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Remarks:

A request for correction has been filed pursuant to Rule 139 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

(54) **Apparatus for protecting containers from vandalism**

(57) The apparatus comprises a box (1) with a lower base and an upper cover (6) articulated on one side of the box itself and susceptible to be opened for emptying and for the maintenance of one/several container/containers (8) housed in the box (1), said cover (6) having one trap door (60) per container for throwing garbage into the respective container (8). A platform (11) is located on the base of said box (1), two of the sides of which are associated with a mechanism (13) controlled by an actuator (36) which, when activated, pushes said cover (6), opening it and lifting the platform (11) with the container/containers (8) so that it emerges outside the box (1), and then produces the opposite effect, lowering said platform (11) with the container/containers (8) and closing the cover (6), said container/containers (8) staying shut up and protected.

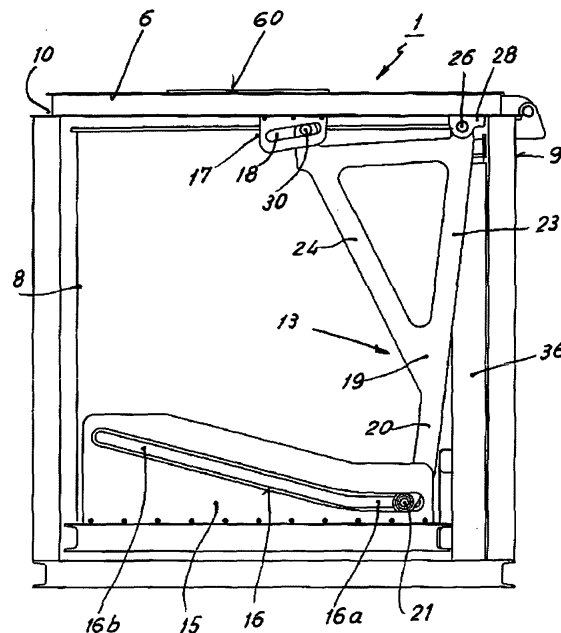


FIG. 2

Description

Technical Field

[0001] The present invention generally relates to an apparatus for protecting containers from vandalism, particularly underground containers, and more specifically to an apparatus for securely closing containers for residues such as garbage, wastes and the like and to prevent said containers from vandalism.

State of the Art

[0002] Containers, especially containers for residues such as garbage, wastes, trash and the like, are usually provided in a public area, either close to a street sidewalk, in a square or even in an enclosure of some park relatively contained by rudimentary fences, nevertheless such containers are clearly exposed to unfortunately frequent vandalism today, being the object of mistreatment and even fire. In order to palliate said incidents, many of said containers are built using fire-proof materials, but in spite of that the containers continue to be the object of mistreatment and fire which, although the container itself is not destroyed, the content thereof does burn, being the cause of dirtiness and bad odors.

[0003] Containers that are installed underground, i.e., the upper part thereof is level with the ground at which level there is provided a cover susceptible to be opened easily for throwing garbage, trash, etc. therein, are also known. In spite of that, the containers continue to be the object of improper opening and vandalism.

Explanation of the Invention

[0004] Based on these premise, it is necessary to provide an apparatus for protecting containers for garbage and other trash, especially underground containers, such that these containers can remain firmly closed and can only be opened by authorized personnel, usually for the purpose of emptying them or performing maintenance thereon.

[0005] Thus, the present invention provides an apparatus for protecting containers from vandalism, particularly containers for garbage, residues, wastes and the like and especially underground containers comprising a box suitable for housing at least one container with a lower base and an upper cover articulated on one side of the box itself susceptible to being opened for emptying and for the maintenance of the corresponding container, and said cover being provided with one trap door per container so that when the cover itself is closed, garbage and other trash are regularly thrown into the respective container, and characterized in that a platform is located on the base of said box, two of the sides of which, opposite one another and parallel to the opening direction of the cover of the box, are associated with a respective mechanism controlled by a conventional type actuator

organ which, when activated, pushes said cover opening it, while at the same time lifting the platform with the at least one container so that the aforementioned container emerges outside the box, and then it produces the opposite effect, lowering said platform with the container and closing the aforementioned cover, said container staying shut up and protected inside the box.

