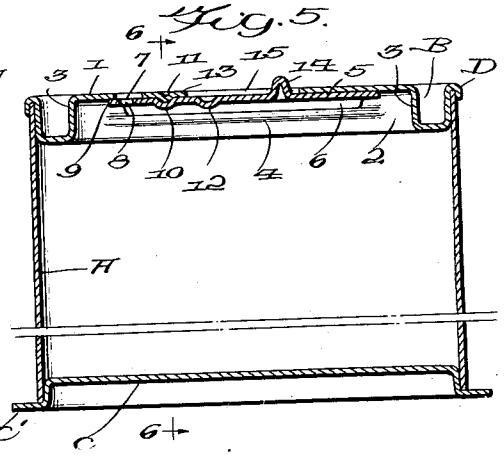


Fig. 6.

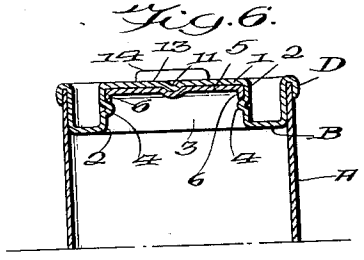


Fig. 2.

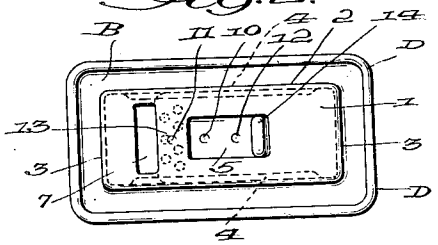


Fig. 7.

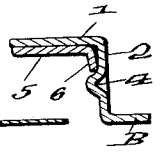


Fig. 8.

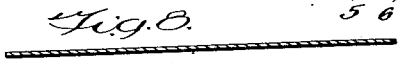


Fig. 3.

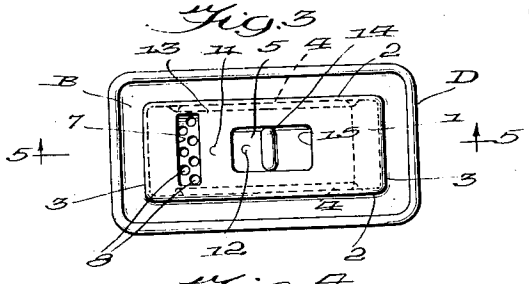


Fig. 9.

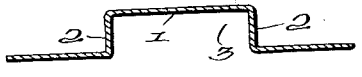


Fig. 10.

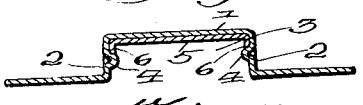


Fig. 4.

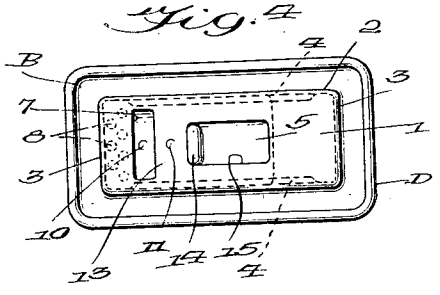
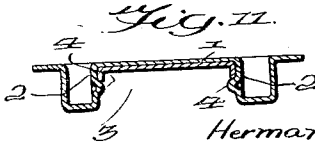


Fig. 11.



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BOX

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Fig. 12.

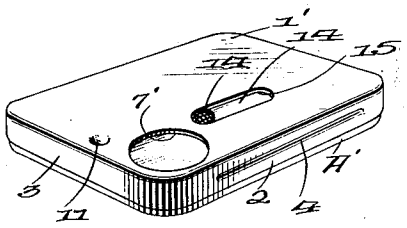


Fig. 15.

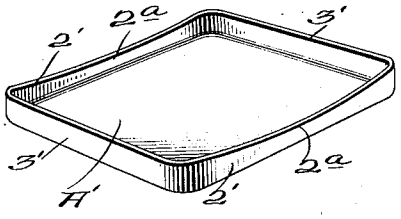


Fig. 13.

