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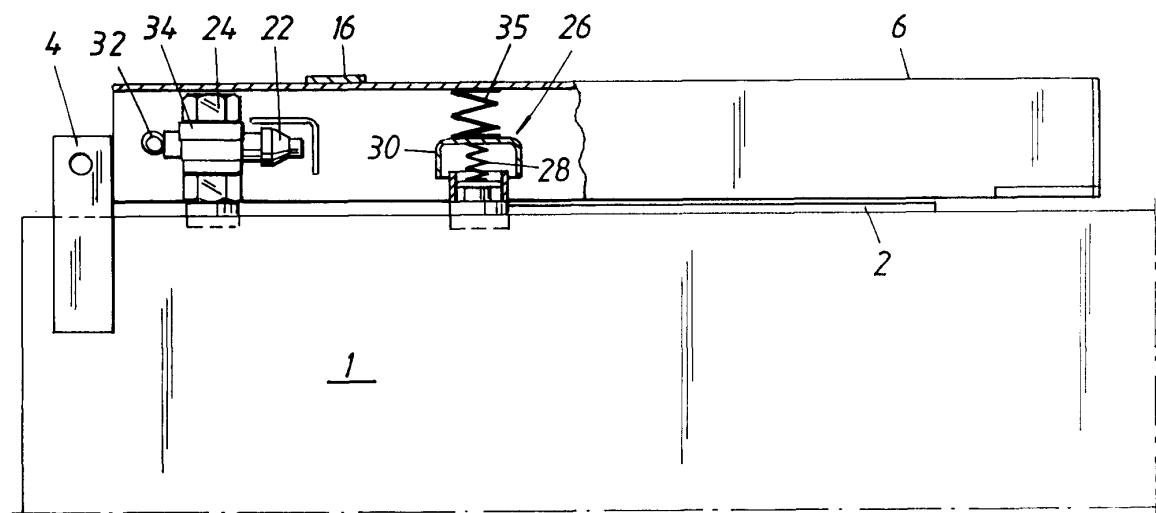
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(54) Safety device for a transportable fuel tank

(57) A transportable fuel tank, intended for erection at e. g. temporary work sites for machines or motors, has means running through the tank wall for filling and tapping fuel to and from the tank. A guard rail (6) is ar-

ranged in the longitudinal direction of the tank (1) on its outside. The guard rail is designed, in a lockable, closed position, to prevent access to said filling and tapping means (24, 26).



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Description

[0001] The present invention relates to a safety device for a transportable fuel tank, a so-called IBC container, intended, for instance, for erection at temporary work sites for machines or motors, said tank having means running through the tank wall for filling and removing fuel from the tank.

[0002] At temporary work sites such as forest working sites, building sites, etc. liquid fuels such as petrol and diesel oil for e. g. the contractor's machinery are kept in transportable tanks temporarily erected at the work site. Such tanks, holding typically from 400 l to 3000 l, are normally transported to the erection site on the platform of a truck or pick-up.

[0003] The tanks may be provided with hand pumps, electric tanking pumps, and a locker may be fitted on the tank for the pump and to keep oils, tools, etc. in.

[0004] A number of technical safety precautions are required for such transportable fuel tanks: The filling and tapping pipes shall be closed during transport and the tank as a whole shall be so constructed as to withstand falls from the platform of a truck without starting to leak.

[0005] The object of the present invention is to provide a safety device for the type of transportable fuel tanks mentioned above, that prevents undesired access to the filling and tapping pipes of the tank, venting valve, as well as possible other filling and tapping means on the tank.

[0006] This object is achieved by means of a safety device of the type described in the introductory portion, provided with the characterizing features defined in claim 1.

[0007] After the filling and tapping pipes, venting valve and any level controls have been closed and the guard rail locked, no access is possible to these means to allow accidental opening or other manipulation which would entail a safety risk. The filling and tapping pipes can only be opened for tanking or tapping fuel after the guard rail has been unlocked and opened. In its locked position the guard rail also constitutes an effective protection against the tank being broken into, which may be extremely valuable since the tank is often erected in places that are isolated and abandoned after working hours.

