Jan. 15, 1935. H. HERMANI 1,988,383

CLOSURE FOR RECEPTACLES

Filed May 5, 1932

Fig. 1

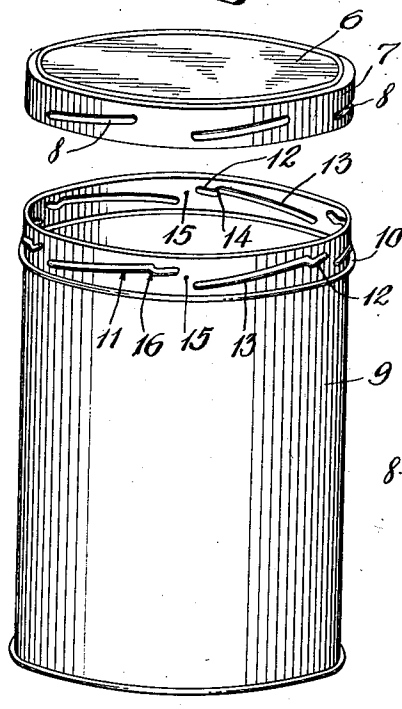


Fig. 2

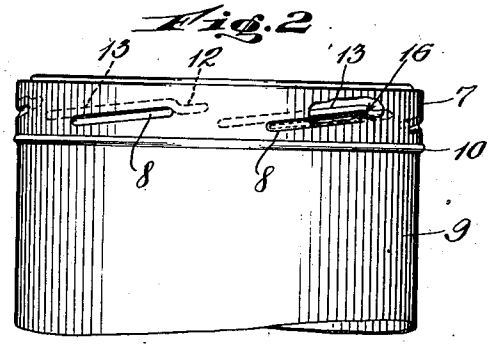


Fig. 3

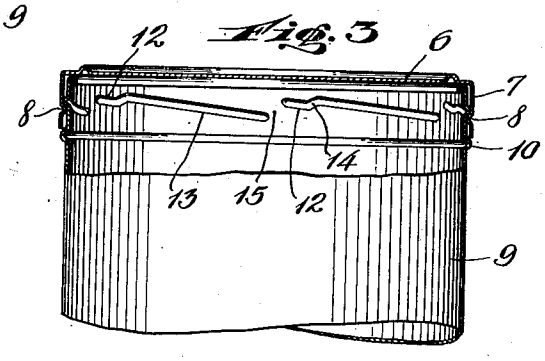


Fig. 4

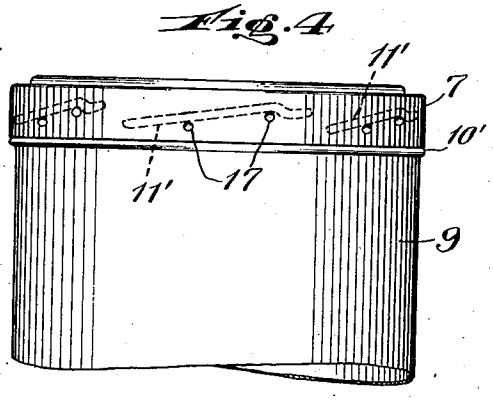
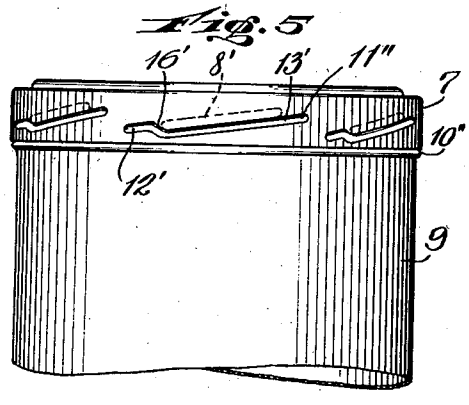


Fig. 5



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Patented Jan. 15, 1935

1,988,383

UNITED STATES PATENT OFFICE

1,988,383

CLOSURE FOR RECEPTACLES

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Application May 5, 1932, Serial No. 609,536

10 Claims. (Cl. 220—39)

My present invention relates to improvements in closures for receptacles or containers such as cans or jars having a cover or lid removably attached by means of cooperating threads or equivalent elements.

