April 18, 1944. F. J. LARSON 2,346,847

CONTAINER

Filed May 13, 1941 4 Sheets-Sheet 1

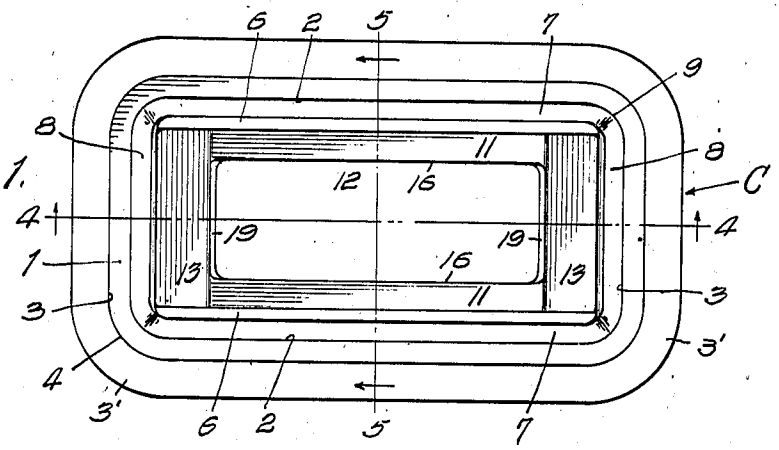


Fig. 1.

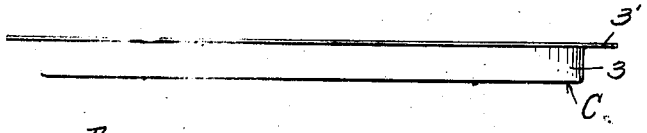


Fig. 2.

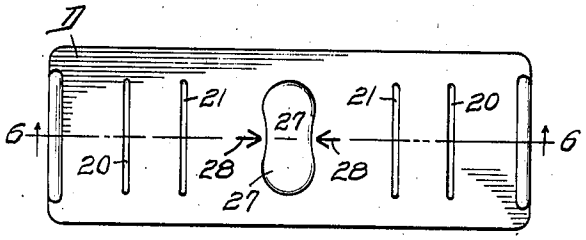


Fig. 3.

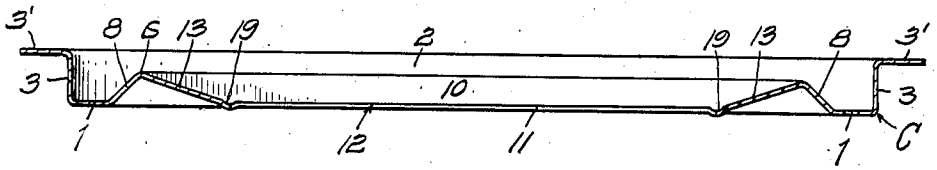


Fig. 4.

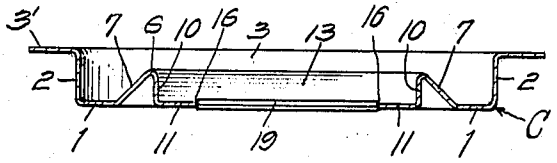


Fig. 5.

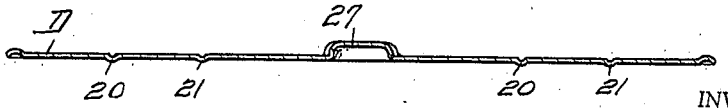


Fig. 6.

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Fig. 7.

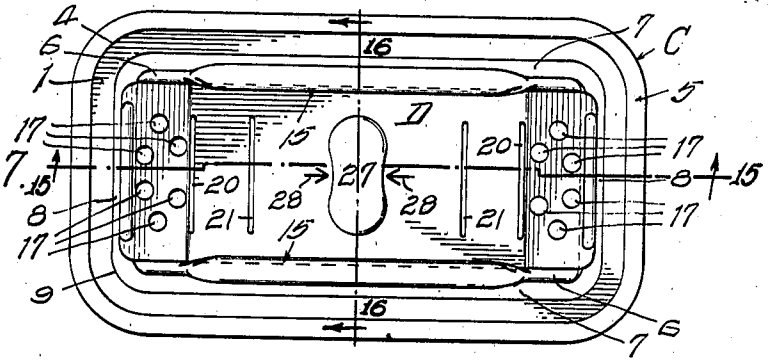


Fig. 8.

