



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : E05B 65/44, 67/38</p>	<p>A1</p>	<p>(11) International Publication Number: WO 92/14017</p> <p>(43) International Publication Date: 20 August 1992 (20.08.92)</p>
<p>(21) International Application Number: PCT/AU92/00049</p> <p>(22) International Filing Date: 11 February 1992 (11.02.92)</p> <p>(30) Priority data: PK 4543 11 February 1991 (11.02.91) AU</p> <p>(71) Applicant (for all designated States except US): H. & C.T. GERSTNER-STEVENS PTY. LTD. [AU/AU]; 12 Phillip Road, East Keilor, VIC 3033 (AU).</p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only) : GERSTNER-STEVENS, Henry [AU/AU]; 12 Phillip Road, East Keilor, VIC 3033 (AU).</p> <p>(74) Agent: WATERMARK; 2nd Floor, The Atrium, 290 Burwood Road, Hawthorn, VIC 3132 (AU).</p>		<p>(81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CI (OAPI patent), CM (OAPI patent), CS, DE, DE (European patent), DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), GN (OAPI patent), GR (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC (European patent), MG, ML (OAPI patent), MN, MR (OAPI patent), MW, NL, NL (European patent), NO, PL, RO, RU, SD, SE, SE (European patent), SN (OAPI patent), TD (OAPI patent), TG (OAPI patent), US.</p> <p>Published <i>With international search report.</i></p>
<p>(54) Title: STORAGE UNIT LOCKING DEVICE</p> <p>(57) Abstract</p> <p>A locking device (10) is disclosed which is adapted for use with a padlock (22) for securing a storage unit (11) against unauthorized access which device comprises a partially enclosed housing (13) having an open front (21) and a base (18), said housing having a locking bar (12) depending from the base thereof and a latch slot (19) in the base thereof in which in use the locking bar (12) extends through an access (24) in a panel (23) of the storage unit (11) and engages with locking bar engagement (25) means within the storage unit (11) and attached to an access hatch (26) in a wall of the storage unit when the hatch is closed and in which a latch (20) on the panel of the storage unit (11) passes through the latch slot (19) in the base (18) of the housing (13) to permit attachment of the padlock (22) to the latch (20) within the housing (13) to lock the storage unit.</p> <div style="text-align: right;"> </div>		

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STORAGE UNIT LOCKING DEVICE

FIELD OF THE INVENTION

This invention relates to a locking device and to a storage unit and locking device combination and relates particularly but not exclusively to a locking device and
5 combination to be secured by a padlock. A padlock is intended to include a lock device having a lock body and a hasp for attaching to a latch and operated by a key, combination or other known mechanism mechanical or magnetic.

BACKGROUND OF THE INVENTION

There is a perceived need for a secure storage unit which may be used to store
10 valuable tools and equipment on a building or other construction site or to store valuable documents, dangerous chemicals or explosives on a construction site or within a factory complex or workshop.

U.S. Patent No. 3,833,104 (Blum) discloses a coin receptacle for a coin operated machine which is provided with doors which cover the front of the receptacle and which
15 are adapted to engage with a rod passed through the top of the receptacle. The rod is locked in place by way of a lock positioned within a housing in the top of the receptacle which is constructed to resist breaking open by means of a crow-bar, hammer or similar devices.

U.S. Patent No. 4,452,371 (Jurek) discloses a tamper resistant cabinet for
20 vending equipment in which a rod or bar passes through the cabinet and engages with the door of the cabinet to prevent opening of the door. The rod or bar is secured below the cabinet by means of a padlock. The padlock is not protected from tampering to any significant degree.

U.S. Patent No. 4,823,570 also to Jurek discloses a tamper resistant cabinet for
25 vending equipment in which a rod or bar interengages with loops on the door to secure the door closed. The rod or bar is engaged by a key operated latch mechanism to retain the bar in the locked configuration.

