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(54) **A CONTAINER LOCK DEVICE**

BEHÄLTERVERRIEGELUNGSVORRICHTUNG

DISPOSITIF DE VERROUILLAGE POUR CONTENEUR

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US-A- 4 491 354 US-A- 4 669 767**

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## Description

**[0001]** The invention relates to a container locking arrangement.

**[0002]** The container may, for instance, be a conventional container of standard design, having an open-short end, which can be closed by two outwardly pivotal doors hinged on respective edges of the container opening

**[0003]** Containers, such as conventional containers for the storage of machines, equipment, implements and material, are used particularly in the construction field, and then more particularly on building sites. Because of the risk of theft, particularly during the night and week-ends and during holiday periods, it is essential that the container doors can be securely locked when closed. It is normal, in practice, to lock the outwardly opening container doors with the aid of an external locking bar which is pivotally mounted at one end on one side of one door, and the other end of which is locked to a fastening attachment on the outside of the other door by means of a padlock. The doors are typically provided with U-shaped carrier elements in the proximity of a respective one end of the mutually adjoining edges of the doors.

**[0004]** One problem is that the break-in of containers of this kind has greatly increased in recent times.

**[0005]** The containers are often broken into by sawing off the locking bar pivot bolt fastened to one of said doors and by the thief connecting a cable or wire to the bar and also to the towing hook of a car and pulling the bar away from the container with the aid of the car, and by the thief sawing the lock to pieces, for example the U-shaped lock element or the lock fasteners.

**[0006]** US 1,779,491 discloses a door fastening for double swinging doors, comprising a cross bar having its ends lying in brackets on the insides of the jambs and extending across the insides of both doors.

**[0007]** US 4,669,767 discloses a hollow holding sleeve secured to the inside of the rear door of a truck box, trailer or enclosure.

**[0008]** US 4,491,354 shows a lock bar for securing a pair of door panels.

**[0009]** DE 92 13 108 U1 reveals a locking device for a door.

**[0010]** Accordingly, one object of the present invention is to provide a container locking arrangement that avoids at least one of the aforesaid problems.

**[0011]** A further object of the present invention is to provide a lock construction, which has low vulnerability to deformation in the container, for example deformation of the container in cross-section in the plane of the door when the container is seated on an uneven underlying surface and subjected to heavy load.

**[0012]** This object is achieved with a locking arrangement constructed in accordance with claim 1 and the use of a locking arrangement in accordance with claim 9.

**[0013]** Further embodiments of the invention are set forth in the accompanying dependent Claims.

**[0014]** The invention will now be described by way of

example and with reference to the accompanying drawing.

Fig. 1 is a schematic view of an inventive locking arrangement as seen against the inside of the closed-door end-wall of a standard container.

Fig. 2 is a schematic sectional view taken on the line II-II in Fig. 1.

Fig. 3 is a section view taken on the line III-III in Fig. 2.

Fig. 4 is a view taken on the line IV-IV in Fig. 2.

Fig. 5 is a schematic sectional view of a first embodiment of the eyebolt attachment to the locking bar.

Fig. 6 illustrates another embodiment of the eyebolt attachment to the locking bar.

**[0015]** Fig. 1 is a schematic view of the closed end-wall doors 1, 2 belonging to a standard container 3, seen towards the inside of the closed doors 1, 2. The doors 1, 2 are hinged on hinges 4 mounted at the ends of the adjacent container walls 6. The doors 1, 2 close against rebates and the free edge part of one door 1 may include an additional rebate 8, which will lie over the free edge of the other door 2.

**[0016]** Welded to the inside of the door 2, via spacing blocks 11, is a horizontal sleeve 10 of square cross-section. Disposed in the sleeve 10 is a square tubular locking bar 12 which can be displaced telescopically in the sleeve 10. The sleeve 10 terminates short of the free end of the door 2 and the locking bar 12 extends over the join between respective doors 1 and 2. As will be seen from Fig. 5, the outwardly protruding end of the locking bar has a through-penetrating opening 13 for accommodating the threaded stem 14 of an eyebolt 15 having an eye 16. A threaded nut 17 is welded firmly to the side of the locking bar 12 distal from the door 1, for co-action with the stem 14.

