June 19, 1923. 1,459,589

E. HOFFMAN

CLOSURE FOR RECEPTACLES

Filed June 1, 1922

Fig. 1.

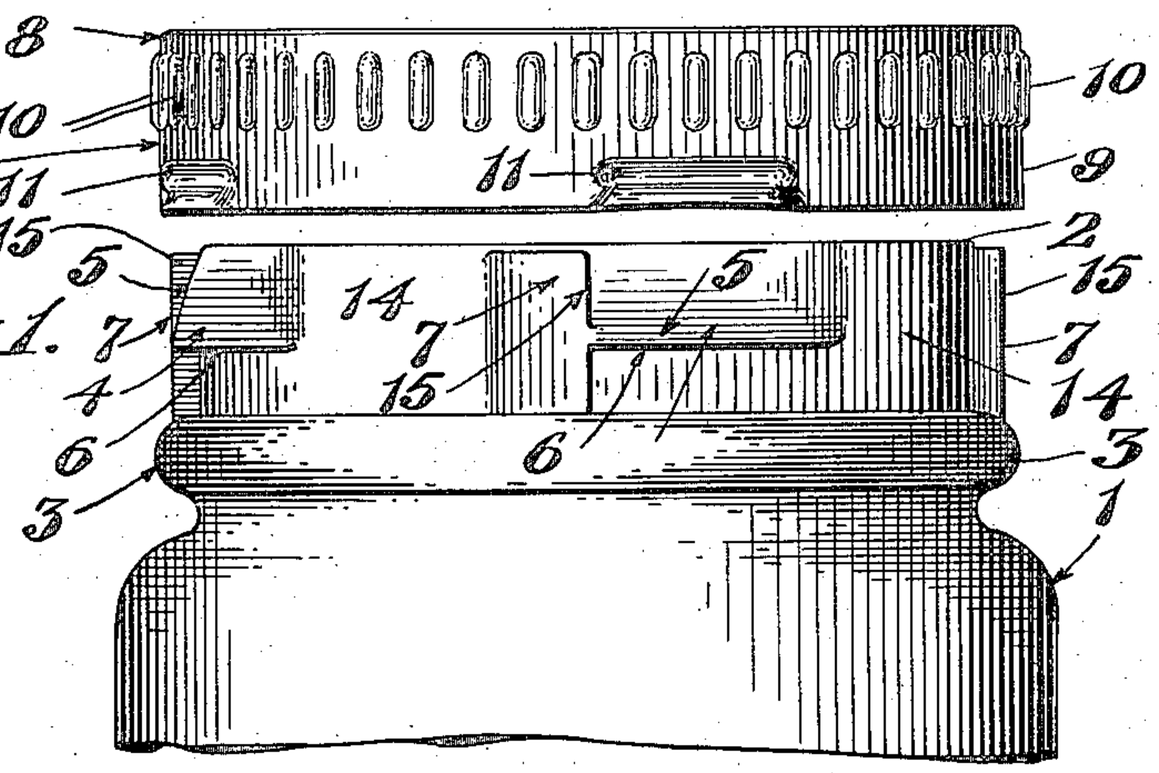


Fig. 2.