U.S. Patent No. 4,843,853 (Bobert) discloses a rod locked cabinet wherein a locking rod is disposed entirely within the cabinet when engaging with the doors. The rod
30 is removed via a port in the cabinet by a special tool. The port is closed from unauthorised access to the rod by a key operated locking plate which may be locked in a position over the rod access port.

U.S. Patent No. 4,741,454 (Ray) disclosed a cabinet and rod or bar locking mechanism similar to that disclosed in the Jurek 4,452,371 patent above with the
35 variation that the bar or rod is secured in position by a keyed lock mechanism. The

patent includes adjustable spacers on the sleeve to interact with the bar to firmly seal the door when the bar is inserted.

Australian Patent No. 591,803 (Gerstner-Stevens) discloses a storage shed having a sliding door with a latch protruding through a sidewall of the shed for securing 5 by a padlock. The padlock is protected from tampering by a housing fixed to the side of the shed about the protruding latch and attached padlock when the door is closed and locked.

The present invention seeks to provide a simple secure storage unit, tool box or the like which overcomes or substantially overcomes disadvantages of the known prior 10 art.

SUMMARY OF THE INVENTION

The present invention, therefore, provides a locking device adapted for use with a padlock for securing a storage unit against unauthorised access which device comprises a housing including top, base, side and rear wall sections, said housing having a locking bar 15 depending from the base thereof and a latch slot in the base thereof in which in use the locking bar extends through an access in a panel of the storage unit and engages with locking bar engagement means within the storage unit and attached to an access hatch in a wall of the storage unit when the hatch is closed and in which a latch on the panel of the storage unit passes through the latch slot in the base of the housing to permit attachment 20 of a padlock to the latch within the housing to lock the storage unit.

The present invention also provides a storage unit and locking device combination in which the storage unit comprises front, rear, side, top and bottom panels one of which panels includes an access hatch and in which another panel includes access for said locking device, said locking device comprising a housing including top, base, side and rear 25 wall sections having a locking bar depending from the base section thereof and having a latch slot in the base section thereof said locking bar protruding through the access into the storage unit and engaging with locking bar engagement means on the access hatch said latch slot permitting access therethrough by a latch projecting from the other panel to permit engagement and disengagement of a padlock to secure and lock the storage unit and 30 locking device combination.

The present invention alternatively provides a locking device adapted for use with a padlock for securing a storage unit against unauthorised access which device comprises a partially enclosed housing having an open front and a base, said housing having a locking bar depending from the base thereof and a latch slot in the base thereof in which in use 35 the locking bar extends through an access in a panel of the storage unit and engages with

locking bar engagement means within the storage unit and attached to an access hatch in a wall of the storage unit when the hatch is closed and in which a latch on the panel of the storage unit passes through the latch slot in the base of the housing to permit attachment of a padlock to the latch within the housing to lock the storage unit.

5 The present invention also provides a storage unit and locking device combination in which the storage unit comprises front, rear, side, top and bottom panels one of which panels includes an access hatch and in which another panel includes access for said locking device, said locking device comprising a partially enclosed housing having an open front and a base having a locking bar depending from the base section thereof and having a
10 latch slot in the base section thereof said locking bar protruding through the access into the storage unit and engaging with locking bar engagement means on the access hatch said latch slot permitting access therethrough by a latch projecting from the other panel to permit engagement and disengagement of a padlock to secure and lock the storage unit and locking device combination.

15 Preferably the locking device includes a baffle plate disposed within the housing to restrict movement of the padlock within the housing when the padlock is closed and locked but permits movement of the padlock within the housing to enable the padlock to be engaged with or disengaged from the latch when the padlock is unlocked.

 The access hatch may be in the form of a door or doors in the front wall of the
20 storage unit in which case the locking device may be secured through the top of the storage unit. In an alternative construction the access hatch may be in the form of a lid to the storage unit in which case the locking device is secured through one side of the storage unit.

 The locking device and the storage unit may be constructed of any suitable
25 material although hardened steel plate is the preferred material for the various wall or panel sections with hardened steel bar of any convenient cross section the preferred material for the locking bar. The locking device and storage unit may be constructed or fabricated by suitable known methods in the relevant materials working art.

