

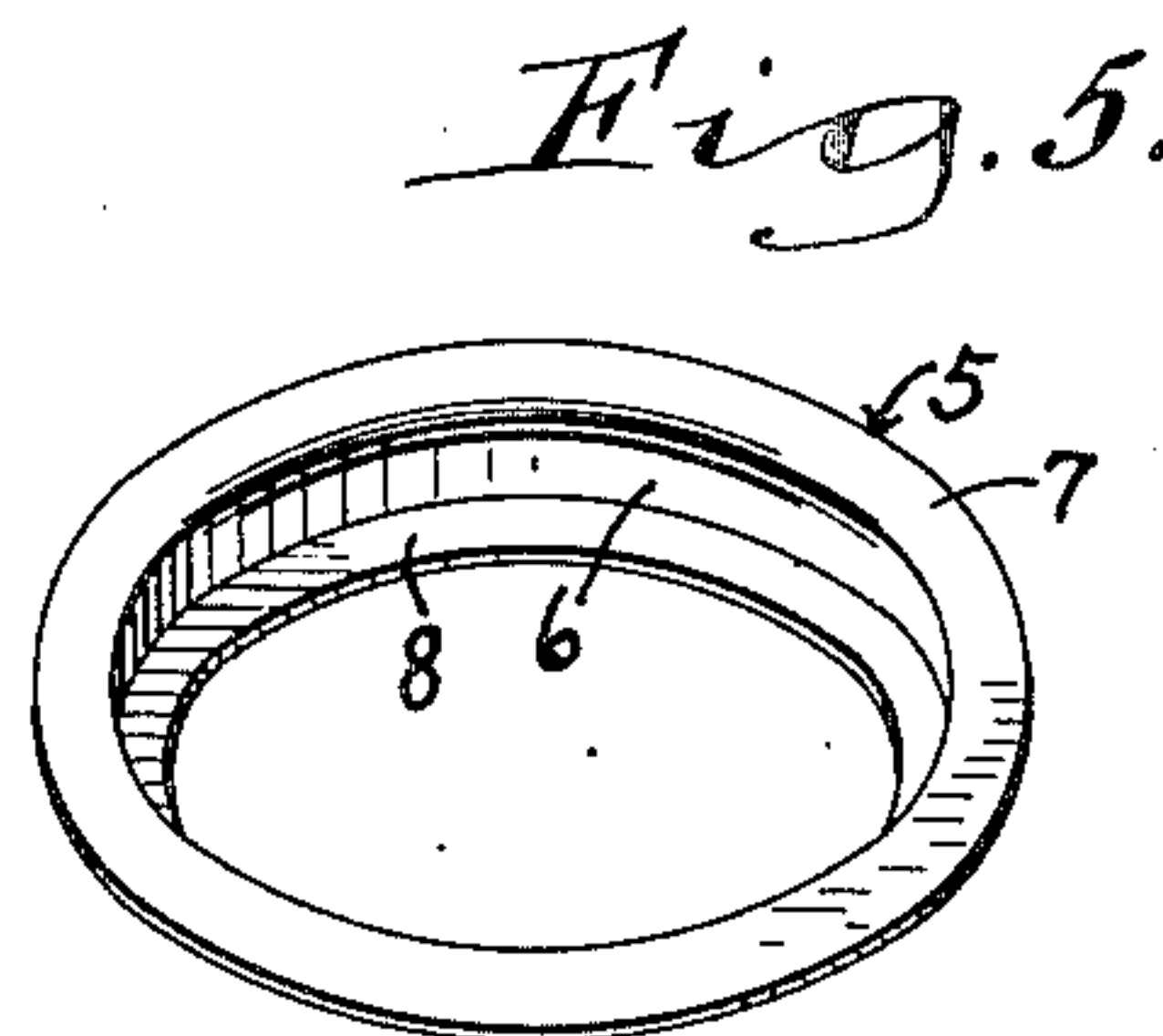
