May 20, 1952 B. D. GOLDBERG 2,597,722

SLIDABLE CONTAINER WITH AUTOMATIC COVER

Filed Feb. 4, 1950 2 SHEETS—SHEET 1

Fig. 1.

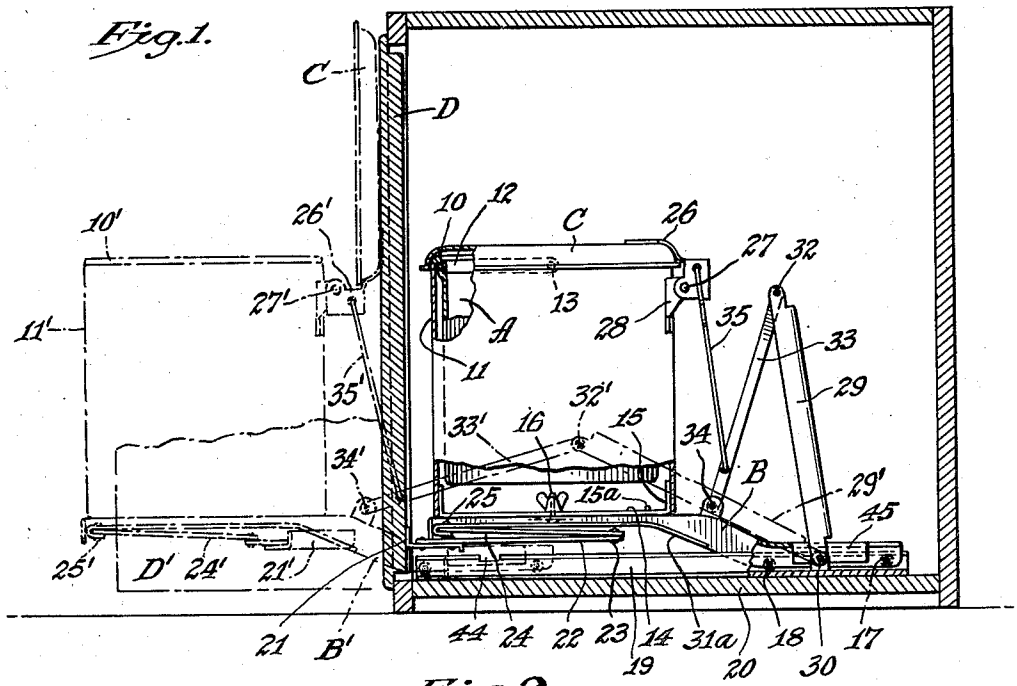


Fig. 2.

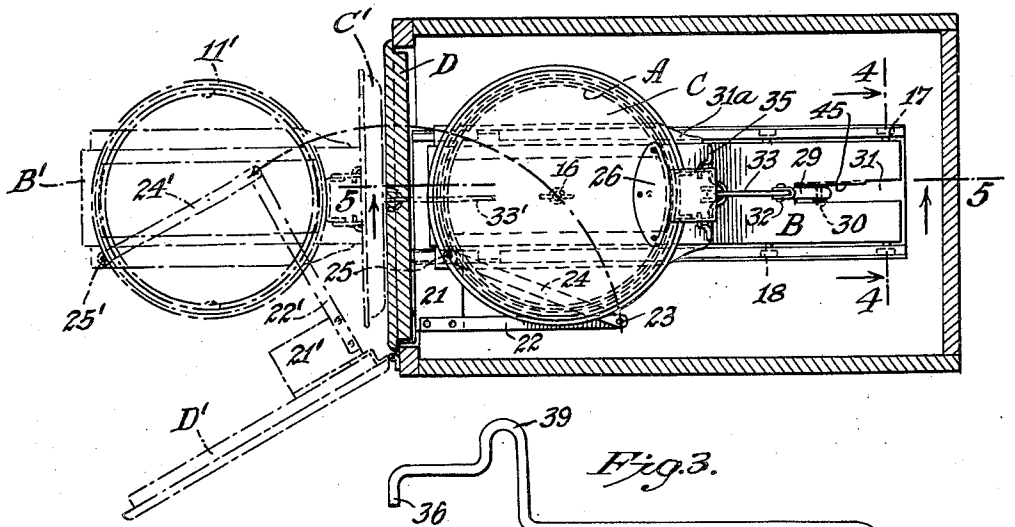
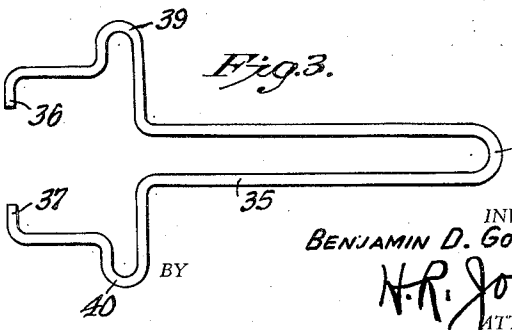


Fig. 3.



