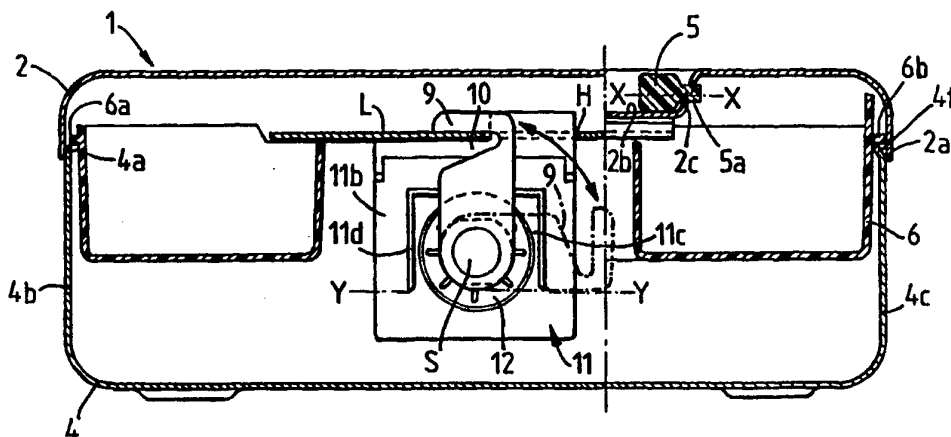




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/GB95/00113 (22) International Filing Date: 20 January 1995 (20.01.95) (30) Priority Data: 9401486.7 26 January 1994 (26.01.94) GB (71) Applicant (for all designated States except US): HELIX LIMITED [GB/GB]; Engine Lane, Lye, Stourbridge, West Midlands DY9 7AJ (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): PETERS, Andrew, Charles [GB/GB]; 15 Hartle Lane, Belbroughton, Worcestershire DY9 9TG (GB). (74) Agent: H.N. & W.S. SKERRETT; Charles House, 148/9 Great Charles Street, Birmingham B3 3HT (GB).		(81) Designated States: AU, FI, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: CASH BOX**(57) Abstract**

The figure shows a cash box (1) provided with a hinged lid (2). The internal width and length dimensions of the lid (2) are slightly larger than the external length and width dimensions of the base (4) to provide a snug, overhanging fit. Lid (2) has a downwardly depending lip (2a) with plain free edge and box (4) has a non-joggled plain free edge (4a) with opposed side wall portions (4b) and (4c) having indented support portion (4e) and (4f), to support flange portions (6a) and (6b) of coin tray (6). The cash box (1) has a key operated locking mechanism with rotatable locking tongue (9) and a push button operated catch means (11) including flat square spring portion (11b) mounted on shaft (S) of the locking mechanism (8).

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CASH BOX

This invention relates to a cash box more particularly of a type having a base and a lid with a coin tray in the box.

It is known for cash boxes to be produced with the lid and base being from the same die tool and thus having substantially identical, external, width and length dimensions. It is known to provide a peripheral seal interposed between the lid and the base, thereby permitting both the lip of the lid (top part) and the lip of the base (bottom part) to be provided by a plain free edge which facilitates manufacture. In a previous design of the Applicant (see Patent Application No. 2155443A - the disclosure content of which is hereby incorporated by reference) the peripheral seal is integral with a coin tray and in another previous design of the Applicant (see Patent Application No. 8813580.1 - the disclosure content of which is hereby incorporated by reference) the coin tray is separate to the peripheral seal. In both designs, disadvantageously, it is possible in some instances for damage to occur to the seal or coin tray because the seal is sandwiched in between the lid and base and the seal projects beyond the external width and length of the lid and the coin tray/seal is usually made of plastics which is breakable.

Other designs of cash box not involving a peripheral seal,

but having a lid and base formed from the same die tool generally require the lip on the base to be deformed inwardly in stepped manner (joggled) to provide an overlap and seat for the lid in order to provide an outward appearance of a flush fitting of the lid and base. Such a "joggling" operation tends to be laborious and relatively expensive.

Also, previous designs of cash box have involved a key operated cylinder lock having a notched tongue rotatable with the barrel of the lock to a locking position in which the notch engages over a locking bar on the underside of the lid. Thus, the closed position of the lid relative to the base is only maintained by the key operated lock mechanism. However, it is believed that it is possible to improve the versatility of such a locking mechanism and that to be able to retain the lid in the closed position on the base by means of the key operated lock mechanism alone tends to be disadvantageous in some instances.