 The access hatch of the storage unit may as indicated be in the form of a door or
30 doors in one of the walls of the unit or may take the form of a lid in or forming the upper or top wall of the unit. The door or hatch may be hinged as shown in the illustrated embodiment or may be a lift out door in which case it may be desirable to include two or more locking devices one at or near each side or one at or near each end of the hatch or door.

35 BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention will now be described with reference to the accompanying drawings in which :

Fig. 1 represents a schematic cross sectional view of a locking device and storage unit in accordance with the invention;

5 Fig. 2 represents a perspective view of the locking device of Fig. 1;

Fig. 3 represents a schematic cross sectional view of the device of Fig. 2;

Fig. 4 represents a plan cross sectional view of the device and unit of Fig. 1 at line A of Fig. 1;

Fig. 5 represents a partial cross sectional view of an alternative construction of
10 locking device and storage unit shown in the closed position; and

Fig. 6 is a view similar to that of Fig. 5 showing a partially open position.

Referring to Figs. 1 to 4 there is shown a preferred form of locking device 10 constructed in accordance with the invention incorporated in a tool storage box 11. The device includes a locking bar 12 extending from a housing 13. The housing 13 includes
15 side walls 14,15, rear wall 16, top 17 and base 18. The locking bar 12 depends substantially at right angles from the base 18. The base 18 includes slot 19 to accommodate lock latch 20. The front 21 of the housing 13 is open to permit the attachment of a lock such as a padlock 22 to the latch 20. The latch 20 is fitted and secured to the top 23 of the tool box 11. The top 23 of the tool box 11 includes a hole 24
20 therethrough to permit insertion of the locking bar 12 into the interior of the tool box. The hole 24 is positioned forward of the latch 20. The locking bar 12 extends into the interior of the tool box 11 and passes into or through a lock tube 25 attached to the inside of a door 26 of the tool box 11 when the door is closed. The doors 26 and 27 are conveniently mounted by way of concealed, tamper resistant hinges 28. It will be seen
25 that when the locking device 10 is in place the positioning of the locking bar 12 within the tube 25 attached to door 26 prevents opening of the door 26 by containment of the locking bar 12 within the tube 25 and abutment of end 34 of the locking bar 12 against adjacent front wall portions 29 of the tool box 11.

The housing 13 preferably includes baffle plate 30 depending from the top 17 of
30 the housing and within the housing positioned such that when lock 22 is fitted to the latch 20 and locked, movement of the lock 22 is restricted and thus access to the lock 22 for forced removal is also restricted. When the lock 22 is opened the body 31 of the lock 22 moves with respect to the hasp 32 enabling rotation of the lock body 31 to enable it to be disengaged from the latch 20 and subsequent removal of the locking device 10 from the
35 tool box 11. The width of the housing naturally must be such to permit the attachment

and removal of the lock 22.

The locking device (when in place) is preferably additionally protected from tampering by inclusion on the top 23 of the tool box 11 a flange 33 which surrounds the base 18 of the housing 13 and prevents access by a lever or other implement in an attempt to force the locking device 10 and gain entry to the tool box 11. The point of attachment of the locking bar 12 to the base 18 of the housing 13 may be deliberately weakened so that if attempts at unauthorised entry to the tool box 11 are made, the locking bar 12 may separate from the housing 13 and fall within tube 25 so that the end 34 of the locking bar 12 abuts the base 35 of the tool box 11 with the bar still disposed in the tube 25. It will be seen that the lock bar 12 will still be positioned within the tube to prevent opening of the door 25.

If it is desired that the tool box 11 be portable, wheels or castors 36 may be provided on the bottom 35 of the tool box 11.