**[0017]** In order to enable the door 2 to be latched against pivotal movement in its closed position, a sliding bolt may be fitted to the inside of the door 2, preferably at its free end, for co-action with the edge of the door opening. In the case of the inventive construction, the bolt will prevent the unit consisting of the doors and the locking bar from being swung outwards, even if the hinges on one of the doors are cut away.

**[0018]** The locking bar is moved in the sleeve 10 until the eyebolt 15 is located at a suitable distance from the door hinges 4, whereafter an opening 20 is cut through the door 1 to enable the bolt 15 to be received through the opening 20 when the door 1 has been closed. In this regard, the opening can be given a cross-section that will enable the eye 16 to pass through only when it is in a horizontal plane.

**[0019]** When the locking bar 12 has been set in the

aforesaid outwardly protruding position relative to the sleeve 10, a hole can be drilled through the sleeve 10 and the locking bar 12, for instance a vertical hole 24, and the axial position of the locking bar 12 can be secured with the aid of a latch bolt. The bolt 25 may be connected to the door 2 by means of a line 26.

**[0020]** A locking bar keeper 29 is provided on the inner wall of the container, for instance on the inside of the door 2. In the absence of this facility, the locking bar protruding out from the sleeve 10 would constitute a troublesome obstacle when the doors are open. The bar keeper 29 may have the form of a vertically oriented sleeve element that accommodates the locking bar profile. Alternatively, the sleeve 10 may be pivotally connected to the inside of the door so as to swing in the plane of said door.

**[0021]** Fig. 3 illustrates a padlock housing 30 fitted to the outside of the door 1. The housing 30 has an open bottom side. A padlock 40 can be inserted into the housing 30 from beneath, wherein the shackle 41 of the padlock is passed through the eye 16 of the eyebolt 15 and secured in the lock. The housing includes an inner wall 31 which lies flat against the outer surface of the door 1, and has an opening 32 which corresponds to the opening 20 and allows the eye 16 to pass through.

**[0022]** A protective plate 50 (Fig. 4) having an opening 54 for receiving the bolt 15 is mounted on the inner surface of the door 1 facing towards the housing 30. The housing wall 31, the plate 50 and the door 1 have mutually aligned drill holes and headed bolts extending from the housing 30 and through said drill holes are secured by nuts 61 on the inside of the plate 50.

**[0023]** Because the opening 20 will be protected by both the housing 30 and the protective plate 50, the opening 20 can be cut in both of the exposed doorplates with the aid of an abrasive wheel or some other appropriate tool. The opening 20 and the corresponding openings 54, 32 in respective plates 50, 31 can be given a relatively large clearance with respect to the cross-sectional profile of the eye 16 of the eyebolt. The eyebolt 15 can be readily adjusted to a desired position away from the locking bar 12, by simply screwing the bolt 15 into and out of the nut 17.

**[0024]** Fig. 6 is an axial sectioned view of the eyebolt and shows that its stem 14 extends through an opening 13 in the locking bar 12 and in a sleeve-like element 71 connected with the locking bar, said sleeve-like element 71 having a transverse drill hole 72 for receiving a locking pin 73. The bolt stem 14 includes a number of transverse, mutually parallel drill holes 81 which are spaced along said stem 14 and are able to receive a locking pin 73 for selective adjustment of the distance of the eye 16 from the locking bar 12.

**[0025]** In the case of containers that have an externally located locking bar in accordance with earlier techniques, the locking bar can be readily dismantled and an inventive locking arrangement constructed in its stead wherewith the locking arrangement can be readily adjusted, while

enabling use of the padlock to be continued.

**[0026]** Larger construction companies prefer the use of padlocks in lock systems, because a padlock can be readily replaced or reused respectively.