[0006] Each mechanism for lifting/lowering the platform and for opening/closing the cover is formed by: a guide associated with the platform, a guide associated with the lower face of the cover and a member made up of a lower part in the form of a leg and an upper fork with two branches, the upper end of one of which is pivotable on a point below the cover very close to the aforementioned side of articulation, while at the same time the end of the other branch ends in the upper part with an element susceptible to sliding through the guide associated with the cover, whereas the aforementioned leg ends in the lower portion with an element susceptible to sliding through the guide associated with the platform.

[0007] Said guide associated with the platform has a first sector close to the side of the articulation of the cover which is horizontal, and a second consecutive sector further away from that side of articulation and is inclined considerably upwards. The aforementioned elements sliding through the aforementioned guides are wheels or rollers.

[0008] The foregoing and other features will be seen below by reference to the drawings that are described below.

Brief Description of the Drawings

[0009] For the purpose of facilitating understanding of the proposed invention, drawings which must be interpreted in a non-limiting manner are attached, in which:

Figure 1 depicts a perspective view of the apparatus for protecting containers from vandalism object of the invention, in a closed position;

Figure 2 depicts a side elevational view according to arrow II, illustrating the mechanism for lifting and lowering the aforementioned lower platform in a lowered position, the cover of the apparatus being closed and the corresponding container protected; Figure 3 illustrates a perspective view of an actuator mechanism suitable for lifting and lowering the aforementioned platform;

Figure 4 is another perspective view of the aforementioned apparatus with its upper cover being opened and a corresponding container lifted and accessible from outside the apparatus;

Figure 5 depicts another side elevational view according to arrow V of the mechanism for lifting/lowering and opening/closing corresponding to Figure 4 above, wherein this platform is lifted and the cover of the apparatus is opened; and

Figures 6, 7 and 8 illustrate respective details of dif-

ferent alternative embodiments of the sliding elements of the lower part of the mechanism for lifting/lowering and opening/closing.

Detailed Description of a Preferred Embodiment of the Invention

[0010] According to the aforementioned figures, in Figures 1 and 2, the apparatus object of the invention comprises a box 1 which can be underground or above-ground, with a casing in the form of a cage formed by vertical profiles 3 and horizontal profiles 4 which define the contour of the casing itself and which support side walls (not illustrated in the drawings in order to see the inside of the apparatus) and an upper cover 6, articulated on one side 9 of the box 1 susceptible to opening and closing it. There may be one or more containers 8 inside the aforementioned apparatus which are not illustrated in Figures 1 and 2, although it can be seen from such figures that the apparatus illustrated is designed for housing two containers.

[0011] It should be pointed out that in the apparatus of the present invention there is a platform 11 on the base of the aforementioned box 1 which supports one or more containers, two sides of said platform 11, which are opposite one another and parallel to the opening direction of the cover 6, are associated with respective mechanisms 13 for lifting the platform 11 itself and for opening the cover 6, and vice versa, lowering said platform and closing said cover.

[0012] According to said Figures 1 and 2, each of the aforementioned mechanisms for lifting/lowering and opening/closing 13 is formed mainly by a first vertical plate 15 installed in a respective side of the platform 11, a second vertical plate 17 associated with the lower face of the cover 6 of the apparatus and a pushing and pulling member 19 which connects said first and second plates 15, 17.

[0013] The first plate 15 has an elongated aperture which forms a guide 16, as explained below, and has a horizontal sector 16a and a sector 16b inclined considerably upwards. The second plate 17 also has a longitudinal aperture which forms another guide 18. On one hand, the pushing and pulling member 19 involves a leg 20 the lower end of which has a slide element such as one or several wheels or rollers 21 susceptible to sliding through the guide 16 of the first plate 15. On the other hand, said pushing and pulling member 19 has an upwards fork which gives rise to two branches 23, 24, one of which 23 ends at its upper end in a pin 26 provided for ease of rotating at a point 28 of rotation attached to the lower face of the cover 6 of the apparatus, said point 28 of rotation being very close to the side 9 of articulation of the cover 6 with the apparatus; the other branch 24 of the pushing and pulling member 19 ends in the upper portion with a slide element which can be a wheel 30 inserted in the guide 18 of the aforementioned second plate 17 installed on the lower face of the cover 6 approx-

imately halfway between the side 9 of articulation of the cover and the side 10 of opening thereof.

