Nov. 12, 1935. E. SCOFIELD 2,020,383

METAL CONTAINER

Filed Nov. 20, 1931

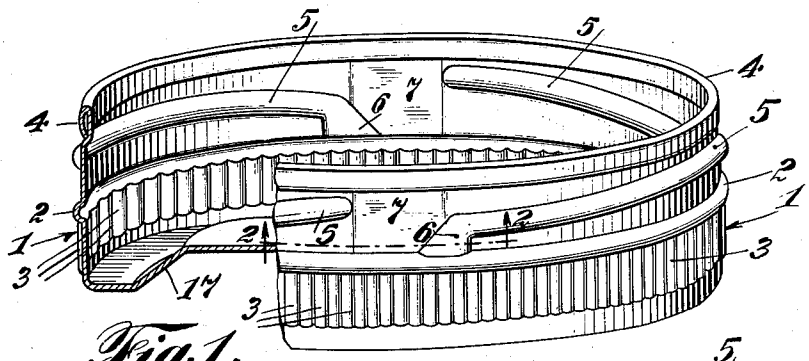


Fig. 1.



Fig. 2.

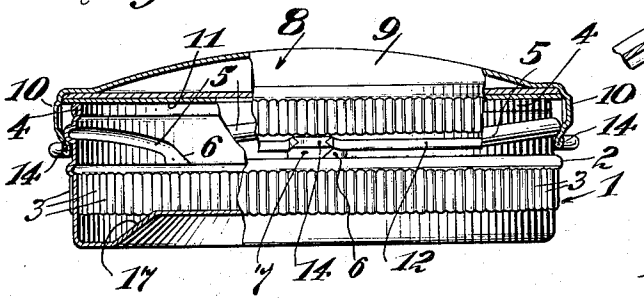


Fig. 3.

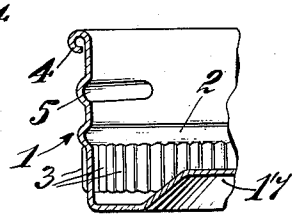


Fig. 6.

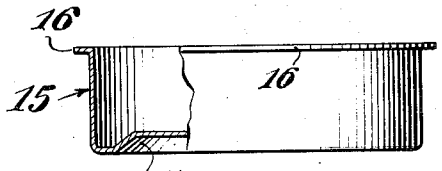


Fig. 4.

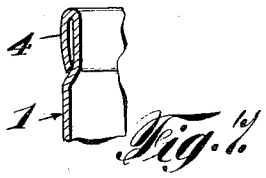


Fig. 7.

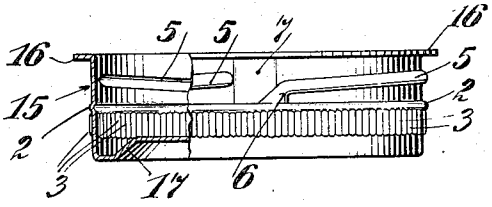


Fig. 5.

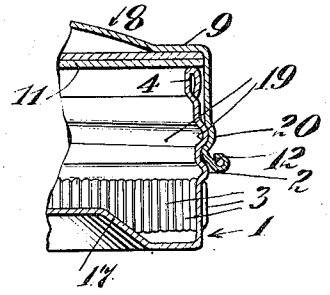


Fig. 8.

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METAL CONTAINER

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Application November 20, 1931, Serial No. 576,250

19 Claims. (Cl. 220—40)

The present invention relates to containers, and more particularly to metal boxes for shoe polish and the like.