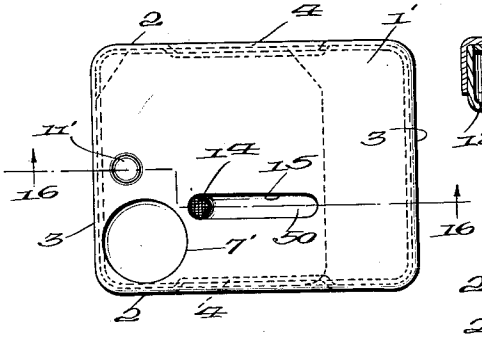


Fig. 16.

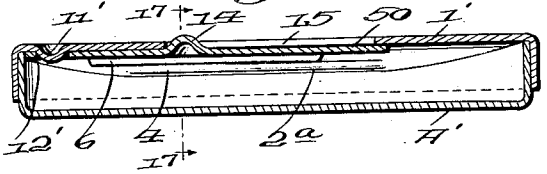


Fig. 17.

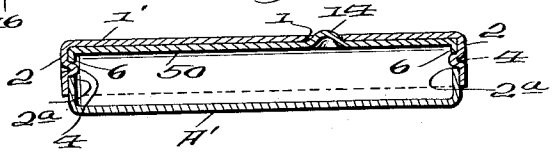
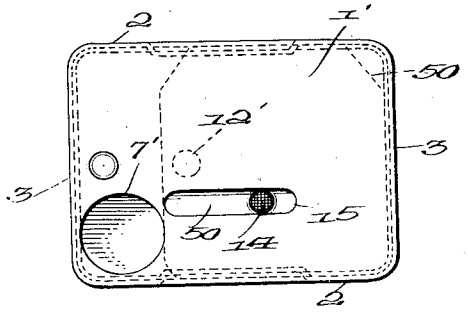


Fig. 14.



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Patented May 19, 1936 2,041,024

UNITED STATES PATENT OFFICE

2,041,024

BOX

Herman W. Rueger, Lancaster, Pa., assignor to Liberty Can and Sign Company, Lancaster, Pa., a corporation of Pennsylvania

Application September 13, 1935, Serial No. 40,501

11 Claims. (Cl. 221—62)

This invention relates to dispensing or shaker or dredger boxes or cans or receptacles.

In boxes or cans of this general type it has been usual to provide a sliding or swinging plate to cover or uncover the dispensing or discharge opening, as well shown for instance in such patents as Betts, No. 697,436, April 15, 1902; Lagois, No. 1,144,213, June 22, 1915; Monaco, No. 1,578,159, March 23, 1926; Klingstine, No. 1,524,140, January 27, 1925; and Bruns and Rueger, No. 1,994,063, March 12, 1935 and No. 2,011,394, August 13, 1935.

The primary objects of the present invention are to permanently associate such a slide with a box member or can end in such manner that said member with the slide mounted therein constitutes a unit, being applied and/or removed as a single unit; to so form and combine said slide and receptacle member that the slide will be resilient and will be held under compression to resiliently press against the opposing face of said member to make a tight substantially sift-proof contact thereagainst when the slide is in closed position; to mount the slide in the interior of said member to be protected and shielded thereby; and to provide a construction wherein the slide will be pressed tightly against the opposing face of the member irrespective of the relation of the latter to the body of the box or can.

Other objects are to provide a simple yielding means for holding the slide in a selected position; to provide in a dredger can such a slide or cover plate mounted in a breast in the can end entirely independent of any special form of the can end seams and spaced from and entirely independent of the normal side or end faces of the can or dredger; and in general to provide a simple, efficient and cheap construction particularly lending itself to large quantity production by automatic machinery. In this application I show and describe only the present preferred embodiment of my invention simply by way of illustration of my invention as by law required. However, I am not unmindful of the fact that my invention is capable of other and different embodiments and that the several details thereof may be modified in various ways and, therefore, the description herein and the accompanying drawings are to be considered as merely illustrative and not as exclusive.

