

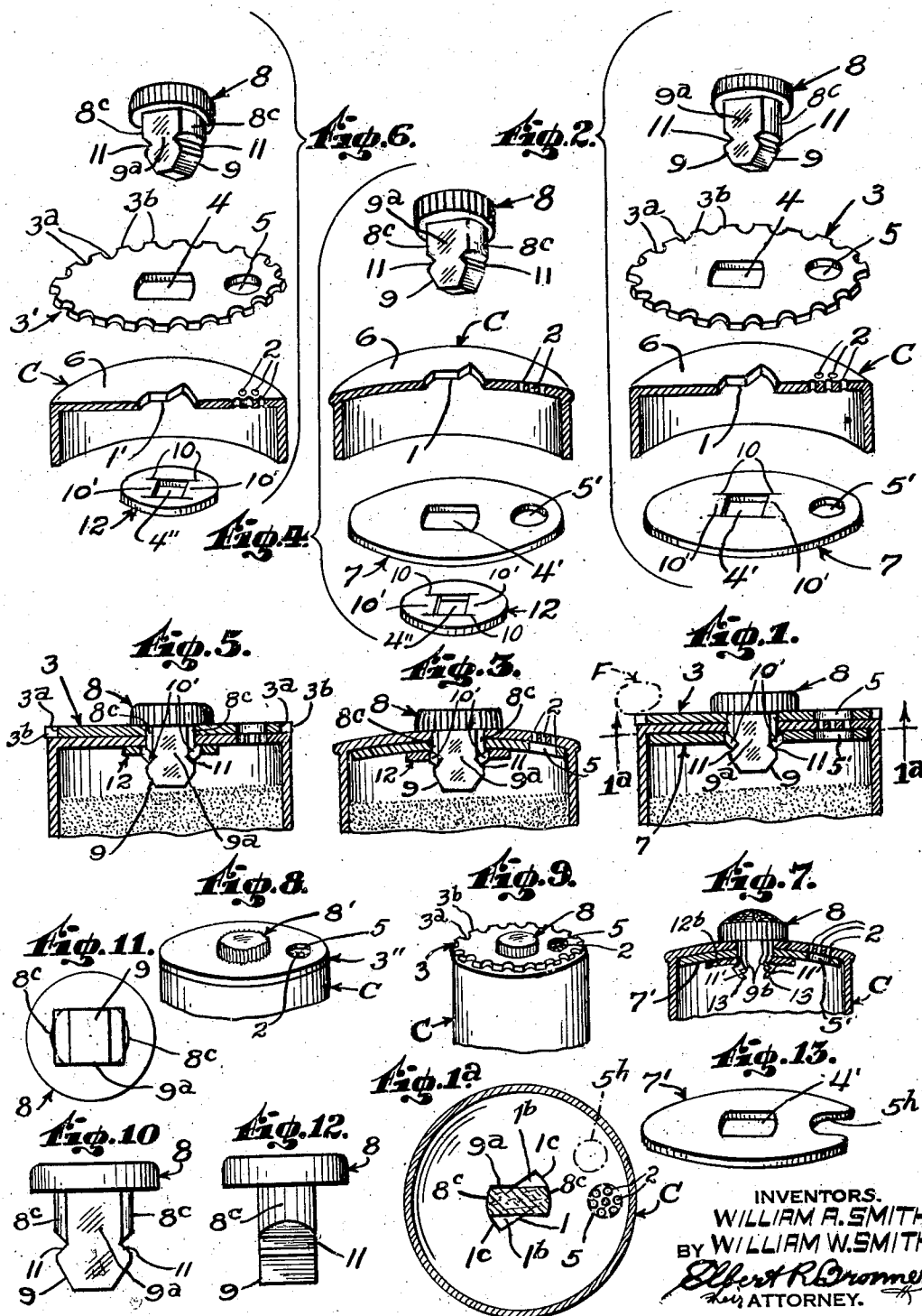
Feb. 12, 1946.