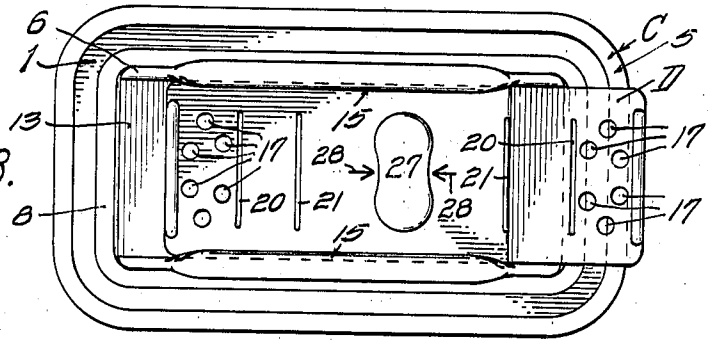


Fig. 9.

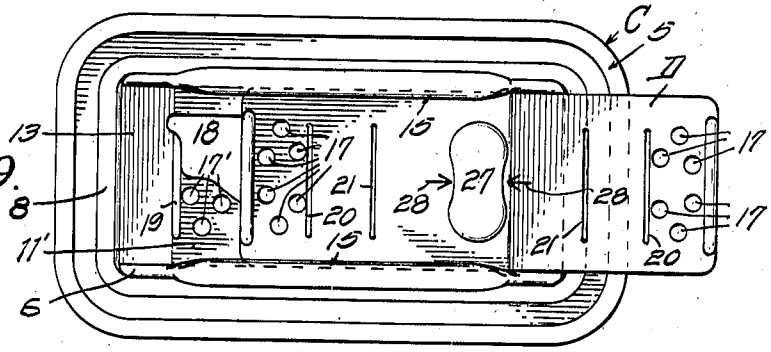
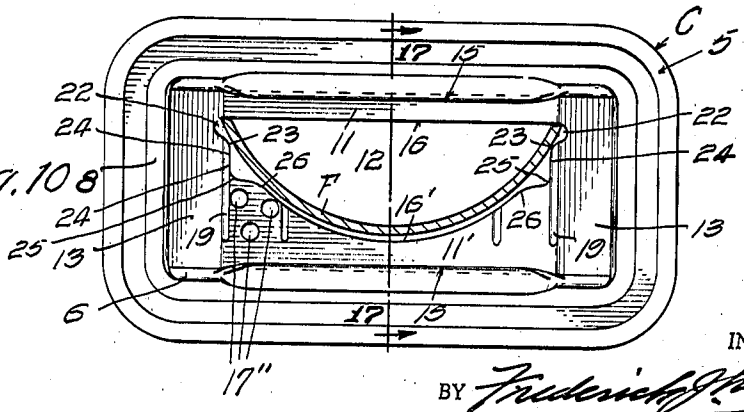


Fig. 10



17"

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Fig. 11.

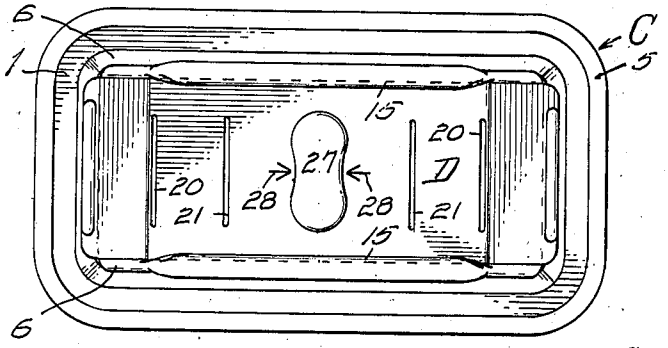


Fig. 12.

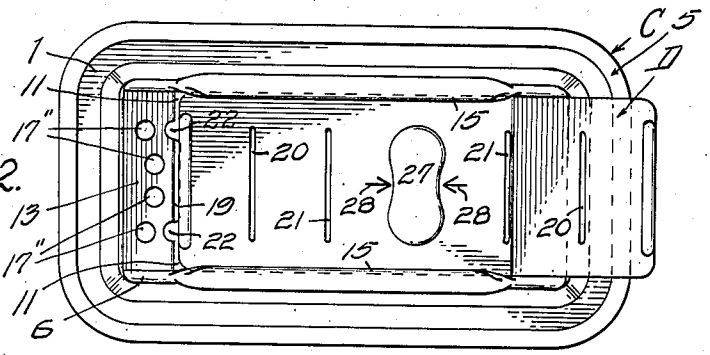


Fig. 13.

