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(54) Security receptacles.

(57) A safe is disclosed which can be used in one mode for the display of valuable items and which can be converted to a non-display mode to provide a higher level of security for its contents against burglary and/or fire. The top surface of the safe is configured as a viewing window 6. Within the safe a tray 11 for the display of valuables can be raised to an upper position adjacent the window 6, and lowered to a non-display position, by motorised lifting gear 12. A pair of motorised flaps 13 can be closed over the tray 11 when in its lowered position or opened to permit the tray to be raised up between them. The flaps 13 and side walls 2,3 of the safe comprise a material having high resistance to penetration by burglarious attack and/or to transference of heat to the interior if exposed to fire.

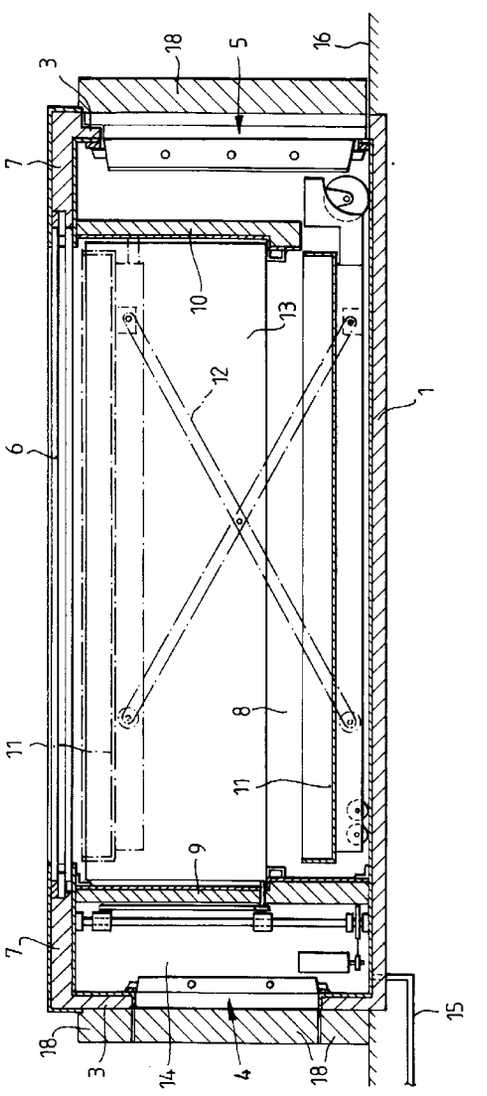

Fig.1

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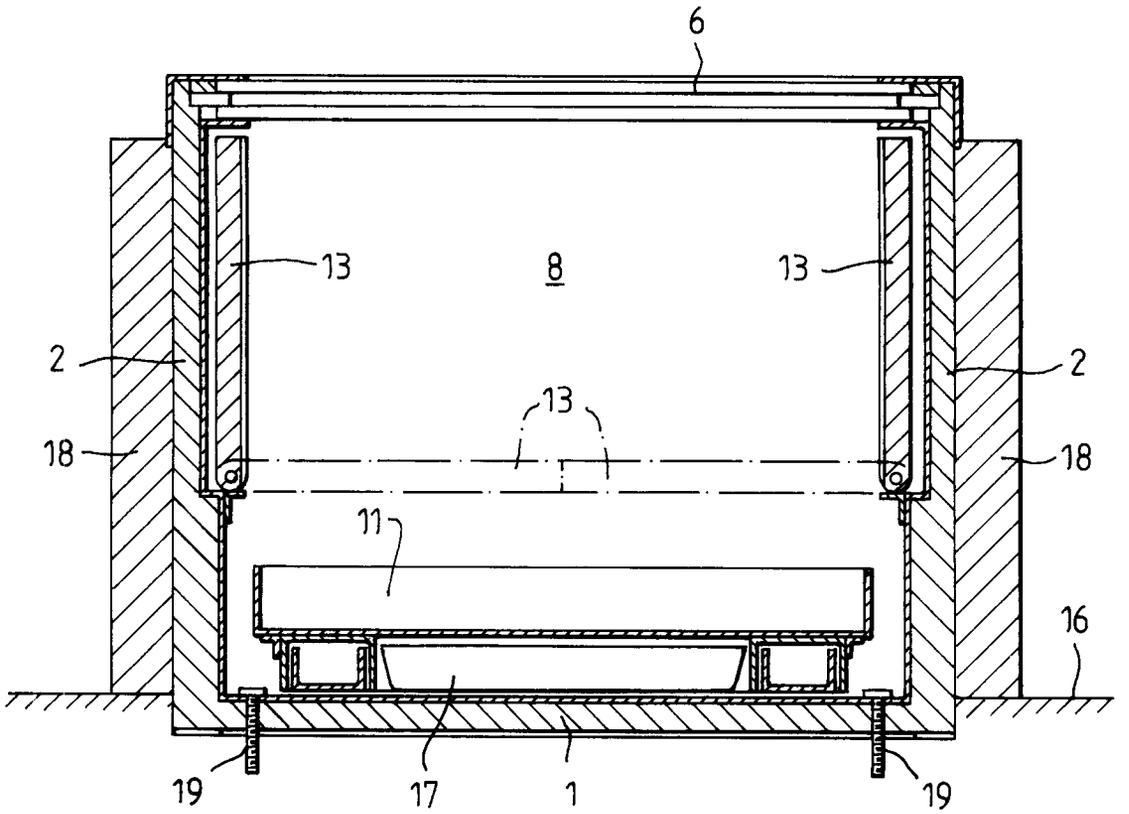
Fig. 2