It is an object of the present invention to at least alleviate one or more of the aforementioned, or other, disadvantages associated with cash boxes.

According to the present invention there is provided a cash box comprising a base and a lid releasably lockable thereto by a locking mechanism, said box having a lid with

some larger dimensions than the base so that a lip of the lid overhangs or overlaps a lip of the base when the box is in a closed position, the lip of the base being provided with a plain free edge or non-joggled edge, and preferably opposed wall portions of said box at or near said lip being indented or provided with inwardly directed ledge means for supporting the flange of a coin tray to be received in the cash box.

Usually, the lid will have external width and length dimensions which are slightly larger than the external width and length dimensions of the base so that the lid is a tight, snug overhanging fit with the base. Thus, usually, the internal width and length dimensions of the lid will match or be very slightly larger than the external width and length dimensions of the base, more particularly near said edge.

The lid will usually be hinged to the base and the lid and base will usually be of the same thickness of material.

In one embodiment of the present invention opposed side wall portions (rather than front or rear wall portions) are indented along said lip for a substantial part of, or most of the length of, the respective side wall of the base, in order to provide said ledge means for supporting the flange of a coin tray.

Preferably, the cash box is provided with a locking mechanism and a button operated (usually push button) catch means operable to retain the lid to the base in a closed position. The catch means may be integrally formed and may be mounted on the axis of the locking mechanism. The catch means may have a catching tongue cooperable with a locking plate or other means on the lid, said catching tongue being connected to a catch spring portion flexible into and out of a catching position by means of said button, whilst the locking mechanism is in an open position.

Many other advantageous features of this aspect of the present invention will be apparent from the following description and drawings.

According to a further aspect of the present invention there is provided a cash box comprising a base and a lid releasably lockable thereto by a locking mechanism, said box including a button operated catch means operable to retain the lid to the base in a closed position, the arrangement being such that with the locking mechanism in an open position the lid can be retained to the base by said catch means and said locking mechanism can be operated to lock the box whilst the box is in the closed position, said button operated catch means being operable to open the box only whilst the locking mechanism is in an open position, the locking mechanism preferably disabling the catch means from being disengaged from a catching

position when the locking mechanism is in a closed position.

In one embodiment of the cash box in accordance with this aspect of the present invention, the button operated catch means may comprise a press button which is, preferably, formed integrally with a catch spring portion and catching tongue portion. The catch mechanism may be connected on the same axis as the locking mechanism and the press button may extend through a receiving hole in a front wall portion of the base, preferably just above the locking mechanism.

Preferably, pressing the button of the catch means whilst the box is closed, and whilst the locking mechanism is in an open position, will act to flex catching spring portion about a flexing axis to disengage catching tongue from catching means (for example a locking plate on the underside of the lid) to allow the box to be opened. The catch spring portion may be a generally square C-shaped portion preferably integrally formed with an inner square portion mounted on a main shaft of the locking mechanism and held firmly against an inner face of the front wall portion of the base of the box. The catching tongue is, preferably, offset to one side of the button. The locking mechanism is, preferably, provided with a rotatable locking tongue which partially overlaps the catching tongue and/or spring portion of the catch means, when the locking

mechanism is in the locked position, thus preventing disengagement of the catching tongue from the locking plate (or other catch means) on the lid. Also, preferably, the locking tongue is provided with a locking notch which is able to engage a, or the, locking plate on the lid.

Still further according to the present invention there is provided a cash box comprising a base and a lid releasably lockable thereto by a locking mechanism, said cash box having one or more of the following features:-

- (a) a lid cooperating with a base having a lip formed with a non-joggled edge adjacent a plain free edge of the lid in a closed position,
- (b) a lid having external length and width dimensions larger than the external length and width dimensions of the base,
- (c) a base having a lip with a non-joggled edge and provided with indented opposed wall portions forming ledge means supporting a flange of a coin tray to be received in the cash box, or said opposed wall portions being provided with inwardly directed ledge means,
- (d) the lid being retained to the base by button operated catch means which may be operated to open the box once the locking mechanism has been moved to an open position,
- (e) push button catch means provided with the button

being on the base of the box and said button preferably being integrally connected to a catch spring portion that can be flexed to urge a catching tongue into and out of engagement with catching means on the lid of the box,

- (f) catch means comprising a flat plate spring portion connected to the barrel of a locking mechanism, said spring portion being integral with an (offset) catching tongue that can be urged into and out of engagement with catching means on the lid by means of a button,
- (g) any advantageous feature derivable from the following description and drawings.