## Claims

1. A locking arrangement for a container (3), wherein the container includes a wall opening that can be closed by two outwardly moving first and second doors (1, 2) which are pivotally mounted at a respective vertical edge of said opening, wherein the locking arrangement includes a locking bar (12) which in mounted condition extends horizontally across the first door (1) and across the second door (1) and can be secured to said door by means of a padlock (40), wherein said first door (1) includes a through-penetrating opening (20) for receiving in the mounted condition of the locking arrangement an eyebolt (15) which projects laterally out from the locking bar (12) so as to extend through the through-penetrating opening (20) in said first door when the doors (1, 2) are closed, **characterised in that** the locking arrangement further comprises a protective box (30) which in mounted condition is fitted to the first door (1) over the through-penetrating opening (20) in said door (1) so as to protect at least parts of the eye of the bolt (15) in the locked state of the padlock; **in that** the locking arrangement further comprises a locking bar accommodating sleeve (10) which in the mounted condition of the locking arrangement is carried by the second door (2) on its inner surface; and **in that** the locking bar (12) is removably fitted and telescopically displaceable in said sleeve (10).
2. A locking arrangement according to Claim 1, **characterised in that** the eyebolt (15) is connected to the locking bar (12) by means of elements (14, 17; 72, 73, 81) for adjusting the distance between the locking bar (12) and the eye (16) of said eyebolt.
3. A locking arrangement according to Claim 2, **characterised in that** the eyebolt (16) has a threaded stem (14) which is pivotally received in a nut (17) carried by the locking bar (12), wherein the distance between the eye of the eyebolt and the locking bar (12) can be adjusted by rotating the eyebolt (15); and **in that** the locking arrangement includes a protective box-like element (30) which functions to prevent rotation of the eyebolt (16) with a padlock secured thereto.
4. A locking arrangement according to any one of Claims 1-3, **characterised in that** the locking bar (12) and the bar-receiving sleeve (10) include a drill hole (24) which receives a removable latch bolt (25).

5. A locking arrangement according to any one of Claims 1-4, **characterised in that** the sleeve (10) is adapted to be fixedly connected to the door.
6. A locking arrangement according to any one of Claims 1-4, **characterised in that** the sleeve (10) is adapted to be connected to the door (2) for pivotal movement in the plane of said door.
7. A locking arrangement according to Claim 2, **characterised in that** the stem (14) of the eyebolt is received in an opening (13) through the locking bar (12); and **in that** spaced along the stem of the eyebolt are a plurality of openings (81) that can be brought into alignment with an opening (72) in the locking bar (12) thereby enabling the locking bar (12) and the eyebolt to be locked by means of a locking pin (73).
8. A locking arrangement according to any one of Claims 1-7, **characterised by** latching means for latching the second door (2) in its closed state, the latching means being mounted on the inside of the second door (2) in the mounting condition of the locking arrangement, wherein said latching means preferably includes a sliding lock bolt.
9. Use of a locking arrangement, comprising a locking bar (12) having an eyebolt (15) which projects laterally out from the locking bar (12), further comprising a locking bar accommodating sleeve (10) and a protective box (30), for locking a first and second outwardly moving door (1, 2) closing a wall opening of a container (3), wherein said doors are pivotally mounted at a respective vertical edge of said opening, wherein the second door (2) carries on its inner surface the locking bar accommodating sleeve (10), wherein the locking bar (12) is removably fitted and telescopically displaceable in said sleeve (10), wherein the locking bar (12) extends horizontally across the first door (1) and across the second door (2) and is secured to said first door (1) by means of a padlock (40), wherein said first door (1) includes a through-penetrating opening (20) for receiving the eyebolt (15) when the doors (1, 2) are closed, and wherein the protective box (30) is fitted to the first door (1) over the through-penetrating opening (20) so as to protect at least parts of the eye of the bolt (15) in the locked state of the padlock.