W. A. SMITH ET AL

2,394,942

DISPENSING MEANS FOR CONTAINERS

Filed June 19, 1942



UNITED STATES PATENT OFFICE

2,394,942

DISPENSING MEANS FOR CONTAINERS

William A. Smith and William W. Smith, Bronxville, N. Y., assignors, by direct and mesne assignments, to F. N. Burt Company, Inc., Buffalo, N. Y., a corporation of Delaware

Application June 19, 1942, Serial No. 447,720

3 Claims. (Cl. 222-548)

This invention relates to improvements in non-metallic dispensing means for containers, for example, to an improved container cap for dispensing and sprinkling fine powder, and the like.

One of the main features of this invention, is the improved structure providing for interchangeability of the operative non-metallic parts from one form to another form of dispensing device, in which a knob-like non-metallic element provides the pivotal and securing means for the rotary closure disks or shutters.

Another feature of this invention, is the construction of the knob-like closure operating member with improved retaining means therefor that provides for the instant assembly and automatic engagement of the parts, in which a washer or similar retaining member is secured in operative position by means of lugs or retaining notches on the operating knob, thereby securing all the operating members to the end wall, or cap portion of the container.

According to another feature of improvement of this invention the dispensing closure has been especially designed to adapt it for construction from non-metallic materials, such for example, as paper-board, plastic materials, wood and the like, thus conserving metals.

Other features of improvement of this invention will be in part pointed out in the following detailed description of certain illustrative but preferred embodiments of the invention, 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 complete disclosure of the nature, objects and advantages of the invention, reference is had to the following detailed description and to the accompanying drawing in which:

Fig. 1 is a fragmentary central longitudinal vertical sectional view of a powder container provided with a double sealing closure means;

Fig. 1a is a sectional view taken on line 1a-1a of Fig. 1 looking in the direction of the arrows;

Fig. 2 is an exploded or disassembly view in perspective of the parts embodied in Fig. 1;

Fig. 3 is a sectional view similar to Fig. 1, showing a modification embodying a single sealing means within the top portion of the container or cap;

Fig. 4 is an exploded or disassembly view in perspective of the parts embodied in Fig. 3;

Fig. 5 is a sectional view similar to Fig. 1 but showing a further modification embodying a single sealing means on the outer top portion of the container, or cap;

Fig. 6 is an exploded or disassembly view in perspective of the parts embodied in Fig. 5;

Fig. 7 is a sectional view similar to Fig. 1 but showing a further modification;

Fig. 8 is a perspective on a reduced scale of the container and powder dispensing means shown in Figs. 1 and 2;

Fig. 9 is a fragmentary top view in perspective, of the embodiment shown in Figs. 5 and 6;

Fig. 10 is a side elevational view of the knob member;

Fig. 11 is a bottom plan view of Fig. 10;

Fig. 12 is a side view of Fig. 10; and

Fig. 13 shows a modification of one of the sealing members.

Referring to the drawing for a detailed description of the invention, and first to the embodiment of Figs. 1 and 2, a top portion or end wall 6 of a container C is shown, having a central aperture 1 and small powder dispensing holes 2 at its outer portion. Mounted on the head or end wall 6 is a knurled or notched rotary disk member 3 having spaced peripheral notches 3a and ridges 3b, and an elongated central aperture 4 and a small dispensing opening 5 at the outer portion thereof. Arranged inside of the top portion 6 of the container C, is another rotary disk member 7 having a central substantially rectangular aperture 4' with slits 10 and a small opening 5' in aligned or registering relation with the dispensing aperture 5 of the disk 3. Interlocking of the outer and inner closure disk members 3 and 7 with the intermediate top portion or head 6 of the container C, is accomplished by a knob or disk operating element 8 having oppositely disposed recessed or shoulder portions 11 and an elongated stem portion 9a inserted through all of the central apertures 1, 4 and 4'. The stem 9a is oblong in shape having oppositely disposed flat surfaces and curved or rounded ends 8c below which the V-shaped recesses or notches 11 are respectively positioned, and the lower end has inwardly inclined surfaces 9 forming a tapered lower extremity for the stem. The curved ends 8c and the flat or straight sides of the stem 9a respectively engage with the corresponding straight and curved edges of the apertures 4 and 4' of the outer and inner disk members 3 and 7, thus non-rotatably