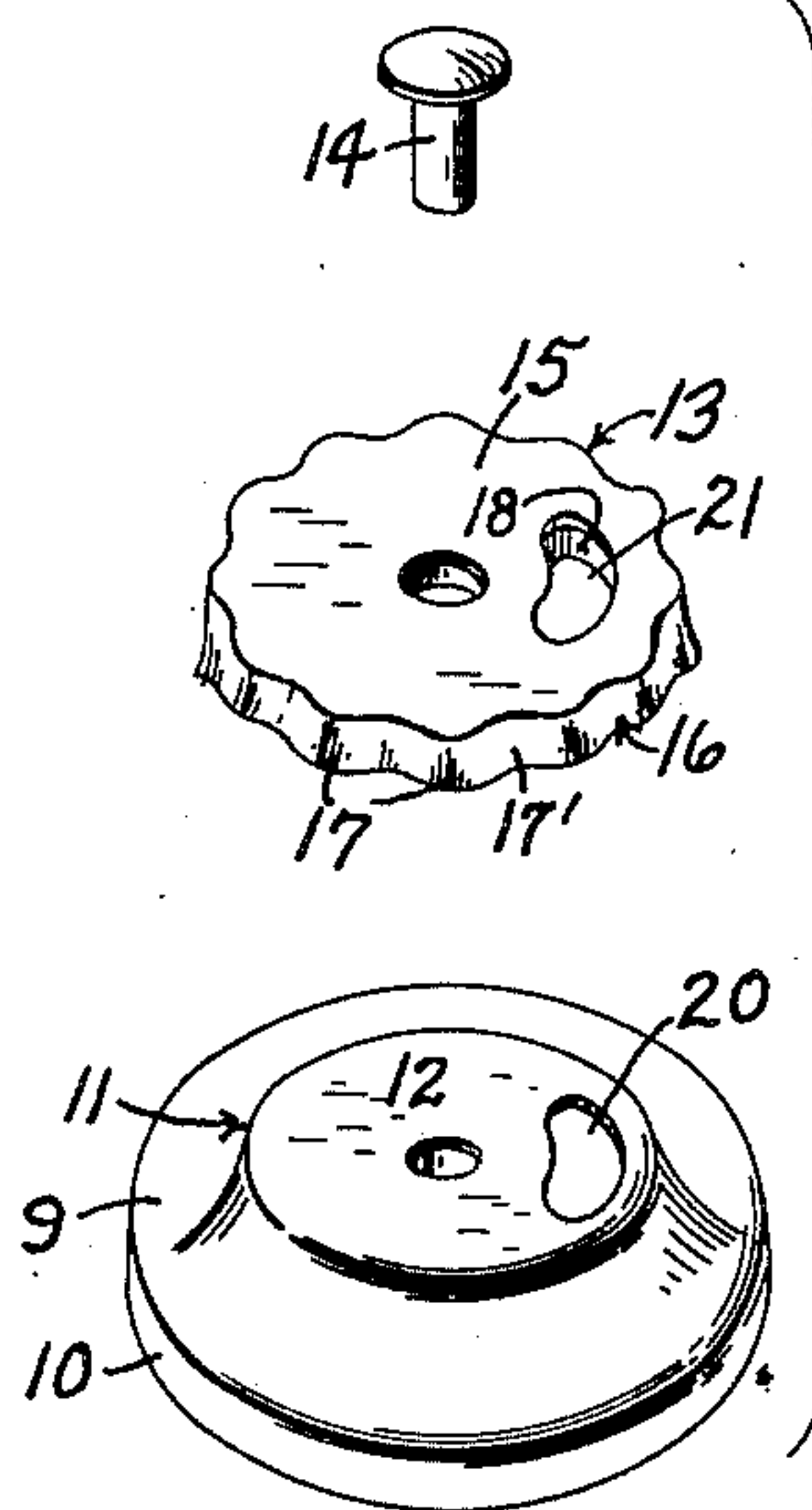
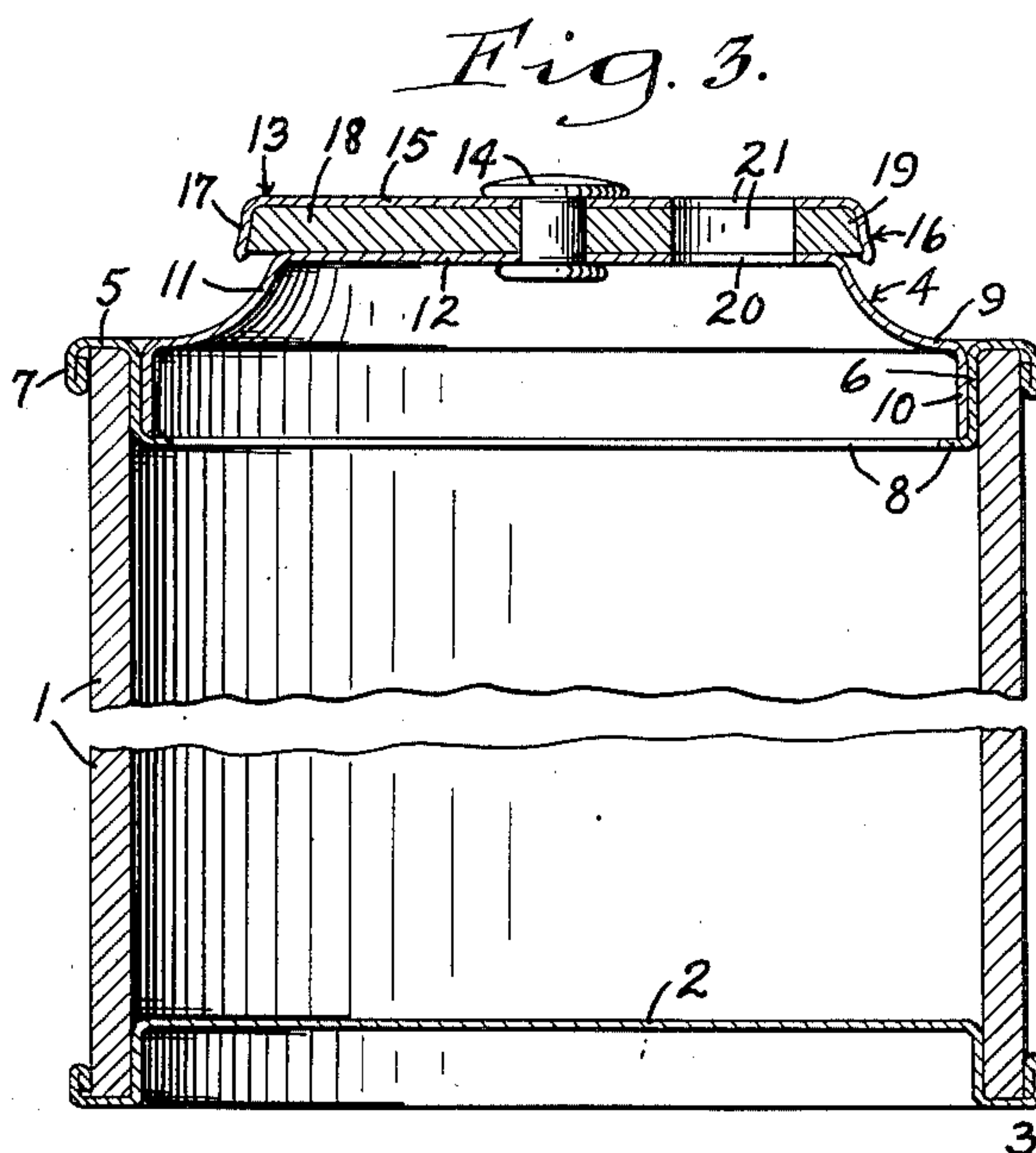