In the accompanying drawings:

Figure 1 represents a perspective view of a dredger can embodying my invention;

Figure 2, a top plan view thereof, open;

Figure 3, a top plan view thereof with the slide or plate moved to span the discharge opening with the perforated or sifter portion of said plate;

Figure 4, a top plan view thereof with the slide or plate moved to extreme closed position;

Figure 5, a sectional view on line 5—5 of Fig. 3, looking in the direction of the arrows;

Figure 6, a sectional view on line 6—6 of Fig. 5, looking in the direction of the arrows;

Figure 7, a fragmentary sectional view taken in the same plane as Fig. 6 and greatly enlarged or magnified to show the true relationship between the parts;

Figures 8, 9, 10 and 11 sectional views starting with the flat blank or stock and showing the progressive steps in forming up the can end or receptacle member ready to be applied or seamed to the end of the can body;

Figure 12, a perspective view of a pill or tablet dispensing box embodying my invention;

Figure 13, a top plan view of said dispensing box, closed;

Figure 14, a view similar to Fig. 13, open;

Figure 15, a perspective view of the body or bottom or lower member of the box;

Figure 16, a sectional view on the line 16—16 of Figure 13, looking in the direction of the arrows; and

Figure 17, a sectional view on the line 17—17 of Figure 16, looking in the direction of the arrows.

Referring now in detail to the drawings, A designates the body of the dredger or shaker can; B, the top end or member thereof seamed over the top end of the body A as at D for permanent connection therewith; C, the lower end or member inserted in the lower end of the body A and having an edge flange C' adapted to be similarly spun or seamed over after the body A has been filled to permanently connect the lower end or member C to the body A; and E, the usual body seam.

Preferably the top B will be permanently connected to the body A and the bottom or member C will be loosely and removably inserted in the bottom of the body A or simply sent along with, but entirely disconnected from, the body A to the customer, such as a spice packer or dealer, who will then fill the cans, apply the bottoms or members C thereto and then spin or seam over the flanges C' thereof by a suitable tool, machine or device such as commonly used in the art for this purpose to permanently connect the bottoms or members C by a seam corresponding to the seam D.

The subject matter of the two immediately

foregoing paragraphs is old and well known in the art and simply briefly mentioned by way of promoting better understanding of the invention which in this embodiment resides in the special construction of the top B and its several elements in combination.

The top or member B comprises a preferably integral upwardly pressed breast having a top 1, preferably parallel sides 2 and preferably parallel ends 3, all parts of said top B including all parts of said breast with its top 1, sides 2 and ends 3 preferably being integral and preferably being of resilient thin sheet metal.

The top 1 will preferably not extend above the plane of the top of the seam D, but preferably its top face will lie flush with or below said plane.

Said top 1 of said breast is formed with a preferably long transverse narrow discharge opening 7 near to, but spaced from, one end 3 and extending nearly from one side 2 to the other side 2, and with a lengthwise extending substantially centrally disposed slot 15 to slidably receive the operating or push lug or button 14 of the discharge control slide or plate or element 5, said opening 7 and the adjacent end of the slot 15 being separated by a resilient strap or band portion 13 carrying a downwardly depressed point or lug 11 which, by the resiliency of said band 13 may be yieldingly forced upward by engagement with the cooperating concave face of one of the downwardly depressed sockets 10 and 12 of the slide or plate 5 to have rubbing contact with the top of the member 5 as the same is slid lengthwise of the breast and will selectively snap into one of said sockets 10, 12 according to the position of said slide or plate 5 when brought to rest to yieldingly retain said slide or plate 5 in such position.

The sides 2 of said breast are formed with preferably continuous preferably indented or inwardly bent or inwardly struck preferably relatively sharp or abrupt longitudinal ribs 4 having faces opposed to, and preferably equidistant from, the opposed lower face of the top 1 of the breast, the slide or plate 5 having short resilient side flanges 6 normally under compression engaging the upper portions of said ribs 4 and acting to force the upper face of said slide or plate 5 for preferably substantially its full area into tight sliding contact with the opposed lower face of the breast top 1.