INVENTOR
BENJAMIN D. GOLDBERG
BY
H. R. Johns.
ATTORNEY

May 20, 1952 B. D. GOLDBERG 2,597,722

SLIDABLE CONTAINER WITH AUTOMATIC COVER

Filed Feb. 4, 1950 2 SHEETS—SHEET 2

Fig. 4.

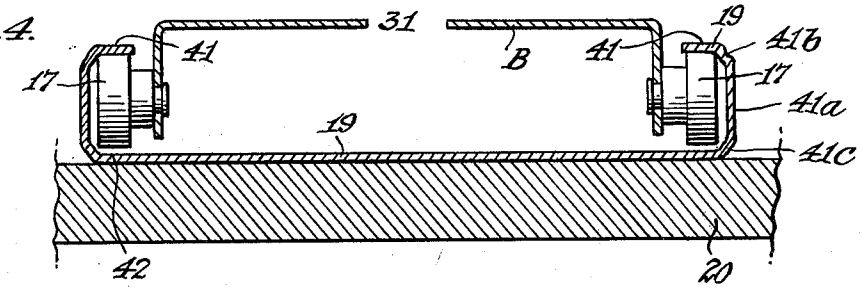


Fig. 5.

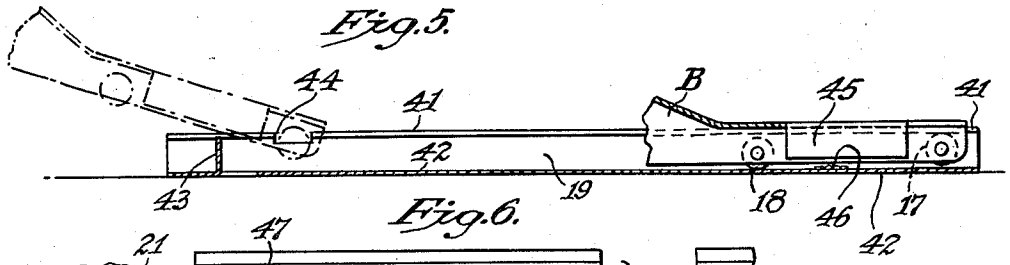


Fig. 6.

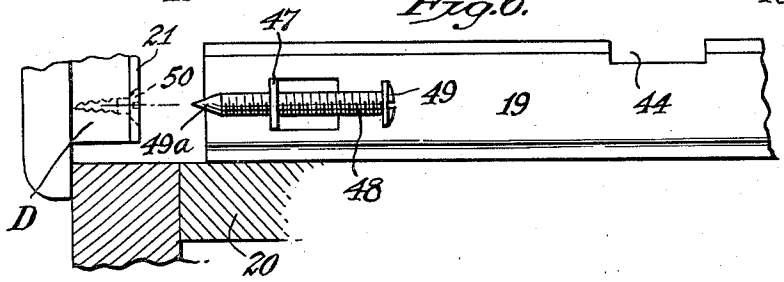


Fig. 7.

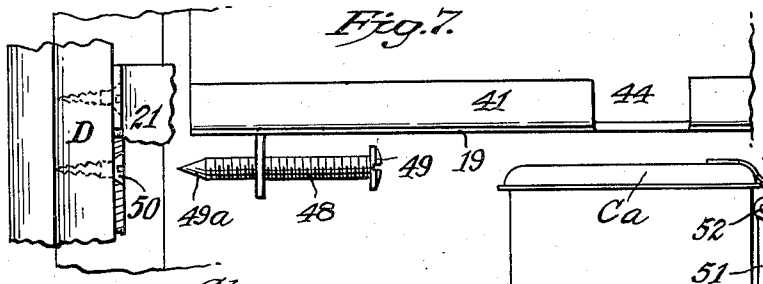


Fig. 8.