The general object of the invention is to provide simple and effective means to prevent accidental loosening or turning movement of the cover or lid which might be caused by vibration or handling of the covered receptacles during shipment and handling when only plain screw threads or equivalent elements are provided for attaching the cover or lid to the receptacle.

I accomplish the foregoing object by providing a special formation of thread or threads on either the receptacle or cover to cooperate with a thread or threads or equivalent elements on the other, the first mentioned thread being offset intermediate its ends whereby it has two substantially parallel portions one extending beyond the other in a different but substantially parallel plane so that when the lid or cover is being applied the plain thread or its equivalent on the one part will engage successively with the portions of the special thread on the other part, and at fully closed position the end of the plain thread or its equivalent will confront the offset or an end of one of the said portions in the direction of opening turning movement, and will be in engagement with one side or the other of the portions. Thus the lid and receptacle are united and maintained against accidental separation or relative loosening, but when it becomes desirable to remove the lid it is simply necessary to turn it in usual manner as hereinafter explained.

From the foregoing it should be understood that I provide a construction whereby the screw threads not only serve to guide the cover into position on the container to close its open end but also serve to prevent accidental opening turning movement of the cover.

The invention will be better understood and the objects and advantages accomplished will be more apparent from the following detailed description of the accompanying drawing wherein preferred constructions and arrangements are illustrated, and in which

Fig. 1 is a perspective view of a receptacle and cover embodying the invention showing the cover detached;

Fig. 2 is a fragmentary side elevation of the receptacle and cover shown in Fig. 1 with the cover applied and a portion thereof broken away;

Fig. 3 is a central vertical sectional view through the portion of the receptacle and the cover shown in Fig. 2;

Fig. 4 is a view similar to Fig. 2 showing an arrangement of spaced projections on the cover instead of the plain screw thread; and

Fig. 5 is a view similar to Fig. 2 showing a modification wherein the specially formed locking thread is applied to the cover and the plain thread is applied to the receptacle.

The receptacles shown in the drawing are illustrated as being of the tin can type commonly used in packaging confections, groceries, and other merchandise, but I wish it to be understood that the invention is not limited to application to or use in connection with this type of receptacle as it may be applied to jars and the like.

Referring to Figs. 1–3, the numeral 6 designates the top of the cover which also includes the usual side flange 7 having formed therein interrupted screw threads 8. The numeral 9 designates the receptacle having an open top and therebelow a bead 10 with a plurality of screw threads embodying the invention located between the top of the receptacle and the bead 10. The depth of the flange 7 is substantially equivalent to the distance between the bead 10 and the top edge of the container, so that when the cover is applied to the container as hereinafter explained, the top edge of the container will preferably contact the top 6 of the cover and the lower edge of the flange 7 will contact the bead 10 to keep dust out of the container and to prevent leakage of contents in the nature of finely ground or powdered materials.

Referring particularly to the screw threads designated generally by the reference character 11 on the receptacle, it will be noted that each of them comprises a continuous thread offset intermediate its ends, whereby each thread on the container, in the embodiment shown in Fig. 1, comprises a relatively short end portion 12, and a relatively long straight portion 13, joined by the offset portion 14. It will also be noted, that the shorter ends 12 of each thread confront, and are spaced slightly above and behind, the lower ends of the longer portions 13 of the next thread, providing a passage 15 between the short end 12 of one thread and the long end 13 of the next thread, so that when the cover is applied it is inserted straight down from the position shown in Fig. 1 until the threads 8 are positioned against an upper sur-

