

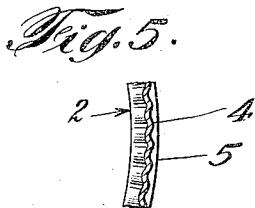
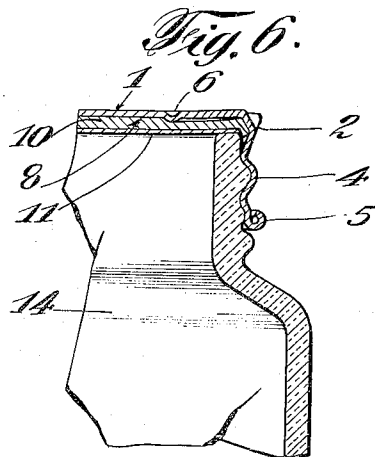
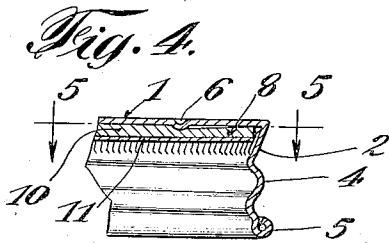
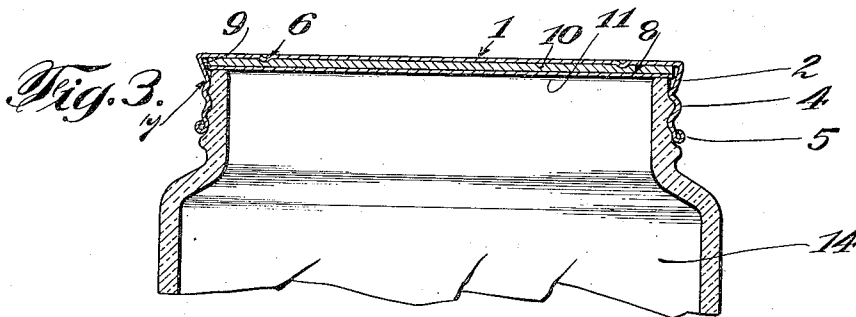
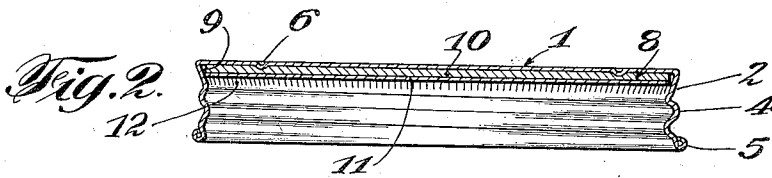
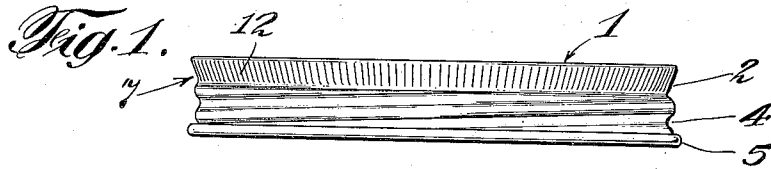
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SCREW CAP

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UNITED STATES PATENT OFFICE

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SCREW CAP

Application filed December 19, 1927. Serial No. 240,999.

The present invention relates to closure caps and more particularly to a screw cap for glass containers and the like.

It is customary to provide closure caps with liners which extend over the mouth of containers to protect the inside of the cap from the contents and to form a proper seal on the edge of the container. Such liners may be made of paper, cardboard, or other suitable material which may be waxed as an entirety or formed with a thin sheet of waxed paper on the lower side thereof. Heretofore liners have been secured in place by adhesives or have fitted loosely in the top portion of the cap; the inwardly extending parts of the threads of screw caps are relied upon to prevent their falling out. In such constructions the liners do not fit properly against the cover of the cap, and many of them become dislodged in shipment and have to be replaced in the caps manually by inexperienced operators employed by packers, thereby causing considerable trouble.

Continuous thread caps have a tendency to adhere to the threads of a container, and rust sometimes renders them very difficult to remove. Consumers generally loosen such caps by tapping in some way, usually at the upper periphery of the cap. This subjects the edge of the glass container to the blows, hence the contents of the packages are frequently ruined by broken glass in the removal of the caps. The same difficulty is experienced in the accidental contact of the upper part of the containers with extraneous objects in shipment or in handling. If the upper edge of the container is chipped the contents must be thrown away because broken glass is extremely dangerous.

