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## EUROPEAN PATENT APPLICATION

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(71) Applicant: TORRI S.p.A.  
36040 Torri di Quartesolo (Vicenza) (IT)

(72) Inventor: Gastaldello, Giuliano  
36100 Vicenza (IT)

(74) Representative: O'Byrne, Daniel  
c/o Maroscia & Associati S.r.l.,  
14, Contra Ponte S. Paolo  
36100 Vicenza (IT)

(54) **An anti-accident, anti-falling mobile barrier, particularly for lofts and elevated storage spaces in general.**

(57) Mobile barrier with anti-falling access particularly for lofts delimited by railings (P) with at least one open section for allowing loading/unloading of goods, comprising a bascule structure (2) contained inside the perimeter of the railing (P) and defining a space (V) which is openable outwardly for the transit and temporary confinement of the goods, means for connecting (6,

7, 9, 10) the structure (2) to the loft (S) adapted to allow movement between a first position, in which the transit space (V) is only accessible from the loft (S), and a second position, in which the space (V) is only accessible from the outside. In both positions the bascule structure (2) is adapted to shut the open section of the railing so as to define a permanent security barrier.

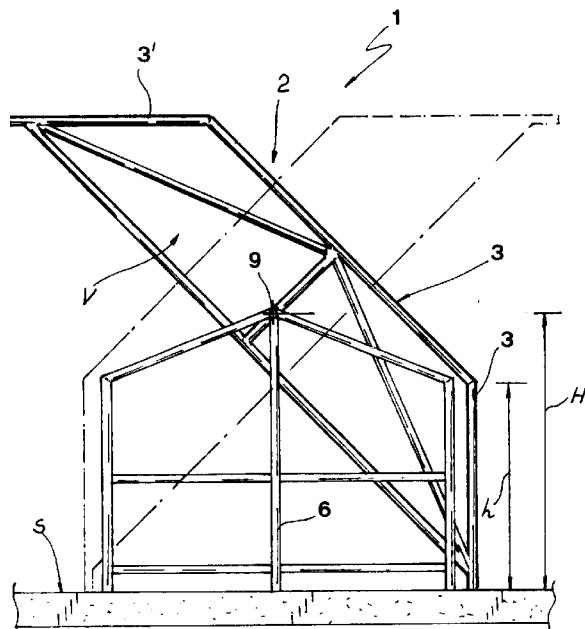


Fig. 2

**Description****Technical Field**

The present invention relates to an anti-accident, anti-falling mobile barrier, particularly for lofts and elevated storage spaces in general.

**Background Art**

It is known that the railings of lofts have one or more access openings protected generally by mobile barriers or sliding gates or leaf shutters or simple chains.

A drawback of the known mobile barriers of the past consists in the fact that they do not offer an adequate anti-falling protection when they are open for the loading/unloading of goods, as is instead required by the actual security regulations.

In fact, such barriers may be left open by the assigned personnel by forgetfulness or because they block, in some way, the movement of the goods. This constitutes a grave danger of accidents from both persons and goods falling from high.

Another drawback of the known sliding-shutter barriers may be the frequent jamming due to the residuals of the goods which accumulate along the sliding guides. Therefore, for a good operation, such guides require frequent cleaning and/or maintenance operations.

A further drawback of the known pivoting-shutter barriers is the notable manoeuvre space required for their opening and closing which may block the loading/unloading of the goods.

One principle aim of the following invention is to eliminate the above-described drawbacks providing a mobile barrier with anti-falling access for lofts, elevated storage spaces, and similar, capable of guaranteeing an elevated anti-accident protection against the falling from high of persons and/or things and which is permanently active also during the loading/unloading of the goods.

Another aim of the invention is to provide a mobile barrier with reliable access, easily operable and which does not block in any manner the operations of loading/unloading and movement of the goods.

**Disclosure of the Invention**

In accordance with one preferred aspect of the invention, there is provided a mobile barrier with anti-falling access, particularly for lofts and elevated storage spaces delimited by a railing with at least one open section for allowing loading/unloading of goods, which is characterised by comprising a protection structure installable inside the railing in correspondence with its open section and defining a partially closed space with at least one open side for the transit and temporary confinement of the goods, said protection structure being movable between a first position in which said space is only accessible from the inside of the loft, and a second

position in which said space is only accessible from the outside of the loft, in both said positions the structure being adapted to shut the open section of the railing so as to define a permanent security barrier.