securing the disks to the stem for rotation by the latter. When the stem 9a is thus inserted, it provides interlocking means for securing the disk members in operative position on the outer and inner sides of the top wall or head 6. The slits 10 form locking tabs 10' swingingly connected to the disk 7 which are engaged by the tapered end 9 of the stem thus downwardly deflecting the tabs 10' into interlocking relation with the V-shaped shoulder portions 11.

It will be noted that the locking tabs 10' are engaged by the entering stem 9a and deflected inwardly and downwardly from their normal position in the plane of the disk, and that they are automatically caused to engage in interlocking relation with the shoulders 11 of the stem, thus securely holding all the operating parts in assembled relation. Also, it will be seen that the swinging locking tabs 10 have free swinging ends that engage in locking relation with the shoulders 11 of the stem 9a. These free ends of the locking tabs have substantially straight edges complementary with the shoulders 11 thus tending to lock the disk 7 and the stem 9a against relative rotation. Also, the action of the interlocking tabs 10' is to retain the closure disks 3 and 7 and the head 6 in close contacting relation to maintain a substantially sift-proof seal. The flattened sides of the stem 9a engage with the straight edges of the aperture 4' to secure the disk 7 against relative rotation with the stem 9a whereby the disk can be rotated by means of the knob 8 to move the disk into opening and closing positions. Thus by engagement of the locking tabs 10' with the shoulders 11, and by engagement of the flattened stem 9a in the aperture 4', there is no danger that the locking position of the locking tabs can accidentally become displaced or disengaged by any relative rotation between the disk 7 and the stem 9a. As shown in the embodiment of Figs. 1 and 2, the disk 7 is in the form of a sheet member serving both as a closure for the dispensing opening 2 and as a part of a locking device cooperating with the stem 9a to lock the parts in assembled relation against separation thereof.

In operation, when the notched disk 3 is moved slightly by the finger F the knob 8 will rotate the inner disk 7, whereby the small openings 5 and 5' come into alignment with the small holes 2 of the stationary top portion or head 6, so the powder may be sprinkled therefrom, after which the finger F moves the openings 5 and 5' of the disks 3 and 7 to their inoperative position as shown in dot-dash lines in Fig. 1a, in which the small holes 2 are completely sealed between the outer and inner disk members 3 and 7. Suitable means for limiting the oscillation of these disk members is shown in Fig. 1a, in which the top portion 6 of the container C is cut away at 1b adjacent to the curved ends 1c of the aperture 1 so as to provide stop lugs positioned marginally of the aperture and engageable with the flat opposite surfaces of the stem 9a to limit rotation of the stem in either direction, thus providing limiting means for limiting the opening and closing movements of the closure disks.

In Figs. 3 and 4, a single sealing means is shown, and the outer disk member 3 of Fig. 1 is omitted and a sheet locking member or locking washer 12 with a substantially rectangular aperture 4'' is substituted to complete the interlocking arrangement, the washer having similar slitted portions 10 that form tabs 10' as in the disk member 7 of Fig. 1.

In operation of the embodiment of Figs. 3 and 4 the knob 8 is turned to move disk 7 so the opening 5' comes into alignment with holes 2 for the powder sprinkling operation. In other respects the operation of this embodiment and the functioning of automatic locking device are substantially as above set forth in connection with Figs. 1 and 2.

In Figs. 5 and 6, the inner disk 7 of Fig. 1 is omitted and the outer notched disk member 3' is oscillated for the powder sprinkling operation, this disk forming a single sealing closure. But in this embodiment as in those of Figs. 1, 2, 3 and 4, an interlocking device for attaching the stem 9a to the closure is used including the inner locking washer 12 similar to that of Figs. 3 and 4, having the inwardly swinging locking tabs 10' and the central aperture 4''.