Still further according to the present invention there is provided a method of making a cash box having a base and a lid releasably lockable thereto by a locking mechanism, said method comprising:

- (a) forming said base and lid from different die tools, then connecting said base and lid together such that a lip of the lid overhangs or overlaps the lip of the base with said lip being provided with a non-joggled edge.

An embodiment of the present invention will now be described by way of example only, with reference to the accompanying drawings in which:

FIGURE 1 shows a plan view of the cash box;

FIGURE 2 shows a rear sectional view of the cash box taken on the stepped line II-II of FIGURE 1;

FIGURE 3 shows a sectional view of the cash box taken on line III-III of FIGURE 1;

FIGURE 4 shows a front view of the cash box, and

FIGURE 5 shows a detailed view of a locking plate on the underside of the lid of the box.

Referring to the FIGURES of the drawings, a metal cash box 1 is provided with a lid 2 hinged about axis 3 (see FIGURE 3) to a base 4. Lid 2 has been deep drawn from a different die tool (not shown) than that used for base 4 so that the lid is of slightly larger external width and length dimension to the base. Additionally, the internal width and length dimensions of the lid 2 are very slightly larger than the external length and width dimensions of the base 4 so that the lid is a tight, snug overlapping or overhanging fit with the base, as shown more particularly in FIGURE 2. The lid 2 is provided with a downwardly depending lip 2a provided by a plain free edge which facilitates manufacture of the lid, and the upper surface of the lid 2 itself is provided with a generally rectangular recess 2b (see FIGURE 1) receiving a plastics

handle 5, in a manner which is generally known per se, the handle being arranged to rotate about axis X-X by means of handle spigot portions 5a engageable in opposed wall portions 2c of the recess 2b (see FIGURE 2).

The base 4 is provided with an upwardly depending plain free edge 4a (rather than a jogged edge) and opposed side wall portions 4b and 4c of the cash box are provided with indented portions 4e and 4f on said lip 4a which extend inwardly of the base ((to form inwardly directed ledge means) in order to support opposed flange portions 6a and 6b (see FIGURE 2) of coin tray 6 which is received inside the cash box 1.

The cash box 1 is provided with a key operated locking mechanism 8 (see FIGURE 4) having a rotatable locking tongue 9 with notch 10 generally of a form known per se (see FIGURE 2 - tongue 9 rotatable in either direction of double headed swing arrow). Advantageously, the cash box 1 is also provided with a push or press button operated catch means or mechanism 11 which is integrally moulded in plastics and has a press button portion 11a (of generally oval shape) projecting through a generally oval aperture in the front wall 4g of the base 4 positioned just above the key operated lock 8. The catch mechanism 11 includes a flat generally square spring portion 11b integral with an inner generally flat square portion 11c (defined in part by square C-shaped slot 11d) mounted on

the main shaft S of the lock mechanism 8 and held firmly against the inner face of the front wall portion 4g by a starlock washer 12, which normally (i.e. in prior art arrangements) seats directly against said inner face. Thus, the catch mechanism 11 has square portion 11c held tightly to the said inner face, said portion 11c also being held against rotational movement. Catch spring portion 11b is generally C-shaped and is able to flex relative to portion 11c about flexing axis Y-Y.

As should be evident from FIGURE 3, spring portion 11b is provided with an offset, upwardly depending, tapered or wedge shaped catching tongue portion T which in the closed position has been passed (resiliently snapped) through a rectangular hole H in locking plate L provided on the underside of the lid 2 (see FIGURE 5) such that a front flange F of the tongue T engages over the front edge H' of the locking plate L which defines in part the hole H (see FIGURE 3). Tongue T is connected to spring portion 11b by integral horizontally extending portion 11d. As shown in FIGURE 2, locking tongue 9 of the locking mechanism is also received through the hole H in such a manner that a portion of the plate L lies securely in the notch 10. The plate L engages in the notch 9 as the barrel of the key operated lock 8 is rotated clockwise to lock the box 1 in the closed position, as should be evident from the FIGURES of the drawings.