Preferably the top face of the slide or plate 5 will be of slightly less width than the lower face of said breast top 1, so as to leave a slight clearance between the upper portions of the outer faces of the flanges 6 and the corresponding portions of the sides 2, and said flanges 6 will flare downwardly away from each other at obtuse angles with relation to the lower face of the slide or plate 5, the degree of such flare or obtuse angle prior to the insertion of the slide or plate 5 in said breast being greater than that illustrated in Figure 7, wherein the flanges 6 are "loaded" or under a degree of compression.

The top B may be fabricated and assembled in any suitable or preferred manner according to any suitable or preferred method.

One method found suitable is to start with a flat stock blank of sheet metal such as illustrated in Figure 8 and, as a first step, form the raised breast therein, as illustrated in Fig. 9, during this operation of course forming the discharge opening 7 and the slot 15 and downwardly indenting or depressing the point or lug 11. Next, the ribs or tracks 4 are indented or struck inward from the sides 2, as illustrated in Fig. 10, and thereafter the stock will be bent or stamped upwardly in spaced relation to the breast as shown in Fig. 11, when the top or member B will be ready to receive the plate or slide 5, and ready for seaming in the top of body A. The slide or plate 5 may be applied to the top B at any time after the ribs or tracks 4 have been formed, as illustrated in Figure 10, but will preferably be inserted after the stamping operations on the top or member B have been completed, as illustrated in Figure 11, and in fact its insertion may be postponed if desired for any reason until after the top or member B shall have been permanently seamed or otherwise secured to the body A and before said body is filled with the goods it is to contain.

Preferably the ribs or tracks 4 extend for nearly the full length of the sides 2, and the slide 5, and its flanges 6, preferably are of such length that once inserted the slide or plate 5 cannot be separated or displaced from position in the interior of said breast by movement in the direction of its length, the inner faces of the ends 3 definitely limiting the endwise movement of said slide or plate 5 and preferably preventing such a degree of lengthwise movement as would permit such separation, the engagement between the edges of the flanges 6 and the upper faces of the tracks or ribs 4 preventing any downward or inward movement of the slide or plate 5 to such degree as would permit its displacement to inoperative position and the breast top 1 serving to prevent its upward movement to inoperative position.

In order to insert the slide or plate 5 in the interior of the raised breast of top or member B it suffices simply to loosely place or position the plate or slide 5 in the lower end of the breast and then press on it, shoving it upward past the ribs or tracks 4, the body of the plate or slide 5 as a whole, and its flanges 6, bending or being compressed between the opposed faces of the ribs or tracks 4 and then springing back behind or above the ribs or tracks 4, the body of the plate or slide 5 then spreading and lying substantially flat against the opposed face of the breast top 1 and the flanges 6 being confined and held under compression by the upper portions of the sides 2 in cooperation with the upper faces of the ribs or tracks 4 and serving to press the body of the plate or slide 5 for preferably substantially its full area into firm sliding sift proof contact with the opposed lower face of said breast top 1.

The slide or plate 5 in the embodiment illustrated in the first eleven views has its extreme end portion adjacent the discharge opening 7 formed with a plurality of sifter openings or perforations 8 arranged in a transverse band corresponding in width to the width of said discharge opening 7 and of less width than the strap 13 and is so positioned and of such length that when moved to its extreme position to the left, wherein the lug or catch 11 is seated in socket or recess 12, the discharge opening 7 will be covered and closed by the solid unperforated portion of the plate or slide 5 immediately to the right of the band of perforations 8; when the plate or slide 5 is moved to intermediate position with the catch 11 seated in socket or recess 10 the band of perforations 8 will be in registry with the discharge opening 7 as shown in Fig. 3; and when the slide or plate is moved to its extreme position to the right the discharge opening 7 will be left entirely unobstructed, as shown in Fig. 2, the extreme left end of the plate or

slide 5 lying flush or substantially flush with the right side or wall of said opening 7 and the perforations 8 being covered by the band 13.