In the embodiment of Fig. 7 a single inner rotary closure and sealing disk 7' similar to the disk 7 of Fig. 1 is employed. The closure disk 7' is rotated in its opening and closing movements by a handle or knob 8 having attached thereto yielding metallic prongs 9b extending downwardly through the central aperture of the container head and through the central aperture of the closure disk 7' in a manner similar to the stem 9a of Fig. 1, and performing similar functions. These yielding prongs have locking shoulders 11' similar to the locking shoulders 11 of the stem 9a and adapted to interlock with an inner retaining washer 12b similar to the washer 12 of Figs. 3 and 5. Also, the prongs 9b have inwardly inclined lower extremities 13 adapted to engage with the edges of the retaining washer 12b at the inner opening thereof during assembly of the parts, when the prongs are moved downwardly into assembled relation through the central apertures of the container head and closure disk 7'. The prongs are thus automatically interlocked with the retaining washer to retain the parts in assembled relation.

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:

1. In a dispensing device for containers, in combination, a wall having therein a dispensing opening and a mounting opening, a rotary closure member having an opening and being positioned adjacent to said dispensing opening to open and close the same, an operating member having a stem rotatably mounted in and extending through said mounting opening of said wall, said stem having a flattened surface and extending through said opening in said closure member, said closure member opening having an edge portion engaging with the flattened part of the stem to provide a rotary transmitting connection whereby the stem and closure member are secured against relative rotation and rotary movements of the stem are transmitted to the closure member to open and close the dispensing opening, said stem having opposed locking shoulders angularly displaced from said flattened surface thereof, and a locking device for holding said stem and closure member in assembled operative position including swingable locking tabs with free swinging ends and positioned for engagement by said stem during insertion thereof to swing said tabs

inwardly and automatically position said swinging ends thereof in interlocking relation with said locking shoulders so as to maintain said closure member in substantially tight sift-proof relation, the said rotary transmitting connection for transmitting rotary movements from said stem to said closure member avoiding accidental release of said locking tabs from their said interlocking relation with said locking shoulders.

2. In a dispensing device for containers, in combination, a wall having therein a dispensing opening and a mounting opening, a closure device for said dispensing opening including an operating member having a stem rotatably mounted in and extending through said mounting opening of said wall for opening and closing the closure device, a sheet member forming a part of said closure device and serving as a locking member positioned inside of said wall, said sheet locking member having an opening and said stem extending therethrough and having connection with said locking member so as to secure the stem and locking member against relative rotation, said stem having a locking shoulder, and a locking device for holding said stem in assembled operative position, including a locking tab swingably connected to said sheet locking member, said locking tab having a free swinging end and being positioned for engagement by said stem during insertion thereof so as to swing said tab inwardly and to automatically position said free swinging end thereof into interlocking relation with said locking shoulder so as to lock said sheet locking member and said stem against separation and to maintain said closure device in tight substantially sift-proof condition.

3. In a dispensing device for containers, in combination, a wall having therein a dispensing opening and a mounting opening, a closure device for said dispensing opening including an operating member having a flattened stem with shoulders angularly disposed from the flattened part thereof and being rotatably mounted in said mounting opening, said dispensing device also including a sheet member serving as a locking member and also as a closure member for said dispensing opening and being positioned inside of said wall, said sheet locking and closure member having an opening for receiving the inner end of said flattened stem and being provided with slits adjacent to its opening forming inwardly swingable locking tabs on said locking and closure member having free swinging ends and normally lying in the plane of said sheet closure member, said locking tabs being engageable by the entering end of said flattened stem to swing them inwardly and to automatically cause entry of said swinging ends thereof into interlocking relation with said stem shoulders so as to maintain said sheet locking and closure member in tight substantially sift-proof position with reference to said wall, said closure member opening having an edge portion engaging with the flattened part of the stem whereby said stem and closure member are secured against relative rotation so as to transmit rotary movements of the stem to the closure member to open and close the dispensing opening, and to avoid accidental release of said locking tabs.

WILLIAM A. SMITH.
WILLIAM W. SMITH.