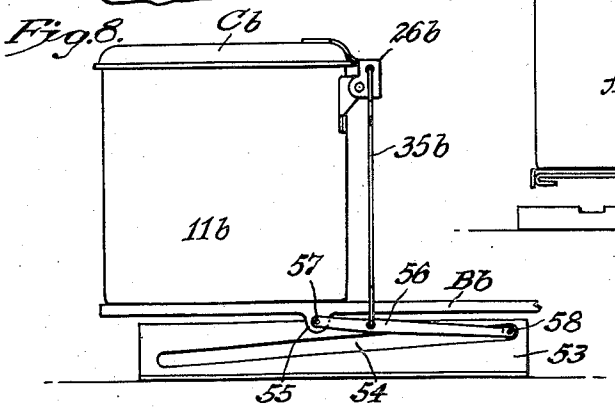
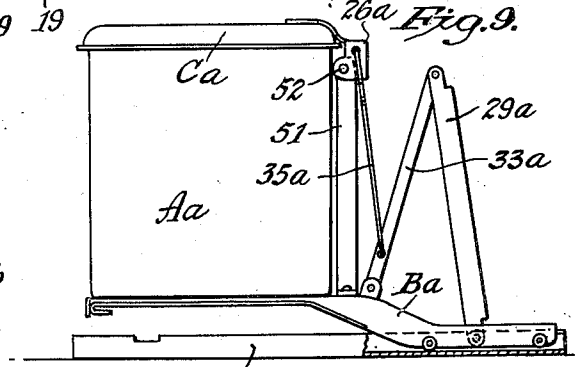


Fig. 9.



INVENTOR
BENJAMIN D. GOLDBERG
BY H. R. Johns.
ATTORNEY

Patented May 20, 1952 2,597,722

UNITED STATES PATENT OFFICE

2,597,722

SLIDABLE CONTAINER WITH AUTOMATIC COVER

Benjamin D. Goldberg, Brooklyn, N. Y.

Application February 4, 1950, Serial No. 142,482

13 Claims. (Cl. 312—274)

1

This invention relates to apparatus for opening and closing a cover of a container such as is frequently used for holding garbage or trash in the kitchen. The cover opens in response to the opening of a door behind which the container is placed in a cabinet, as is shown in my previous Patent No. 2,343,409, dated March 7, 1944, for Container and Support Therefor.

An object of this invention is to provide a container of the aforementioned type having a sliding carriage, which unit is salable and attractive, and adapted for ready insertion in a kitchen or elsewhere. Another object is to provide such an apparatus in which the container cover is tightly held in place when the control door is closed to reduce the danger of objectionable odors. Still another object is to provide an actuating mechanism for the cover which is capable of being quickly detached and attached to the cover for easy removal of the container and its cover from a sliding platform on which it is placed in a cabinet.

Figure 1 is a side elevation partly in section of a preferred embodiment of this invention after it has been inserted in an existing cabinet, the dotted lines showing the position of the container in its forward position with the cover raised.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a detail of the yieldable and detachable link for actuating the cover.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a section on the line 5—5 of Figure 2, showing in dotted line position, the slidable carriage as it may be removed from the track on which it slides.

Figure 6 is a detail of the forward end of the track provided with a marking device.

Figure 7 is a top plan view of the device shown in Figure 6.

Figure 8 illustrates a modified construction for the cover actuating mechanism.

Figure 9 is a modified construction of the supporting track, platform, and cover actuating mechanism.

As shown in Figure 1, the container A is positioned on a platform or carriage B, and a cover C for the container is automatically raised as the container is slid out of the cabinet in response to the door D being opened. As is the case in my aforementioned patent, the cover actuating mechanism is located in the rear of the container and the container moves outwardly on a platform mounted on rollers.

The container A is provided at its top edge with an outwardly extending flange 10, whereby this

2

container is supported on a cylindrical enclosing wall or projection 11, which is secured to the platform. A bail or handle 12 is pivoted to the container at 13 to facilitate removal of the container for emptying it and replacing it while the cover C is open. The cylindrical projection or guide 11 is secured to the platform B by means of a bottom strip 14, shown as being provided with upstanding flanges 15, which are welded to the cylindrical projection 11. For ease in positioning the guide or projection 11 on the platform, a pin 15a extends upwardly from the platform and is received within a hole in the bottom strip 14. A bolt 16 also extends upwardly from the platform B and is provided with the wing nut illustrated for securing the strip 14, the guide wall 11 and the container in position on the platform. As shown in Figure 1, the bottom of the container A is spaced from the top of the wing nut on the bolt 16.