The present invention relates to a security receptacle in the nature of a safe which can be used in one mode for the display of valuable items, such as ancient manuscripts or relics, precious stones, works of craftmanship or other valuables, and which is convertible to a non-display mode at other times to provide a higher level of security for its contents against burglary and/or fire.

In one aspect the invention contemplates a security receptable in the form of an enclosure of which a top surface is configured to permit viewing of at least part of the interior of the enclosure; supporting means within the enclosure for the display of valuables which can be raised and lowered between a position in a lower part of the enclosure and a position in an upper part of the enclosure adjacent to said top surface; and closure means within the enclosure which can be closed over said supporting means when the latter is in its lower position; both said closure means and at least those portions of the side surfaces of the enclosure which bound said lower part of the enclosure incorporating a security barrier material.

By a "security barrier material" we mean a material of a composition providing a high level of resistance to penetration by burglarious attack and/or to the transference of heat to the interior if the receptacle is exposed to fire.

The invention therefore contemplates a receptacle in which when said supporting means is in its upper position its contents can be clearly viewed through said top surface but which when said supporting means is in its lower position its contents are securely protected against burglary and/or fire by said closure means and side surfaces of the enclosure.

The aforesaid top surface of the enclosure will preferably be made from a transparent material offering resistance to physical attack, such as a known glass/polycarbonate laminate, although in exceptional circumstances it is within the scope of the invention for the top of the enclosure to be open.

The aforesaid closure means are preferably in the form of two flaps articulated above the lower part of the enclosure which can be moved between open positions, in which they lie generally vertically to permit the supporting means to be raised up between them, and closed positions in which they lie generally horizontally together above the lowered supporting means. Other equivalent closure arrangements within the scope of the invention may occur to those skilled in the art, however.

The invention will now be more particularly described, by way of example, with reference to the accompanying schematic drawings which show one embodiment of a display safe in accordance with the invention in two vertical sections at right angles.

The illustrated safe comprises an outer enclosure of rectangular planform comprising a base 1, two longer side walls 2, and two shorter side (end) walls 3 each equipped with a respective hinged door 4,5. The doors 4 and 5 are normally locked in the closed position through conventional locks and boltwork. The base, wall and door structures 1-5 each incorporate one or more layers of security barrier material such as to be resistant both to burglarious attack and to fire. The major part of the top surface of the enclosure comprises a central viewing window 6 of a transparent attack-resistant laminate, with its two end portions 7 being formed with a security barrier material similarly to the walls 2 and 3. The safe may be typically 1 metre tall from the floor 16, to which it is securely bolted as at 19 (fig 2).

Beneath the window 6 is disposed a central compartment 8, bounded by internal bulkheads 9 and 10 of security barrier material, which houses a tray 11 in which it is intended that valuables for display will be placed. This tray forms part of a unit with lifting gear by which the tray can be raised from the lower position shown in full line in the Figures to the upper position indicated in broken line in Figure 1. In its upper position the tray 11 is located directly beneath the window 6 for clear display of its contents. In the illustrated embodiment an electrically-driven scissor jack mechanism 12 is provided for raising and lowering the tray 11 although in principle any suitable mechanism may be provided for driving the tray between its two positions.