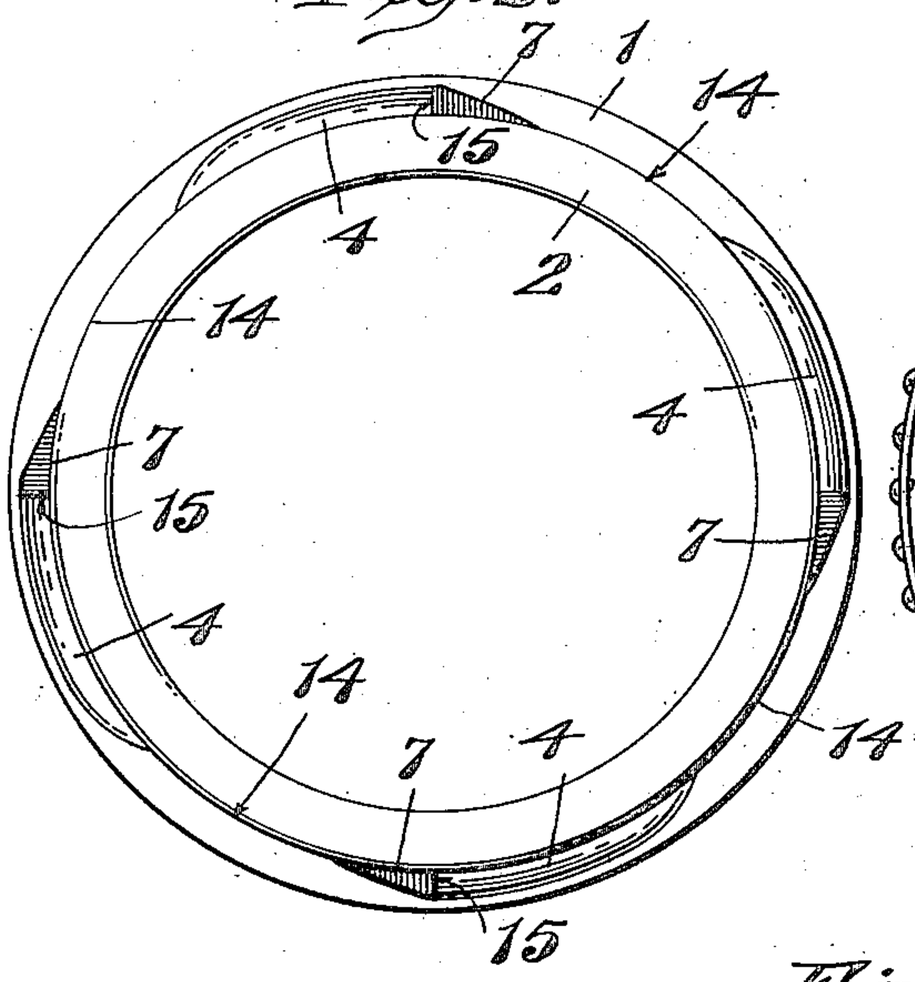


Fig. 3.

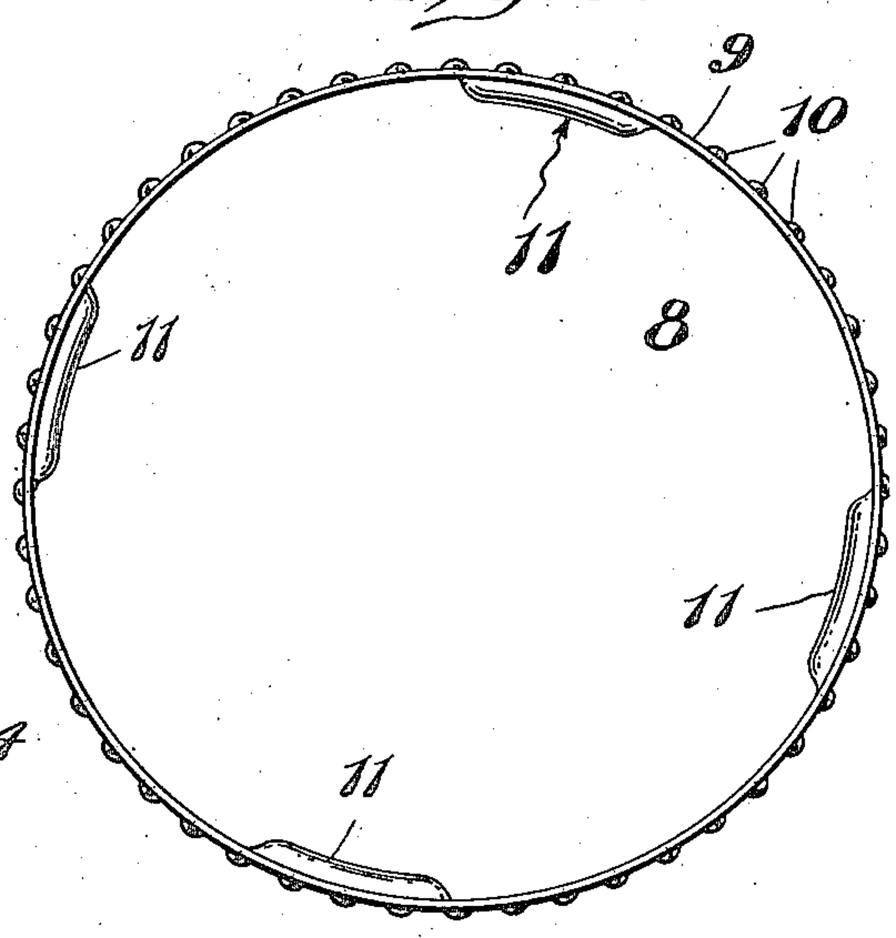
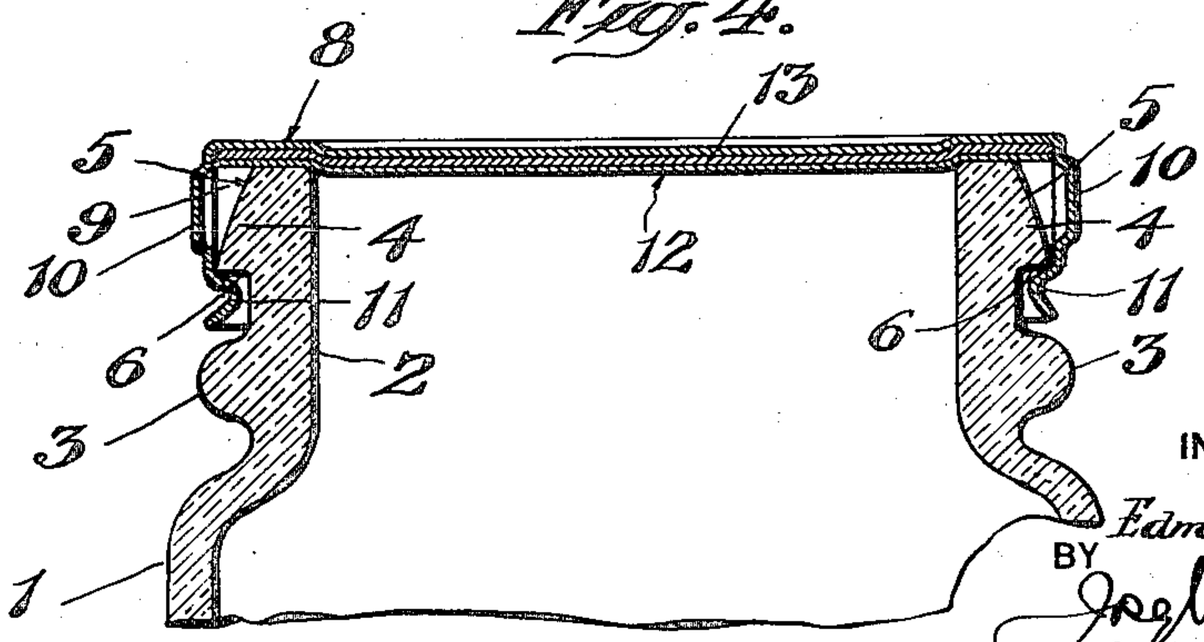