At the rear of the platform B is a pair of rear rollers 17 and a pair of front rollers 18 on which the platform moves along a channel-shaped track 19 fastened to the floor 20 of the cabinet. A metal bracket 21 is secured to the door D by screws or in any other manner, this bracket being provided with a plurality of holes to facilitate attachment of a rigid arm 22 for actuating the platform to its forward position in response to opening the door D. This arm 22 is pivotally connected at 23 to the platform moving link 24, and the latter is pivotally connected to the forward end of the platform at 25.

On the cover C an extension 26 is welded in place and provided with a pair of downturned ears which are pivoted at 27 to a pair of cooperating ears 28 attached to the guide projection 11.

A lever 29 is pivoted at 30 to the bottom of the cabinet or in this case, to a projection extending above the bottom of the track on which the platform rides. The rear portion of the platform B is provided with a slot 31 so that the pivotal lever 29 does not interfere with the platform being moved inwardly as far as may be desired. At its upper or forward end the lever 29 is pivotally connected at 32 to a rigid lever or link 33 which, in turn, is pivoted at 34 to the platform in rear of the container. A slightly yieldable rod or link 35 of the shape shown in Figure 3 is connected between the link 33 and the ears on the cover extension 26.

The opposite ends 36 and 37 of the link 35 engage perforations in the ears of the extension 26, as shown in Figure 1. The opposite end 38

of this link passes through the rigid link 33. Oppositely disposed U-shaped bends 39 and 40 are provided in the sides of the link 35. In this way, the link 35 is made slightly yieldable, both laterally and longitudinally. This link 35 is of such length that the cover is actuated to its open position when the container is in its forward position, as shown in dotted lines in Figures 1 and 2. On closing the cabinet door D, the platform is moved inwardly and the cover automatically lowered. It has been found desirable to have the cover reach its fully closed position when the door is about 5° from its fully closed position. The remaining travel of the platform and the cover actuating mechanism imposes a slight stress upon the cover, holding it closed under pressure, that pressure being due to a slight yield and resiliency in the length of the link 35 due to the U-bends. For disengaging the cover from the link 35, the opposite sides are separated by manually separating the ends 36 and 37 until they are free of the cover extension 26. In this way, the cover, the cylindrical guide 11 and the container A may all be removed from the platform for cleaning, if desired.

As shown in Figure 4, the track 19 has on each side channel-shaped portions in which the rollers are moved. The upper flange 41 is engaged by the rear rollers 17. The web portion of the channeled rails is bent outwardly at 41^a to provide a clearance or space between this web and the side of the rollers. The outwardly bent part 41^a is connected with the upper and lower flanges by web portions of shallow depth 41^b and 41^c. In this way, the rear rollers 17 have their side faces in contact with the channel web only at the upper shallow portions 41^b to guide and direct movement of the platform. The main side face portion of the rollers is not in contact with the web portions 41^a and 41^c. The forward rollers 18 rest on the lower flange portion 42, while the rear rollers engage only the upper flanges 41. The platform B has downwardly extending flanges on each side, as shown in Figure 4. As shown in Figures 1 and 2, the platform also is provided with strengthening flanges 31^a which extend at right angles to the side flanges of the platform.

At a forward portion the track flange 41 is interrupted to provide a recess 44 wide enough to enable the rollers to be withdrawn and the platform to be removed from the track in shipment. A bent up lug 43 constitutes a forward stop to limit outward movement of the platform. This stop engages a bent down flange 45 for that purpose. Rearward movement of the platform is limited by the end of the slot 31 engaging the lever 29 or upstanding lugs 46 from the track floor to which the lever 29 is pivoted, or by the door.