face of the longer portions 13 of the threads 11 and preferably with the ends of the threads 8, to the left in Fig. 1 of the drawing, just behind the shorter ends 12 of the threads 11 and confronting the spaces 15. Thus, the longer portions 13 serve to position the cover by receiving on their upper surfaces the under or lower surfaces of the threads 8. With the cover so positioned, a turn to the left will move the threads 8 through the passages 15 with their upper surfaces contacting the lower surfaces of the shorter portions 12 which guide the movement of the threads on the cover until the threads 8 have passed completely across the shorter portion 12, at which time the ends of the threads 8 to the right in Fig. 1 will ride up against the offset or the shoulder indicated by 16, until the entire thread 8 is positioned beneath the longer portions 13 and behind, with respect to the direction of opening movement of the can, the shoulder 16 and shorter portions 12. With the threads in that position the lower edge of the flange 7 should be in engagement with the bead 10, and the top 6 should be in engagement with the top edge of the container 9, in which position the parts are held against longitudinal movement by the contact between threads 8 and portions 13 of the thread 11, and against accidental turning movement in opening direction by abutment between the ends of the threads 8 and the ends of the shorter portions 12 of the threads 11 or shoulders 16. To remove the cover, it is simply necessary to turn the same to the right until the ends of the threads 8 ride over the shoulders 16 into contact with the under surfaces of the shorter portions 12, which will guide the movement of the cover by contact with the threads 8 until the threads 8 have completely passed through the passages 15. It will be noted that the threads 8 contact successively with the two portions of the threads 11 during application of the cover to the receptacle.

The construction of the container in Fig. 4 is the same as that shown in and described in connection with pages 1–3, and the longer threads 11′ are identical in construction and arrangement with the threads 11. However, instead of providing the straight threads 8, I may provide spaced projections 17 on the flange of the cover arranged in alined groups on the flange along lines inclined from top to bottom of the flange at substantially the same angle as the portions of the threads 11′. The projections 17 should be so positioned, whether there be two or more of them in each group, that the last one to pass the offset on the threads 11′ will be positioned immediately therebehind when the lower edge of the cover flange contacts the bead 10′, corresponding to the bead 10 on container 9.

The operation, that is, the mode of application and removal of the cover shown in Fig. 4, is exactly the same as described in connection with the construction shown in Figs. 1–3, as the cover is placed on the container with the projections 17 initially engaging the upper surface of the longer portions of the threads 11′, after which the cover is turned to the left until the projections pass the shorter portions of adjacent threads 11′ and engage under the longer portions as shown in Fig. 4.

In Fig. 5, I have shown a modification wherein the cover is provided with the offset threads 11″ and the receptacle is provided with straight threads similar to those 8 of Fig. 1 between the bead 10″ and its upper edge. However, groups of alined projections, similar to the projections 17 may be utilized instead of the straight threads 8′ on the receptacle as explained in connection with Fig. 4. In either event, the offset threads 11″ are of the same construction or shape as the threads 11 of Fig. 1, but inasmuch as they are applied to the cover instead of to the container, it is necessary to reverse their position so that the longer portions indicated by 13′ will be nearest the top of the receptacle and the shorter portions 12′ will be nearest the bead of the receptacle when the cover is applied. With the threads so arranged the cover is applied by inserting the same on the receptacle with the ends of the shorter portions 12′ of the threads 11″ just behind the upper ends of the straight threads 8′ on the receptacle, and then the cover is turned to the left so that the shorter portions 12′ ride against the underside of the threads 8′ until they reach the ends thereof, after which the offsets 16′ ride upwardly on the lower ends of the threads 8′ until the longer portions 13′ are positioned beneath and in contact with the threads 8′ with the shorter portions 12′ substantially in alinement with the threads 8′ and thus constituting an abutment to prevent accidental turning movement of the cover in opening direction, which, of course, is to the right. To remove the cover from the position shown in Fig. 5, it is simply necessary to turn the cover to the right until the offsets 16′ ride under the lower ends of the threads 8′ to permit the shorter portions 12′ to move upwardly and to the right beneath the threads 8′ and through the opening between the threads 8′ as previously explained.