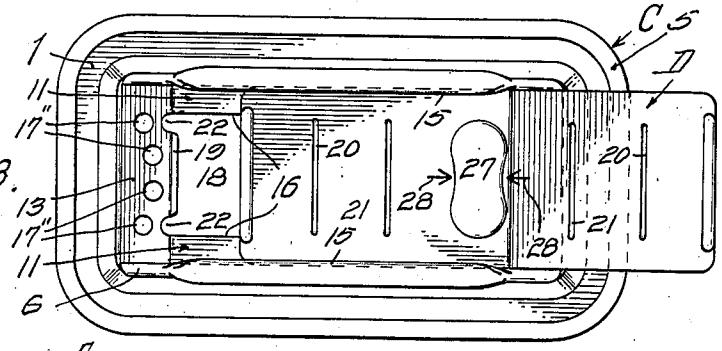
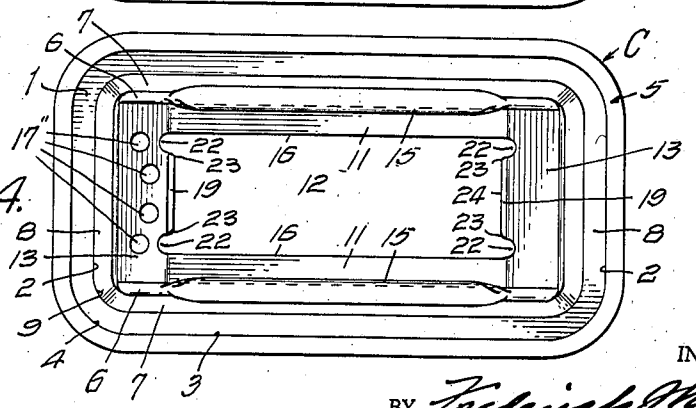


Fig. 14.



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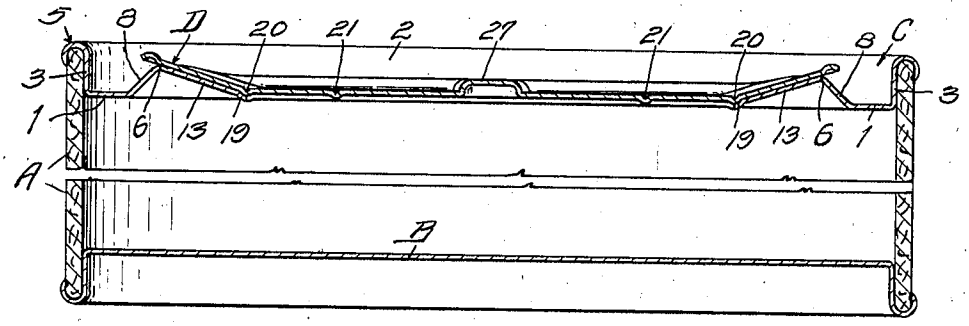


Fig. 15.

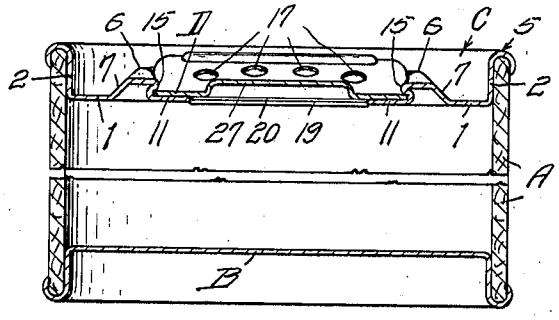


Fig. 16.

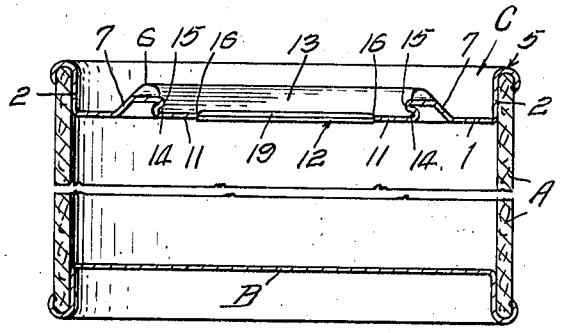


Fig. 17.