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**Brief Description of Drawings**

The particular technical characteristics and advantages of the invention will become more greatly apparent from the following detailed description of some preferred but not exclusive embodiments of the mobile barrier according to the invention, illustrated for illustrative and nonlimiting purposes with the help of the attached drawing sheets in which:

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Figure 1 is a perspective schematic view of the mobile barrier according to a preferred aspect of the invention applied to a loft;

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Figure 2 is a lateral elevation view of the barrier of Figure 1;

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Figure 3 is a front elevation view of the barrier of Fig.1.

**Detailed Description of the Invention**

With reference to the cited figures, the mobile barrier according to the invention, indicated globally with the reference numeral 1, may be installed on a loft S of a storage room of the type comprising a plurality of vertical uprights M which support an elevated flooring F delimited by a railing P and interrupted in at least one section T for permitting the loading/unloading of the goods carried out for example with the aid of elevator trucks or similar means.

In the embodiment illustrated in the figures, the barrier is formed by a component balanced bascule structure 2, constituted by a pair of lateral frames 3, 4 having a substantially isosceles trapezium shape with oblique sides 3', 3" and 4', 4".

The two frames 3 and 4 are substantially mutually parallel and are united by a substantially horizontal crosspiece 5.

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Comprehensively, the bascule structure 2 has an overturned half-shell shape and is rotatably pivoted to a pair of substantially vertical lateral posts 6, 7 anchored to the loft S in position adjacent the interrupted section of the railing P, so as to substantially define a transit space V for the goods in entrance and exit from the loft.

According to a preferred aspect of the invention, the structure 2 is movable between a first position, in which the transit space V is only accessible from the inside of the loft S, and a second position, in which the space V is accessible only from the outside of the loft S.

In such a manner, in both positions the structure 2 constitutes a permanent security barrier for the assigned personnel which is practically impossibly left

open by forgetfulness as instead may occur in the similar barriers of the past.

In particular, the structure 2 is oscillatably mounted on a substantially horizontal axis 8, arranged at a predetermined height H from the loft S, by means of a pair of hinge pins 9 and 10 coupled to the posts 6, 7.

The oblique sides 3', 3" and 4', 4" of the structure are vertically arranged when the latter is in the first or second extreme positions so as to substantially restore the continuity of the railing P.

Advantageously the oblique sides 3', 3" and 4', 4" of the structure have a minimum height h preferably equal to or greater than the height of the railing P, so as to amply satisfy the anti-accident regulations.

Moreover, the structure 2 is symmetrical with respect to the oscillation axis 8 so as to be substantially balanced with respect to the latter in order to favour its movement manually or by mechanical means.

In the latter case, it is possible to provide an electrical servomechanism for the automatic opening and closing by means of a telecommand available to the driver of the elevator truck.

From the above description it is evident that the mobile barrier according to the invention guarantees the maximum anti-falling protection to the personnel which operates above and/or below the loft without however encumbering or minimally blocking the normal operations of movement of the goods.

The component characteristic of the barrier facilitates its installation on new or already existing lofts, and furthermore it allows to contain the costs of production and installation.

