A. INGRAM ET AL

CLOSURE FOR JARS, TUMBLERS, AND OTHER RECEPTACLES

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Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

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By their Attorney
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CLOSURE FOR JARS, TUMBLERS, AND OTHER RECEPCTACLES.

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To all whom it may concern:

Be it known that we, ALFRED INGRAM and
HARRY INGRAM, citizens of the United States, and
residents of Brooklyn, in the county of
Kings and State of New York, have invent-
ed certain new and useful Improvements in
Closures for Jars, Tumblers, and Other Re-
ceptacles, of which the following is a speci-
fication.

This invention relates to improved means
for closing the tops of jars, tumblers and
other receptacles by means of applied caps
and gaskets, which, in accordance with our
invention, may be held in sealing position
either by atmospheric pressure, that is, by
what is commonly known as the vacuum
sealing process, or merely by the gripping
action of the gasket when it is in position
surrounding the upper side wall of the re-
ceptacle.

In addition to other features of advan-
tage, our invention provides means whereby
a closure cap of yielding and thin material
and capable of ready removal from a jar
may be used with entire success in connection
with a side-seal gasket encompassing the upper outer side edges of the jar, and
whereby also the top of the cap may be
prevented from wrinkling and also from
bulging upwardly at its middle portion due
to the action of air trapped within the jar
or from other cause. When a thin cap is
placed air-tight on a jar holding even cold
food products the air trapped within the
jar is liable to bulge the top of the cap up-
wardly and not only impart an undesirable
appearance to the package but create an im-
pression that the contents of the jar are in
a state of fermentation.

In accordance with our invention we pro-
duce a thin closure cap in one piece of ma-
terial which is preferably of reasonably ten-
der character, as thin sheet aluminum, capa-
ble of being torn from the jar, said cap
having a depending annular flange or skirt
portion containing an annular recess for a
side-seal gasket, and with this cap we em-
ploy a stiff disk, as, for illustration, of tin,
which fits within and against the inner sur-
face of the top of the cap, and also a ring
or band gasket which is received into said
annular recess below the outer edges of said
disk and which on the application of the
cap to a jar becomes deformed into said re-
cess and tightly bound against the side walls
of the rim of the jar with sealing effect.
The tin disk protects and reinforces the top
of the cap and resists the action of entrapped
air which might otherwise bulge the said
top upwardly, and said disk also tends to
keep the top of the cap smooth and also
from being dented in when the jars are
stacked one on the top of another.

The invention will be fully understood
from the detailed description hereinafter
presented, reference being had to the ac-
companying drawings, in which:

Fig. 1 is a central vertical section through
a partly finished cap and inner disk ready
for assembly preparatory to the skirt of the

cap having a beading or annular recess
rolled therein to confine the disk within the
cap and to receive a sealing gasket;

Fig. 2 is a central vertical section through
the finished cap, with a gasket shown there-
in its initial position preparatory to be-
ing deformed and pressed into the beading
of the cap on the application of the cap to
a receptacle to seal the same;

Fig. 3 is a corresponding section, on a
larger scale, showing the closure applied to
and sealing a receptacle, the receptacle be-
ing shown as partly broken away and in
section;

Fig. 4 is a side elevation of the closure
and may be regarded as taken from either
side of Fig. 2, and

Fig. 5 is a central vertical section through
an embodiment of our invention shown ap-
cplied to a tumbler or jar having plain sides
instead of the annular shoulder shown on
the jar presented in Fig. 3.

In the drawings, referring to Figs. 1 to
4 inclusive, 10 designates the finished cap,
11 a gasket held therein, 12 a disk of tin
or the like closely fitting within the cap
and against the inner surface of the top
thereof and extending above the upper edge
of said gasket, and 13 a jar or similar re-
ceptacle having a thickened rim portion
which affords at its lower edge an annular
shoulder 15 offset from the side of the jar.
In Fig. 1 we show a partly formed cap
numbered 16 and which may be regarded as
a cap-blank, and in Fig. 1 we also show a
completed disk 12 to be finally held within
the cap to be finished from the blank 16, the cap then produced being the cap shown at 10 in Figs. 2, 3 and 4.

The blank 16 has a top 17, an annular depending flange or skirt portion 18 and tabs 19 extending laterally from the lower edge of said portion 18 and the outline of which is shown in Fig. 3.

The finished cap 10 has a top 20, an annular depending flange or skirt portion 21 whose upper portion is outwardly beaded or offset to form an inner annular recess 22 and whose lower portion extends downwardly from the vertical plane of the inner edge of said recess and oppositely disposed tear-off tabs or pull-members 23 which extend downwardly from the lower edge of said skirt portion, an annular inwardly and downwardly converging gasket-supporting shoulder 24 being formed at the lower edge of said recess and the entire cap being produced from an integral blank of aluminum or other suitable material.

The inserted reinforcing disk 12 will also be formed of an integral blank and match the inner surface of the top 20 of the cap, and said disk may be of tin and of greater thickness than the material of the cap.

When the top of the cap is annularly shouldered, as shown in Figs. 2 and 3, the disk will have a like formation so as to register with said top.

In the production of the finished cap from the blank 16 shown in Fig. 1, we first introduce into said blank the disk 12 and then form in the upper end of the skirt 18 of said blank 16 the recess 22 of the finished cap, the formation of this recess being performed by a rolling operation or other convenient method and resulting in a slight reduction in the diameter of the top of the blank 16 and in a slight shortening of the skirt 18 and whereby also the disk 12 becomes snugly held within the top of the blank and will not escape from the blank during the further handling thereof.