The locking tongue 9, in the closed position as shown in FIGURE 3, partially overlaps the tongue T from behind, thus preventing disengagement of the tongue T from the locking plate L by pushing on the button 11a in direction Z as shown in FIGURE 3, since the tongue 9 is a stiff metal plate and spring portion 11b is thus prevented from flexing about axis Y-Y. However, once the lock mechanism 8 has been moved to the open position (clockwise about double-headed swing arrow in FIGURE 2 as shown in chain dotted lines) the locking tongue 9 no longer overlaps the catching tongue T (tongue 9 is approximately at right angles to the full line position shown in FIGURE 2) so that pushing on the press button 11a in the direction of arrow Z will cause the spring catch portion 11b to flex about flexing axis Y-Y, thereby disengaging flange F from edge H' and thereby allowing the lid 2 to be opened relative to the base 4 whilst the press button portion 11a is depressed. Should the press button 11a be released while the lid 2 is still in the closed position relative to the base 4, then the spring catch portion 11b will flex back about flexing axis Y-Y allowing flange F to locate over edge H' thereby retaining the lid to the base. Thus, the box 1 cannot be opened by operation of press button 11a whilst the key operated locking mechanism 8 is in the locked position (i.e. whilst tongue 9 is in the position shown in FIGURE 2). It should also be noted that in an alternative embodiment, no locking notch need be provided in the locking tongue which engages with a locking plate since a

locking tongue need only be provided which prevents rearward pivoting movement of the catching tongue T about axis Y-Y when pressing on press button 11a. However, it is to be noted that in the present embodiment locking tongue 9 effectively provides a double locking action. The first locking action is provided by the engagement of the locking plate L in the notch 10 of the locking tongue 9 and the second locking action is provided by the locking tongue 9 preventing any rearward pivotal movement of the catch tongue T (which itself, therefore, acts as a locking tongue) or indeed any movement of the spring portion 11b about the flexing axis Y-Y.

Advantageously, locking plate L is of a substantial length to avoid any unnecessary "rocking" of the lid relative to the base along the length dimension when the box is closed (i.e. to act as a stabiliser). As should be evident from the FIGURES, in closing the lid 2 of the box, whilst the locking mechanism is in the open position, edge H' acts as a cam against the sloping surface T' which causes catch portion 11b to flex rearwardly about axis Y-Y until flange f snaps over said edge retaining the lid to the base. Also, since the press button 11 is received in a hole 11a sized to be smaller than the width of a finger, the front wall portion 4g surrounding said hole acts as a stop (when the pressing finger engages same) preventing the catch spring from being flexed too far (e.g. to breaking point) about axis Y-Y if, for example, the box is in an

open position. When the box is closed, but the locking mechanism open, edge H'' of the hole H may also act as a stop preventing undue flexing of the catch portion.

Advantageously, locking plate L also engages the coin tray in the closed position to restrain any rattling of the tray.

It is to be understood that the scope of the present invention is not be unduly limited by the particular choice of terminology and that a specific term may be replaced by any equivalent or generic term. For example, the term "joggled" could be replaced by "stepped". The term "mechanism" could be replaced by "means". Further, it is to be understood that individual features, method or functions relating to the cash box or catch mechanism and/or combinations thereof might be patentably inventive. The singular may include the plural and vice versa.

CLAIMS

1. A cash box comprising a base and a lid releasably lockable thereto by a locking mechanism, said box having a
5 lid with some larger dimensions than the base so that a lip of the lid overhangs or overlaps a lip of the base when the box is in a closed position, the lip of the base being provided with a plain free edge or non-joggled edge.
- 10 2. A cash box as claimed in Claim 1 in which opposed wall portions of said box at or near said lip are indented or provided with inwardly directed ledge means for supporting the flange of a coin tray to be received in the cash box.
- 15 3. A cash box as claimed in Claim 1 or 2 in which the lid has external width and length dimensions which are slightly larger than the external width and length dimensions of the base so that the lid is a tight, snug
20 overhanging fit with the base.
4. A cash box as claimed in any one of the preceding claims in which the lid is hinged to the base.
- 25 5. A cash box as claimed in any one of the preceding claims in which the lid and base are of the same thickness of material.