It will thus be seen that the invention is susceptible of application to existing types of receptacles without material alteration and by providing a continuous thread which not only serves to guide the parts into related closed position, but also to maintain them in such position against accidental turning movement, whereby the cover will be securely maintained in place during shipment and handling of the receptacle, but may be readily removed and applied when the receptacle comes into the hand of the ultimate user.

The number of specially formed threads on a receptacle or cover may be varied, and I do not limit the claims to specifying that all of the threads must be of that nature.

I claim:

1. A closure for a receptacle including a container part and a removable cover part, each having cooperating interengageable interrupted screw threads, at least one of the threads on one part being offset intermediate its ends providing said thread with substantially straight portions in different substantially parallel planes for successive engagement with a single thread on the other part during application of the cover.

2. The structure of claim 1 wherein said offset is provided adjacent one end of the thread and said portions are of different lengths.

3. A closure for a receptacle including a container part and a cover part, one of said parts having screw threads and the other having at least one projection to engage with any of said threads to detachably secure the cover part on the container part, said screw threads being offset intermediate their ends to provide each thread with substantially straight portions in different substantially parallel planes for suc-

cessive engagement by said projections during turning movement of the cover when applying it.

4. In a receptacle having an open end and a cover therefor, said receptacle having screw threads adjacent said open end, means on the cover for engaging said screw threads to detachably secure the cover on the receptacle, an offset intermediate the ends of some of said screw threads providing them with thread portions in different planes for successive sliding engagement by said means as the cover is applied, and said means being disposed behind said offset at full closed position of the cover.

5. In a receptacle having an open end and a cover therefor, said cover having a flange to engage the wall of the receptacle, screw threads on said flange and the portion of the receptacle covered by said flange for engagement to hold the cover on the receptacle, screw threads on one being offset intermediate their ends to provide two substantially straight portions of different lengths and in substantially parallel different planes for successive sliding engagement by the threads on the other during application of the cover to the receptacle, the said other threads being in alinement with one of said portions and alongside the other portion at full closed position of the cover.

6. The structure of claim 5 wherein the shorter portions of the screw threads on the one are also shorter than the screw threads on the other.

7. In a receptacle having an open end and a removable cover provided with a flange to engage the wall of the receptacle, screw threads formed in the flange of said cover, said screw threads being offset intermediate their ends to provide portions in different substantially parallel planes, and means on the wall of the receptacle for successive engagement with said portions of said screw threads during application of the cover, and said means being behind the end of one of said portions and alongside of the other portion at full closed position of the cover.

8. In a receptacle having an open end and a cover therefor, interrupted screw threads on the wall of the receptacle adjacent the open end, some of said threads being offset intermediate their ends providing upper and lower portions in different planes, the upper ends of the upper portions being disposed near and in spaced relation to the lower ends of adjacent threads, and means on the cover adapted to initially engage the top surface of said lower portions and to move under said upper portions on adjacent threads during turning movement of the cover and beyond said offsets into substantial alinement with said upper portions and beneath said lower portions when the cover is fully applied.

9. In a receptacle and cover having cooperating screw thread elements for detachably securing the cover on the receptacle, means for restraining turning movement of the cover in opening direction comprising, an offset in at least one screw thread intermediate its ends and providing said thread with two inclined thread portions located in substantially parallel planes one above the other, said offset providing a shoulder between said portions.

10. In a receptacle and cover therefor, cooperating interrupted screw threads on each for detachably securing the cover on the receptacle, the interrupted screw threads on one of said parts being plain straight threads, and at least one of the interrupted screw threads on the other being offset intermediate its ends providing said interrupted thread with two portions inclined and arranged in substantially parallel planes with the offset located intermediate the outermost ends of said interrupted thread being in a plane intersecting said first planes.

HENRY HERMANI.