Convention Application for a Patent

We METAL CLOSURES LIMITED

of Bromford Lane, West Bromwich,
West Midlands B70 7HY, England

hereby apply for the grant of a Patent for an invention entitled

"CONTAINERS HAVING SCREW-THREADED NECKS
AND CAPS FOR SUCH CONTAINERS"

which is described in the accompanying complete specification.

This application is a Convention Application and is based on the
application numbered 36967/78

for a patent or similar protection made in England

on 15th September, 1978

Our address for service is:

Care: SPRUSON & FERGUSON
PATENT ATTORNEYS
ESSO HOUSE, 127 KENT STREET
SYDNEY. NEW SOUTH WALES.
AUSTRALIA.

Dated this TWENTY-EIGHTH day of NOVEMBER, 1978

METAL CLOSURES LIMITED

By: [Signature of Applicant]
Registered Patent Attorney

To: The Commissioner of Patents
COMMONWEALTH OF AUSTRALIA

DECLARATION IN SUPPORT OF A CONVENTION
APPLICATION FOR A PATENT OR PATENT OF ADDITION

In support of the Convention Application made for a patent for an invention entitled "CONTAINERS HAVING SCREW-THREADED NECKS AND CAPS FOR SUCH CONTAINERS"

FORM 8

DECLARATION IN SUPPORT OF A CONVENTION
APPLICATION FOR A PATENT OR PATENT OF ADDITION

In support of the Convention Application made for a patent

Full name and address of Declarant.

1. Arthur James Coote
   of
   B. the Square, Aspley Guise
   Milton Keynes, Bucks. U.K.

do solemnly and sincerely declare as follows:-

1. I am authorised by METAL CLOSURES LIMITED
   the applicant for the patent
   patent of addition
   to make this declaration on its behalf.

2. The basic application as defined by Section 141 of the Act was made in
   Great Britain
   on the
   15th day of September 1978 by
   Metal Closures Limited

3. (or where a person other than the inventor is the applicant)

   JOHN HARRY GUEST
   of
   17 Falstone Road, Sutton Coldfield, West Midlands, England

   is the actual inventor of the invention and the facts upon which the applicant
   is entitled to make the application are as follows:

   As assignees of the inventor.

4. The basic application referred to in paragraph 2 of this Declaration
   was the first application made in a Convention country in respect
   of the invention the subject of the application.

   Declared at West Bromwich this 17th day of November 1978

   Signature of Declarant

   A.T. Coote
   SPRUSON & FERGUSON, SYDNEY.
1. A container having a neck which is screw-threaded to form a screw-thread ridge, said ridge being formed with at least one transverse notch in its length.

5. A screw-cap which is screw-threaded to form a screw-thread ridge, said ridge being formed with at least one transverse notch in its length.
Complete Specification for the invention entitled:

"CONTAINERS HAVING SCREW-THREADED NECKS AND CAPS FOR SUCH CONTAINERS"

The following statement is a full description of this invention, including the best method of performing it known to the Applicant:
This invention relates to containers, more particularly bottles, having screw-threaded necks and to caps for such containers.

When a screw-capped bottle containing a carbonated beverage is partly empty the liquid is more susceptible to shaking and disturbance, causing the carbon dioxide to come out of solution and create a substantial gas pressure in the bottle. It is well-known that the gas pressure may be sufficient to blow the cap out of the hands as the cap is unscrewed. The cap is thus potentially a missile capable of inflicting serious damage on property and person.

According to this invention there is provided a container having a screw-threaded neck the screw-thread ridge of which is formed with one or more transverse notches in its length.

In another aspect the invention provides a screw-cap the screw-thread ridge of which is formed with one
or more transverse notches in its length. Such caps will normally be moulded from plastics materials.

The invention also provides a container having a screw-threaded neck and a screw-threaded cap screwed on to said neck, the ridge of the screw-thread of the cap and/or of the container having one or more transverse notches in its length.

Thus excess pressure in the container can be relieved during removal of the cap, as gas escapes across the screw-thread by way of the notch or notches.

It is preferred to provide a plurality of said notches, and notches in successive turns of the thread may be formed in axial alignment with each other so as to shorten the escape path. However, where the notches are formed in the screw-thread on the container, and the cap is a metal cap rolled on to the thread, the notches should not be of such size as to produce a complementary formation on the cap, and it may be preferable also that the notches in each turn of the thread be circumferentially staggered with respect to those in the other turn or turns so that minor irregularities in the thread on the screw-cap resulting from the rolling-on process are widely distributed along the thread and do not lead to "lumpy" movement of the cap during removal and replacement.