#### Patentansprüche

1. Verriegelungsanordnung für einen Behälter (3), wobei der Behälter eine Wandöffnung aufweist, die durch zwei sich nach außen bewegendende erste und zweite Türen (1, 2) geschlossen werden kann, die schwenkbar an einem jeweiligen vertikalen Rand der

Öffnung befestigt sind, wobei die Verriegelungsanordnung eine Verriegelungsstange (12) aufweist, die sich im befestigten Zustand horizontal über die erste Tür (1) und über die zweite Tür (1) erstreckt und an der Tür über ein Vorhängeschloss (40) gesichert werden kann, wobei die erste Tür (1) eine hindurchdringende Öffnung (20) aufweist, um in dem befestigten Zustand der Verriegelungsanordnung einen Augenbolzen (15) aufzunehmen, der von der Verriegelungsstange (12) seitlich nach außen vorragt, um sich so durch die hindurchdringende Öffnung (20) in der ersten Tür zu erstrecken, wenn die Türen (1, 2) geschlossen sind, **dadurch gekennzeichnet, dass** die Verriegelungsanordnung ferner einen Schutzkasten (30) umfasst, der im befestigten Zustand an der ersten Tür (1) über der hindurchdringenden Öffnung (20) in der Tür (1) angebracht ist, um so zumindest Teile des Auges des Bolzens (15) in dem verriegelten Zustand des Vorhängeschlosses zu schützen; dass die Verriegelungsanordnung ferner eine die Verriegelungsstange aufnehmende Hülse (10) umfasst, die in dem befestigten Zustand der Verriegelungsanordnung von der zweiten Tür (2) an ihre Innenfläche getragen ist; und dass die Verriegelungsstange (12) in der Hülse (10) entfernbar angebracht und darin teleskopartig verschiebbar ist.

2. Verriegelungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Augenbolzen (15) mit der Verriegelungsstange (12) durch Elemente (14, 17; 72, 73, 81) zum Einstellen der Distanz zwischen der Verriegelungsstange (12) und dem Auge (16) des Augenbolzens verbunden ist.
3. Verriegelungsanordnung nach Anspruch 2, **dadurch gekennzeichnet, dass** der Augenbolzen (16) einen Gewindeschacht (14) aufweist, der schwenkbar in einer Mutter (17), die von der Verriegelungsstange (12) getragen ist, aufgenommen ist, wobei die Distanz zwischen dem Auge des Augenbolzens und der Verriegelungsstange (12) durch Drehen des Augenbolzens (15) eingestellt werden kann; und dass die Verriegelungsanordnung ein schutzkastenartiges Element (30) aufweist, das dazu dient, eine Rotation des Augenbolzens (16) mit einem daran befestigten Vorhängeschloss zu verhindern.
4. Verriegelungsanordnung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die Verriegelungsstange (12) und die die Stange aufnehmende Hülse (10) ein Bohrloch (24) aufweisen, das einen entfernbaren Sperrbolzen (25) aufnimmt.
5. Verriegelungsanordnung nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die Hülse (10) derart ausgebildet ist, dass sie fest mit

der Tür verbunden ist.