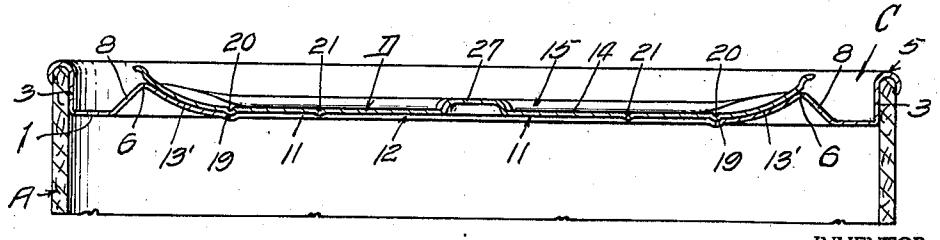


Fig. 18.

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Patented Apr. 18, 1944

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UNITED STATES PATENT OFFICE

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CONTAINER

Frederick J. Larson, St. Louis, Mo., assignor to R. C. Can Company, St. Louis, Mo., a corporation of Missouri

Application May 13, 1941, Serial No. 393,279

11 Claims. (Cl. 221—62)

This invention relates, generally, to containers, and, more particularly to containers having valved openings in the top wall structure thereof through which the contents of the container can be withdrawn and discharged.

An object of the invention is to provide a container for powdered, or granular materials embodying a simple and comparatively inexpensive top head valve structure through the medium of which the contents of the container can be discharged by sifting, pouring, or by the withdrawal of different measured quantities of the material from the container by the use of a spoon pressed against a selected edge of a valve opening.

Another object of the invention resides in a top head valve structure of a character particularly adapted for condiment containers, which are substantially rectangular, in cross-section, and having a dimension in one direction less than that of the ordinary teaspoon.

A further object of the invention is to provide a top head valve structure for containers, which will not present production, or manufacturing difficulties, due to drawing operations on a relatively small area, yet providing means for entirely sealing the container to prevent leakage of the contents thereof, accidental longitudinal displacement of slidable valve member, and the laterally guiding of the member in sliding movements thereof.

A further object of the invention resides in a top head valve structure, including a sliding valve member which is flexed upwardly at both end portions thereof at a suitable angle to the remaining intermediate flat horizontal section thereof when the member is in its fully closed position, and which is flexed at one end only when in sifting, or pouring positions.

Other objects and advantages of the invention will be clearly apparent as it is better understood from the following specification read in connection with the accompanying drawings, in which like characters of reference denote similar parts throughout the several views, and in which:

Fig. 1 is an enlarged top plan view of the top head as drawn before the slide valve ways are formed, and before the marginal portions are crimped to the end of a container body.

Fig. 2 is a side elevation of Fig. 1.

Fig. 3 is an enlarged top plan view of the slide valve or closure member.

Fig. 4 is an enlarged sectional elevation taken on line 4—4 of Fig. 1.

Fig. 5 is an enlarged sectional elevation taken on line 5—5 of Fig. 1.

Fig. 6 is an enlarged sectional view taken on line 6—6 of Fig. 3.

Fig. 7 is a top plan view of a further modified container, showing the slide valve in closed position and provided with modified sifter openings.

Fig. 8 is a top plan view thereof, showing the slide member moved to a sifter position.

Fig. 9 is a top plan view thereof, showing the slide valve moved to a pouring position.

Fig. 10 is a top plan view thereof with the slide valve completely removed.

Fig. 11 is a top plan view of a further modified container showing the slide valve in closed position.

Fig. 12 is a top plan view thereof, showing the slide valve moved to sifter position.

Fig. 13 is a top plan view thereof with the slide valve moved to a pouring position.

Fig. 14 is a top plan view thereof with the slide valve completely removed.

Fig. 15 is an enlarged sectional view of the top end of the container, taken on line 15—15 of Fig. 7.

Fig. 16 is an enlarged sectional view of the container showing both heads, taken on line 16—16 of Fig. 7.

Fig. 17 is an enlarged sectional view of the top end of the container, taken on line 17—17 of Fig. 10.

Fig. 18 is an enlarged longitudinal sectional view of a still further modification of the top head, exclusive of the slide valve.

Several embodiments of the invention as exemplified in the drawings are possible, therefor, it is to be understood that I do not intend, or wish to be limited by the particular form disclosed in any group illustrated, but aim to cover all modifications and alternate constructions of container top heads and slide valves therefor fairly falling within the scope of the invention expressed in the appended claims.