Fig. 4.



INVENTOR

Edmund Hoffman

BY Joseph L. Levy

His ATTORNEY

Patented June 19, 1923. 1,459,589

UNITED STATES PATENT OFFICE.

EDMUND HOFFMAN, OF BROOKLYN, NEW YORK.

CLOSURE FOR RECEPTACLES.

Application filed June 1, 1922. Serial No. 565,193.

To all whom it may concern:

Be it known that I, EDMUND HOFFMAN, a citizen of the United States, and a resident of the city of New York, county of Kings, borough of Brooklyn and State of New York, have invented a certain new and useful Improvement in Closures for Receptacles, of which the following is a specification.

This invention relates to a metal closure for bottles, jars, metal boxes, or other receptacles, and the object of this invention is to provide a cap which can be readily applied to the receptacle either by hand or machinery, and which will provide a positive and secure closure means under all conditions.

A further object of this invention is to provide a closure cap which can be applied by direct downward pressure without the usual rotary movement generally necessary when caps of the "screw" or "threaded" type are used, and which can be readily removed and reused when necessary.

A still further object of this invention is to provide a positioning means for enabling the operator to readily, or in fact automatically, locate the proper position of the cap with respect to the receptacle on which the same is to be used so that at the proper time the necessary force or downward pressure can be applied to the cap to seat the same in position on the receptacle. The positioning means also tends to locate the proper position of the cap for removal from the receptacle, as will be hereinafter set forth.

The form of closure referred to generally hereinafter forms the subject matter of my co-pending application Serial No. 365,456, filed March 13th, 1920, over which the construction described herein forms an improvement.

Reference is to be had to the accompanying, drawing, forming a part hereof, in which—

Figure 1 is a side elevation of the upper end of a receptacle made in accordance with my invention, and the closure cap therefor;

Figure 2 is a plan view of the receptacle;

Figure 3 is a plan view of the under side of the cap, and

Figure 4 is a vertical sectional view of the upper end, or neck of the receptacle showing the cap in position thereon.

Throughout the various views of the drawings similar reference characters designate similar parts.