6. A cash box as claimed in Claim 2 or any claim dependent therefrom in which said wall portions are indented along said lip for a substantial part of, or most of the length of, the respective side wall of the base, in order to provide said ledge means for supporting the flange of a coin tray.

7. A cash box as claimed in any one of the preceding claims which is provided with a locking mechanism and a button operated catch means operable to retain the lid to the base in a closed position.

8. A cash box as claimed in Claim 7 in which the catch means is integrally formed.

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9. A cash box as claimed in Claim 8 in which the catch means is mounted on the axis of the locking mechanism.

10. A cash box as claimed in Claim 7 or Claim 8 in which the catch means has a catching tongue cooperate with a locking plate or other means on the lid, said catching tongue being connected to a catch spring portion flexible into and out of a catching position by means of said button, whilst the locking mechanism is in an open position.

11. A cash box substantially as herein described with reference to the accompanying drawings.

12. A cash box comprising a base and a lid releasably lockable thereto by a locking mechanism, said box including a button operated catch means operable to retain the lid to the base in a closed position, the arrangement being such that with the locking mechanism in an open position the lid can be retained to the base by said catch means and said locking mechanism can be operated to lock the box whilst the box is in the closed position, said button operated catch means being operable to open the box only whilst the locking mechanism is in an open position.

13. A cash box as claimed in Claim 12 in which the locking mechanism disables the catch means from being disengaged from a catching position when the locking mechanism is in a closed position.

14. A cash box as claimed in Claim 12 or Claim 13 in which the button operated catch means comprises a press button.

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15. A cash box as claimed in Claim 14 in which the press button is formed integrally with a catch spring portion and catching tongue portion.

25 16. A cash box as claimed in any one of Claims 12 to 15 in which the catch means is connected on the same axis as the locking mechanism.

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17. A cash box as claimed in Claim 14 or any claim dependent therefrom in which the press button extends through a receiving hole in a front wall portion of the base.

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18. A cash box as claimed in Claim 17 in which the receiving hole is just above the locking mechanism.

19. A cash box as claimed in Claim 15 or any claim dependent therefrom in which pressing the button of the catch means whilst the box is closed, and whilst the locking mechanism is in an open position, will act to flex catching spring portion about a flexing axis to disengage catching tongue from catching means to allow the box to be opened.

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20. A cash box as claimed in Claim 19 in which the catching means is a locking plate on the underside of the lid.

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21. A cash box as claimed in Claim 15 or any claim dependent therefrom in which the catch spring portion is a generally square C-shaped portion.

22. A cash box as claimed in Claim 21 in which the catch spring portion is integrally formed with an inner square portion mounted on a main shaft of the locking mechanism and held firmly against an inner face of the front wall

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portion of the base of the box.

23. A cash box as claimed in Claim 21 or 22 in which the catching tongue is offset to one side of the button.

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24. A cash box as claimed in any one of Claims 21 to 23 in which the locking means is provided with a rotatable locking tongue which partially overlaps the catching tongue and/or spring portion of the catch means, when the locking
10 mechanism is in the locked position.

25. A cash box as claimed in Claim 24 in which the locking tongue is provided with a locking notch which is able to engage a, or the, locking plate on the lid.

15

26. A cash box comprising a base and a lid releasably lockable thereto by a locking mechanism, said cash box having one or more of the following features:-

- 20 (a) a lid cooperating with a base having a lip formed with a non-joggled edge adjacent a plain free edge of the lid in a closed position,
- (b) a lid having external length and width dimensions larger than the external length and width dimensions
25 of the base,
- (c) a base having a lip with a non-joggled edge and provided with indented opposed wall portions forming ledge means supporting a flange of a coin tray to be

received in the cash box, or said opposed wall portions being provided with inwardly directed ledge means,

(d) the lid being retained to the base by button operated
5 catch means which may be operated to open the box once the locking mechanism has been moved to an open position,

(e) push button catch means provided with the button
being on the base of the box and said button
10 preferably being integrally connected to a catch spring portion that can be flexed to urge a catching tongue into and out of engagement with catching means on the lid of the box,

(f) catch means comprising a flat plate spring portion
15 connected to the barrel of a locking mechanism, said spring portion being integral with an (offset) catching tongue that can be urged into and out of engagement with catching means on the lid by means of a button,

20 (g) any advantageous feature derivable from the following description and drawings.