Referring to Figs. 5 and 6, there is shown another preferred form of locking device 40 constructed in accordance with the invention incorporated in a tool storage box 41. The device includes a locking bar 42 extending from a housing 43. The housing 43 includes side walls 44, 45, rear wall 46, top 47 and base 48. The locking bar 42 depends substantially at right angles from the base 48. The base 48 includes slot 49 to accommodate lock latch 50. The front 51 of the housing 43 is open to permit the attachment of a lock such as a padlock 52 to the latch 50. The latch 50 in this embodiment is fitted and secured to the side 53 of the tool box 41. The side 53 of the tool box 41 includes a hole 54 therethrough to permit insertion of the locking bar 42 into the interior of the tool box. The hole 54 is positioned forward of the latch 50. The locking bar 42 extends into the interior of the tool box 41.

The locking bar 42 includes one or more hook members 55 attached thereto which engage with corresponding hook members 56 on the inside of doors 57. The hook members 55 and 56 are engaged and disengaged by longitudinal movement of locking bar 42 in direction of arrows B.

The doors 57 are conveniently attached to the sides 53,53a of the tool box 41 by means of hinges 61.

It will be seen that when the locking device 40 is in place the positioning of the locking bar 42 within the tool box 41 enables inter-engagement of hook members 55 on the locking bar 42 and hook members 56 on the doors 57 and containment of the locking bar 42 within bar socket 58 attached on the inside opposing wall 53a of the box 41 opposite the hole 54 in wall 53 prevents opening of the doors 57.

The housing 43 preferably includes baffle plate 60 depending from the top 47 of the housing and within the housing positioned such that when lock 52 is fitted to the latch 50 and locked, movement of the lock 52 is restricted and thus access to the lock 52 for forced removal is restricted. When the lock 52 is opened the body 59 of the lock 52 moves with respect to the hasp 61 enabling rotation of the lock body 59 to enable it to be disengaged from the latch 50 and subsequent removal of the locking device 40 from the tool box 41. The width of the housing naturally must be such to permit the attachment and removal of the lock 52.

In a preferred embodiment the hook members 55 on the locking bar (see Fig. 6) comprise a flange 62 welded to the bar 42 with a piece of rod 63 welded thereto. The hook members 56 on the door comprise a flange 64 welded to the door with a piece of tube 65 welded thereto. The rod piece 63 thus enters and retracts from the tube piece 65 as the locking bar is moved from a locking to a non-locking position.

As in the device of Figs. 1 to 4, the locking device of Figs. 5 and 6 may also include a flange (as per flange 33 of Figs. 1 and 2) to surround the base of the housing to prevent access by a lever or (hack) saw to the locking bar.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A locking device adapted for use with a padlock for securing a storage unit against unauthorised access which device comprises a partially enclosed housing having an open front and a base, said housing having a locking bar depending from the base thereof and a latch slot in the base thereof in which in use the locking bar extends through an access in a panel of the storage unit and engages with locking bar engagement means within the storage unit and attached to an access hatch in a wall of the storage unit when the hatch is closed and in which a latch on the panel of the storage unit passes through the latch slot in the base of the housing to permit attachment of the padlock to the latch within the housing to lock the storage unit.
2. A device as claimed in Claim 1, which includes a baffle plate disposed within the housing to restrict movement of the padlock within the housing when the padlock is closed and locked but permits movement of the padlock within the housing to enable the padlock to be engaged with or disengaged from the latch when the padlock is unlocked.
3. A locking device adapted for use with a padlock for securing a storage unit against unauthorised access which device comprises a housing including top, base, side and rear wall sections, said housing having a locking bar depending from the base thereof and a latch slot in the base thereof in which in use the locking bar extends through an access in a panel of the storage unit and engages with locking bar engagement means within the storage unit and attached to an access hatch in a wall of the storage unit when the hatch is closed and in which a latch on the panel of the storage unit passes through the latch slot in the base of the housing to permit attachment of the padlock to the latch within the housing to lock the storage unit.
4. A device as claimed in Claim 3, which includes a baffle plate disposed within the housing to restrict movement of the padlock within the housing when the padlock is closed and locked but permits movement of the padlock within the housing to enable the padlock to be engaged with or disengaged from the latch when the padlock is unlocked.
5. A storage unit and locking device combination in which the storage unit comprises front, rear, side, top and bottom panels one of which panels includes an access hatch and in which another panel includes access for said locking device, said locking device

comprising a partially enclosed housing having an open front and a base having a locking bar depending from the base section thereof and having a latch slot in the base section thereof said locking bar protruding through the access into the storage unit and engaging with locking bar engagement means on the access hatch said latch slot permitting access therethrough by a latch projecting from the other panel to permit engagement and disengagement of the padlock to secure and lock the storage unit and locking device combination.