In the preferred embodiment of my invention, as disclosed in the accompanying drawing, 1 indicates a receptacle provided with an upper end or neck portion 2, and with the circumferential bead 3. The receptacle may be made of metal, glass or any other suitable substance.

On the neck portion 2 of the receptacle I provide a plurality of spaced-apart lugs 4. These lugs 4 are elongated members and are provided with inclined outer faces 5 and under faces 6 which form shoulders to produce a locking engagement with suitable lugs on the cap as will be hereafter set forth.

At one end of each of the lugs 4 is located an oppositely disposed lug or rib 7 which lies at right angles to the lugs 4 and is so arranged that it extends both above and below the lug 4 adjacent which it is located.

When the receptacle is made of glass or a similar material, the lugs 4 and 7 may be formed by moulding the same thereon, and when a metal receptacle is used, the lugs may be produced by forcing outward or distorting the metal from which the container is formed.

The closure cap is indicated at 8 and is made of metal and provided with a downwardly extending, continuous circumferential flange 9 having a row of outwardly extending projections 10 tending to form a surface on the flange which can be readily grasped to rotate the cap for the purpose of removal from the container.

Adjacent its lower edge the flange 10 is provided with a number of spaced-apart inwardly extending lugs 11 preferably formed by distorting or forcing inwardly the metal of the flange 10. These lugs have a generally rounded contour to enable them to readily pass over the inclined faces 5 of the lugs 4 on the receptacle and engage beneath the same. There are preferably as many of these inwardly projecting lugs 11 on the cap as there are outwardly projecting lugs 5 on the receptacle so that each lug on the cap can engage below a lug on the receptacle. It will also be noted that the spaces 14 between the lugs 4 on the receptacle are wide enough to permit the

lugs 11 on the cap to pass therethrough for the purpose of removing the cap from the receptacle when desired.

At 12 and 13 are shown sealing washers or gaskets used on the inner face of the cap for the purpose of sealing the closure when the cap is placed down upon the receptacle.

It will be seen that by reason of the construction above described, the cap may be forced down upon its receptacle, and it will provide an effective seal therefor without being rotated to secure such sealed position. The lugs 11 on the flange 9 of the cap contact with the inclined faces 5 of the lugs 4 on the receptacle, and when direct downward pressure is exerted upon the cap, these lugs 11 thereon are forced over the lugs 4 on the receptacle and snap into engagement below the shoulder portions 6 on the lugs 4, forcing the gaskets 12 and 13 tightly between the inner face of the cap 8 and the upper edge of the receptacle as disclosed in Figure 4 to secure a perfect seal or joint. To remove the cap, it is simply necessary to rotate the same until the lugs 11 on the cap are moved into registration with the spaces 14 located between the lugs 4 and the cap can then be lifted off.

To aid in positioning the cap 8 the lugs 7 are provided on the receptacle. To manually position the cap on the container so that simple direct downward pressure is required to lock it in position to close the receptacle, the cap is placed lightly upon the receptacle and rotated until the lugs 11 on the cap contact with the portions 15 of the lugs 7 on the receptacle, when it will be found that the lugs 11 will be located directly over the lugs 4 on the receptacle. Downward pressure on the cap by means of a suitable press or plunger mechanism will then cause the flange 9 on the cap to be distorted to such an extent to enable the lugs 11 to slide down over the inclined faces 5 on the lugs 4 and snap into position beneath the shoulder 6 on said lugs, compressing the gaskets 12 and 13 and effectively sealing the receptacle. The cap may be readily removed by hand by rotating it until the lugs 11 are brought into contact with those portions of the cross lugs 7 which project below the lugs 5, when it will be found that the cap lugs 11 will be located in registration with the spaces 14 so that the cap can be lifted directly off. The cap can be readily replaced on the receptacle by passing the lugs 11 through the spaces 14 on the receptacle, and rotating the cap so that the lugs 11 are moved to a final position below the lugs 4. The lugs 11 are provided with rounded cam-like ends 16, which, when the cap is manually rotated, ride up to a slight extent on those portions of the edges 17 of the projections 7 which are located below the lugs 4 and frictionally engage the same. This frictional engagement of the ends 16 of the lugs 11 with the edges of the projections 7, together with the frictional engagement of the lugs 11 with the under face of the lugs 4, holds the cap securely in position despite the fact that it may have been replaced and removed many times.

When machinery is used for placing the cap in position on the receptacle the cap may be held in suitable rotating means which will move the cap downward while simultaneously rotating, such rotating movement ceasing when the cap is brought down on top of the receptacle and its lugs 11 are brought into contact with the registering lugs 7, the cap being then forced directly downward by suitable mechanism which will act to force it into position on the receptacle as disclosed in Figure 4.