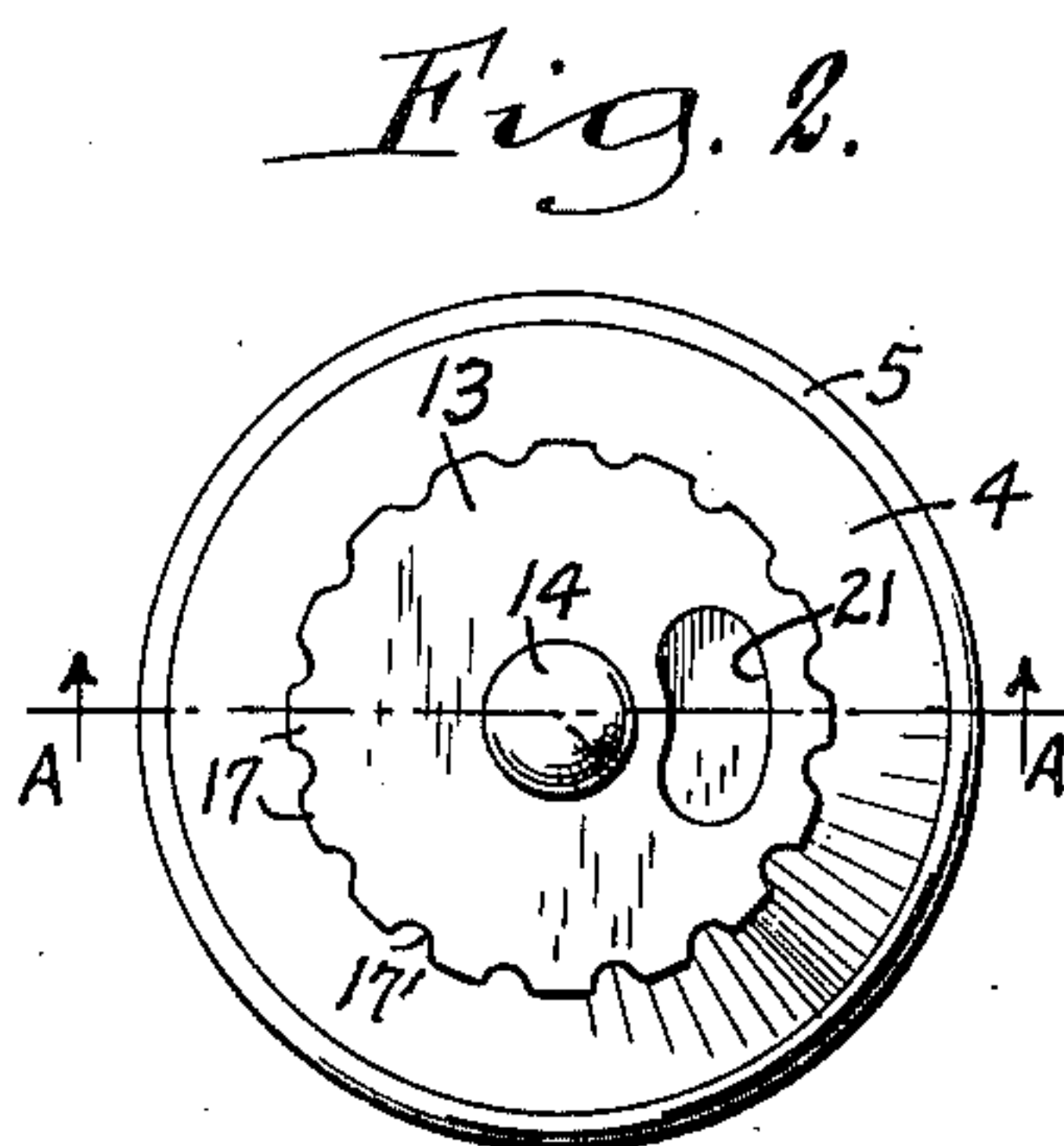