In the embodiment illustrated in Figures 12 to 17 inclusive the construction and operation are the same as that above described with relation to Figures 1 to 11 inclusive, except that in Figures 12 to 17 the invention is employed in connection with a pill or tablet or the like dispensing box instead of a dredger or shaker can, and the raised breast is now found in the form of a box top of member 1' having preferably substantially parallel sides 2 and preferably substantially parallel ends 3 the material of the top or member 1' being cut out to form a preferably circular dispensing opening 7' and a slot 14, the closure or discharge control plate or slide 50 bearing with its upper face against the lower face of box member 1' and having side flanges 6 held under compression by the sides 2 and in engagement with the upper portions of ribs or tracks 4 indented, or struck inwardly, in the sides 2.

Said box top or member 1 is formed with an indented lug or latch or catch 11 to snap into a circular hole or socket 12' in the extreme flexible left end portion of the plate or slide 50, and the plurality of sockets 10, 12 of the embodiment shown in Figures 1 to 11 are omitted since not needed or desirable, there being no intermediate position in the embodiment shown in Figures 12 to 17.

The association, construction and operation of the plate or slide 50 with the box top or member 1' and its sides 2 with their ribs or tracks 4 and its ends 3 are the same as the construction, association and operation of the plate or slide 5 with the breast top 1, breast sides 2 with their ribs or tracks 4, and breast ends 3 of the embodiment illustrated in Figures 1 to 11.

The lower or bottom box section or member or body A' is formed with ends 3' and sides 2' downwardly curved or cut out between the ends 3' as at 2a to lie below and accommodate the ribs or tracks 4 in the sides 2 of the top member 1' as well illustrated in Figures 16 and 17.

When the slide or plate 50 has been inserted in the box or receptacle member 1' it is inseparable therefrom and when the bottom member A' has been filled with tablets the members 1' and A' are pressed together with a preferably very tight frictional engagement, or the ends 3 and/or sides 2 of member 1' may even be bent over or clinched about or against the bottom or about curved marginal face where the sides 2' and ends 3' merge with the bottom or lower face of the member A', the contents of the box being dispensed as wanted through the opening 7'.

In the embodiment illustrated in Figures 12 to 17 the ribs or tracks 4 are of less length relative to the length of the sides 2 of the member 1' than are the ribs or tracks 4 relative to the sides 2 of the breast of the embodiment illustrated in Figures 1 to 11, but the plate 50 extends beyond the ends of the flanges 6 in the embodiment illustrated in Figures 12 to 17 to a greater length than does the plate 5 with relation to the flanges 6 of the embodiment illustrated in Figures 1 to 11, so that the net result of preventing separation by endwise movement due to the engagement of the end of the plate or slide with one of the ends 3 is the same in each instance.

While two embodiments in different types of boxes or receptacles are illustrated, neither can be said to be the preferred form, and in fact the construction and operation and assembly of the invention is identical or substantially identical in each, but simply the background or elements with which the invention is used are varied to suit the requirements of the different commodities to be packaged.

I claim:

1. A dredger can comprising a top end member having a raised breast formed with sides and ends and spaced from the marginal portions of said member, the edge portion of said member extending upward to at least the plane of the upper face of the top of said breast, the breast top being formed with a discharge opening and with a slot, and the sides of said breast being substantially parallel, and ribs indented in the sides respectively substantially equidistant from the lower face of the breast top and extending for the greater portion of the length of said sides, in combination with a resilient sheet metal plate formed with an upwardly pressed lug extending through said slot as an operating finger-piece and having outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs and held under compression by said breast sides, said flanges holding said plate in the interior of said breast against separation therefrom and forcing said plate against said breast top for substantially its full area with a sliding substantially sift proof contact.

2. A dredger can comprising a top end member having a raised breast formed with sides and ends and spaced from the marginal portions of said member, the breast top being formed with a discharge opening, and the sides of said breast being substantially parallel, and ribs indented in the sides respectively substantially equidistant from the lower face of the breast top and extending for the greater portion of the length of said sides, in combination with a plate having resilient outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs and held under compression by said breast sides, said flanges holding said plate in the interior of said breast against separation therefrom and forcing said plate against said breast top.