The extensions 19 may then be bent downwardly to complete the cap ready to receive the gasket and be applied to the jar.

The gasket 21 is initially given the position shown in Fig. 2, in which it may be seen that the gasket does not then fill the recess 22 of the cap and has a downwardly and outwardly beveled lower edge opposite to the downwardly and inwardly inclined shoulder 24 of the cap and that a portion of the gasket stands in the path of the outer edges of the rim of the jar to which the cap is to be applied. Upon the application of the cap to the jar 13, the rim of the jar meeting the inwardly projecting portion of the gasket will act against and deform the gasket to fill the recess 22 and enter into bonding relation to the outer side wall of the projection 14 on the jar, with the result of tightly sealing the jar. When the projection 14 is on the jar to be sealed and has a tapered outer surface, as shown in Fig. 3, the tear-off tabs 23 may be spun inwardly toward the main wall of the jar where they will not form objectionable projections, and in addition the spinning of said tabs under said shoulder serves to further lock the cap on the jar. The removal of the cap from the jar may be effected by the pulling upwardly of the tabs 23, the metal of the cap being torn by this operation which may be readily performed since the metal used in the production of the cap may, in accordance with our invention, be comparatively tender character, as thin sheet aluminum.

In Fig. 5 we show a modified form of our invention applied to a jar or tumbler 25 having plain sides, and therein 26 designates the cap having a plain flat top, a skirt portion having a recess 27 corresponding with the recess 22 hereinbefore described, and tear-off tabs 28. Within the cap 26 is a strong disk 29 and within the recess 27 is a gasket 30, which corresponds with the gasket 11 shown in Figs. 2 and 3. The top of the cap 26 is plain and flat, and hence the disk 29 is plain and flat and in this respect only differs from the disk 12 hereinbefore described. The cap 26 is applied to the tumbler or jar 25 in the same manner that the cap 10 is applied to the jar 13 and with the same sealing effect and the same facility for removal. Since the tumbler or jar 25 has plain sides as distinguished from the taper-surfaced rim 14, there is no occasion for disposing of the tear-off tabs 28 otherwise than by allowing them to extend downwardly close to the sides of the tumbler, as shown in Fig. 5.

In both forms of the invention shown, the cap may be of thin material, such as thin sheet aluminum, capable of being readily torn, and the use of the cap rendered entirely effectual by reason of the reinforce inner top disk 12, or 29, as the case may be. The skirt of the cap while of thin material is on the line of a circle and effectually holds the gasket in sealing engagement with its own inner surface and the outer surface of the rim of the receptacle. The inserted reinforce disk serves to preserve the appearance of the closure and adds materially to the strength of the top of the same, as hereinbefore explained. The cap 10 is in one integral piece and presents a continuous or unbroken top, which is protected by the reinforce disk and prevented from undue bulging action in either direction.

What we claim as our invention and desire to secure by Letters Patent, is:

1. In combination with a receptacle, a closure therefor comprising a cap of thin, 159
5. Flexible and comparatively tender material having a depending skirt portion containing in its upper part an annular recess which extends around the upper side edges of the receptacle at the mouth thereof, a metal reinforce disk applied within the top of said cap and extending outwardly over the lip of the receptacle and the top of said recess, and a gasket within said recess and below the outer edges of said disk, said gasket being deformed to engage with sealing effect the wall of said recess, the lower surface of the outer peripheral portion of said disk and the side surface of the receptacle about the mouth thereof.

2. In combination with a receptacle, a closure therefor comprising a cap of thin, flexible and comparatively tender material having a depending skirt portion containing in its upper part an annular recess which extends around the upper side edges of the receptacle at the mouth thereof, a metal reinforce disk applied within the top of said cap and extending outwardly over the lip of the receptacle and the top of said recess, and a gasket within said recess and below the outer edge of said disk, said gasket being deformed to engage with sealing effect the wall of said recess, the lower surface of the outer peripheral portion of said disk and the side surface of the receptacle about the mouth thereof, and said cap having a flexible tear-off tab projecting from the lower edge of its skirt portion and being tearable at said tab on the upward pull of the tab.

3. In combination with a receptacle, a closure therefor comprising a cap of thin, flexible and comparatively tender material having a depending skirt portion containing in its upper part, around the upper side edges of the receptacle about the mouth thereof, an annular recess at whose lower edge is a downwardly and inwardly converging shoulder, a reinforce disk applied within the top of said cap and extending outwardly over the lip of the receptacle and the top of said recess, and a gasket within said recess below the outer edge of said disk and initially having a downwardly diverging lower edge and being projected in part in the path of the rim of the receptacle opposite to said shoulder, said gasket being deformed to engage with sealing effect the wall of said recess, the lower surface of the outer peripheral portion of said disk and the side surface of the receptacle about the mouth thereof.

4. In combination with a receptacle having a laterally projecting side rim-portion affording at its lower edge an inwardly set shoulder, a closure therefor comprising a cap of thin, flexible and comparatively tender material having a depending skirt portion containing in its upper part, around the upper side edges of the receptacle at the mouth thereof, an annular recess and below said recess an integral flexible tear-off tab projecting from said skirt portion and spun under said shoulder, a reinforce disk applied within the top of said cap and extending outwardly over the lip of the receptacle and the top of said recess, and a gasket within said recess and below the outer edge of said disk, said gasket engaging with sealing effect the wall of said recess, the lower surface of the outer peripheral portion of said disk and the side surface of the receptacle about the mouth thereof, and said cap being tearable upwardly in its skirt portion at said tab on the upward pull of the tab.

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