6. Verriegelungsanordnung nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die Hülse (10) derart ausgebildet ist, dass sie mit der Tür (2) für eine Schwenkbewegung in der Ebene der Tür verbunden ist. 5
7. Verriegelungsanordnung nach Anspruch 2, **dadurch gekennzeichnet, dass** der Schaft (14) des Augenbolzens in einer Öffnung (13) durch die Verriegelungsstange (12) aufgenommen ist; und dass beabstandet entlang des Schaftes des Augenbolzens mehrere Öffnungen (81) vorgesehen sind, die in Ausrichtung mit einer Öffnung (72) in der Verriegelungsstange (12) gebracht werden können, wodurch ermöglicht wird, dass die Verriegelungsstange (12) und der Augenbolzen mittels eines Verriegelungsstifts (73) verriegelt werden. 10 15 20
8. Verriegelungsanordnung nach einem der Ansprüche 1 bis 7, **gekennzeichnet durch** ein Sperrmittel zum Sperren der zweiten Tür (2) in ihrem geschlossenen Zustand, wobei das Sperrmittel an der Innenseite der zweiten Tür (2) im Befestigungszustand der Verriegelungsanordnung befestigt ist, wobei das Sperrmittel bevorzugt einen gleitenden Verriegelungsbolzen aufweist. 25 30
9. Verwendung einer Verriegelungsanordnung, mit einer Verriegelungsstange (12), die einen Augenbolzen (15) aufweist, der seitlich von der Verriegelungsstange (12) nach außen vorragt, ferner mit einer die Verriegelungsstange aufnehmenden Hülse (10) und einem Schutzkasten (30), um eine erste und zweite, sich nach außen bewegende Tür (1, 2) zu verriegeln, die eine Wandöffnung eines Behälters (3) schließen, wobei die Türen schwenkbar an einem jeweiligen vertikalen Rand der Öffnung befestigt sind, wobei die zweite Tür (2) an ihre Innenfläche die die Verriegelungsstange aufnehmende Hülse (10) trägt, wobei die Verriegelungsstange (12) in der Hülse (10) entferntbar angebracht und darin teleskopartig verschiebbar ist, wobei die Verriegelungsstange (12) sich horizontal über die erste Tür (1) und über die zweite Tür (2) erstreckt und an der ersten Tür (1) über ein Vorhängeschloss (40) angebracht ist, wobei die erste Tür (1) eine hindurch dringende Öffnung (20) zur Aufnahme des Augenbolzens (15) aufweist, wenn die Türen (1, 2) geschlossen sind, und wobei der Schutzkasten (30) an der ersten Tür (1) über der hindurch dringenden Öffnung (20) angebracht ist, um so zumindest Teile des Auges des Bolzens (15) in dem verriegelten Zustand des Vorhängeschlosses zu schützen. 35 40 45 50 55

## Revendications

1. Agencement de verrouillage pour un conteneur (3), dans lequel le conteneur inclut une ouverture de paroi qui peut être fermée par deux portes (1, 2) qui se déplacent vers l'extérieur, à savoir une première et une seconde porte qui sont montées en pivotement au niveau d'une bordure verticale respective de ladite ouverture, ledit agencement de verrouillage incluant une barre de verrouillage (12) qui, en condition montée, s'étend horizontalement à travers la première porte (1) et à travers la seconde porte (1) et peut être attachée à ladite porte au moyen d'un cadenas (40), ladite première porte (1) incluant une ouverture traversante (20) pour recevoir, dans la condition montée de l'agencement de verrouillage, un boulon à oeillet (15) qui se projette latéralement depuis la barre de verrouillage (12) de manière à s'étendre à travers l'ouverture traversante (20) dans ladite première porte quand les portes (1, 2) sont fermées, **caractérisé en ce que** l'agencement de verrouillage comprend en outre une boîte protectrice (30) qui, en condition montée, est assemblée sur la première porte (1) par-dessus l'ouverture traversante (20) dans ladite porte (1) de manière à protéger des parties au moins de l'oeillet du boulon (15) dans l'état verrouillé du cadenas ; et **en ce que** l'agencement de verrouillage comprend en outre un manchon de réception (10) pour la barre de verrouillage qui, dans la condition montée de l'agencement de verrouillage, est porté par la seconde porte (2) sur sa surface intérieure ; et **en ce que** la barre de verrouillage (12) est montée de façon amovible et déplaçable de manière télescopique dans ledit manchon (10). 5 10 15 20 25 30 35 40
2. Agencement de verrouillage selon la revendication 1, **caractérisé en ce que** le boulon à oeillet (15) est connecté à la barre de verrouillage (12) au moyen d'éléments (14, 17 ; 72, 73, 81) pour ajuster la distance entre la barre de verrouillage (12) et l'oeillet (16) dudit boulon à oeillet. 45
3. Agencement de verrouillage selon la revendication 2, **caractérisé en ce que** le boulon à oeillet (16) comprend une tige filetée (14) qui est reçue en pivotement dans un écrou (17) porté par la barre de verrouillage (12), de sorte que la distance entre l'oeillet du boulon à oeillet et la barre de verrouillage (12) peut être ajustée en faisant tourner le boulon à oeillet (15) ; et **en ce que** l'agencement de verrouillage inclut un élément protecteur (30) semblable à une boîte dont la fonction est d'empêcher la rotation du boulon à oeillet (16) avec un cadenas attaché à celui-ci. 50 55
4. Agencement de verrouillage selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** la 5

barre de verrouillage (12) et le manchon (10) recevant la barre incluent un perçage (24) qui reçoit un goujon de verrouillage amovible (25).