In the several forms of the invention disclosed, there is included a container having a tubular body of substantially rectangular form, in cross-section, a sheet metal bottom head, a sheet metal apertured top head, a slide valve or slidable closure, guide-ways for the closure, and more particularly the slide valve controls a relatively large elongated spoon opening in the top head, as well as sifter openings, which, in one instance, are formed in the slide-valve, and in other instances in the top head and the slide valve.

However, the dominating feature of the inven-

tion resides in providing a counter-sunk top head, having a spoon opening and an embossed or raised rib surrounding the opening, with flat horizontal side wall seats running parallel lengthwise with the opening on opposite sides thereof, and in providing flat inclined end wall seats which merge at the lower corner portions thereof into the horizontal side wall seats adjacent the open ends of guide-ways for a slide valve so as to flex on an inclined plane opposite ends of the slide valve at the junctures of the horizontal side wall seats with the inclined end wall seats.

Referring to the drawings I disclose a container which includes a tubular fibrous, or paper body A of rectangular cross-section, having a sheet metal imperforate bottom head B and a sheet metal sifter and open top head C provided with a slide valve, or closure member D. The bottom and top heads are united to the body A in any suitable manner, as by seams well known to the container art.

The top head C is formed with a countersunk horizontal wall or panel section 1, which at its outer edges, merges into surrounding vertical side wall sections 2 and similar end wall sections 3 merged together by curved corners 4. The wall sections 2 and 3 are disposed within the top end of the tubular body A and engage against and extend above the walls of the body A. The upper edges of the wall sections 2 and 3 merge into outer marginal portions 3' preferably bent, or crimped over the top edge of the body A into tight engagement with the outside of the body A. This produces a top seam which unites the top head C with the top of the body A and provides a top rim 5 for the container.

The top head C is also provided with an embossed, or raised rib designated, generally, as 6 and of rectangular form which, preferably, conforms with the shape of the top head C. The rib 6 is drawn to provide inclined outer side walls 7 and similar end walls 8 joined by rounded corners 9.

At their bases, the inclined outer walls 7 and 8 of the rib 6 merge into the countersunk horizontal wall section 1.

As shown in Fig. 5, the rib 6, as initially formed, is also drawn to provide vertical inner side walls 10, the upper edges of which walls merge with the upper edges of the inclined outer walls 7, and at their bases the vertical inner walls 10 merge into narrow flat horizontal side wall seats 11 disposed in a plane with the countersunk horizontal section 1. The horizontal wall seats 11 are disposed on opposite sides of a punched out opening 12 of rectangular shape as shown in Fig. 1, which conforms substantially with the shape of the top head C and of a length to accommodate the width of an ordinary teaspoon. Also the rib 6 is drawn to provide opposed flat inclined end wall seats 13, the upper edges of which merge with the upper edges of the inclined outer end walls 8, and the corner portions of the lower edges of the flat inclined end wall seats 13 merge into the ends of the opposed flat horizontal side wall seats 11, while the free lower edges of the flat inclined end wall seats 11 define the end edges of the opening 12.

Guideways 14 are provided on opposite sides of the opening 12 above like outer edge portions of the upper faces of the flat horizontal wall seats 11 by downwardly and inwardly deforming the inclined outer walls 7 and the inner vertical side walls 10 of the rib 6 to form horizontal beads 15 after the slide valve D has been positioned over the opening 12 and the seats 11 and 13 and forced into contact with the horizontal and inclined wall seats 11 and 13, respectively, through the bead forming operation. The slide valve D thus mounted on the top head C is then slidable or shiftable longitudinally, in either direction, as desired, between the guideways 14.

Through efficient utilization of the area of the flat horizontal wall seats 11 and the flat inclined end wall seats 13, as above described, it is possible to make the opening 12 quite large with respect to the size of the container, especially for the insertion of the spoon through the opening 12.

The present embodiment of the invention contemplates utilization of the opening 12 to facilitate withdrawal of different measured quantities of material from the container through the use of an ordinary teaspoon F and to this end, the opening 12, as shown in Fig. 1, has both of its long edges 16 formed straight so that the contents withdrawn on a spoon E shown in Fig. 1, can be leveled off on a selected straight edge, if so desired. Thus, as shown in the drawings, the opening 12 is of such size both in length and in width as to permit the passage of the bowl of an ordinary teaspoon so that the bowl may be withdrawn from the container with its side edges in contact with either opening edge 16 selected to level off the contents on the spoon, or due to the fact that the width of the opening is greater than the depth of the spoon bowl, the outer curved face of the spoon bowl can contact one edge of the opening so that a heaping spoonful of contents can be withdrawn from the container.