[0014] In the rear part of the apparatus, corresponding to side 9 of articulation of the cover 6 of the box 1, there is a conventional actuator assembly 32 (Figure 3) made up of a frame panel 34 attached to the box 1 which connects and supports two fluid dynamic cylinders 36 the upper end of the respective rod 37 of which ends in one point of the lower face of the cover 6 of the box 1.

[0015] In practice, when the cover 6 must be opened for making the container/containers 8 in the apparatus emerge above the box 1, an authorized operator operates the aforementioned fluid dynamic cylinders 36 by suitable means, whereby (Figures 4 and 5) the respective rod 37 of each cylinder is moved upwards, pushing the cover 6 upwards, and the point 28 of rotation of this part pulls the branch 23 of the pushing and pulling member 19 and the second plate 17 does the same with the branch 24 of the same mechanism, with the result that the lower leg 20 swivels forwards and its slide element 21 first slides through the first sector 16a and then through the second upward sector 16b of the guide 16 lifting the platform 3 with the container/containers 8 arranged thereon until it emerges upwards outside the apparatus, in order to collect and overturn the corresponding container/containers 8 in a conventional manner by means of a known dumping device (not illustrated) which dumps the content thereof into a vehicle (not illustrated either as it is conventional) for collecting garbage or wastes.

[0016] Once the aforementioned conventional operation of overturning and emptying the container or containers 8 is performed, the working cycle is reversed: the rod 37 of the fluid dynamic cylinder 36 is retracted, the cover 6 is lowered and the pushing and pulling member 19 lowers the platform 3 with the container/containers 8 which will be firmly contained again inside the present apparatus.

[0017] As illustrated, the guide 16 of the lower plate 15 is formed particularly by a groove through which the element 21, specifically a pair of wheels, slides from the lower end of the leg 20 of the pushing and pulling member 19, however, other equivalent and equally valid mechanical embodiments can be adopted.

[0018] Thus according to another embodiment (Figure 6), the aforementioned groove-guide 16 of the mechanism 13 for lifting/lowering and opening/closing can be replaced with two suitable parallel bars 56 so that two pairs of grooved wheels 51 attached to the lower end of the pushing and pulling member 19 slide along them. Said two parallel bars 56 will also have a first horizontal sector 56a and a second upwardly inclined sector 56b.

[0019] According to yet another embodiment (Figure 7), the mechanism 13 for lifting/lowering and opening/closing may have two pairs of suitable guide bars 116 so that a respective grooved wheel 111 attached to the lower end of the pushing and pulling member 19 slides along each vertical pair of them. Said two pairs of guide bars 116 will also have a first horizontal sector 116a and a

second upwardly inclined sector 116b.

[0020] According to yet another embodiment (Figure 8), the mechanism 13 for lifting/lowering and opening/closing may have a pair of guide tracks 216 formed by respective facing U-shaped profiles, a pair of wheels or rollers 211 attached to the lower end of the pushing and pulling member 19 will slide between them and through the inside thereof. Said two guide tracks 216 will also have a first horizontal sector 216a and a second upwardly inclined sector 216b.

[0021] Taking into account that the cover 6 of the box 1 can only be opened by authorized personnel, said cover 6 is completed with an aperture 60 coinciding at the top with each container and provided with a kind of chute for example, a chute with a swiveling cover (not illustrated but being of a known type) suitable for throwing there-through the garbage and/or trash into the respective container 8.

[0022] A person skilled in the art will be able to introduce changes and modifications in the described embodiments without departing from the scope of the invention as it is defined in the attached claims.