5. Agencement de verrouillage selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** le manchon (10) est adapté à être connecté de manière fixe sur la porte. 5
  
6. Agencement de verrouillage selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** le manchon (10) est adapté à être connecté à la porte (2) pour un mouvement de pivotement dans le plan de ladite porte. 10  
15
  
7. Agencement de verrouillage selon la revendication 2, **caractérisé en ce que** la tige (14) du boulon à oeillet est reçu dans une ouverture (13) à travers la barre de verrouillage (12) ; et **en ce qu'il** est prévu une pluralité d'ouvertures (81) espacées le long de la tige du boulon à oeillet, qui peuvent être amenées en alignement avec une ouverture (72) dans la barre de verrouillage (12), permettant ainsi le verrouillage de la barre de verrouillage (12) et du boulon à oeillet au moyen d'une tige de verrouillage (73). 20  
25
  
8. Agencement de verrouillage selon l'une quelconque des revendications 1 à 7, **caractérisé par** des moyens de verrouillage pour verrouiller la seconde porte (2) dans sa situation fermée, les moyens de verrouillage étant montés sur l'intérieur de la seconde porte (2) dans la condition de montage de l'agencement de verrouillage, et lesdits moyens de verrouillage incluent de préférence un goujon de verrouillage coulissant. 30  
35
  
9. Utilisation d'un agencement de verrouillage, comprenant une barre de verrouillage (12) ayant un boulon à oeillet (15) qui se projette latéralement depuis la barre de verrouillage (12) et comprenant en outre un manchon de réception (10) pour la barre de verrouillage et une boîte protectrice (30), 40  
pour verrouiller une première et une seconde porte (1, 2) qui se déplacent vers l'extérieur et fermant une ouverture de paroi d'un conteneur (3), lesdites portes étant montées en pivotement au niveau d'une bordure verticale respective de ladite ouverture, dans laquelle la seconde porte (2) porte sur sa surface intérieure le manchon de réception (10) pour la barre de verrouillage, ladite barre de verrouillage (12) étant montée de façon amovible et déplaçable de manière télescopique dans ledit manchon (10), ladite barre de verrouillage (12) s'étendant horizontalement à travers la première porte (1) et à travers la seconde porte (2) et étant attachée à ladite première porte (1) au moyen d'un cadenas (40), ladite première porte (1) incluant une ouverture traversan-

te (20) pour recevoir le boulon à oeillet (15) quand les portes (1, 2) sont fermées, et dans laquelle la boîte protectrice (30) est montée sur la première porte (1) par-dessus l'ouverture traversante (20) de manière à protéger au moins des parties de l'oeillet du boulon (15) dans la situation verrouillée du cadenas.