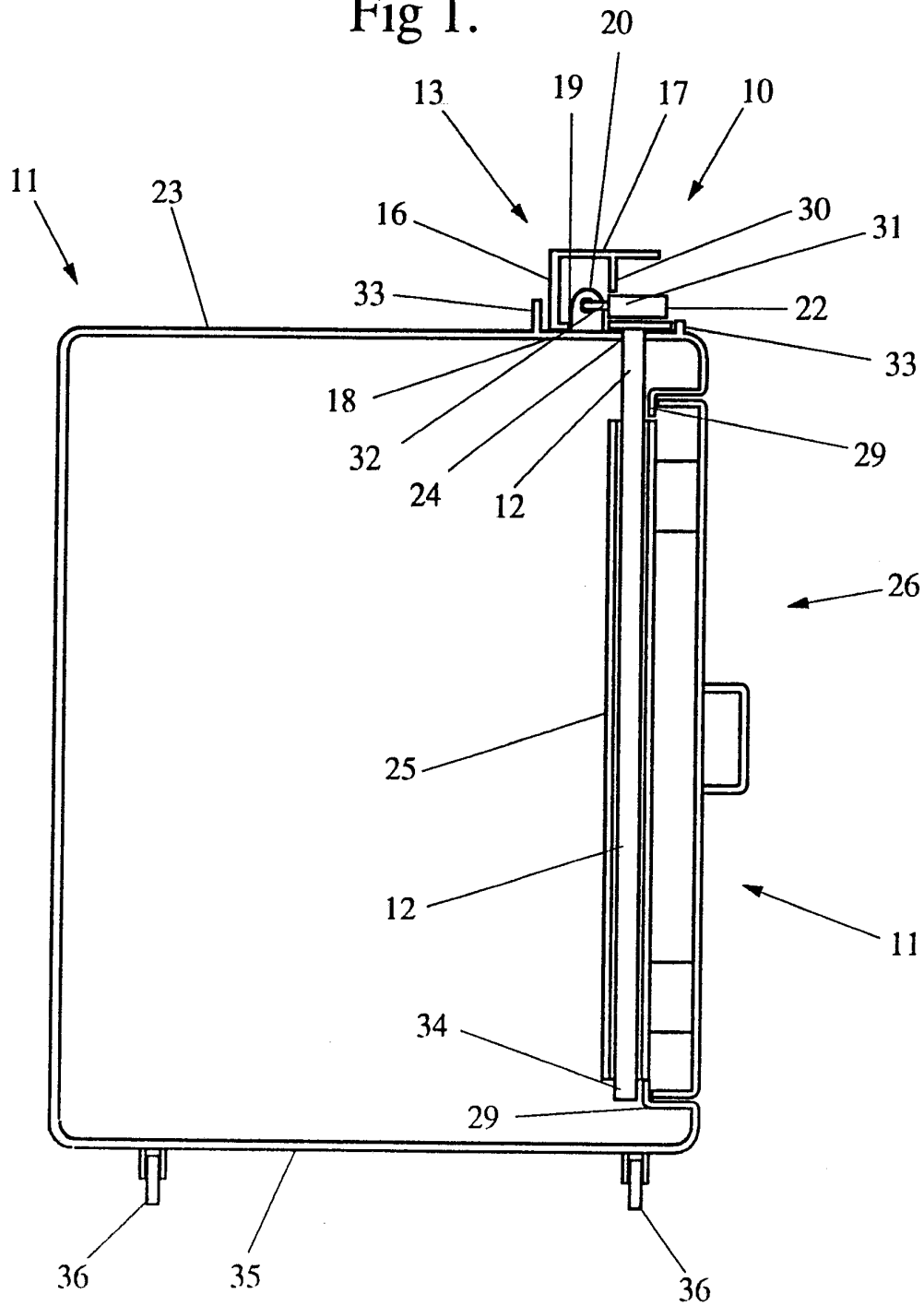
6. A device as claimed in Claim 5, which includes a baffle plate disposed within the housing to restrict movement of the padlock within the housing when the padlock is closed and locked but permits movement of the padlock within the housing to enable the padlock to be engaged with or disengaged from the latch when the padlock is unlocked.