Claims

1. An apparatus for protecting containers from vandalism, particularly containers for garbage, residues, wastes and the like and especially underground containers comprising a box (1) suitable for housing at least one container (8) with a lower base and an upper cover (6) articulated on one side (9) of the box (1) itself susceptible to being opened for emptying and for the maintenance of the corresponding container, and said cover (6) being provided with one trap door (60) per container so that when said upper cover (6) is closed, garbage and other trash are regularly thrown into the respective container (8), **characterized in that** a platform (11) is located on the base of said box (1), two of the sides of which, opposite one another and parallel to the opening direction of the cover (6) of the box, are associated with a respective mechanism (13) for lifting/lowering and opening/closing controlled by an actuator organ (36) which, when activated, said mechanism pushes said cover (6) opening it, while at the same time it pulls the platform (11) lifting it with the at least one container (8) until the aforementioned container emerges outside the box (1), and then said mechanism (13) produces the opposite effect: pushing and lowering said platform (11) with the container (8) and pulling the aforementioned cover (6) closing it, said container staying shut up and protected inside the box (1).
2. The apparatus according to claim 1, **characterized in that** each mechanism (13) for lifting/lowering the platform (11) and for opening/closing the cover (6)

is formed by: a guide (16) associated with the platform (11), a guide (18) associated with the lower face of the cover (6) and a member (19) made up of a lower part in the form of a leg (20) and an upper fork with two branches (23,24) the upper end of one of the branches (23) is pivotable on a point (28) below the cover (6) close to the aforementioned side (9) of articulation, while at the same time the upper end of the other branch (24) ends in the upper portion with an element sliding through the guide (18) associated with the cover (6), whereas the aforementioned leg (20) ends in the lower portion with an element sliding through the guide (16) associated with the platform (11).

3. The apparatus according to claim 2, **characterized in that** said guide (16) associated with the platform (11) has a first horizontal sector (16a) close to the vertical of the side (9) of articulation of the cover (6), and a second consecutive sector (16b) that moves away from said side and is inclined considerably upwards.
4. The apparatus according to claim 2, **characterized in that** the guide (16) associated with the platform (11) consists of a groove made on a plate (15) linked to said platform (11).
5. The apparatus according to claim 2, **characterized in that** the guide (16) associated with the platform (11) consists of two parallel bars (56).
6. The apparatus according to claim 2, **characterized in that** the guide (16) associated with the platform (11) consists of two pairs of parallel bars (116).
7. The apparatus according to claim 2, **characterized in that** the guide (16) associated with the platform (11) consists of two facing U-shaped profile tracks (216).
8. The apparatus according to claim 2, **characterized in that** the aforementioned element sliding through the guide (16, 56, 116,216) consists of at least one sliding element (21, 51, 11, 211).
9. The apparatus according to claim 2, **characterized in that** the aforementioned element sliding through the guide (18) consists of at least one rotary element (30).
10. The apparatus according to claim 1, **characterized in that** said actuator organ (36) has an end linked to the base of the box (1) and another end associated with a point of the cover (6) very close to the side (9) of articulation thereof with the box (1).
11. The apparatus according to claim 10, **characterized**

in that said actuator organ (36) is a fluid dynamic cylinder.

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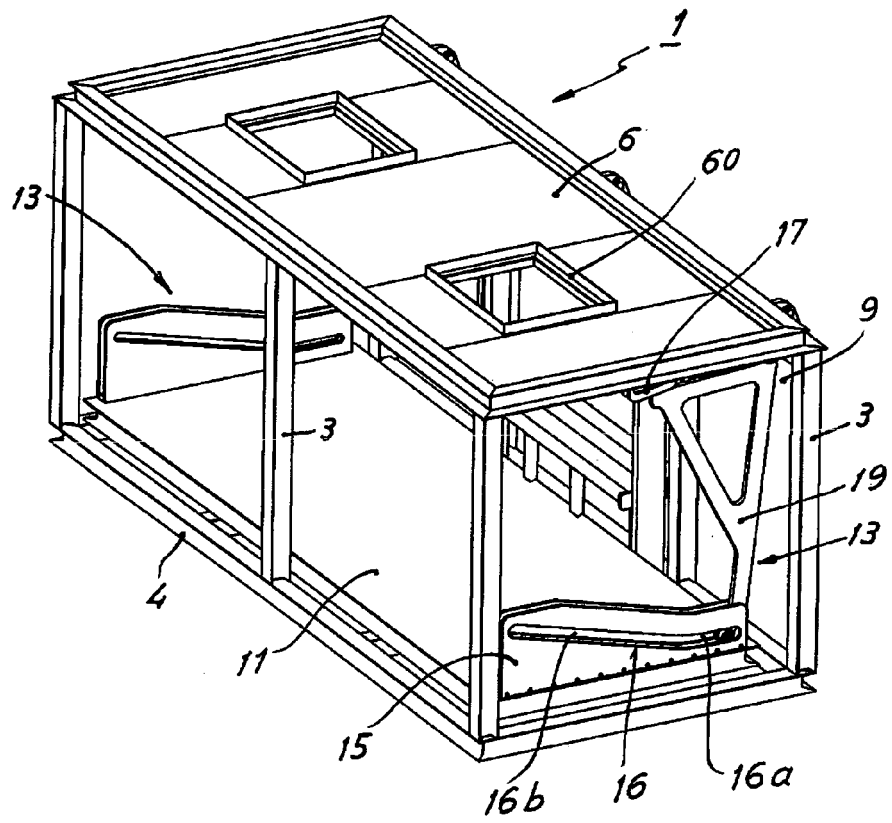