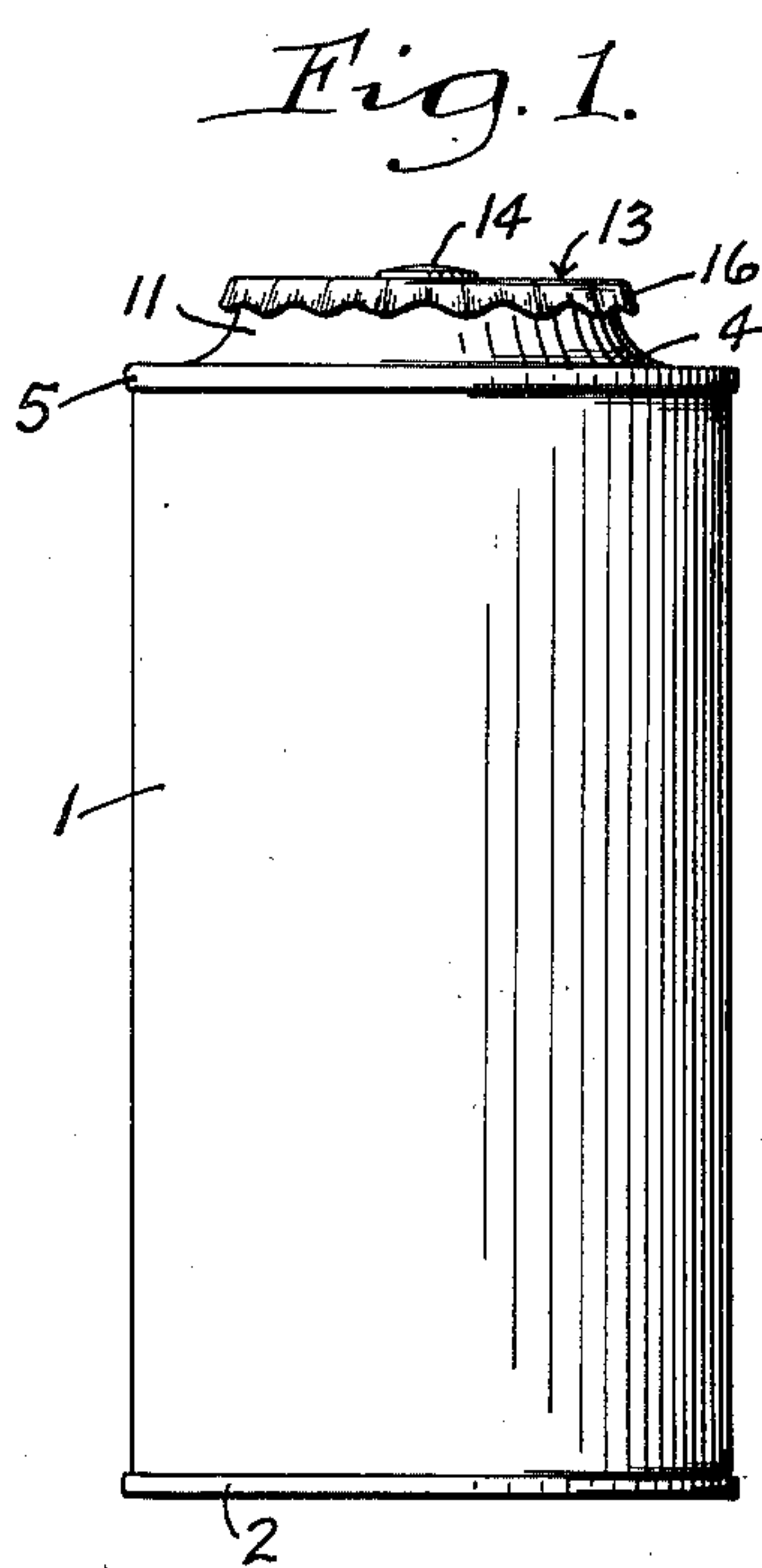
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METAL CLOSURE FOR POWDER CANS