27. A method of making a cash box having a base and a lid releasably lockable thereto by a locking mechanism, said
25 method comprising:

(a) forming said base and lid from different die tools, then connecting said base and lid together such that

a lip of the lid overhangs or overlaps the lip of the base with said lip being provided with a non-joggled edge.

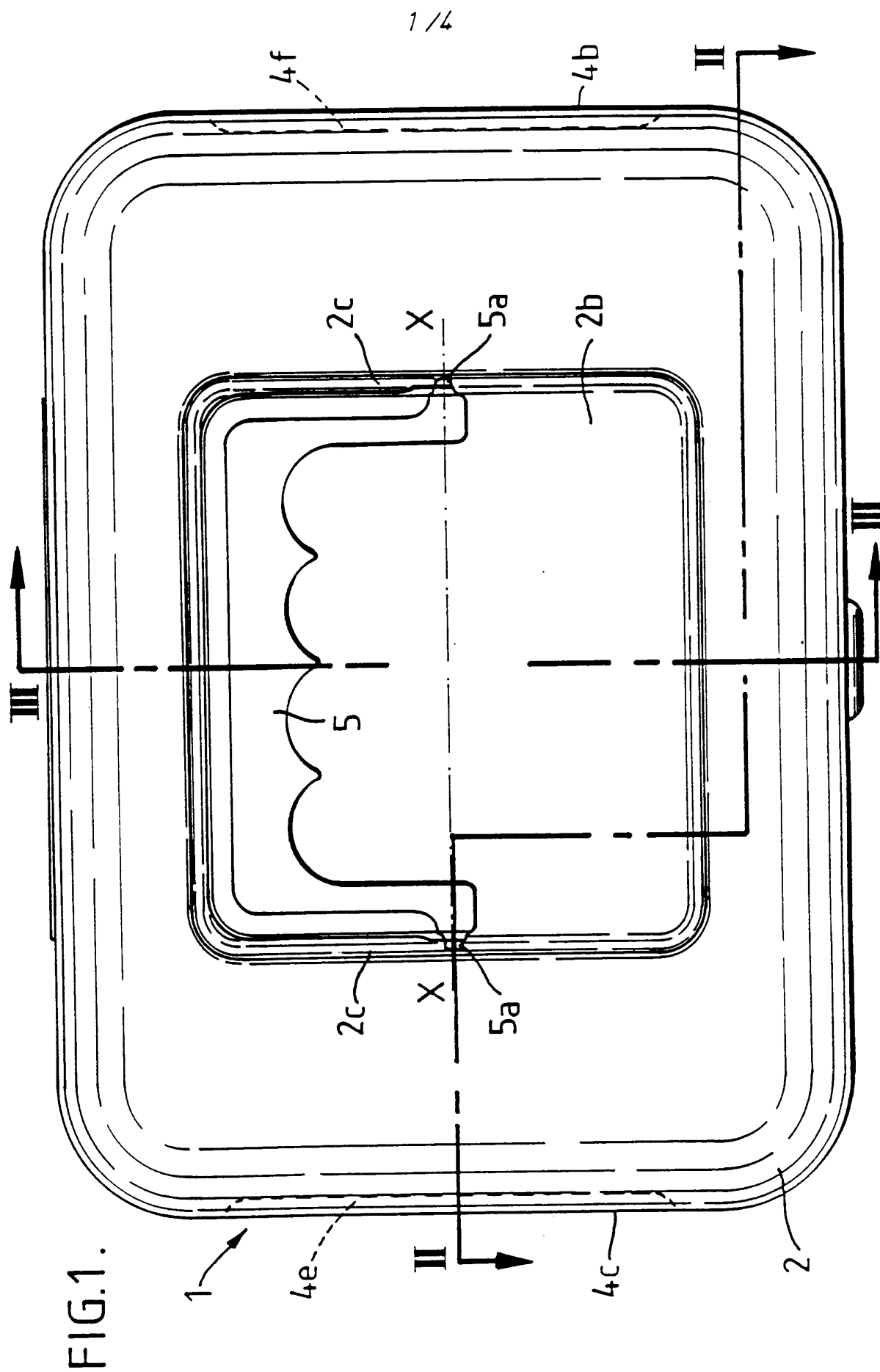
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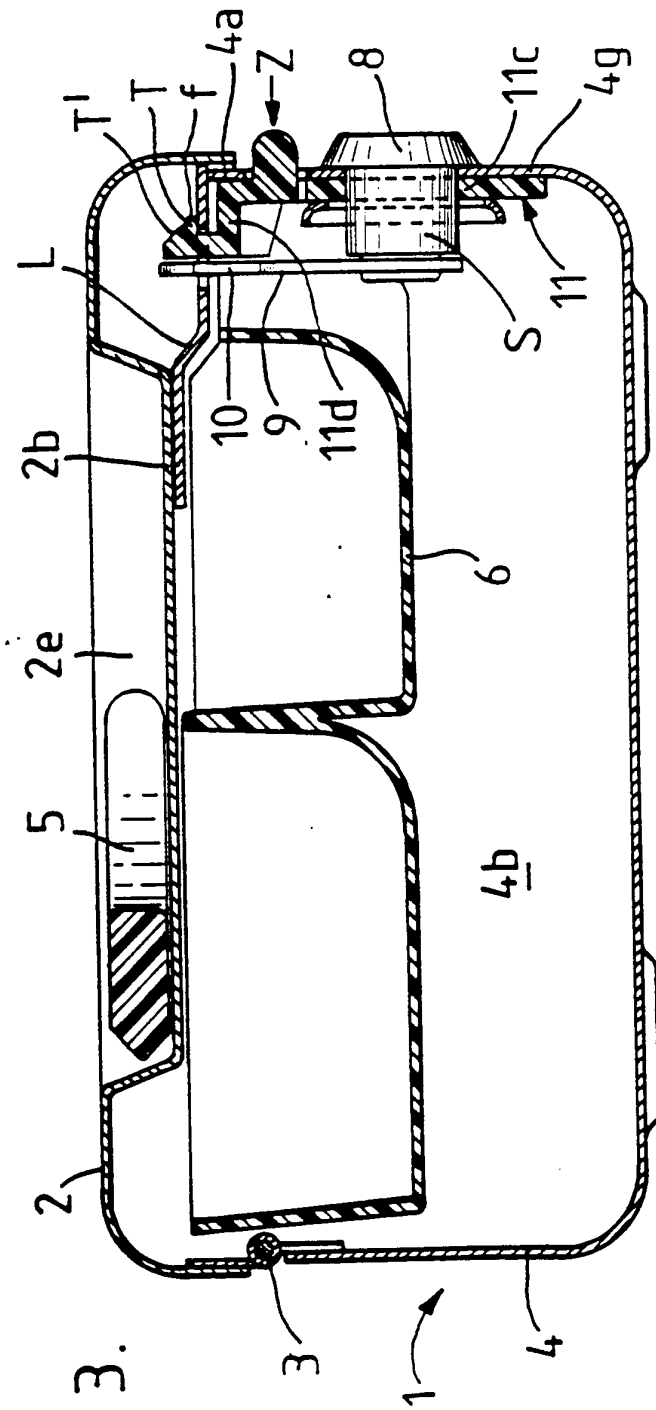