The notch or notches may have a radial depth equal to or less than the radial height of the thread-forming ridge.

The distances measured along the ridge between adjacent notches may differ. For example the distances
between adjacent notches may be greater at either end of the ridge than the other.

Some embodiments of the invention are shown in the accompanying drawings and will now be described by way of example. In the drawings:

Figures 1 and 3 each show diagrammatically the neck portion of a container according to the invention,

Figures 2 and 4 are plan views corresponding to the threaded portion of Figures 1 and 2 respectively, and

Figures 5 and 6 are respectively a sectional elevation and underneath plan of a cap embodying the invention.

The container whose neck portion 10 is shown is in the form of a bottle with an external helical ridge 11 constituting a screw-thread. At intervals along its length notches 12 are formed in the ridge. The portion 13 of the neck has, in the manner well-known in the art, a closely controlled external diameter and forms a seal with a complementary screw-cap (not shown). During removal of the cap, the seal at 13 is broken whilst the screw-threads on the cap and bottle are still well engaged, and any pressure in the bottle is then relieved by flow of gas past the sealing surfaces and thence through the notches 12 and round the profile of the complementary thread-constituting ridge of the cap. The cap may be made from metal sheet and have a screw-thread rolled on to it, in the well-known manner, in substantial
conformity with the thread on the bottle, except for the notches 12, the dimension of which lengthwise of the thread ridge should not be as to produce any corresponding interruption of the thread on the cap.

If desired, where the cap of the container is moulded from plastics material, the thread-constituting ridge of the cap may also be formed with notches similar to the notches 12. Alternatively the cap thread may be notched and the bottle thread un-notched.

The bottle may additionally have a peripheral rib (not shown) for the formation of a rolled-on pilfer-proof band, but the rib is immaterial to the invention.

Figures 5 and 6 show a cap 15 according to the invention. The cap is moulded from a suitable plastics material and has an internal screw-thread ridge 16 which is formed with a series of transverse notches 17 spaced along its length. The radial depth of the notches is equal to the radial height of the ridge 16. Such a cap can be used with a bottle having a conventional uninterrupted screw-thread ridge or with bottles such as are illustrated in Figures 1 to 4. Annular ribs 18, 19 and an annular surface 20 are provided to form a pressure-tight seal with the uppermost portions of the bottle neck.
The claims defining the invention are as follows:

1. A container having a neck which is screw-threaded to form a screw-thread ridge, said ridge being formed with at least one transverse notch in its length.

2. A container as claimed in claim 1 wherein the ridge extends in more than a single screw-turn and has a plurality of said notches formed therein, notches in successive turns being axially aligned.

3. A container as claimed in claim 1, wherein the ridge extends in more than a single screw-turn, and has a plurality of said notches formed therein, notches in successive turns being circumferentially staggered.

4. A container as claimed in any one of claims 1 to 3, wherein each notch has a radial depth substantially equal to the height of the ridge.

5. A screw-cap which is screw-threaded to form a screw-thread ridge, said ridge being formed with at least one transverse notch in its length.

6. A cap as claimed in claim 5 and moulded from a plastics material, wherein the ridge extends in more than a single screw-thread turn and has a plurality of said notches formed therein, notches in successive turns being axially aligned.

7. A cap as claimed in claim 5, and moulded from a plastics material, wherein the ridge extends in more than a single screw-turn, and has a plurality of said notches formed therein, notches in successive turns being circumferentially staggered.
8. A cap as claimed in any one of claims 5 to 7 and moulded from a plastics material, wherein each notch has a radial depth substantially equal to the height of the ridge.

9. A container having a screw-threaded neck and a screw threaded cap engaged on said neck, the screw-threads of the neck and cap being each formed by a helical screw-thread ridge formed with at least one transverse notch in its length.

10. A container having a neck portion substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 2 or in Figures 3 and 4 of the accompanying drawings.

11. A screw-cap substantially as hereinbefore described with reference to and as illustrated in Figures 5 and 6 of the accompanying drawings.

DATED this TWENTY-EIGHTH day of NOVEMBER, 1978 METAL CLOSURES LIMITED

Patent Attorneys for the Applicant SPRUSON & FERGUSON