Also disposed within the central compartment 8 are two security flaps 13, hinged to respective side walls 2. These can be driven between the vertical positions shown in full line in the figures, in which they lie against the side walls 2 and permit the tray 11 to be raised and lowered between them, and the horizontal positions shown in broken line in figure 2 in which they close together over the lowered tray 11. When moved to the latter position the flaps 13 will be automatically locked, e.g by electrically-operated bolts (not shown) mounted in the bulkheads 9 and 10. These flaps 13 themselves incorporate a security barrier material and in the lowered condition therefore form a highly secure enclosure together with the other barrier portions of the safe structure, protecting the contents of the tray 11 from burglary and fire.

Between the bulkhead 9 and the adjacent end of the outer enclosure there is a compartment 14 housing electric motors for the tray mechanism and for the security flap mechanism. These motors will normally be driven from the mains via a cable 15 but a back-up power supply will also be provided from rechargeable batteries within the compartment 14. This compartment also houses a control switch which must be operated in order to open the flaps 13 and raise the tray 11, to which access can only be obtained by opening the door 4. The latter will normally be locked, so that conversion of the safe to its less-secure display condition is strictly limited to authorised key or

combination holders for the door 4. Operation of the mechanisms to lower the tray 11 and close the flaps 13, however, can preferably be initiated by operation of one or more control switches located outside the safe, so that the receptacle can be rendered fully secure in an emergency without delay.

No access is provided to the tray 11 through the door 4, because of the presence of the bulkhead 9 which completely separates the compartments 8 and 14, (this bulkhead being penetrated only by such cables and drive shafts as are necessary for operation of the tray and flap mechanisms). Instead, when access is required to the tray 11 for changing or attending to its contents the opposite end door 5 is opened by an authorised key or combination holder and the tray, having previously been lowered, can be wheeled out together with its lifting gear beneath the lower end of the bulkhead 10 onto the adjacent floor 16. In an alternative embodiment, the lifting gear such as 12 is fixed permanently within the safe and the tray 11 is mounted on a telescopic slide mechanism by means of which it can be withdrawn through the door 5 when in a raised position, the bulkhead 10 having a suitably positioned access hatch for this purpose.

For some anticipated uses of the safe, e.g. when displaying precious manuscripts, it may be important to control the quality, particularly the humidity, of the air within the compartment 8. Containers of desiccant and/or other air-conditioning chemicals may therefore be located e.g where indicated at 17 in Figure 2. The effective sealing of compartment 14 from compartment 8 is also important in this respect so that the atmosphere within compartment 8 is not disturbed whenever door 4 is opened for access to the control switch to raise the flaps 13 and tray 11, but only when the door 5 is opened for authorised access to the contents of the tray.

In principle, the security barrier material incorporated within the elements 1,2,3,4,5,7,9,10 and 13 of the safe may be any of the various known materials capable of providing selected degrees of burglary and/or fire resistance. In a preferred embodiment, however, these elements are constructed principally from a cast barrier of the kind comprising a polyurethane or other elastomeric matrix reinforced with elements of an extremely hard material such as sintered or fused alumina or zirconia, e.g. as described in UK patent specification no. 2197362. To further enhance the fire resistance of this barrier the walls and doors 2,3,4 and 5 of the enclosure may have an outer cladding 18 of ceramic fibre faced with a decorative timber layer, while the outer (upper) surfaces of the flaps 13 may be faced with a layer of microporous insulating material of the kind sold under the registered trade mark MICROTHERM.

Claims

1. A security receptacle characterised by an enclosure of which a top surface (6) is configured to permit viewing of at least part (8) of the interior of the enclosure; supporting means (11) within the enclosure for the display of valuables which can be raised and lowered between a position in a lower part of the enclosure and a position in an upper part of the enclosure adjacent to said top surface (6); and closure means (13) within the enclosure which can be closed over said supporting means (11) when the latter is in its lower position; both said closure means (13) and at least those portions of the side surfaces (2,3,4,5) of the enclosure which bound said lower part of the enclosure incorporating a security barrier material.

2. A receptacle according to claim 1 wherein said top surface comprises a viewing window (6) of transparent material.

3. A receptacle according to claim 1 or claim 2 wherein said closure means comprise two flaps (13) articulated above said lower part of the enclosure which can be moved between open positions, in which they lie generally vertically to permit the supporting means (11) to be raised up between them, and closed positions in which they lie generally horizontally together above the lowered supporting means (11).

4. A receptacle according to any preceding claim wherein the raising and lowering of said supporting means (11) is motorised.