The present invention overcomes or minimizes these difficulties by providing a cap in which the liner fits snugly in the upper part against the cover of the cap and is prevented from falling out of the cap during shipment. In addition, the construction of the cap and liner is such that the upper edge of the container is protected against injury by the tapping incident to the removal of the cap or by accidental contact of this portion of the container with extraneous objects during han-

dling and shipment. The construction of the cap is such that the effectiveness of tapping for loosening the cap is very materially increased.

An object of the invention is to provide an inexpensive closure cap which will protect the upper edge of the container from injury.

Another object of the invention is to prevent accidental removal of liners from closure caps occasioned by handling incident to packing for shipment and for application to filled containers.

Another object of the invention is to retain the liners against the cover portion of the caps at all times.

A further object of the invention is to provide a liner adapted to extend over the outer edge of the mouth of the receptacle and upon deformation of the upper periphery of the cap to envelop about the outer edge of the container to prevent injury thereto.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described or will be indicated in the following description; and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment has been chosen for purposes of illustration and description and is shown in the accompanying drawings, wherein

Fig. 1 is an elevational view of a screw cap embodying the present invention;

Fig. 2 is a sectional view of the cap with liner therein;

Fig. 3 is a sectional view of the cap applied to a container;

Fig. 4 is an enlarged fragmentary sectional view of a portion of the cap;

Fig. 5 is an enlarged sectional view on the line 5—5 of Fig. 4; and

Fig. 6 is an enlarged sectional view of a portion of the cap and container illustrating, in dotted lines, the effect of tapping the upper edge of the cap.

Referring to the drawings, there is shown a closure cap having a cover portion 1 and a depending skirt 2 provided with continu-

ous screw threads 4 in the body thereof and with the lower edge rolled as shown at 5 to reinforce this portion of the cap and to prevent contact with the raw edge of the metal. The cover portion may have a groove 6 for purposes of ornamentation. At the upper part of the skirt of the cap there is an annular zone 7 which forms an acute angle with the cover portion of the cap. The minimum diameter of the zone 2 is at the lower part thereof and preferably this diameter is substantially equal to or slightly less than the minimum internal diameter of the cap. A suitable liner 8 is applied to the cap either manually or by suitable machinery and is sufficiently large to fit snugly in the apex 9 of the acute angle formed by the cover and skirt of the cap.

The liner may and preferably does comprise a thick part 10 covered by a thin sheet of waxed material 11 on the lower side thereof. The inwardly extending part of the zone 7 holds the liner snugly against the cover portion of the cap and presses the sheet of thin material 11 firmly against the liner, thereby preventing accidental removal thereof. The annular zone 7 at the upper part of the cap is preferably corrugated as shown at 12 to facilitate gripping of the cap and in addition to provide a better engagement with the liner. The outer edge of the liner is sufficiently pliable to conform to the shape of the corrugated zone. In this way a better fit is attained.

It will be noted that the corner formed by the junction of the cover portion and the skirt of the cap is relatively sharp and spaced slightly from the upper edge of the jar 14 when applied thereto. The liner 8 is slightly larger than the mouth of the container. When the corner, formed by the junction of the cover portion and skirt, is tapped either accidentally or for the purpose of removing the cap, the outer edge of the liner is bent downwardly about the edge of the container as shown in dotted lines in Fig. 5. The fibrous liner cushions the blows and prevents injury to the container. The depression of the corner as shown in dotted lines in Fig. 5 causes a corresponding displacement downward of the skirt of the cap which loosens it about the threads on the container and permits ready removal thereof.

It will be seen that the present invention provides an inexpensive closure cap with the liner securely held in position without the use of adhesives between the upper part thereof and the cover portion of the cap. The liner is slightly larger than the external diameter of the mouth of the receptacle and is adapted to nest about the upper edge of the receptacle when the corner between the skirt and cover portion of the cap is depressed. In this way blows upon the cap

to loosen same or accidental blows encountered in shipment and handling, are cushioned and injury to the upper edge of the container is prevented. The invention is readily applicable to the present forms of closures without substantial change to existing machines for manufacturing caps. Displacement of liners during shipment and handling is minimized if not entirely eliminated. The cap forms with a container a package which is rugged in construction and fully capable of withstanding the rough usage encountered in handling and shipping.