An ear 47 is shown in Figures 6 and 7 as being stamped out of the web portion 41^a of the track and threaded for reception of the screw 48. A slotted head 49 enables this screw 48 to be easily adjusted with the aid of a screwdriver. The opposite end of the screw 48 is tapered as shown at 49^a. After the track 19 has been secured to the bottom 20 of the cabinet with the forward end of the track close to the door D, the screw 48 is adjusted so that the point 49^a is far enough forward to engage and make a small dent or mark in the door, upon closing the door. This mark is the guide to indicate where a supporting screw 50 for the metal bracket 21 is to be located. After the bracket 21 has been properly positioned, the screw is rotated to withdraw its pointed end 49^a back from contact with the door and preferably back of the forward end of the track 19.

In Figure 9 the cover C^a is pivoted to an upstanding post 51 secured to the platform in place of the cylindrical guide wall 11. In this embodiment, the container A^a rests directly on the platform. The corresponding parts in Figure 9 are designated by an exponent *a*. The cover pivot 52 is carried by the upstanding post 51, which is an equivalent to a construction in which the cover pivot is carried by the surrounding cylindrical wall 11.

In Figure 8 the embodiment there illustrated has corresponding parts designated by an exponent *b*. The track may be of the type described above but of greater height, that is, the channel webs are higher, so that an upstanding rib 53 may be placed between the track sides and provided with a cam slot 54 of the general shape illustrated. The bent down projection 55 from the platform receives a pivot 57 for the link 56 whose opposite end is secured to a roller 58 sliding in the cam slot 54; as the roller moves down the slot, the cover is actuated in the expected manner through the yieldable link 35^b.

Among the advantages of this invention may be mentioned the provision of a cover which is held in closed position under stress to minimize the danger of a poor fit permitting objectionable odors to escape. If desired, the cover, container and the cylindrical guide wall 11 may all be removed from the platform, or the container alone may be removed when the cover is raised. For installation the platform is removable from the track by sliding the platform forward until the forward rollers are right under the recess 44 when they may be raised and moved out from the track. When the rear rollers reach the recess 44, they may similarly be withdrawn, so that the entire platform can be removed or may be inserted again in the track. The marking means or indicator 49^a provides a simple and ready way in which the bracket 21 on the door may be properly positioned without having to measure over so much from one side and down something else or up some distance. The marking means may be mounted on the movable platform or on the container or its guide wherever convenient to the front end of the track and platform.

Instead of a punch type point some form of marking pencil may be used.

The details of the platform and marking tool are claimed in my co-pending application S. N. 246,836, filed September 15, 1951, for Platform for Container with Automatic Cover.

I claim:

1. In an apparatus for opening a container by raising its cover in response to the container moving outwardly, said apparatus comprising a movable carriage on which the container is mounted, and lever mechanism for opening said cover as the carriage and container move forward, the combination therewith of the improvement for maintaining said cover closed under pressure exceeding that due to gravity, said improvement comprising said lever mechanism including a yieldable rod secured to said cover and of a length capable of closing said cover in advance of the container being drawn fully rearwardly, said rod having means intermediate its ends enabling its length to be resiliently changed under stress.

2. In an apparatus for opening the cover of an

upstanding container in response to the opening of a door behind which the container is adapted to be mounted, said apparatus including a platform, a track along which the platform is movable, rollers in rear of the platform engaging said track, links for pivotal connection beneath the platform to said door for moving the platform forward as the door opens, a container on the platform at the forward portion thereof, an upstanding projection on said platform adjacent the container, a movable cover for said container, and lever mechanism for opening and closing the cover, said lever mechanism being mounted in rear of the container for attachment to a stationary support adjacent the rear of the platform, for attachment to said platform and cover, said cover being movable about an axis carried by said projection, the combination therewith of the improvement enabling said cover to be held in closed position under pressure, said improvement comprising at least one portion of said lever mechanism comprising a rod provided with a bend intermediate its ends and of a length to close said cover in advance of said door being fully closed and also yieldable to flex slightly as said door is fully closed, flexure of said bend providing the pressure for holding said cover tightly on the container.

3. An apparatus according to claim 1, in which said rod is provided with a U-shaped bend intermediate its ends and with a second U-shaped bend at a right angle to said first mentioned U-shaped bend, said second mentioned bend being flexible transversely of the rod to permit manual engagement and disengagement of the rod from said cover.

4. In an apparatus for opening and closing the cover of a container in response to movement of the container, said apparatus including a platform, a track along which the platform moves, a container on said platform, a cover for said container, and lever mechanism for cooperation with said cover and a support for said track whereby the cover is moved to an open position in response to movement of the container and platform along the track in one direction and said cover is moved to a closed position in response to movement of the container and platform along said track in an opposite direction, the combination therewith of the improvement for holding the cover closed under stress greater than that due to the force of gravity upon said cover, said improvement comprising means intermediate the ends of at least one rod in said lever mechanism enabling that rod to be flexed under pressure due to the cover being in closed position.