7. A storage unit and locking device combination in which the storage unit comprises front, rear, side, top and bottom panels one of which panels includes an access hatch and in which another panel includes access for said locking device, said locking device comprising a housing including top, base, side and rear wall sections having a locking bar depending from the base section thereof and having a latch slot in the base section thereof said locking bar protruding through the access into the storage unit and engaging with locking bar engagement means on the access hatch said latch slot permitting access therethrough by a latch projecting from the other panel to permit engagement and disengagement of the padlock to secure and lock the storage unit and locking device combination.

8. A device as claimed in Claim 7, which includes a baffle plate disposed within the housing to restrict movement of the padlock within the housing when the padlock is closed and locked but permits movement of the padlock within the housing to enable the padlock to be engaged with or disengaged from the latch when the padlock is unlocked.

1/3

Fig 1.



2/3

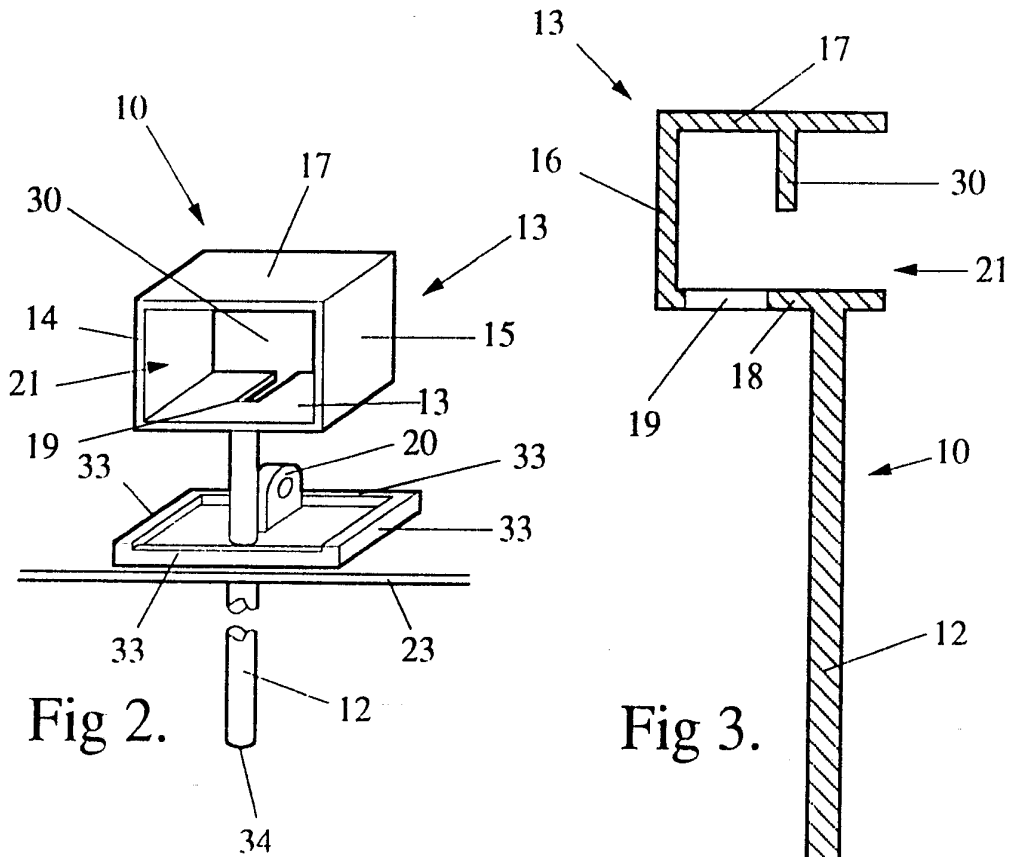


Fig 2.

