MOULDED CONTAINER WITH CHILDPROOF CATCH OPERABLE BY FINGER AND THUMB

A childproof container typically for medicines or drugs, has a box integrally moulded from plastics material with a lid connected thereto by a plastically deformable hinge. An integrally moulded childproof catch has a pair of arms (5) extending into the box from the lid with barbs (8) on the distal ends of arms (5) engaging corresponding barbs or ledges (9) within the box. The barbs are disengaged to open the box by squeezing the arms (5) together against the action of an integrally moulded biasing means (7) using a finger and thumb inserted through holes in the lid adjacent the outwardly facing side of each arm (5).
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MOULDED CONTAINER WITH CHILDPROOF CATCH OPERABLE BY FINGER AND THUMB

TECHNICAL FIELD

This invention relates to a childproof container and has been devised particularly though not solely for containing small objects that are dangerous to children such as drugs or medicines.

In the past various types of childproof catches have been provided for attachment to doors or drawers of cupboards and such catches have occasionally been fitted to first-aid boxes or medicine boxes to inhibit the access of children to the contents of those boxes or cupboards. Such catches work with varying degrees of success, many being able to be defeated by a two or three year old child with a reasonable level of ingenuity.

There exists the need for a simple and robust container for medicines, drugs, or other devices which may be harmful to children such as fishing tackle or sharp objects, which is supplied with an integral childproof catch which is robust and simple to use by an adult while being extremely difficult to defeat by a young child.

The present invention therefore provides a childproof container comprising a box having a lid connected to the box by a hinge and a childproof catch operable between a position adjacent a free edge of the lid and a corresponding portion of the box, the childproof catch incorporating a pair of arms extending from the lid into the box in the closed position of the lid, biasing means arranged to bias the arms outwardly away from one another, each arm having a distal end terminating in an outwardly extending barb engageable with a corresponding barb or ledge within the box in the closed position of the lid so as to prevent the lid being opened when so engaged, and a pair of finger holes in the lid, one adjacent the outwardly facing side of each arm, allowing a finger and thumb of a user to be inserted through the holes to squeeze the arms toward one another, releasing the barbs at the distal ends of the arms from
the barbs or ledges within the box and so allowing the box to be opened.

Preferably the box and lid are moulded from a suitable plastics material and the catch is moulded integrally therewith.

Preferably the box and lid are moulded in one piece with an integral hinge of plastically deformable plastics material.

Preferably the arms comprise substantially parallel planar members, each having a reinforcing flange extending inwardly toward the other arm.

Preferably the biasing means comprise an elastically deformable cylinder of plastics material moulded integrally between the reinforcing flanges.

Preferably the barbs or ledges within the box comprise barbs at the distal end of a pair of arms extending upwardly from the base of the box.

Preferably the arms extending upwardly from the base of the box are substantially parallel planar members, each having a reinforcing flange extending outwardly away from the other arm, the reinforcing flanges being connected to other parts of the box so as to inhibit movement of the arms away from one another.

Preferably the rim of one of the box or lid is provided with a double flange around the sides remote from the hinge, and the other of the box or the lid is provided with a single flange around the sides remote from the hinge, arranged such that the single flange sits between the double flanges when the lid is closed and the catch engaged, inhibiting the removal of small objects from within the container by distortion of the lid.

**BRIEF DESCRIPTION OF DRAWINGS**

Notwithstanding any other forms that may fall within its scope, one preferred form of the invention will now be described by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is a perspective view of a childproof container according to the invention;
Fig. 2 is an enlarged cut-away view of the catch portion of the container shown from the same perspective as Fig. 1;  
Fig. 3 is a cross-section through the catch shown in Fig. 2 with the catch in the engaged position;  
Fig. 4 is a similar view to Fig. 3 showing the catch being released by the finger and thumb of a user;  
Fig. 5 is a cross-section on the line V-V of Fig. 1;  
and  
Fig. 6 is an underside view of the container.

MODES FOR CARRYING OUT THE INVENTION

In the preferred form of the invention a childproof container is provided moulded from a suitable plastics material into the shape of a rectangular box 1 having a lid 2 connected to the box by a hinge along the edge 3. The hinge is typically moulded integrally with the box and the lid to form a plastically deformable portion along the edge 3 between the box 1 and the lid 2. The lid is secured in the closed position on the box by a childproof catch operable by inserting a finger and thumb of the user through holes 4 in the lid of the box. Detailed construction of the catch will now be described with reference to Figs. 2, 3 and 4.

The childproof catch incorporates a pair of arms 5 moulded integrally with and extending from the lid into the box in the closed position of the lid as shown in Figs. 2 and 3. The arms are typically planar in nature and parallel to one another, each having a reinforcing flange 6 extending inwardly toward the other arm.

The catch is provided with biasing means arranged to bias the arms outwardly away from one another, and in the preferred form of the invention the biasing means comprise an elastically deformable cylinder 7 of plastics material moulded integrally between the reinforcing flanges 6.

The distal end of each arm 5 terminates in an outwardly extending barb 8 which is engageable with a corresponding barb or ledge 9 within the box in the
closed position of the lid so as to prevent the lid being opened when so engaged.