[0008] According to an advantageous embodiment of the safety device according to the invention the guard rail can be swung between its open and closed positions about a shaft running in the longitudinal direction of the rail. In this way a very robust and strong construction is obtained.

[0009] According to another advantageous embodiment of the safety device according to the invention the guard rail is provided with at least one locking iron with a locking tongue, arranged perpendicular to the rail which, when the rail is in closed position, can be inserted into a locking box firmly secured to the tank beside the rail, in which box the locking tongue is lockable to lock

the rail in closed position. Locking the guard rail with a single lock blocks access to filling pipe, tapping pipe, venting valve and any level control.

[0010] According to yet another advantageous embodiment of the safety device according to the invention, wherein said filling and tapping means comprise a venting valve spring-tensioned towards open position, in its closed position the guard rail is arranged to close said venting valve by overcoming said spring-tension. In this embodiment, thus, the venting valve is automatically closed by the guard rail when the latter is moved to its closed position. The risk is thus eliminated of the venting valve being inadvertently left open during transport, for instance.

[0011] According to yet another advantageous embodiment of the safety device according to the invention, wherein said filling and tapping means comprise at least one tapping pipe with a valve that can be opened and closed by a swinging arm, the swinging arm and guard rail are so constructed that in its position corresponding to open valve, the swinging arm prevents closing of the guard rail, and in its closed position the guard rail blocks the swinging arm in a position corresponding to closed valve. In this embodiment, thus, the guard rail cannot be closed while the valve of the tapping pipe is open, but can only be closed and locked after this valve has been closed. This further minimizes the risk of incorrect manipulation. Since the transport personnel are well aware that the guard rail must be closed and locked before transportation of the tank, the risk that closing the tapping pipe is forgotten before transportation is therefore eliminated.

[0012] According to yet another advantageous embodiment of the safety device according to the invention, in closed position the guard rail is arranged to prevent a man-hole cover arranged in the tank wall for inspection and cleaning the inside of the tank, from being opened. When the guard rail is locked, therefore, no unauthorized access is possible to the interior of the tank through said man-hole cover.

[0013] To further clarify the invention, an embodiment of the safety device according to the invention, selected by way of example, will be described in more detail with reference to the accompanying drawings in which

45 Figure 1 shows a transportable fuel tank in side view,
Figure 2 shows the tank in Figure 1 in a view from above,
50 **Figure 3** shows a longitudinal section through the guard rail in the safety device according to the invention on a larger scale in order to illustrate its function more clearly, and
Figure 4 shows an end view of a fuel tank equipped with the safety device according to the present invention.

[0014] Figure 1 thus shows a transportable fuel tank

1 resting on feet 3. The top of the tank 1 is provided with lifting hooks 4 allowing it to be lifted by a yoke or chains for moving onto or off a loading platform, for instance.

[0015] A guard rail 6 is arranged on the upper side of the tank in its longitudinal direction, see also Figure 2.

[0016] The guard rail 6 is shaped as a U-girder pivotably attached to the tank 1 by means of hinges 5 attached to the outside of the tank 1 and one leg 12 of the rail 6 so that the guard rail 6 can be swung between the closed position shown in the drawings and a raised position to expose the filling and tapping arrangements, about an axis of rotation 14 running parallel with the guard rail, see Figures 2 and 4.

[0017] To enable the rail to be swung between its open and closed positions it is provided with a handle 10, as shown in figure 2.

[0018] The guard rail 6 is provided on its upper side with at least one locking iron 16 with locking tongue 18, arranged perpendicular to the rail. When the rail is in closed position, this tongue can be inserted into a locking box 7 permanently arranged on the tank 1, beside the rail 6. The guard rail 6 can be locked in its closed position by means of a padlock, for instance, (not shown in the drawings) through the wall 7 of the locking box and the locking tongue 18, at 20 in Figure 4.