The common type of container for shoe polish, salves and the like, comprises a relatively shallow box having a lid telescoped over it, which frictionally engages a substantially cylindrical zone at the upper part thereof. The friction between the flange of the lid and the external cylindrical surface of the body part of the container are relied upon both to retain the lid in position and to seal the container. It is well known that a metal cap does not form a satisfactory seal by merely frictionally engaging a metal container. The result is that the contents of the box dry out or otherwise deteriorate. In addition, the fit between the lid and box is such that it is extremely difficult to remove the lid. Generally, it must be pried off, which mars or deforms the lid or box, thus rendering the lid incapable of being resealed upon the box. The latter is so objectionable that various companies insist upon a lever mechanism being applied to the box, which will engage the lower edge of the lid to raise it up, thereby facilitating the removal thereof. The assembly and attachment of such lever mechanisms are quite expensive and, in addition, offer a protruding part which is likely to be engaged during handling or shipment, causing accidental removal of the cover. The exposed sharp edge at the upper edge of the body of the box frequently cuts the fingers, which is both objectionable and dangerous because of possible infection.

The present invention aims to provide a box for various products, such as shoe polish, which will eliminate or minimize the above objectionable features and, at the same time, simplify the construction and reduce the cost of manufacture thereof. In addition, the present invention provides a cover which is readily removable and useful for resealing the container effectively during the consumption of the contents.

An object of the present invention is to provide an inexpensive sheet metal container adapted to contain shoe polish and the like, which may be readily opened and closed.

Another object of the invention is to provide a shoe polish box and cover therefor which may be applied to the box to form effective reseals during consumption of the product.

Another object of the invention is to eliminate the sharp edge at the top of a box to prevent injury to the hands in dispensing the contents thereof.

Another object of the invention is to provide a more effective seal on boxes of the class described.

Another object of the invention is to provide a secure seal which may be opened as often as desired without impairing the resealing qualities thereof.

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 appended claims, 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 of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, forming a part of the specification, wherein

Fig. 1 is a perspective view, partly in section, illustrating a preferred embodiment of the invention;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1;

Fig. 3 is a side elevational view, partly in section, illustrating the container sealed with a closure cap;

Fig. 4 is a side elevational view, partly in section, of a hat-shaped blank illustrating the first step in the preferred method of making the container.

Fig. 5 is a side elevational view, partly in section, of the blank shown in Fig. 4, with certain of the operations performed;

Fig. 6 is a fragmentary sectional view illustrating the blank shown in Fig. 5, with the upper edge thereof rolled outwardly, the completed box being shown in Fig. 1;

Fig. 7 is an enlarged fragmentary sectional view illustrating the upper edge shown in Fig. 6, after it has been flattened and set inwardly; and

Fig. 8 is a fragmentary sectional view of a container having a continuous thread formed therein, with a continuous thread closure cap applied thereto.

Referring again to the drawing, and more particularly to Figs. 1, 2 and 3 thereof, there is shown a box 1, having a circumferentially extending rib 2 substantially at the middle thereof. Below the rib is a series of knurls 3 adapted to facilitate gripping of the lower part of the box for application and removal of the cover. The knurls 3, in addition, play an effective part in the manufacture of the box, as described hereinafter. The upper edge of the box is rolled out-

wardly, as shown at 4, to form what is commonly known as a wire edge. This wire edge is set inwardly so that the outer periphery of the wire is substantially in line with the exterior cylindrical surface of the body part of the box. This is an important and advantageous feature because, in the application of the closure cap, a protrusion such as would be caused by the ordinary wire edge rolled outwardly (see Fig. 6), would prevent a screw closure cap from being properly telescoped over the top of the container. There is a double advantage in rolling the wire edge outwardly. First, it is a more simple and speedier operation; and, secondly, it completely eliminates any ragged or sharp edges on the interior of the box where one removing the contents with the hand is likely to be injured.

Intermediate the upper rolled edge 4 and the annular rib 2 are a series of spaced projections or threads 5 which are adapted to be engaged by a closure cap. Any number of these spaced threads may be formed about the box but, preferably, four threads are utilized, as indicated. The lower ends of the threads are preferably joined to the annular rib 2 by means of vertical projections 6, which serve to strengthen the threads 5 and to engage the lugs on a suitable closure cap to form a stop therefor. The stops 6 are directly in the path of the lugs 14 on the closure and, therefore, stop the rotation of the cap and prevent the cap from riding over the threads or projections 5 on the container.