FIG. 1

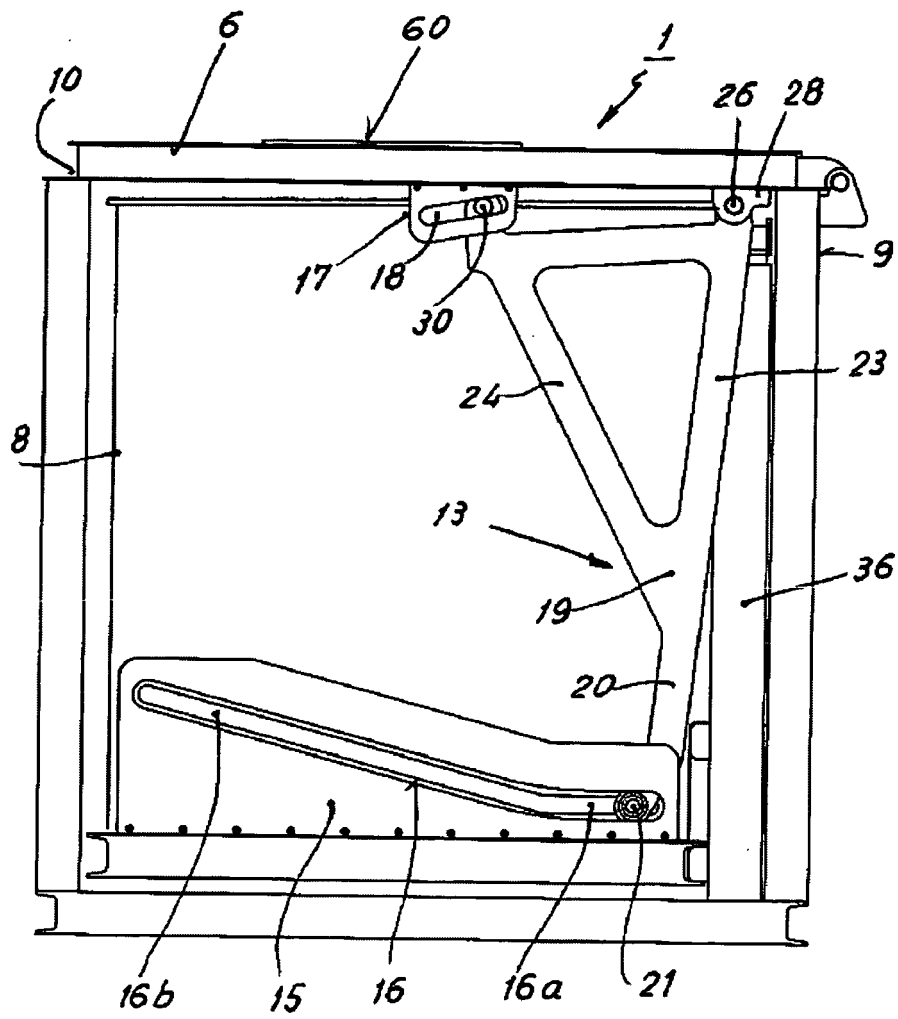


FIG. 2

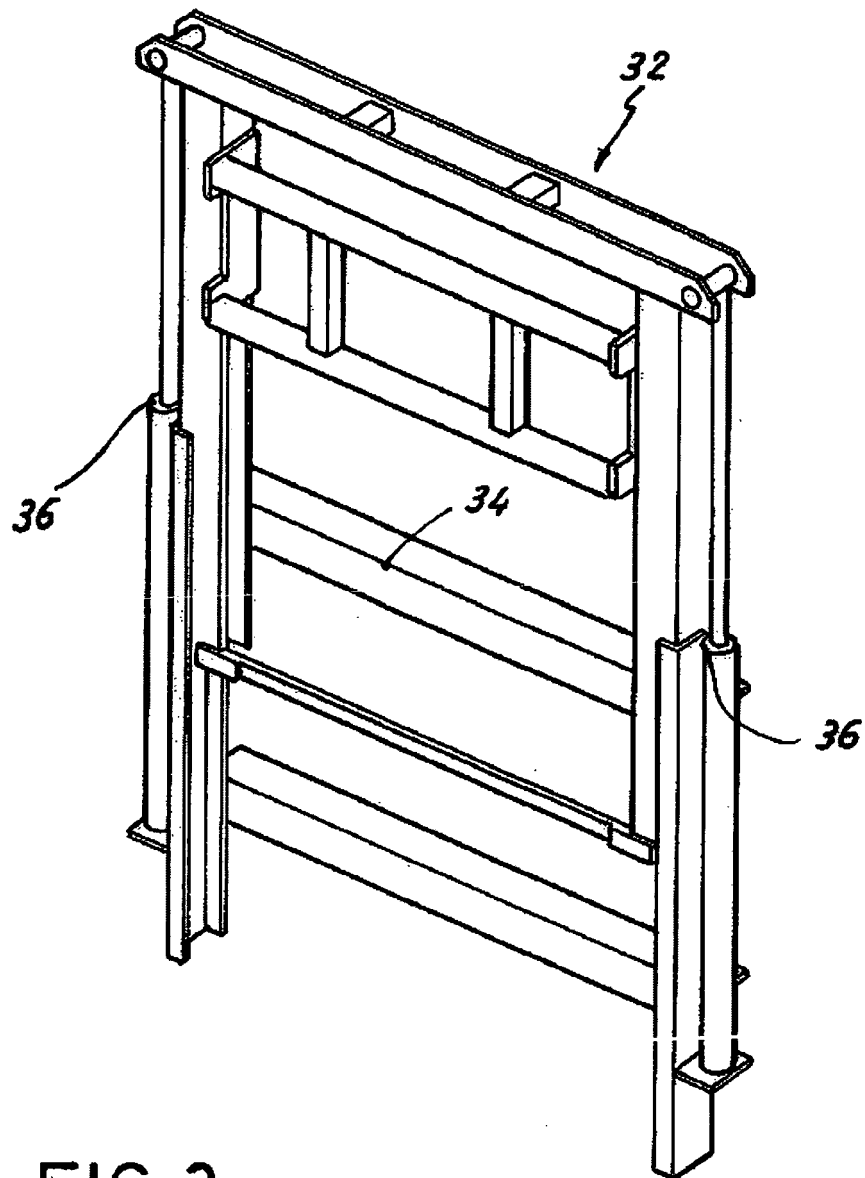


FIG. 3

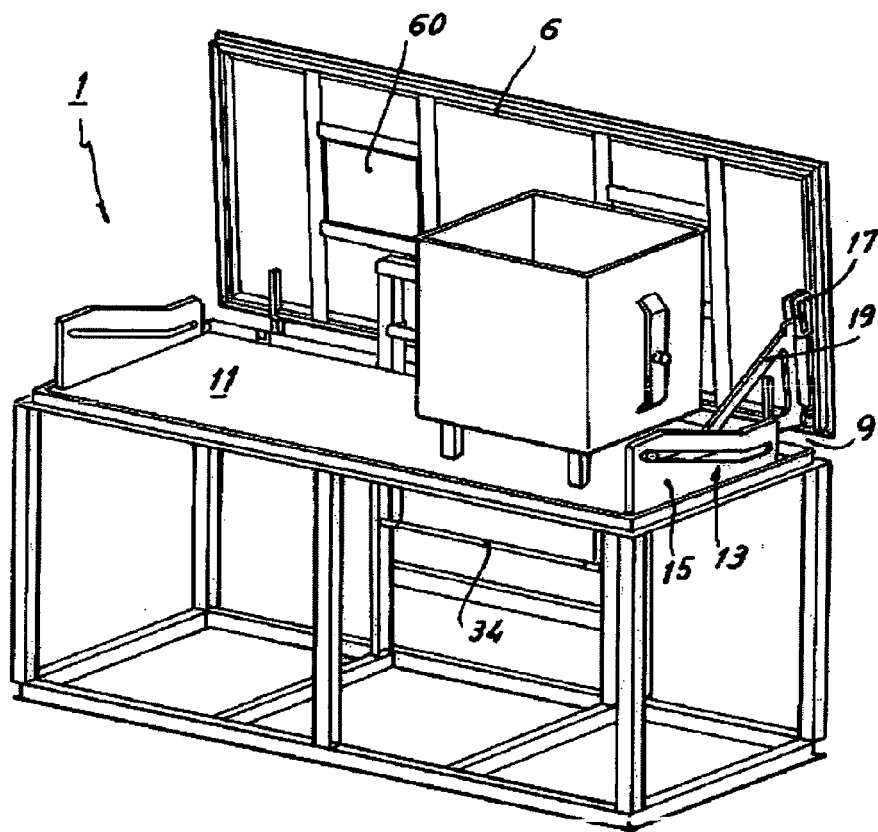


FIG. 4