Fig. 1

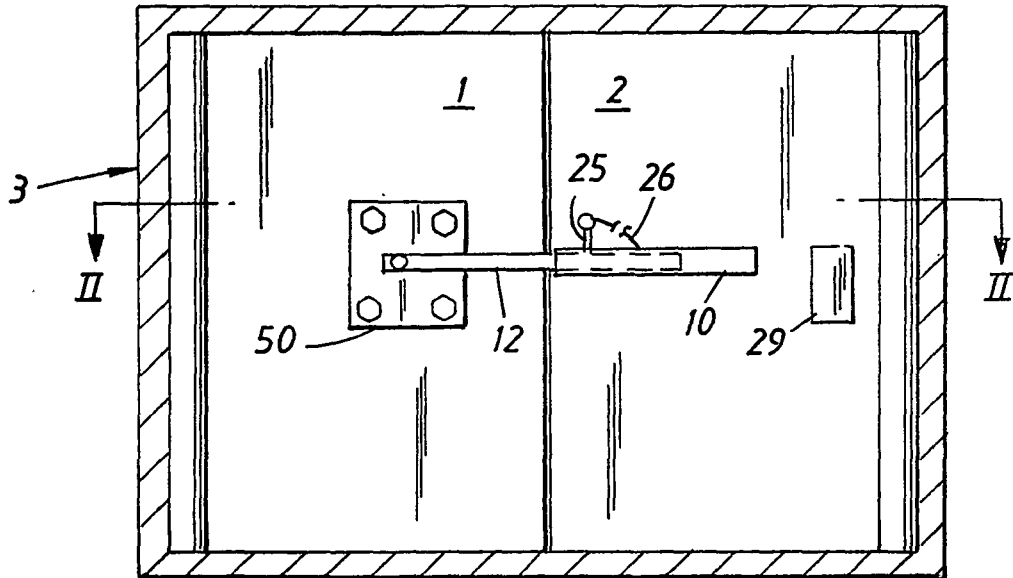


Fig. 2

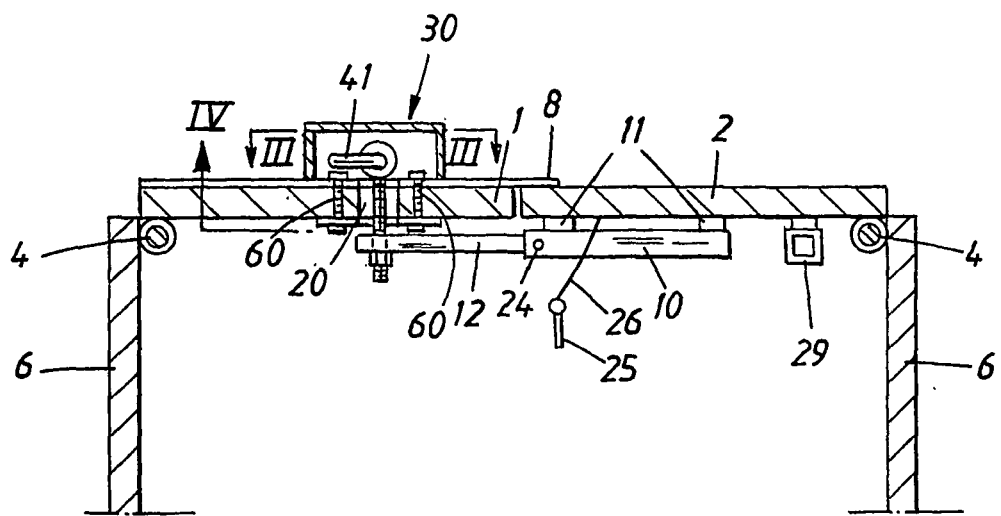


Fig. 3

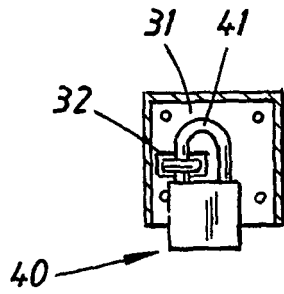


Fig. 4

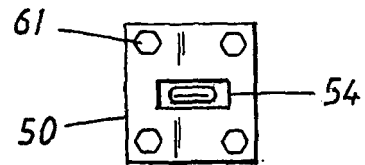


Fig. 5

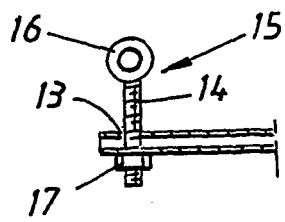
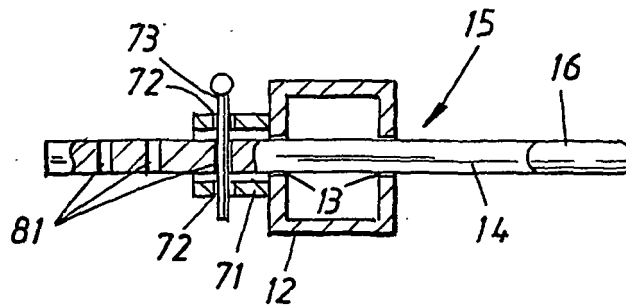


Fig. 6





**REFERENCES CITED IN THE DESCRIPTION**

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