5. A receptacle according to any preceding claim wherein the opening and closing of said closure means (13) is motorised.

6. A receptacle according to any preceding claim comprising a lockable door (5) through which said supporting means (11) can be withdrawn, said door incorporating a security barrier material.

7. A receptacle according to any preceding claim comprising a compartment (14) housing control means operable to initiate opening of said closure means (13) and raising of said supporting means (11), access to said compartment (14) being provided by a lockable door (4) incorporating a security barrier material.

8. A receptacle according to claim 7 comprising barrier means (9) preventing access to said supporting means (11) from said compartment (14).

9. A receptacle according to claims 6 and 7 wherein

the first-mentioned (5) and second-mentioned (4) doors are at opposite ends of the receptacle.

10. A receptacle according to any preceding claim wherein said security barrier material comprises an elastomeric matrix reinforced with elements of hard material.

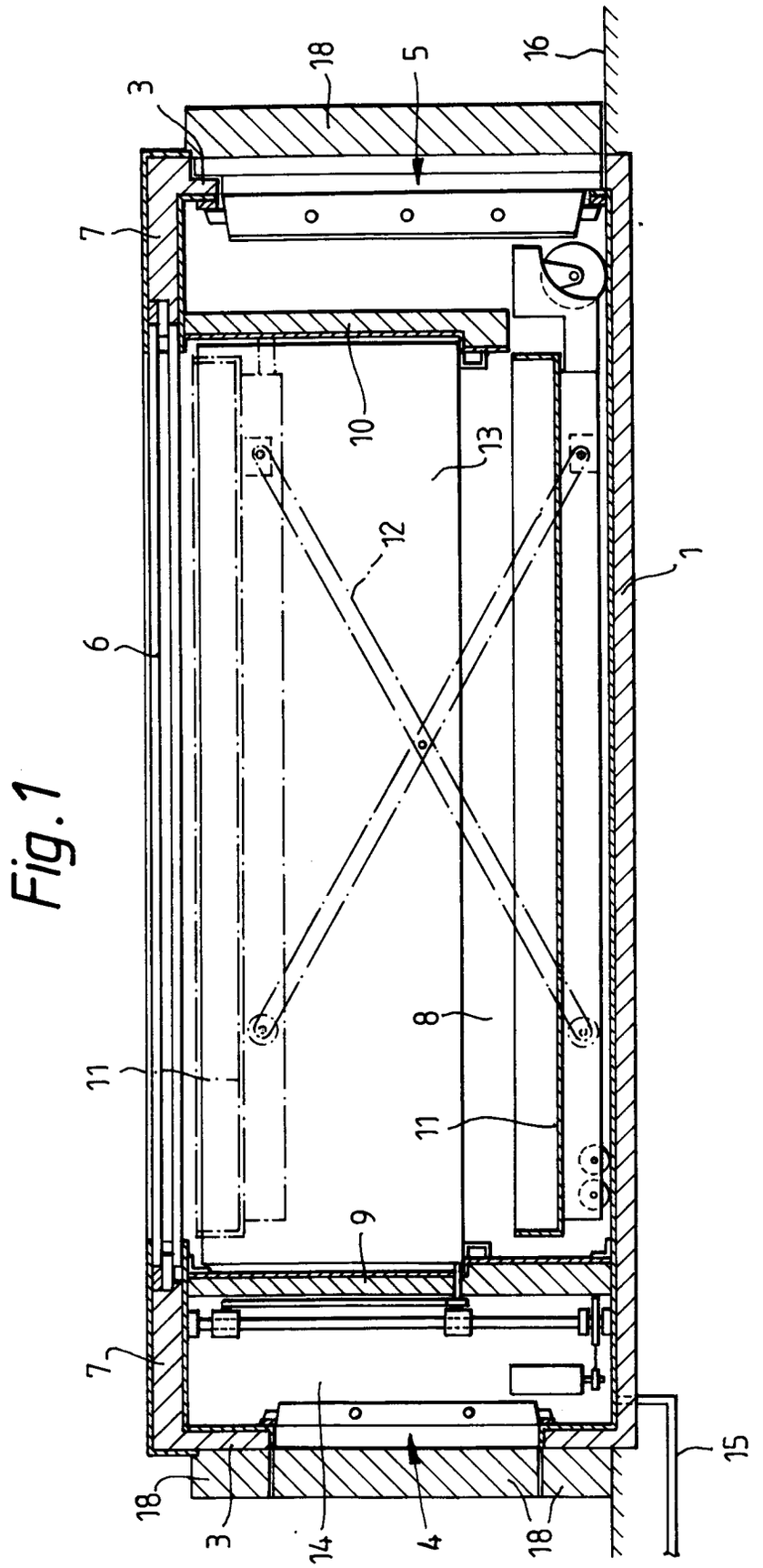
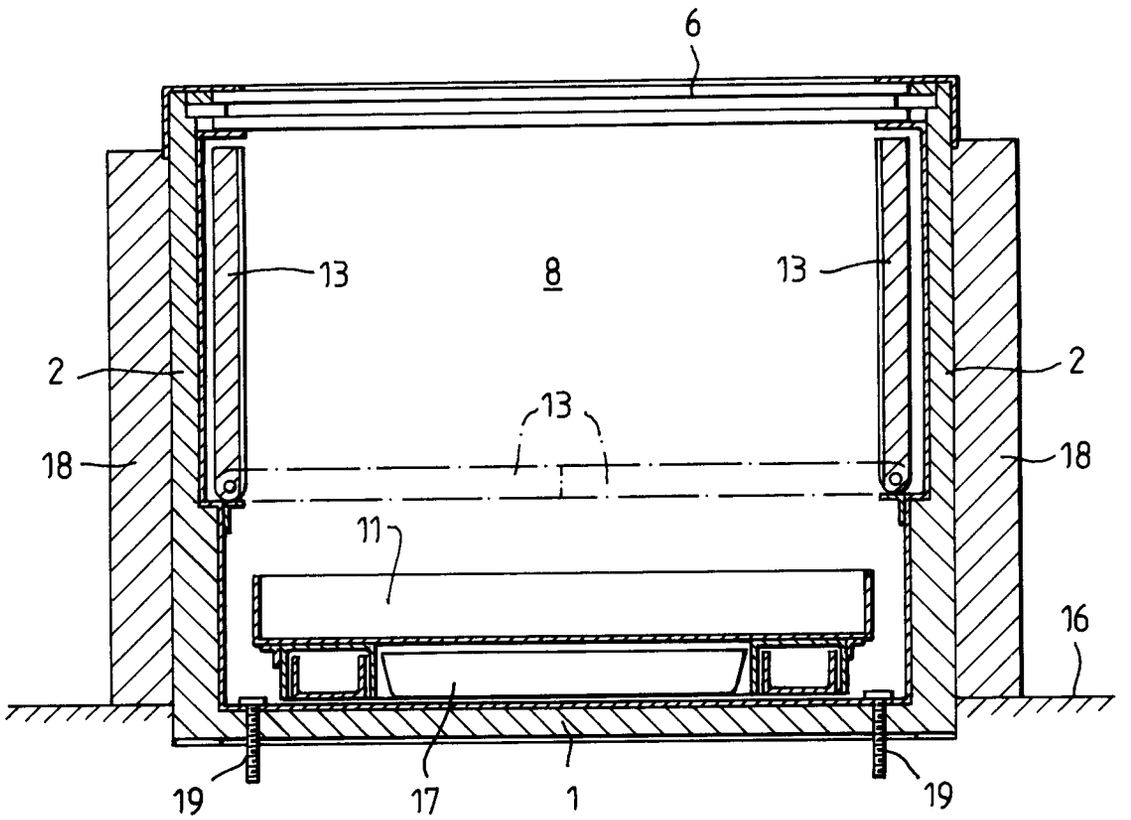


Fig. 1

Fig. 2



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EUROPEAN SEARCH REPORT

Application Number

EP 92 30 6152

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X Y	DE-A-2 202 785 (WEISS) * page 3, line 10 - page 4, line 9; claims 1-4; figures 1-5 *	1,3,7 2,4-6,10	E05G1/026 A47F3/00
Y	US-A-4 929 862 (HAMILTON) * column 6, line 1 - line 12; figures 1-4 *	2,6	
A	GB-A-668 942 (THE RELY-A-BELL BURGLAR AND FIRE ALARM CY.) * page 5, line 2 - line 9; figure 12 *	2	
Y	FR-A-2 619 695 (AGENCEMENT DEROO) * abstract; figure 6 *	4	
Y	EP-A-0 098 195 (GUINARD) * claim 1; figures 1,2 *	5	
Y	EP-A-0 266 970 (CHUBB & SON'S LOCK AND SAFE COMPANY) * abstract; figure 1 *	10	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

E05G
A47F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	02 SEPTEMBER 1992	GUILLAUME G.E.P.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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