[0019] Figure 2 shows the guard rail 6 equipped only with one lock 7, 16 and 18. Naturally, several similar locks can be arranged along the rail if desired.

[0020] As mentioned, the guard rail 6 is a U-girder which in its closed position substantially encloses filling pipe, operating device 22 for valve 34 to the tapping pipe 24, venting valve 26 and any level control. A cover plate 11 is arranged over one end of the girder.

[0021] The venting valve 26 comprises a sealing cover 30, pre-tensioned towards open position by a spring 28. A spring 32, stronger than the spring 28 and arranged between the waist of the guard rail and the cover 30, presses the sealing cover 30 so that it compresses the spring 28 thereby closing the valve 26 when the guard rail 6 is moved to its closed position. The venting valve 26 is thus automatically closed when the guard rail 6 is closed for locking, i.e. the risk of forgetting to close the venting valve 26 prior to transportation of the tank 1 is eliminated.

[0022] The tapping pipe 24 withdrawing fuel from the tank 1 is provided with a ball valve 34 that can be opened and closed by an operating lever or a knob 32, see Figure 4 showing the operating lever 32 of the ball valve 34 in closed position. The operating lever 32 must be swung to an erect position in order to open the valve 34, and this is prevented by the guard rail when it is closed. In order to open the valve 34, therefore, the guard rail 6 must be unlocked and swung aside to open position. On the other hand, when the valve 34 is open, i.e. with the operating lever 32 in an erect position, the arm 32 prevents closing of the guard rail 6. This arrangement thus avoids the valve 34 inadvertently being left open before transportation, for instance, since the guard rail 6 cannot

be closed and locked until the operating lever 32 of the valve 34 has been moved to its closed position.

[0023] Tanks of the type in question are normally also provided with a man-hole cover 2 for inspection and 5 cleaning of the interior of the tank 1, see Figure 2. The cover 2 is bolted to the wall of the tank at 36. Since there is only a small space between the lower edges of the legs of the U-girder and the man-hole cover 2 with the guard rail 6 in closed position, the man-hole cover 2 cannot 10 be screwed off with the guard rail 6 in its closed position. The man-hole cover 2 is thus also blocked when the guard rail 6 is in its locked position.

15 **Claims**

1. Safety device for a transportable fuel tank intended, for instance, for erection at temporary work sites for machines or motors, said tank having means running through the tank wall for filling and removing fuel from the tank, **characterized in that** a guard rail is arranged in the longitudinal direction of the tank on its outside, said rail being designed, in a lockable, closed position, to prevent access to said filling and tapping means.
2. A device as claimed in claim 1, **characterized in that** the guard rail can be swung between said closed position and an open position, in which said filling and tapping means are exposed to allow access.
3. A device as claimed in claim 2, **characterized in that** the guard rail can be swung between its open and closed positions about a shaft running in the longitudinal direction of the rail.
4. A device as claimed in any of the preceding claims, **characterized in that** the guard rail is U-shaped to substantially enclose said filling and tapping means within the interior of the rail in its closed position.
5. A device as claimed in claim 4, **characterized in that** the U-shaped guard rail is pivotably secured to the tank by means of hinges attached to the outside of the tank and one leg of the U-girder.
6. A device as claimed in any of claims 3-5, **characterized in that** the guard rail is provided with at least one locking iron with a locking tongue, arranged perpendicular to the rail which, when the rail is in closed position, can be inserted into a locking box firmly secured to the tank beside the rail, in which box the locking tongue is lockable to lock the rail in closed position.
7. A device as claimed in any of the preceding claims, wherein said filling and tapping means comprise a

venting valve spring-tensioned towards open position, **characterized in that** in its closed position the guard rail is arranged to close said venting valve by overcoming said spring-tension.