To maintain the spoon opening 12 at the maximum, in a minimum size top head C, and thus adapt the top head C for use on minimum size condiment container bodies A that are substantially rectangular in cross-section, and at the same time provide a slide valve, or closure member D therefor which will normally lie below and within the bounds of the top rim 5 of the top head C, as well as one that can be easily and quickly moved to cover and uncover the spoon opening 12, and, at the same time be retained in its closed position against accidental displacement from any cause, I have especially designed the slide valve seats 11 and 13 on the apertured top head C to afford maximum areas therefor to prevent leakage of the container contents when the slide valve, or closure member D is in its closed position, and to provide substantial bearing surfaces for the slide valve to slide upon, and to this end, I have provided the opposed flat horizontal wall seats 11 and flat inclined end wall seats 13 to occupy positions surrounding the spoon opening 12 for the accommodation of the slide valve, or closure member D, the material of which is more or less flexibly resilient in order that the end portions thereof beyond the ends of the spoon opening 12 when the slide valve is in closed position, will be flexed upwardly on an inclined plane while the intermediate portion of the slide valve fully closes the opening 12 and lies in a substantially flat horizontal position relative to the inclined end portions thereof.

The slide valve, or closure member D, as shown in Fig. 7, is provided with a plurality of sifter openings 17 which are so positioned relative to both ends of the member D that they will be closed by lying over the flat inclined end wall seats 13 when the slide member D is in its fully closed position, as apparent from Fig. 7, and

arranged in such positions on the slide member D that with a minimum longitudinal movement, in either direction, as shown in Fig. 8, the slide member will bring the sifter openings 17 into register with the spoon opening 12, as shown Fig. 10, when it is desired to sift or sprinkle contents from the container. On the other hand, the sifter openings 17 will be closed when the spoon opening is closed and the spoon opening will still be closed when the slide valve D is moved to a sifter position. Slightly further movement of the slide member D from sifter position, as shown in one instance in Fig. 9, causes the spoon opening 12 to be partially uncovered near one end thereof to provide a pouring opening 18 through which contents of the container can be poured.

In order to afford means to prevent accidental shifting movement of the slide member D, when in closed position, I provide the free inner edge portion of each flat inclined wall seat 13 with a channeled seat 19 drawing the material into channel formation between opposite corners of the spoon opening 12 to receive outer transverse ribs 20 formed on the slide member D. And, in order to prevent accidental shifting movement of the slide member D when moved to either sifter position, I provide the slide valve D with inner transverse ribs 21 spaced from ribs 20, one of which will be seated in one of the channel seats 19, thus providing a stop for either sifter position of the slide valve D.

The channeled seats 19 at the inner edges of the inclined end wall seats 13 and their respective cooperating slide valve ribs 20 serve also to form a seal between the slide valve D and the flat inclined end wall seats 13 to guard against leakage of contents from the container, especially during transportation thereof, and effectively seals the container when the slide valve D is in its closed position, as shown in Figs. 15 and 16.

It will be further apparent from Figs. 4, 15 and 16, that the elongated flat horizontal wall seats 11 are disposed in a substantial plane with the top head wall section 1, and by reference to Figs. 15 and 16, when the slide valve D is in its closed position on the horizontal wall seats 11, and inclined end wall seats 13, that the intermediate major portion of the slide valve D is disposed in a flat horizontal position between the inclined end wall seats 13 and does not drop below the lower plane of the flat horizontal wall seats 11, or the horizontal top head wall 1, which is an important feature of the invention, to avoid complicated deep drawing operations, lends to the appearance of the top end of the package, and effects a slide valve in which accidental longitudinal displacement thereof is minimized, due to the end portions of the slide valve D assuming positions in inclined planes relative to the flat horizontal position of the relatively long intermediate portions of the slide valve which lies on the flat horizontal wall seats 13 when the valve member is in its closed positions, as illustrated in Fig. 15 due to the fact that the inclined end portions of the slide valve set up resistance to accidental sliding movement, further aided by the channeled seats 19 and slide valve ribs 20 cooperating therewith, which channeled seats 19 and ribs 20 serve to seal the ends of the spoon opening against leakage of container contents, particularly if the container is upside down, or lying on either side during transportation thereof.