5. In an apparatus for opening and closing the cover of a container in response to movement of the container, said apparatus including a platform, a track along which the platform moves, a container on said platform, a cover for said container, and lever mechanism for cooperation with said cover and a support for said track whereby the cover is moved to an open position in response to movement of the container and platform along the track in one direction and said cover is moved to a closed position in response to movement of the container and platform along said track in an opposite direction, the combination therewith of the improvement for holding the cover closed under stress greater than that due to the force of gravity upon said cover, said improvement comprising at least one rod in said lever mechanism being of a length to close said cover in advance of the platform being in its fully retracted position and on final movement of the said platform said rod being compressed due to resilient means intermediate the ends of said rod.

6. Apparatus according to claim 5 in which said resilient means intermediate the ends of said rod includes a bend in said rod capable of being flexed to effect said shortening of the rod.

7. Apparatus according to claim 6 in which said bend is of general U shape and extends transversely of said rod.

8. Apparatus according to claim 7 in which said rod has another general U-shaped bend therein arranged at substantially a right angle to the first-mentioned bend and with laterally yieldable prongs to enable said rod to be readily engaged with and disengaged from said cover.

9. Apparatus according to claim 5 in which said platform is provided with linkage for attachment to a door for closing an opening through which said platform moves in fully opening said cover, said linkage and lever mechanism being of a size to close said cover when the door is about 5° from closed position, and movement of said door to its fully closed position applying said stress to said resilient means and shortening said rod.

10. In an apparatus for opening and closing a container cover in response to movement of the container out of and into a recess, said apparatus including a platform, rollers on which the platform is mounted, a track along which said platform is moved on said rollers, a container to be mounted on said platform, a cover for said container hinged adjacent a rear edge of said container, a rod pivoted to said cover adjacent the cover hinge, a lever pivoted to said platform adjacent the lower rear edge of said container, said rod being pivotally connected to said lever adjacent its pivot to said platform, and means for actuating said rod and lever in response to movement of said platform out of a recess, the combination therewith of the improvement for closing said cover under pressure of the cover on the container, said improvement including said rod being provided intermediate its ends with a bend therein and being of a size to enable the cover to be closed in advance of the platform reaching its retracted position, said bend being flexed and said rod changed in length for forcefully holding the cover closed as said platform moves to its retracted position.

11. The combination with a platform, rollers on which the platform is mounted, a container mounted on said platform, a cover for said container pivoted adjacent an upper edge of the container, a lever pivotally attached to said platform, a rod pivotally attached to said cover and to said lever, and means for actuating said rod and lever in response to movement of said platform, said rod being provided intermediate its ends with a bend adapted to be flexed by said lever for holding said cover closed under pressure as said bend is flexed and the length of said rod changed.

12. A container cover actuating rod having two side portions connected by a generally U-shaped bend at one end whereby said side portions may have their separation varied laterally for engagement and disengagement with a cover, laterally projecting portions at the cover engaging end, and each side portion having intermediate its ends a laterally disposed generally U-shaped bend of a size to cause the length of said rod to be changed under stress after a cover has been

closed and held closed by flexure of the bends in each side portion.

13. In an apparatus for opening a container by raising its cover in response to the container moving outwardly from a recess, said apparatus comprising a movable carriage on which the container is mounted, and lever mechanism for opening said cover as the carriage and container move outward, the combination therewith of the improvement for maintaining said cover closed under pressure of the cover against the container exceeding that due to gravity, said improvement comprising a yieldable rod included in said lever mechanism, said rod being secured to said cover and of a length capable of closing said cover in advance of the container being drawn fully inwardly, and said rod also having

means intermediate its ends enabling it to be resiliently changed in length under stress, said rod and cover when open being nearly in alinement and when closed forming almost a right angle with one another.

BENJAMIN D. GOLDBERG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,088,957	Hoffstetter	Aug. 3, 1937
2,258,667	Wogulis	Oct. 14, 1941
2,288,447	Goldberg	June 30, 1942
2,343,409	Goldberg	Mar. 7, 1944