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8. A device as claimed in any of the preceding claims, wherein said filling and tapping means comprise at least one tapping pipe with a valve that can be opened and closed by a swinging arm, **characterized in that** the swinging arm and guard rail are so constructed that in its position corresponding to open valve, the swinging arm prevents closing of the guard rail, and in that in its closed position the guard rail blocks the swinging arm in a position corresponding to closed valve. 15
9. A device as claimed in any of the preceding claims, **characterized in that** in closed position the guard rail is arranged to prevent a man-hole cover arranged in the tank wall for inspection and cleaning the inside of the tank, from being opened. 20
10. A transportable fuel tank intended for erection at e. g. a temporary work site for machines or motors, said tank having means running through the tank wall for filling and tapping fuel to and from the tank, **characterized in that** it comprises a safety device as claimed in any of the preceding claims. 25

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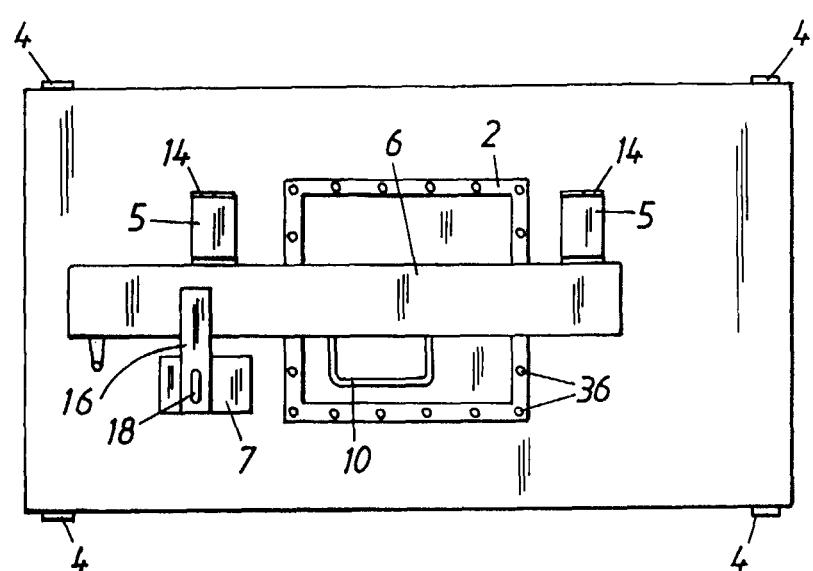
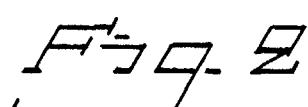
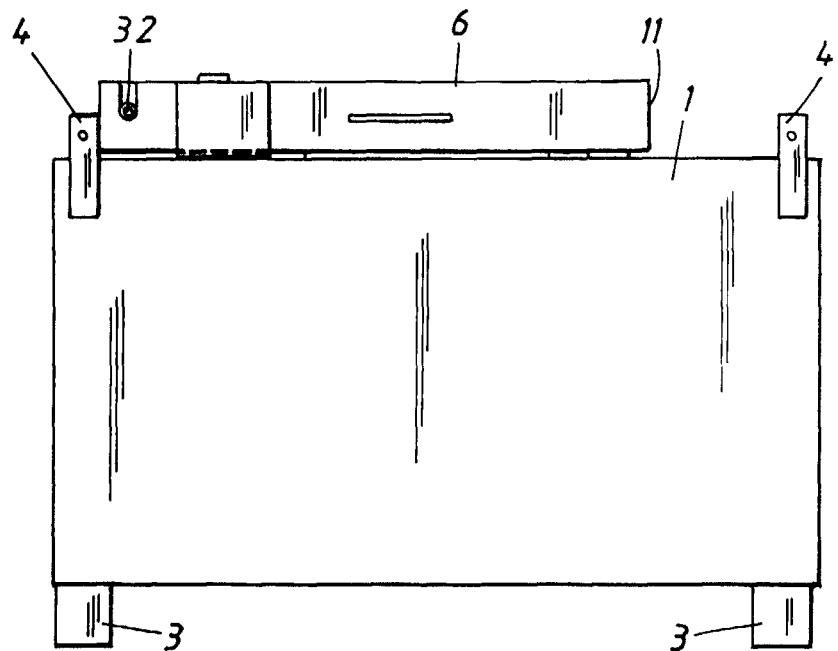