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## UNITED STATES PATENT OFFICE

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## METAL CLOSURE FOR POWDER CANS

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1 Claim. (Cl. 229—5.5)

1

This invention relates to improvements in containers or cans for toilet or cosmetic powder or the like, and more particularly to such containers principally constructed of paper, cardboard, fiberboard, and similar non-metallic materials, and having an improved end structure embodying a relatively rigid end plate or member constructed of metal or other relatively rigid material and adapted to be inserted with a tight retaining friction fit in the end of the fibrous body part.

It is a general object of the invention to provide in a container of the class mentioned, an improved end closure structure that can be quickly and easily inserted into the end of the fibrous body structure after the container has been filled through an end opening with toilet powder or similar comminuted material, and having an improved structure and arrangement whereby the end closure structure when assembled provides not only a tight joint with the body of the container, but also provides a reinforced end structure that will not become loose or disassembled during excessive handling of the container during transit, etc.

According to another improved feature, the body of the paper can or container has a reinforcing terminal piece or ring preferably of metal or other strong material, which is crimped or attached to the wall of the can, and a closure plate or member having a peripheral depending skirt flange is received with a tight anti-sift friction fit within the reinforcing terminal piece, thus providing not only an anti-sift joint with the body of the can, but providing an assembly that does not become loose or disassembled during excessive handling.

Still another object of the invention is to provide in a container of the class mentioned, an improved end structure embodying a separate head or part that can be quickly and easily inserted into the end or filling opening of the container, and when so inserted forms a tight anti-sift joint with the body of the container providing a strong, tenacious connection preventing accidental separation of the parts.

Still another object of the invention is to provide for containers of the class mentioned, an improved end structure embodying a reinforcing terminal piece or ring having an interior offset rib cooperating with a skirt flange of the end closure plate to correctly position the parts in assembled relation and to form a tight anti-sift joint.

A further object of the invention is to provide for containers of the class mentioned, an im-

2

proved opening and closing device for controlling the dispensing of the container contents and for providing a tight sealing joint for the dispensing opening when the controlling member is in closed position.

A further object is to provide for containers of the class mentioned, an improved end structure which is simplified so as to reduce production costs, to provide a practical and efficient sift-proof structure which can be easily and quickly assembled, and is capable of rapid manufacture in large quantities by automatic machinery and by practical factory methods.

Other objects and advantages of the invention will be in part pointed out in the following detailed description of an illustrative but preferred embodiment thereof, and will be in part obvious as the disclosure proceeds.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a more comprehensive disclosure of the nature, objects and advantages of the invention, reference is had to the following detailed disclosure of the illustrative embodiment thereof, and to the accompanying drawings in which:

Fig. 1 is a side elevation of a powder can or container embodying the invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is an enlarged central longitudinal vertical section taken substantially on the line A—A of Fig. 2 looking in the direction of the arrows;

Fig. 4 is a perspective disassembly view of the improved end structure; and

Fig. 5 is a perspective view of the reinforcing end piece or ring.

Referring to the drawing for a detailed description of the illustrative embodiment of the invention there shown, the container or can has a tubular body or material-receiving portion 1 which is preferably constructed of non-metallic material such as paper, cardboard, fiberboard, plastic or the like, the enclosing walls whereof are of sufficient thickness to give the container the necessary strength and rigidity. While the container is shown as being circular in cross-section, it will be understood that this shape is merely illustrative and that the container may assume other cross-sectional shapes, such as, square, rectangular, triangular, polygonal, and so forth.

The lower end of the container is closed by a



3

bottom closure member 2 which, as shown, may be of thin metallic plate and is crimped or turned over the lower edge portion of the body 1, as indicated at 3, so as to provide a tight, anti-sift, permanently attached closure. The bottom 2 of the container may assume any well known form since, per se, it does not form a part of the present invention.

At its upper end the tubular body part 1 of the container has an opening which in the embodiment shown is of an area and diameter substantially the same as that of the body part. This upper opening may be utilized for filling the container with powder or other material, and is closed by the improved end structure indicated generally at 4 in which are embodied the principal features of improvement of this invention.