It will be understood that the threads 5 are formed by rolling a groove on the interior of the container, which forms the projections on the exterior thereof. The depth of the groove on the interior and the width of the projection on the exterior are very definitely limited, due to the fact that a deep groove tends to break the metal, thereby impairing the box. It is, therefore, necessary to limit the depth of the groove and the resulting projection of the thread. For this reason, it is necessary that the portion of the box above the thread be flush with the body part of the container so that the lugs, or other projections of the cap, may extend inwardly as far as practicable without engaging the upper part of the container. This gives a very close fit between the container and the cap and minimizes the tendency for the lugs on the cap to ride over the thread projections on the container.

The perfection of the fit between the cap and container may be improved further by the provision of depressed or flat portions 7 intermediate the ends of the threads 5 (see Figs. 1 and 2). The flat portions 7 permit the cap to be applied and centered on the box in position to be rotated into engagement with the threads 5. If the fit between the lugs of the cap and the body of the container is relatively tight, the cap may, nevertheless, be rotated without exertion after it has once been telescoped about the container with the lugs of the cap registering with the flat portions 7.

Various types of closure caps may be utilized with the present container. The preferred form of cap is shown applied to a container, in Fig. 3. Preferably, the cap 8 comprises the usual cover part 9 and a depending skirt 10, with a sealing wafer or liner 11 therein adapted to engage the upper edge or rim of the body part of the container. The lower edge of the cap may be rolled outwardly to form a wire edge 12, which may afterwards be struck inwardly at intervals about the periphery thereof to form lugs 14 adapted to cooperate with the threads or projections 5 on the container to securely seal the cap thereon. The lugs 14 of the cap preferably are not as wide as the flat spaces 7 on the container so that the lugs 14 register with and pass over the spaces 7 to facilitate application of the cap upon the container. Rotation of the cap brings the lugs 14 firmly into engagement with the threads 5 to draw the cap tightly on the container and to force the upper rolled edge of the container into sealing contact with the sealing wafer 11, which may be of cardboard, felt, or other material. The projections 6 joining the ends 5 of the threads with the annular rib 2, serve as stops to engage the lugs of the cap and to prevent their rotation beyond the stops. The cap may be applied and removed as often as desired and the sealing efficiency, in every instance, is adequate to protect the contents of the container.

While the container described above may be made in any suitable manner, the several steps in the preferred method of making the container are shown in Figs. 4, 5, 6 and 1 of the drawing. A stamping machine may be utilized for forming the hat-shaped blank 15, as shown in Fig. 1, with the outer flange 16 adapted to form a wire edge, as shown in Fig. 6. If desired, the bottom of the box may be pressed inwardly or paneled, as indicated at 17. Thereafter, the blanks are rolled to form the knurls 3, annular rib 2, threads 5, stops 6, and flattened portions 7, simultaneously. The knurls 3 serve to prevent slipping during the rolling operation so that the threads and other portions will be accurately positioned on the body of the container. The blank shown in Fig. 5, completed except for the wire edge, may then be passed through a second rolling or spinning machine to roll the wire edge, as shown more particularly in Fig. 6. Thereafter, the blank is preferably rolled again to flatten the wire edge and set it inwardly, as shown in Figs. 1 and 7, to prevent the outer part thereof from protruding beyond the external cylindrical surface of the body of the box. This permits the cap to be telescoped over the upper end of the container without engaging or being obstructed by the rolled edge. In addition, it presents a smooth upper edge which eliminates injury to the hands and forms a secure seal against the liner 11 of the closure cap 8.

In the construction shown in Fig. 8, the body of the box is provided with a continuous thread 19, which engages a corresponding continuous thread 20 in the closure cap. The operation and construction of the container are the same as described above with respect to the other figures in the drawing.