It will be seen that the only contact of the flange 8 with the receptacle is had at the points where the inwardly bent lugs 11 on the flange contact therewith. The cap 8 is preferably made of a resilient metal so that while the same is being placed in position on the receptacle and the lugs 11 are being forced over the inclined faces 5 of the lugs 4 those parts of the flange 9 situated between the lugs 11 can distort slightly to permit the lugs 11 to pass over the lugs 4 without excessive strain on the flange 9 of the cap. The parts of the flange 9 located between the lugs 11 being spaced away from the receptacle permit this temporary distortion of the flange and the resiliency of the cap causes the flange to spring back into its normal circular shape the moment that the lugs 11 snap into position below the shoulders 6 on the lugs 4.

From the foregoing it is obvious that my invention is not to be restricted to the exact embodiment shown but is broad enough to cover all structures coming within the scope of the annexed claims.

Having described my invention what I claim is:

1. A device of the class described comprising a receptacle having a plurality of spaced-apart lugs on its outer face and adjacent its upper end, a closure cap having a continuous flange and a plurality of inwardly projecting lugs on said flange adapted to be forced over the lugs on the container by direct downward pressure and engage beneath the lower ends of said lugs and a plurality of lugs on said container at right angles to the first mentioned lugs thereon.

2. A device of the class described comprising a receptacle having a plurality of outwardly projecting spaced-apart lugs, a closure cap therefor having a continuous flange provided with a plurality of inwardly extending lugs adapted to pass over and engage beneath the lugs on the receptacle when the cap is forced downward by direct downward pressure, projections upon said re-

ceptacle extending above and below the lugs thereon, the lugs on the cap being adapted to pass through the spaces situated intermediate of the lugs on the container when brought into alignment with said spaces by rotary movement of the cap said rotary movement being restricted by the projections on the receptacle.

3. A device of the class described, a container having a plurality of outwardly projecting spaced-apart lugs on its outer face, said lugs having inclined faces, a closure cap provided with a continuous flange having a plurality of inwardly extending lugs adapted to slide over said inclined faces and engage beneath the lugs on the container when the cap is forced directly downward, means on the container for restricting rotary movement of the cap when the lugs on said cap are held over the lugs on the container and means on said container for restricting rotary movement of the cap when the lugs on the cap are held below the lugs on the container.

4. A device of the class described comprising a container having a plurality of spaced lugs on its outer face, a cap having lugs adapted to slide over the faces of the lugs on the container and engage beneath the same and a plurality of projections on the container at right angles to the lugs thereon to position the lugs on the cap with respect to the lugs on the container and also adapted to position the lugs on the cap with respect to the spaces between the lugs on the container when the lugs on the cap are in position below the lugs on the container.

5. In a device of the class described, a receptacle having a plurality of spaced-apart cap-engaging lugs, a cap having a plurality of lugs adapted to engage beneath the cap-engaging lugs, a plurality of lugs on the receptacle at an angle to the first-mentioned cap-engaging lugs, said last mentioned lugs having portions extending above the cap-engaging lugs for positioning the cap lugs thereover, and portions extending below the cap-engaging lugs for positioning the cap lugs thereunder.

6. In a device of the class described, a cap having lugs, a receptacle having a plurality of spaced-apart lugs on its outer face, and also having a plurality of elongated projections on its outer face, said projections having portions extending above the lugs on the receptacle to register the lugs on the cap with the lugs on the receptacle when said cap is held thereover, and also having portions extending below said lugs for positioning the cap lugs thereunder.

7. A device of the class described comprising a receptacle having a plurality of spaced-apart-lugs on its outer face and a plurality of projections extending below said lugs, and a cap having a plurality of lugs adapted to pass over and engage beneath the lugs on the receptacle, said lugs on the cap having cam-shaped ends adapted to ride up on the projections and frictionally retain the cap in position on the receptacle when the cap is placed thereon by rotary movement.

8. A device of the class described comprising a receptacle having a plurality of spaced-apart lugs on its outer face and a plurality of projections disposed at an angle to said lugs and extending above and below the same, and a cap having a plurality of lugs adapted to engage below the lugs on the receptacle, the lugs on the cap having rounded cam-shaped ends adapted to ride over and frictionally engage the projections at a point below the lugs on the receptacle.

Signed at the city, county and State of New York, this 29th day of May, 1922.

EDMUND HOFFMAN.