This improved end structure or closure member embodies the reinforcing ring or piece 5 preferably made of light sheet metal tinned or otherwise coated to prevent rust or corrosion. This reinforcing piece 5 has a downwardly extending inner part or wall 6 received closely within the upper end of the body part 1 and telescoping with the latter in tight contacting relation therewith. At its upper part, the reinforcing piece is turned outwardly or crimped over the upper end of the wall of the body part 1, and has a depending outer flange 7 engaging the outer surface of the container wall. As shown, the flange 7 is preferably rolled or turned inwardly and upwardly at its lower edge and is pressed or crimped tightly against the surface of the container wall and may be embedded slightly therein so as to make a tight, sift-proof joint therewith and to securely retain the reinforcing piece permanently in position on the upper edge of the container wall. This reinforcing piece, as shown, preferably extends continuously around the upper edge of the container wall so as to reinforce the latter and to present an attractive and finished appearance.

Extending inwardly from the inner wall 6 of the reinforcing piece 5 is a stop or rib 8 which, as shown, is preferably in the form of an inwardly turned flange at the lower edge of the inner wall 6 and integral with said wall. This rib or flange 8, as shown, preferably extends continuously around the container opening serving as a positioning and limiting stop for the closure member or disc 9, and to assist in making a tight anti-sift joint with said closure disc.

In the embodiment shown, the closure disc 9 is preferably of sheet metal of the same kind as that of which the reinforcing piece 5 is made and is provided with a peripheral downturned skirt flange 10 of a size to fit tightly within the reinforcing piece 5 and to have tight frictional engagement with the inner surface of the wall 6. This skirt flange 10, as shown, also preferably extends continuously around the periphery of the closure disc 9 and its lower edge is shaped so as to fit closely against the upper surface of the inwardly turned flange 8, thus not only limiting and positioning the closure disc in its operative position, but also functioning to form with said reinforcing piece a tight anti-sift connection. It will be observed that the lower edge of the skirt flange 10 is shaped so as to fit closely within the angle formed by the inwardly turned flange 8 with the wall 6 of the reinforcing piece. Due to this arrangement and engagement of the lower free edge portion of the skirt flange within the angle of the reinforcing piece, a tight anti-sift joint is made and it will be seen that it is prac-

4

tically impossible for the fine powder or comminuted material to find its way around the lower edge of the skirt flange due to the close engagement thereof in the angle or groove-like seat of the reinforcing piece and between the flange 8 and the wall 6. As above mentioned the skirt flange 10, fits with tight frictional engagement with the inner surface of the wall 6 of the reinforcing ring, and it will be noted further that, as shown, the flange 10 and wall 6 engage each other with a face to face surface contact, not only resisting sifting of the contents, but also providing strong frictional resistance to hold the closure 9 in its final assembled position, thus effectively resisting accidental displacement thereof. Additionally the rib or flange 8 functions to reinforce the end structure of the container.

The closure member or disc 9 is preferably outwardly deflected or domed as indicated at 11, and the domed portion is truncated or flattened as at 12 to provide a flat seat for a movable closure member indicated generally at 13.

The closure member 13 is mounted upon the flat plate 12 by means of an attachment or rivet 14 extending through a central opening in the closure member, and through a corresponding central opening in the closure disc. The rivet 14 may be headed or otherwise formed at both the outside and inside of the end structure so as to retain the closure member in tight closing position against the flat plate 12 of the closure disc. This closure member, as shown, is preferably constructed of sheet metal the same as the closure disc 9 and the reinforcing piece 5, and embodies the metallic part or disc 15 having the depending peripheral reinforcing flange 16 which, as shown, is preferably provided with reinforcing corrugations 17 and 17'. The corrugations 17 and 17' not only provide reinforcement for the closure disc 13 but also provide a roughened or serrated gripping surface to facilitate manual turning of the closure disc to open and closed positions.