In the preferred form of the invention the barbs or ledges 9 comprise barbs at the distal end of a pair of arms 10 which are substantially parallel planar members extending upwardly from the base 11 of the box 1. The arms 10 each have a reinforcing flange 12 extending outwardly away from the other arm, the reinforcing flanges 12 being connected to other parts of the box such as internal partitions 13 and 14 so as to inhibit movement of the arms away from one another.

In use, when the lid is closed on the box, the distal ends of the arms 5 are forced inwardly toward one another against the action of the biasing means 7 as the barbs 8 slide over the barbs 9 contained within the box. Once the catch moves to the position shown in Fig. 3, the barbs 8 engage behind the barbs 9 as shown preventing the lid from being opened.

To open the lid, the thumb 15 and finger 16 of a user are inserted through the holes 4 and squeezed together, moving the arms 5 inwardly toward one another as shown in Fig. 4 by deforming the elastically deformable cylinder 7. This movement disengages the barbs 8 from the barbs 9 allowing the lid to be opened by the thumb and finger 15,16 of the user.

The size of the arms 5, the spacing of the holes 4, and the strength of the biasing cylinder 7 are determined so as to make the operation described above comparatively easy for an adult user but very difficult if not impossible for a young child.

To further enhance the child-proof nature of the container, the rim of the box is provided with a double flange 17 (Fig. 5) around the three sides of the box remote from the hinge 3, and the lid is provided with a single flange 18 around the sides remote from the hinge, arranged such that the single flange 18 sits between the double flanges 17 when the lid is closed and the catch engaged as shown in Figs. 1, 2 and 5. It is of course
possible to provide the double flange round the rim of
the lid and the single flange around the rim of the box.

The double flange arrangement described above
inhibits the removal of small objects from within the
container by distortion of corners of the lid, and in
particular corners 19 and 20 which are remote from the
catch and from the hinge 3.

The container may be divided into a number of
internal components by dividing walls such as those shown
at 13, 14, 21 and 22 and the container is typically
provided with an integral handle in the form of a recess
23 extending upwardly from the base 24 of the box to
permit convenient carrying of the box. Where it is
desired to mount the box in a permanent or semi-permanent
location, e.g. on a wall, the box may also be provided
with keyhole mounting slots 25 in the base of the box.

In this manner a childproof container is provided
which may be simply and economically produced by a one-
piece moulding from a suitable plastics material. The
unique design of the childproof catch enables the catch,
including the biasing means, to be moulded in one piece
with the lid and the box, resulting in significant
savings in manufacturing cost compared with boxes having
separate assembled catches. Furthermore the resulting
container is robust in nature due to the integrally
moulded construction, and therefore safe over an extended
lifespan.
CLAIMS:-

1. A childproof container comprising a box having a lid connected to the box by a hinge and a childproof catch operable between a position adjacent a free edge of the lid and a corresponding portion of the box, the childproof catch incorporating a pair of arms extending from the lid into the box in the closed position of the lid, biasing means arranged to bias the arms outwardly away from one another, each arm having a distal end terminating in an outwardly extending barb engageable with a corresponding barb or ledge within the box in the closed position of the lid so as to prevent the lid being opened when so engaged, and a pair of finger holes in the lid, one adjacent the outwardly facing side of each arm, allowing a finger and thumb of a user to be inserted through the holes to squeeze the arms toward one another, releasing the bars at the distal ends of the arms from the barbs or ledges within the box and so allowing the box to be opened.

2. A childproof container as claimed in claim 1 wherein the box and lid are moulded from a suitable plastics material and the catch is moulded integrally therewith.

3. A childproof container as claimed in claim 2 wherein the box and lid are moulded in one piece with an integral hinge of plastically deformable plastics material.

4. A childproof container as claimed in any one of the preceding claims wherein the arms comprise substantially parallel planar members, each having a reinforcing flange extending inwardly toward the other arm.

5. A childproof container as claimed in claim 4 wherein the biasing means comprise an elastically deformable cylinder of plastics material moulded integrally between the reinforcing flanges.

6. A childproof container as claimed in any one of the preceding claims wherein the barbs or ledges within the box comprise barbs at the distal end of a pair of arms extending upwardly from the base of the box.

7. A childproof container as claimed in claim 6 wherein
the arms extending upwardly from the base of the box are substantially parallel planar members, each having a reinforcing flange extending outwardly away from the other arm, the reinforcing flanges being connected to other parts of the box so as to inhibit movement of the arms away from one another.

8. A childproof container as claimed in any one of the preceding claims wherein the rim of one of the box or lid is provided with a double flange around the sides remote from the hinge, and the other of the box or the lid is provided with a single flange around the sides remote from the hinge, arranged such that the single flange sits between the double flanges when the lid is closed and the catch engaged, inhibiting the removal of small objects from within the container by distortion of the lid.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

Int Cl B65D 50/12; A47B 67/02; E05C 3/14; 19/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC: B65D, A47B, E05C.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: B65D 50/00, 50/12, 55/02; A47B 67/02; E05C 3/-. 19/-

Electronic database consulted during the international search (name of database and, where practical, search terms used)
WPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>US 3666338 A1 (RUSSELL) 30 May 1972 Whole document</td>
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X See patent family annex

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Date of the actual completion of the international search
1 July 1997

Date of mailing of the international search report
07 JUL 1997

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