As various changes may be made in the above embodiment without departing from the spirit of the invention, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A screw cap comprising a cover portion, a depending skirt having an annular, inwardly extending knurled portion forming an acute angle with the cover portion of the cap and extending downwardly a distance substantially greater than the thickness of the liner, a cardboard liner pressed into the cap and fitting snugly in the apex of said angle and resting upon said inturned annular knurled portion, whereby the reduced portion of the skirt adjacent the bottom of the knurled inturned portion holds said liner in said cap, a rolled edge on the bottom of the skirt of the cap, and thread engaging means on the skirt of said cap below said inturned knurled annular portion.

2. A screw cap comprising a cover portion, a depending skirt having an annular inwardly extending portion forming an acute angle with the cover portion of the cap and extending downwardly from the cover part of the cap a distance substantially greater than the thickness of the liner, a cardboard liner fitting snugly in the apex of said angle and resting upon said inturned annular portion whereby the reduced portion of the skirt adjacent the bottom of the annular inturned portion holds said liner in position in said cap, a rolled edge on the bottom of the skirt of the cap, and a continuous thread extending about said cap directly adjacent said rolled edge and intermediate said rolled edge and said inturned portion.

3. A screw cap comprising a cover portion, a depending skirt having a rolled edge at the bottom thereof, and a continuous screw thread extending down to the rolled edge, the junction of said skirt and said cover portion forming substantially an acute angle with corrugations extending vertically thereof, the size of the upper part of the skirt being larger than the mouth of the

container to permit the upper part of the skirt to be flattened to loosen the cap, and a cardboard liner adapted to be pressed into the recess formed at the junction of the skirt and cover portion, the depth of said recess being substantially greater than the thickness of the liner to hold said liner in position.

4. A screw closure cap comprising a cover portion, a depending skirt, said skirt having an intumed annular corrugated zone at the upper part thereof forming an acute angle with the cover portion and spacing the periphery of the cover portion a substantial distance from the rim of the container when applied thereto and permitting a disc liner to be inserted therein, a liner in said cap fitting snugly in the apex of said acute angle and held in position thereby, and thread engaging means on the skirt of said cap adapted to engage projections on a container to hold the cap in position.

5. A screw closure cap comprising a cover portion, a depending skirt, said skirt having an intumed annular corrugated zone at the upper part thereof forming an acute angle with the cover portion of the cap, a disc liner pressed into said cap and fitting into the apex of said acute angle, said liner being held in position by said intumed annular corrugated portion, a rolled edge on the bottom of said skirt, and a continuous thread intermediate said intumed corrugated portion and said rolled edge adapted to engage corresponding threads on a container.

6. A screw cap comprising a cover portion, a depending skirt, the upper part of said skirt being corrugated and turned inwardly to form an acute angle with said cover portion to provide a seat for a liner and to space the periphery of the cover part of the cap from the rim of the container, whereby the periphery of the cover portion may be flattened to loosen the cap on the container, a disc liner seated in said cap, a rolled edge at the bottom of the skirt, and screw threads intermediate the corrugations and the rolled edge, whereby the screw threads are reinforced on one side by the abutting rolled edge and on the other side by the abutting intumed corrugated zone.

7. A screw cap comprising a cover portion, a depending skirt having an inwardly extending knurled or corrugated portion forming an acute angle with the cover portion of the cap, a liner having a sheet of thin material on the lower side thereof, said liner fitting snugly in the apex of said angle and resting upon the corrugations whereby the reduced portion of the skirt adjacent the bottom of the corrugations holds said liner and said sheet firmly in position, a rolled edge on the bottom of said skirt and a continuous thread extending about said cap directly adjacent said rolled edge and intermediate said rolled edge and

said corrugations, said thread occupying the entire space between the corrugations and the rolled edge.

8. A screw closure cap comprising a cover portion, a depending skirt having a rolled edge at the bottom thereof and a continuous screw thread extending down to the rolled edge, the junction of said skirt and said cover portion forming substantially an acute angle with corrugations extending vertically thereof, the size of the upper part of the skirt being larger than the mouth of the container, to permit the upper part of the skirt to be flattened to loosen the cap, and a liner adapted to be pressed into the recess formed by the junction of the skirt and cover portion to prevent removal thereof, said liner fitting over the outer edge of the receptacle to envelop and protect said edge when the corrugated annular portion is flattened to remove the cap.

Dated: New York, N. Y., November 22, 1927.

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