Fig 3.

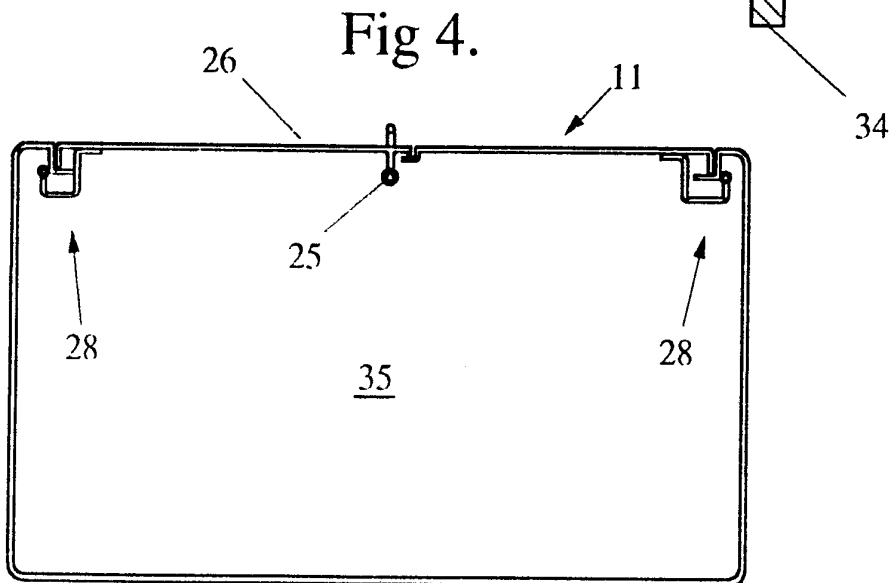


Fig 4.

Fig 5.

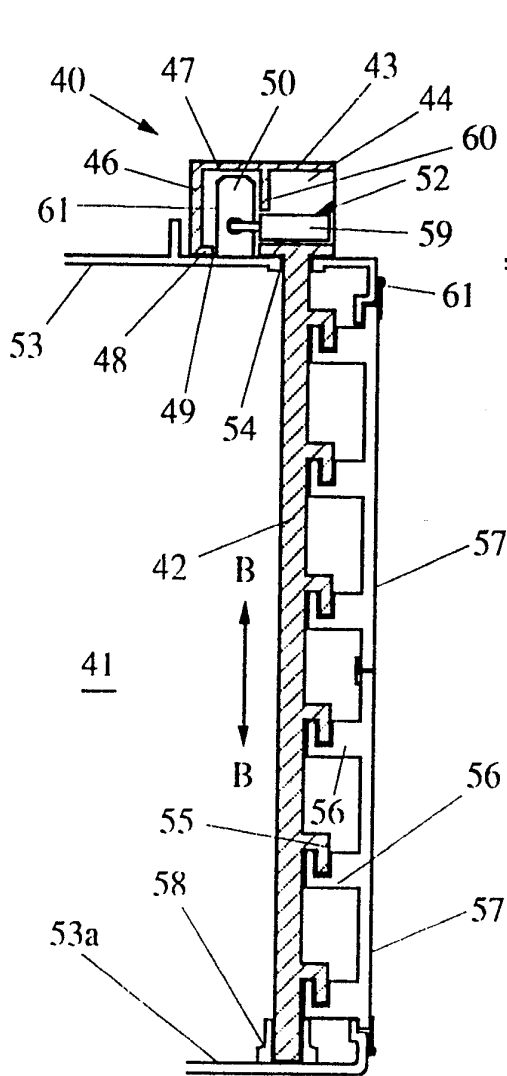
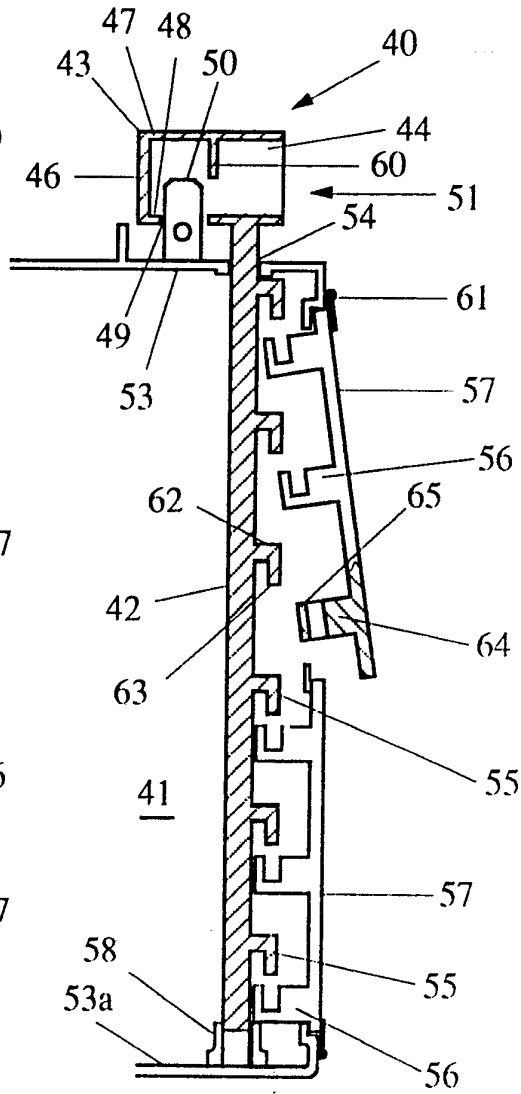