FIG. 3

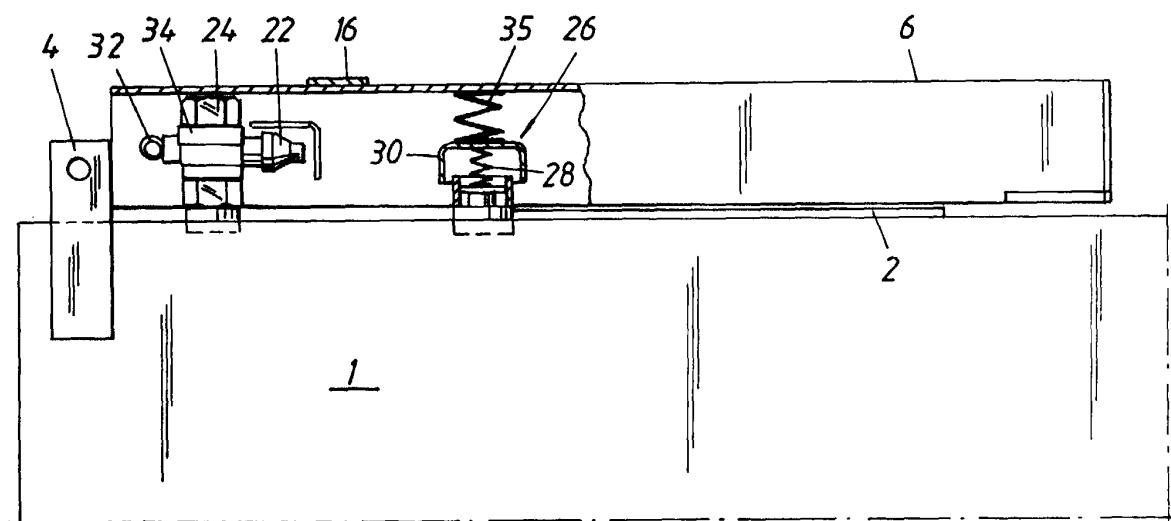
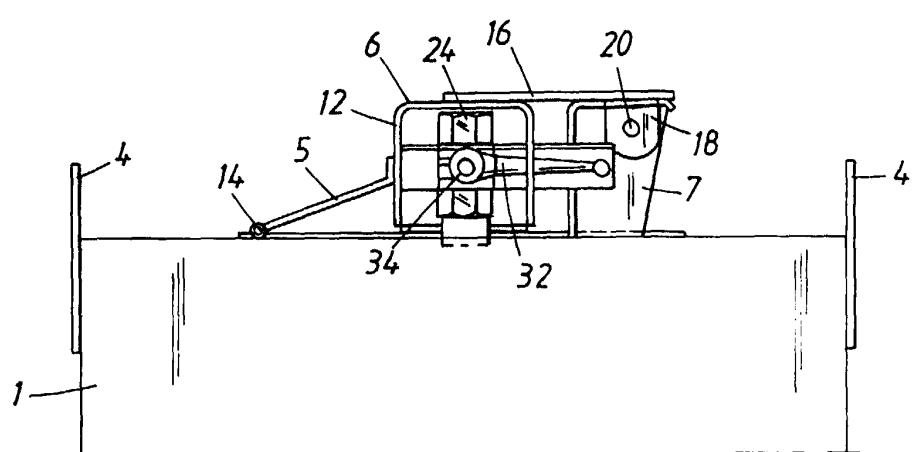


FIG. 4





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EUROPEAN SEARCH REPORT

Application Number
EP 00 85 0031

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D B60P
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search		Examiner
THE HAGUE	8 June 2000		Zanghi, A
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ON EUROPEAN PATENT APPLICATION NO.

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