On the underside of the metallic disc 15 and enclosed within the depending flange 16 thereof is a sealing member or disc 18 preferably made of paper, cardboard, fiberboard, or the like, and adapted to engage tightly against the upper smooth surface of the plate 12 so as to form therewith a tight anti-sift joint. This sealing disc 18 is maintained tightly against the surface of the plate 12 by means of the securing rivet 14. It will be seen in Fig. 3 that the sealing disc 18 is provided at its outer edge portion with lugs or extensions 19 extending into the depressions in the flange 16 formed by the outwardly disposed corrugations 17, thus firmly attaching the sealing disc in its operative position against relative movement or rotation with reference to the disc 15. The sealing disc 18 preferably fits closely within the flange 16 so as to prevent accidental separation from the disc 15 prior to mounting the closure member 13 in operative position. Also, it will be noticed that the dispensing opening 20 of the end closure disc 9 is positioned to align with corresponding aligned dispensing openings 21 extending through both the metal disc 15 and the sealing disc 18 of the rotary closure member. Thus, the closure member may be readily moved into opening or dispensing position wherein the dispensing openings 20 and 21 are aligned, and into tightly sealed closing position wherein the sealing disc 18 is rotated to overlap the dispensing opening 20.



5

From the above disclosure it will be noticed that the improved structure is simple in nature so as to be inexpensive in production costs, and also is capable of manufacture by automatic machinery and factory methods in very large quantities. Considerable difficulty has been experienced in containers of this nature caused by accidental separation or loosening of the end closure structure during intensive handling of the containers when filled with powder as, for example, in transit when large numbers of the containers are shipped in cartons, resulting in loss and dissatisfaction. These difficulties have been effectively solved by this improved closure structure, because by means of the improved structure the parts are retained firmly in assembled position and accidental separation or loosening has been prevented. Also, the improved closure structure is effective in avoiding sifting of the finely divided powder due to the improved structure including the tight joint formed by the reception of the lower edge of the skirt flange 13 within the angle or groove-like seat formed at the inner surface of the reinforcing piece 5. An additional advantage of the improved structure is that the container can be filled with powder by the powder manufacturer or distributor and closed for use without requiring any special crimping tool or apparatus. This is for the reason that both the bottom 2 and the reinforcing piece 5 are permanently affixed by the container manufacturer, and all that is necessary after filling the can is to press the closure member or disc 9 firmly into its final closing position as shown in Fig. 3, and described above.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

The invention having thus been fully described, the following is claimed:

A container and closure combination appropriate for the dispensing of pulverulent material, in which a dispensing closure is permanently secured to the body of the container in a sift-proof manner, said combination comprising, in combination, a fibrous container body having an enclosing wall and an opening, a metal reinforcing piece attached to said wall adjacent to and enclosing the edge of said wall defining said opening

6

and having an inner cylindrical wall extending downwardly from said edge and terminating in an inwardly extending annular peripheral flange, the junction of said flange and cylindrical wall forming a groove-like seat extending around the inner side thereof, a metal closure member for said opening, and a peripheral cylindrical depending skirt flange on said closure member terminating in a free edge and having its outer surface substantially of the same diameter as that of the inner surface of said reinforcing piece and telescoping in the latter with a tight friction fit and the vertical cylindrical frictionally contacting surfaces of said inner wall of the reinforcing piece and of said skirt flange being of sufficient vertical extent to ensure permanent frictional surface contact between the contacting parts to hold the closure member in permanent assembled position and to make a tight joint with said reinforcing piece, said telescoping skirt flange having said inner or lower free edge closely engaging in said groove-like seat to form a tight anti-sift joint and to limit the inward telescoping movement of said closure member, the adjacent upper portions of the closure member at the junction of the cylindrical skirt flange therewith being substantially in the plane of the upper reinforced edge and extending inwardly away from said edge whereby the formation of any projections which might aid in an attempt to pry the closure member and reinforcing piece apart is precluded.

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