In applying the closure cap 8 to the container 1, the cap is telescoped over the container and rotated in a clockwise direction until the lugs 14 register with the flattened spaces 7. The cap will then drop until the cover part of the cap engages the rim or wire 4 of the container, and the lugs 14 will be below the threads 5. Further clockwise rotation causes the lugs to firmly engage the lower sides of the threads 5 to draw the cap down tightly on the container and to form a secure seal between the liner 11 and rolled edge 4. The smooth upper edge of the container is capable of providing an effective seal. In some cases, the person applying the cap is inclined to use too much force in the application thereof. In the present embodiment, the stops or projections 6 are provided to engage the lugs of the cap to oppose further rotation thereof, so that it will be effectively stopped at this position, and over-riding

of the threads will be prevented. The cap may be removed by counterclockwise rotation thereof, thus relieving the sealing pressure and bringing the lugs 14 into registry with the depressions or flat parts 7. The cap, at this point, may be raised directly up, but further rotation will cause the lug 14 of the closure to engage the projections 6 or the upper surface of the threads 5. In the first instance, the rotation of the cap will be stopped and, in the second instance, it will be cammed off the container by the lugs 14 riding up on the threads 5.

It will be seen that the present invention provides an inexpensive box adapted to contain polish, salves and the like, which may be readily manufactured at a low cost. There are no sharp edges to occasion injury to the person handling or using the box or its contents, and the upper rolled dege provides a secure seal without obstructing, in any way, the application of the cap to the container. The cap may be readily applied and removed without tools of any kind and without marring or deforming the box. The reseal formed by the cap is in every way as effective as the original seal, thereby preventing evaporation or drying of the contents. The package is rugged in construction and fully capable of withstanding the rough usage to which it may be subjected.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, 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. As an article of manufacture, a metal box comprising a bottom, a body portion, a projection extending circumferentially about said body portion, and definitely spaced from the rim, a series of screw threads or projections arranged above said circumferential projection, flattened portions intermediate adjacent ends of said screw threads, and projections connecting the lower ends of said threads with said circumferential projection to form a stop for a screw cap applied thereto.

2. A box for shoe polish and the like comprising a bottom, a body portion extending upwardly therefrom, and a series of spaced screw threads or projections formed adjacent the upper end of said box, the portions of said box intermediate the ends of said threads being flattened and pressed inwardly to facilitate the application of a closure thereto.

3. A shoe polish box having a bottom and a substantially cylindrical body portion extending upwardly therefrom, and a series of screw threads or projections formed by outwardly extending ribs, the portions of the box intermediate the ends of said ribs being flattened to facilitate the application of a closure cap thereto.

4. A sheet metal box for shoe polish and the like having an annular rib extending about said box, the portion of said box below said rib being knurled to facilitate the gripping of the box and the manufacture thereof, the upper portion of the box above said rib having screw threads formed thereon, the adjacent ends of said threads being spaced to provide smooth portions extending from the rib to the upper edge of the box to facilitate the application of a closure cap.

5. A box for polish and the like having a bottom, a body portion extending upwardly therefrom, the upper edge of said body portion being rolled outwardly and set inwardly to prevent any overhanging portions at the upper edge of the box, and to provide a flattened wire edge, screw threads formed below said rolled edge, a circumferential rib formed below said screw threads, and cam-shaped projections connecting the lower ends of said screw threads with said rib.

6. A box for polish and the like, stamped from a single piece of metal, having a bottom, a body portion extending upwardly therefrom, the upper edge being rolled outwardly to preesnt a smooth edge on the interior of the box, said rolled edge being set inwardly to facilitate the application of closure caps, and spaced screw threads formed below said upper edge, the portions of the body part intermediate said threads being flattened to facilitate the application of a screw cap thereto.

7. A sealed package comprising a metal box having the upper edge of its body portion rolled outwardly and set inwardly to form a smooth upper edge, spaced screw threads formed below said rolled edge, portions of said body part adjacent to and between said spaced ends being flattened to facilitate the application of a lug cap, and a screw cap having lugs thereon in engagement with said thread, said lugs being adapted to move into said flattened portions to facilitate the application of the cap to the container.