FIG. 3.

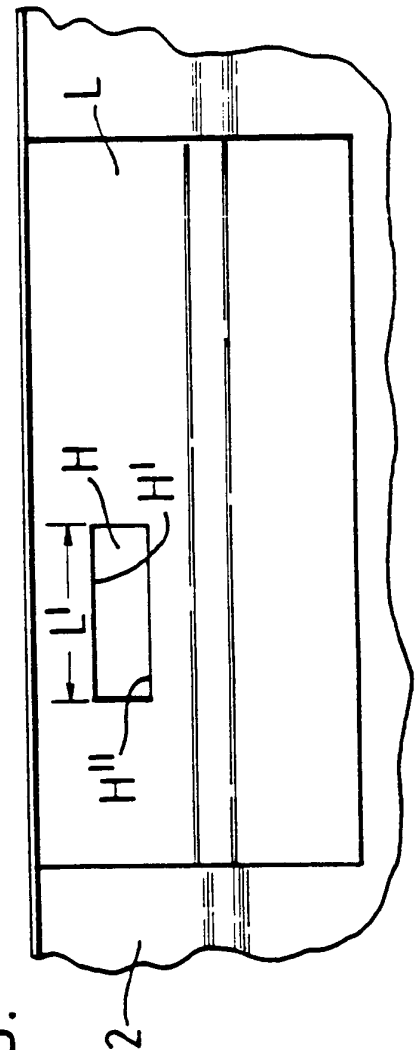
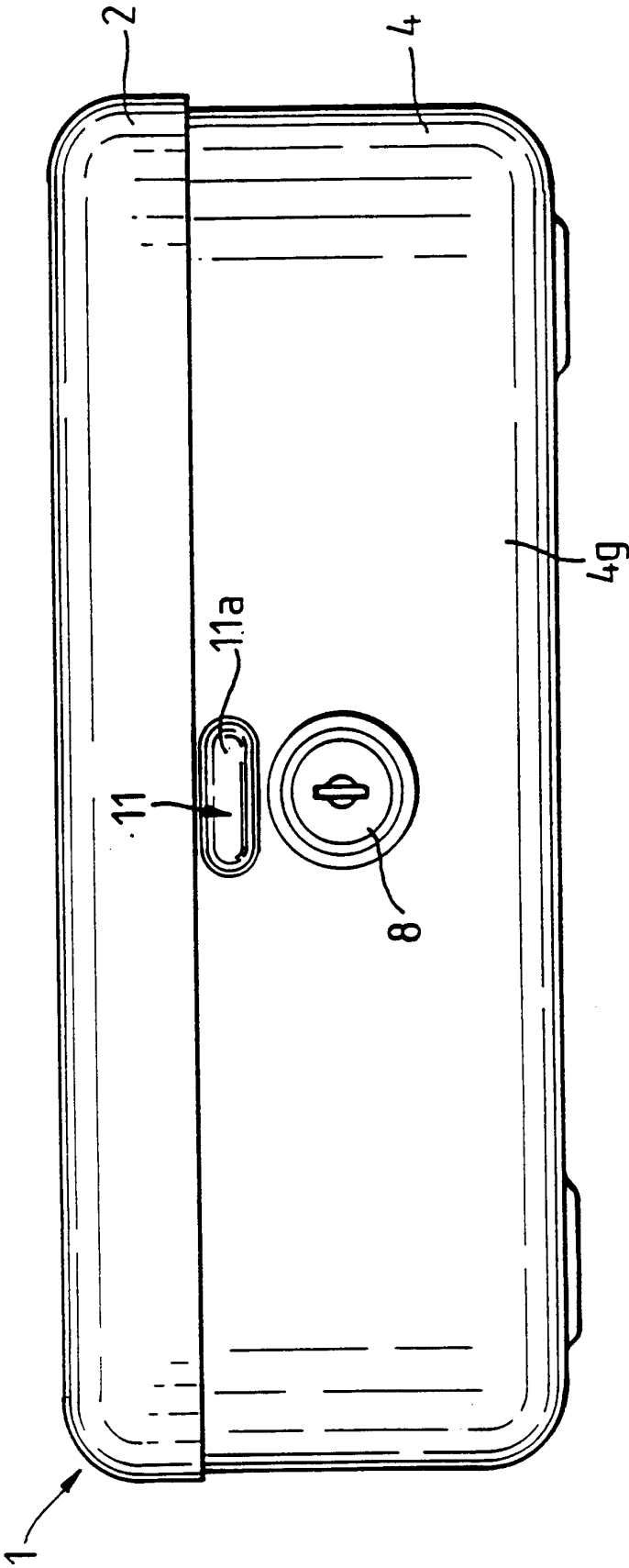


FIG. 5.

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FIG. 4.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 95/00113

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A45C1/00 E05B17/20 A45C13/10 E05C3/14

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 6 A45C E05B E05G E05C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,2 410 475 (ANDERSON) 5 November 1946 see column 2, line 3 - line 20; figures 1,4	1,3-5,11
Y	---	7,8,12, 13
X	US,A,4 098 199 (HAJE) 4 July 1978 see figures 1,2,4	1,3-5
X	US,A,4 474 116 (CASTENADA) 2 October 1984 see figures 1-7	1,3-5
X	FR,A,319 161 (FORESTIER) 6 November 1906 see the whole document	1,4
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

19 May 1995

Date of mailing of the international search report

9.06.95

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	---	26
A	US,A,4 206 343 (MOUSEL) 3 June 1980 see column 3, line 63 - column 4, line 17; figures 1,2,8	2,6
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Information on patent family members

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