In the modification shown in Figs. 7 to 10, inclusive, the spoon opening 12 is somewhat different in shape than the spoon opening 12 in Fig. 14, in that it has but one straight edge 16, while the opposite edge of the opening is curved, as at 16'. This particular opening is designed to accommodate a regular measuring spoon F of the teaspoon capacity, which is wider across the edges of the bowl than a regular teaspoon, thus the opening will also accommodate a regular teaspoon. To this end, I provide a opposite corners of the spoon opening 12 in the top head C with a recess 22, communicating with the opening 12. One end of the arc shape edge of each recess 22 merges with the ends of the straight edge 16 and the other end of each recess merges into a curved edge 23. This edge, in turn, merges into a straight edge 24 at the inner edge of the channel seats 19, which merges into a curved edge 25, which, in turn, merges into a straight edge 26 at the medial line of the head C, which merges with the ends of the curved edge 16'. The slide valve having the sifter openings 17 is also employed with this type of head C. However, in this instance, three or half of the sifter openings 17 register with the spoon opening 12 when the slide valve D is moved into sifter position, as shown in Fig. 8, and the other half or three sifter openings register with a like number of sifter openings 17'' in the flat horizontal wall seat 11', which openings are clearly shown in Figs. 9 and 10. In Fig. 9, the slide valve is shown as moved into pouring position to provide the pouring opening 18. In this modification, the sifter openings 17 can be formed in one end only of the slide valve D, instead of both ends thereof, if so desired.

In the modification shown in Figs. 11 to 14, inclusive, the spoon opening 12 is similar to that shown in Fig. 1 only having corner recesses 22, and instead of the sifter openings being formed in the slide valve D, the openings are formed in the flat inclined end wall seats 11 and are designated 17'', and there are no openings formed in the slide valve D, as shown in Fig. 3, which shows the slide valve as it appears in top plan view without openings. It is, of course, understood that sifter openings can be formed in both flat inclined end wall seats 11, if so desired.

The modification illustrated in Fig. 13, as far as the horizontal wall seats and the end wall seats are concerned, is the same as in the top head shown in Figs. 3, 15 and 16, except that the inclined end wall seats designated 13 are suitably curved relative to the flat horizontal wall seats 11 instead of being flat inclined wall seats, as illustrated in above mentioned figures of the drawings.

It will be apparent that in the several styles of top heads C shown, that flat horizontal wall seats are provided on opposite sides of the spoon opening 12, which are in a plane with the countersunk head wall 1, regardless of the shape and size of the opening, that the flat inclined end wall seats are the same, that the guideways are the same, and, also the slide valve D is the same in every particular except for the number and location of the sifter openings therein, with the one exception where there are no sifter openings formed in the slide valve D, as shown in Figs. 3 and 11.

It is to be remembered that the apertured top head member C and the slide valve therefor, is so designed as to be adapted for use in connec-

tion with the smallest size of condiment, or like container bodies, as well as the larger sizes, and particularly rectangular container bodies which will not accommodate a spoon opening, transversely or diagonally thereof, and which will permit of the use of a slide valve or closure member which can be completely removed and replaced from either end thereof, and which will lie below the rim 5 of the top head C when fully closed, and wherein any portion thereof will not lie below the lower plane of the flat horizontal wall seat 11 or 11 and 11' and the countersunk head wall 1.

In each instance, however, the slide valve D is provided with a suitably shaped embossed or raised button like portion 27 to facilitate sliding movement of the slide valve and the slide valve can also be provided with direction arrows 28, if so desired, to indicate the direction, or directions in which the slide should be moved to sifter position.

The many advantages of the herein described invention will readily suggest themselves to those skilled in the art of container manufacture.

What I claim is:

1. A top head for tubular fibrous container bodies, said head comprising a thin sheet metal member having an elongated spoon opening, flat horizontal wall seats on opposite sides of said opening, flat inclined end wall seats into the inner corner portions of which the ends of the horizontal wall seats merge, straight horizontal guideways on opposite sides of the spoon opening, said guideways having open ends terminating adjacent the ends of the horizontal wall seats short of their juncture with the flat inclined end wall seats, a flexibly resilient thin sheet metal slide valve having sifter openings adjacent one end thereof and having the major or length of its side edge portions receivable in the guideways and its opposite end portions flexed by the flat inclined end wall seats, said sifter openings being rendered inoperative by the adjacent flat inclined end wall seat, channeled seats at the inner edge portion of the flat inclined end wall seats, and depressed ribs on the slide valve receivable in said channeled seats when the slide valve is in closed position.