8. A sealed package comprising a metal box having an upwardly extending body part, an annular rib formed in said body part adapted to facilitate the manipulation of said box, inclined screw threads formed in said body part above said annular rib, and projections connecting the lower ends of said screw threads with said rib to act as stops for the closure cap, said projections having a cam surface on the upper side thereof, and a lug closure cap applied to said container, the lugs thereof being formed from a wire edge and being adapted to engage said stops to prevent the lugs from riding over the threads.

9. The method of making a sheet metal box and the like, which method comprises forming a hat-shaped blank having its upper edge bent outwardly to form a flange portion, rolling the flange portion outwardly into a substantially hollow wire edge, flattening the wire edge, and setting the flattened edge radially inwardly to minimize the external diameter of the box at the upper edge thereof.

10. As an article of manufacture, a box having a bottom, a wall portion, and a rim formed of a doubled-back portion of the wall, the doubled-back portion lying substantially against the wall, the raw edge thereof being positioned outside of the wall and being positioned inwardly of said doubled-back portion to conceal the raw edge.

11. As an article of manufacture, a box having a bottom, an upstanding wall portion, and a rim formed of a doubled-back portion of the wall, the doubled-back portion lying substantially against the wall with the raw edge thereof positioned outside of the wall, the raw edge being positioned inwardly of said doubled-back portion, said rim having a smaller internal diameter than the internal diameter of the normal portions of the upstanding wall.

12. As an article of manufacture, a box having a bottom, an upstanding wall, a rim formed of a doubled-back portion of the wall, the doubled-back portion facing the wall with the raw edge thereof positioned outside of the wall, the raw edge being positioned inwardly of said doubled-back portion, and screw threads formed in

the wall adapted to be engaged by a closure cap for sealing the rim.

13. As an article of manufacture, a box having a bottom, an upstanding wall, a rim formed of a doubled-back portion of the wall, the doubled-back portion lying substantially against the wall with the raw edge thereof being positioned outside of the wall and being positioned inwardly of said doubled-back portion, said rim having a smaller internal diameter than the internal diameter of portions of the upstanding wall, below said rim and screw threads formed in the wall adapted to be engaged by a screw closure for sealing the rim.

14. As an article of manufacture, a metal box having a bottom, an upstanding wall, a rim having a substantially smaller internal diameter than the normal internal diameter of the wall, and a shoulder portion in the wall, said rim being formed of a downwardly depending outwardly turned portion of the wall, the free edge of the outwardly turned portion being positioned inwardly and abutting against the shoulder portion.

15. A sealed package comprising a metal box having a rim formed of a doubled-back portion, the raw edge of the doubled-back portion lying on the outside of the box and being positioned inwardly of the doubled-back portion, projections formed on said box below said rim, and a cap having projections adapted to engage the projections on said box, said cap being applied to said box to form a seal thereon.

16. A sealed package comprising a box having a rim at its upper edge formed of a doubled-back portion of the wall of the box, said doubled-back portion lying substantially against the outer wall of the box, said rim being set inwardly to minimize the external diameter thereof and provide a smooth wire edge, screw threads formed below said rim, and a screw cap having a sealing member therein applied to said box to form a seal thereon.

17. The method of making a metal box, which method comprises forming a hat-shaped blank having an outwardly extending flange at the upper edge thereof, rolling the flange into a wire edge having a substantially circular cross-section and flattening the wire edge to minimize the external diameter thereof and to press the free edge of the flange against the wall of the container to provide a substantially closed flattened wire edge.

18. The method of making a sheet metal box, which method comprises forming a hat-shaped blank, knurling the blank, rolling an annular rib therein, forming threads or projections in the wall of the blank, rolling a hollow wire edge at the upper edge of the box, compressing the wire edge, and thereafter setting the compressed edge inwardly.

19. As an article of manufacture, a box having a rim at its upper edge formed of a double back portion of the wall of the box, said double back portion lying substantially against the outer wall of the box, said rim being set inwardly to minimize the external diameter thereof and provide a smooth wire edge, and screw threads formed below said rim adapted to engage and hold a screw cap to form a seal on said rim.

EDGAR SCOFIELD.