3. A dredger can comprising a top end member having a raised breast formed with sides and ends, the breast top being formed with a discharge opening, and ribs indented in the sides respectively, in combination with a plate having resilient outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs, said flanges holding said slide in the interior of said breast against separation therefrom and forcing said plate against said breast top with a sliding contact.

4. A dredger can comprising an end member having a raised breast formed with sides and ends, the breast top being formed with a discharge opening, and ribs indented in the sides respectively, in combination with a resilient metal plate disposed between said ribs and the opposed lower face of said breast top and having outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs, said flanges holding said plate in the interior of said breast against separation therefrom.

5. A receptacle member comprising a top wall, connected side and end walls depending therefrom, said top wall being formed with a discharge opening and with a slot, and ribs indented in the side walls respectively substantially equidistant from the lower face of said top wall and extending for the greater portion of the length

of said side walls, in combination with a resilient sheet metal plate disposed between said ribs and the lower face of said top wall and slidable to selectively cover or uncover said discharge opening, said plate being formed with an upwardly disposed lug extending through said slot as an operative finger-piece and having outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs and held under compression by said sides, said flanges holding said plate in the interior of said member against separation therefrom and forcing said plate against said top wall with a sliding contact.

6. A receptacle member comprising a top wall, connected side and end walls depending therefrom, said top wall being formed with a discharge opening, and ribs indented in the side walls respectively substantially equidistant from the lower face of said top wall and extending for the greater portion of the length of said side walls, in combination with a resilient sheet metal plate slidably disposed between the said ribs and the opposed lower face of said top wall to selectively cover or uncover said opening, said plate having outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs and held under compression by said sides, said flanges holding said plate in the interior of said member against separation therefrom and forcing said plate against said top wall with a sliding contact.

7. A receptacle member comprising a top wall, side walls depending therefrom, said top wall being formed with a discharge opening, and ribs extending inward from the side walls respectively, in combination with a plate slidably disposed between said ribs and the opposed lower face of said top wall to selectively cover or uncover said discharge opening, said plate having resilient outwardly flaring depending side flanges slidably engaging the inner upper portions of said ribs, said flanges holding said plate in the interior of said member against separation therefrom and forcing said plate against said top wall with a sliding contact.

8. A receptacle member comprising a top wall, side walls depending therefrom, said top wall being formed with a discharge opening, and ribs extending inward from the side walls respectively, in combination with a resilient plate slidably disposed between said ribs and the opposed lower face of said top wall to selectively cover or uncover said opening, said plate having depending side flanges slidably engaging the inner upper portions of said ribs and being resiliently pressed thereagainst by said plate, said flanges holding said plate in the interior of said member against separation therefrom.

9. A receptacle member comprising a top wall, side walls depending therefrom, said top wall being formed with a discharge opening, tracks respectively carried by the side walls interiorly of said member and having upwardly and inwardly presented faces, in combination with a plate slidably disposed between said tracks and the opposed lower face of said top wall to selectively cover or uncover said opening, said plate having outwardly flaring depending side flanges slidably engaging said faces of said tracks respectively and held under compression by said sides, said flanges holding said plate in the interior of said member against separation therefrom.

10. A receptacle member of resilient material formed with a discharge opening and a slot in close adjacency thereto and spaced therefrom by a strap-form resilient integral portion free to flex to a greater extent than the remainder of said member, in combination with a slide held in sliding contact with the lower face of said member to control the discharge through said opening, said slide being formed with an upwardly projecting part extending through said slot as an operative finger-piece, and said strap and slide being formed with cooperative lug and socket means for yieldingly frictionally holding said slide in a selected position, said strap yielding in a direction perpendicular to the plane of movement of said slide on the engagement of opposed faces of said lug and socket means as the slide is shifted endwise to permit such movement of the slide.

11. A receptacle member of resilient material formed with a discharge opening and a slot in adjacency thereto and spaced therefrom by a strap-form resilient integral portion free to flex to a greater extent than the remainder of said member, in combination with a slide held in sliding contact with the lower face of said member to control the discharge through said opening, said strap and slide being formed with cooperative lug and socket means for yieldingly frictionally holding said slide in a selected position.

HERMAN W. RUEGER.