2. A top head and slide valve as defined in claim 1, including a second set of depressed ribs on the slide valve one of which is receivable in one of the channeled seats when the slide valve is moved to a sifter position.

3. A top head for tubular fibrous container bodies comprising a sheet metal member having an elongated opening, a raised hollow rectangularly shaped rib on said member, a countersunk wall section surrounding the base of the rib, countersunk side wall seats on opposite sides of the opening, guideways formed on opposite sides of the opening adjacent the outer side edges of the side wall seats, inclined end seats formed by the inner walls of the raised hollow rib, channeled seats formed at the inner edges of the inclined end wall seats, a slide valve having the side edge portions thereof horizontally slidable and receivable in the guideways, and a pair of spaced parallel depressed ribs on the slide valve seatable in said channeled seats when the slide valve is moved to a closed position.

4. A container comprising a tubular body portion, an end head member having an elongated opening secured thereto, an upstanding rectangularly shaped hollow rib spaced from and surrounding the opening, horizontal wall seats adjacent the bases of the long sides of the rib, inclined end wall seats forming the walls of the short ends of the rib, the long sides of the rib having vertical inner walls provided with inwardly projecting portions forming with the horizontal seats horizontal grooves with opposed open sides and ends above the outer side edges of the horizontal wall seats, and a closure member having sifter openings adjacent either end thereof slidably receivable along its side edges in said grooves.

5. A container as defined in claim 4, wherein channeled seats are formed at the inner edges of the inclined end wall seats, and depressed spaced parallel arranged ribs formed on the closure member to be seated in said channeled seats when the closure member is in a closed position.

6. A top closure for containers including an end head and a slide valve having sifter openings, said head having a countersunk panel provided with an elongated opening, said slide valve controlling said elongated opening, a raised rectangularly shaped rib integral with the panel surrounding the opening and providing horizontal valve seats between two side edges of the opening and opposed inner face portions of the rib, upper portions of the opposed portions of the rib being depressed to provide guide ways to receive side edge portions of the slide member, and end wall portions of the raised rib being inclined to correspondingly deflect adjacent portions of the slide valve when in closed position and during movement longitudinally thereof in either direction.

7. A top end closure for tubular fibrous container bodies, said end closure comprising a thin sheet metal member having an elongated spoon opening, flat horizontal wall seats on opposite sides of said opening, flat inclined end wall seats into the inner corner portions of which the ends of the horizontal wall seats merge, a horizontal guideway on opposite sides of the spoon opening, said guideways having open ends terminating adjacent the ends of the horizontal wall seats short of their juncture with the flat inclined end wall seats, and a flexibly resilient thin sheet metal valve having sifter openings near the end thereof and having the major part of the length of the side edge portions thereof receivable in the opposed horizontal guideways with the opposite end portions thereof flexed by the flat inclined end wall seats when the valve is in its normally closed position.

8. A top closure construction for container bodies comprising a countersunk end head having a spoon receiving opening therein secured to the container body, said head including horizontal valve seats bounding the long sides of the opening, cooperating inclined end wall valve seats merging with the ends of the horizontal seats and bounding the ends of the opening, horizontal guideways adjacent the outer edges of the horizontal valve seats, and a flexibly resilient valve member slidably mounted on the horizontal and inclined valve seats.

9. A top closure as defined in claim 8, including a channel at the lower edge of each inclined end wall valve seat, and a pair of spaced transverse ribs on the valve member engageable in said channels when the valve member is in closed position.

10. A top closure as defined in claim 8, including a channel at the lower edge of each inclined end wall valve seat, a pair of spaced transverse

ribs on the valve member engageable in said channels when the valve member is in closed position, and a second pair of spaced transverse ribs on the valve member engageable in an adjacent inclined end wall valve seat channel when the valve member has been moved from its closed position to a sifter position.

11. A top closure construction for fibrous container bodies comprising an end head member having countersunk horizontal seats disposed on opposed sides of an elongated spoon receiving opening, cooperating inclined end wall seats, cooperating guideways adjacent the flat horizontal seats, and a slide valve mounted on the seats and having sifter openings adjacent an end edge thereof rendered inoperative by an adjacent inclined end wall seat.

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