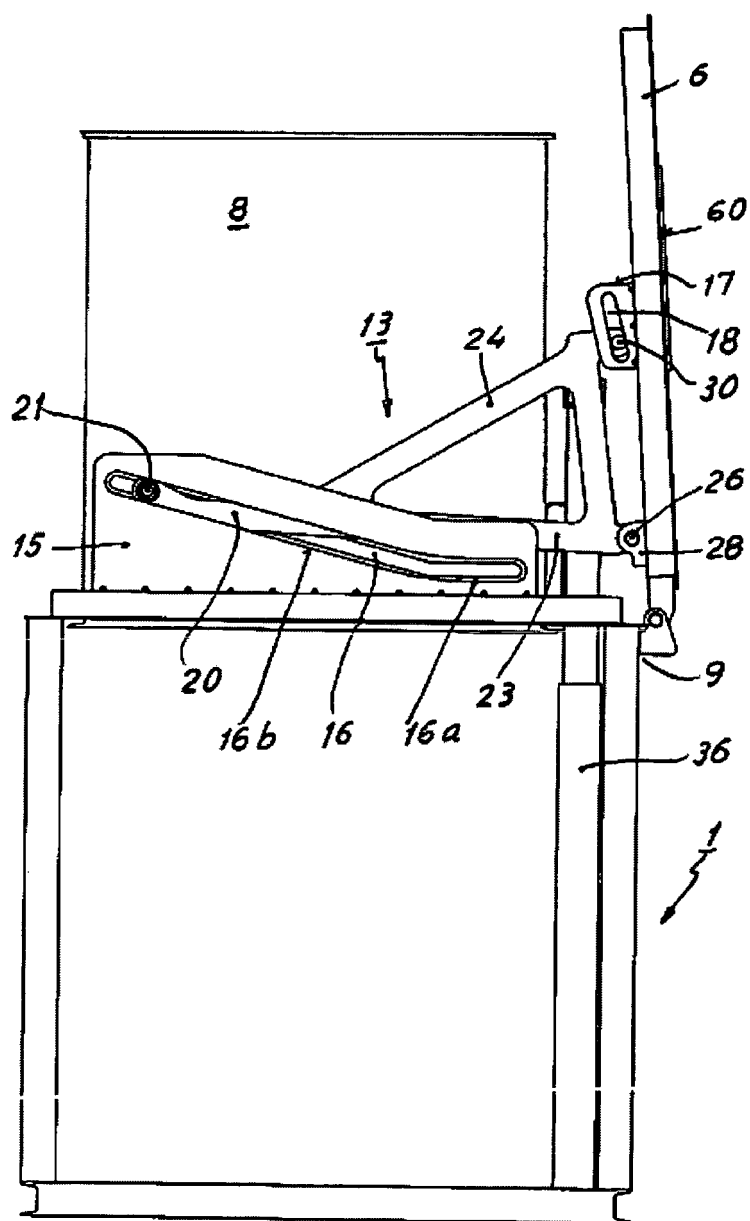


FIG. 5

FIG. 6

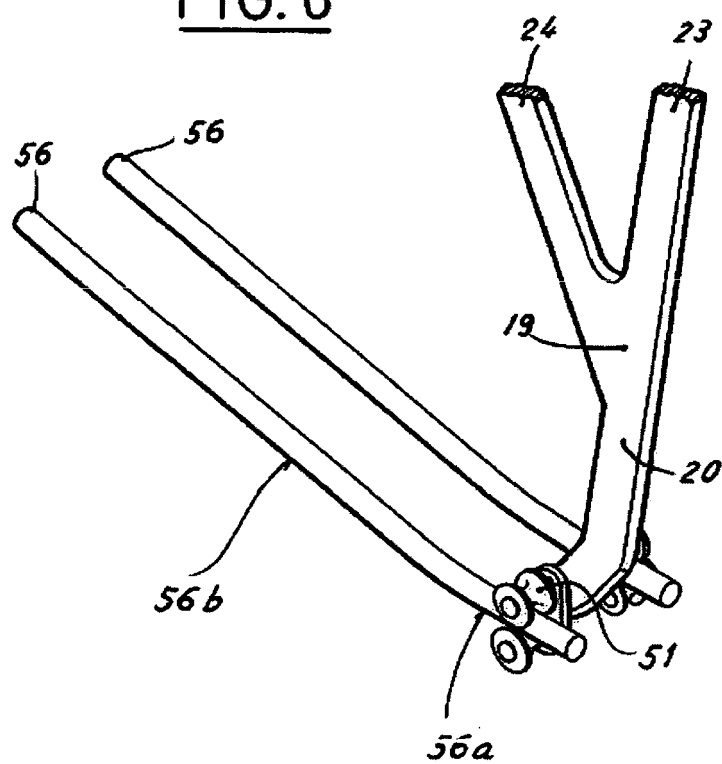
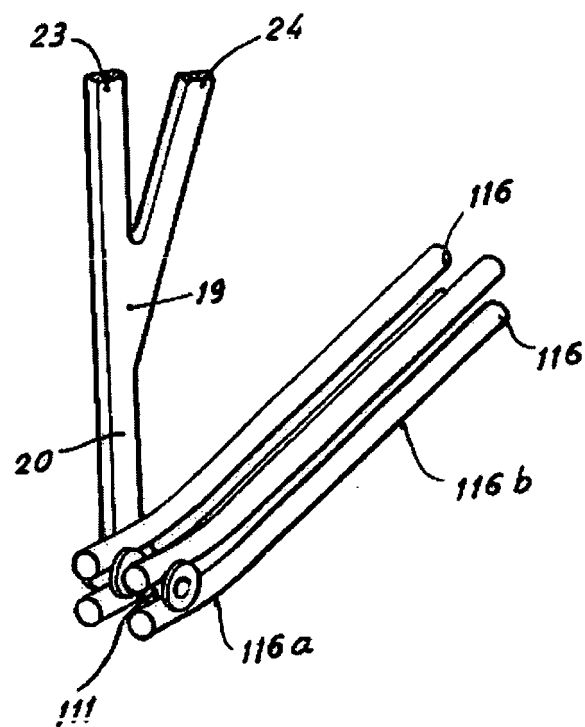


FIG. 7





EUROPEAN SEARCH REPORT

Application Number
EP 11 38 0018

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 August 2011	Examiner Smolders, Rob
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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22-08-2011

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