Fig 6.



INTERNATIONAL SEARCH REPORT

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶												
According to International Patent classification (IPC) or to both National Classification and IPC Int. Cl. ⁸ E05B 65/44, 67/38												
II. FIELDS SEARCHED												
Minimum Documentation Searched ⁷												
Classification System	Classification Symbols											
IPC	E05B 65/44, 67/38, 65/52											
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸												
AU : IPC as above												
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹												
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate of the relevant passages ¹²	Relevant to Claim No ¹³										
A	US,A, 4452371 (JUREK) 5 June 1984 (05.06.84)											
A	US,A, 3833104 (BLUM) 3 September 1974 (03.09.74)											
A	WO,A, 89/11017 (CUT-GUARD INC) 16 November 1989 (16.11.89)											
A	EP,A, 281333 (EDMUND ANDERSON) 7 September 1988 (07.09.88)											
A	GB,A, 2185519 (ROBERT LEE) 22 July 1987 (22.07.87)											
A	US,A, 3736016 (GARVEY et al) 29 May 1973 (29.05.73)											
A	US,A, 3718014 (DELGADILLO) 27 February 1973 (27.02.73)											
<p>* Special categories of cited documents :¹⁰</p> <table border="0"> <tr> <td>"A" Document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier document but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" Document defining the general state of the art which is not considered to be of particular relevance	"T" Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier document but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" Document defining the general state of the art which is not considered to be of particular relevance	"T" Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier document but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
IV. CERTIFICATION												
Date of the Actual Completion of the International Search 6 May 1992 (06.05.92)	Date of Mailing of this International Search Report 13 May 1992 (13.05.92)											
International Searching Authority AUSTRALIAN PATENT OFFICE	Signature of Authorized Officer P. WATTS 											

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

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V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claim numbers ..., because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim numbers ..., because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claim numbers ..., because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4a

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING ²

This International Searching Authority found multiple inventions in this international application as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

- The additional search fees were accompanied by applicant's protest.
- No protest accompanied the payment of additional search fees.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT ON
INTERNATIONAL APPLICATION NO. PCT/AU 92/00049**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
EP	281333	US 4972689
WO	8911017	AU 17894/88

END OF ANNEX