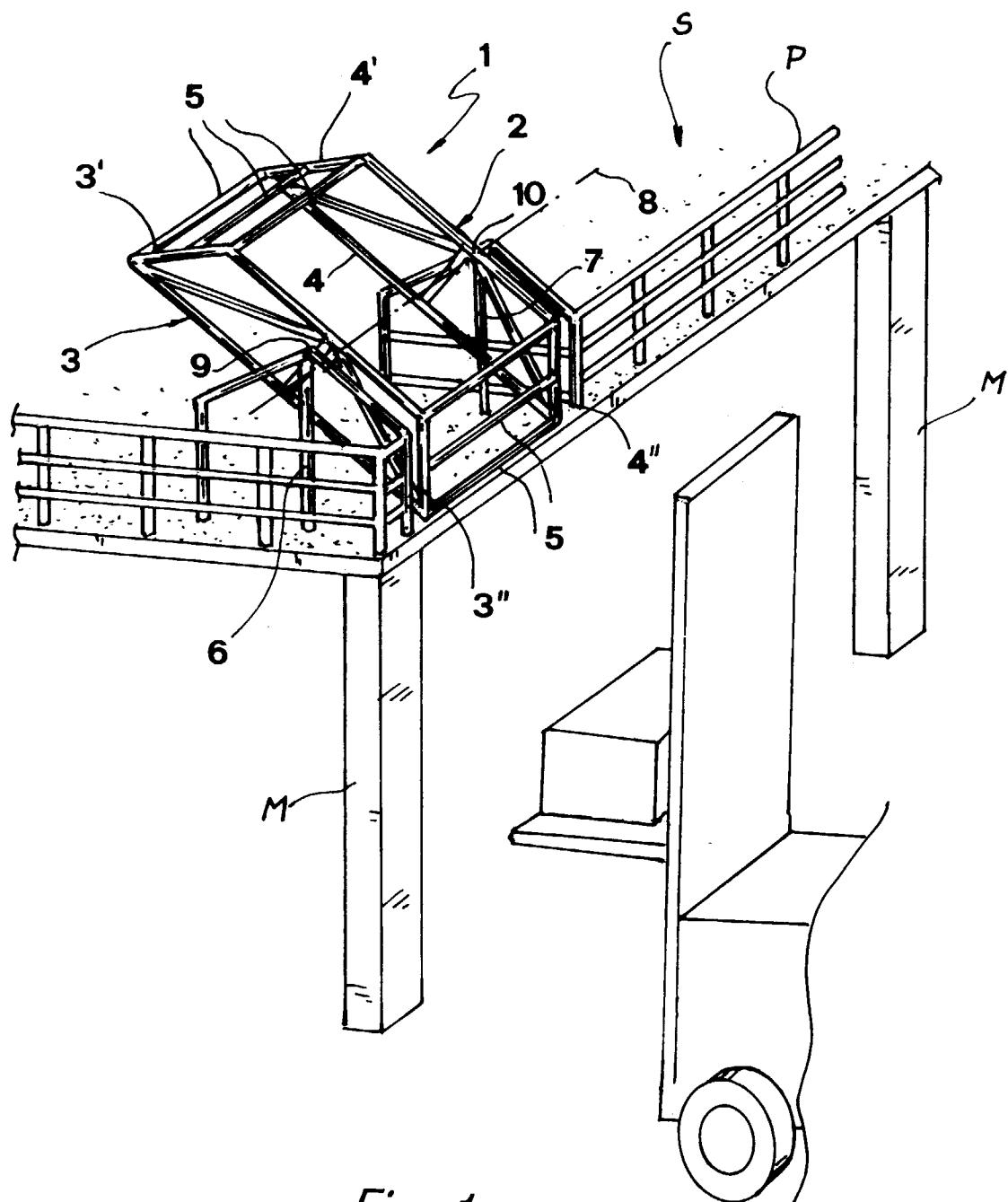
The mobile barrier according to the invention is susceptible to numerous modifications and variations all of which fall within the scope of the inventive concept expressed in the attached claims. All of the details may be substituted by technical equivalents which are equally protected. The materials, the shapes and the dimensions may be any according to the requirements.

## Claims

1. Mobile barrier with anti-falling access, particularly for lofts and elevated storage spaces delimited by a railing (P) with at least one open section (T) for allowing loading/unloading of goods, characterised by comprising a protection structure (2) installable inside the railing (P) in correspondence with its open section and defining a partially closed space (V) with at least one open side for the transit and temporary confinement of the goods, said protection structure (2) being movable between a first position in which said space (V) is only accessible from the inside of the loft (S), and a second position in which said space (V) is only accessible from the outside of the loft (S), in both said positions said structure (2) being adapted to shut the open section of

the railing (P) so as to define a permanent security barrier.

2. Mobile barrier according to claim 1, characterised in that said protection structure (2) is of the bascule type and is mounted on hinge means (9, 10) defining a substantially horizontal oscillation axis (8) arranged at a predetermined height (H) with respect to the flooring (F) of the loft (S).
3. Mobile barrier according to claim 2, characterised in that said hinge means (9, 10) are fixed on a pair of lateral posts (6, 7), connected to said loft (S).
4. Mobile barrier according to claim 3, characterised in that said protection structure (2) has a substantially half-shell shape substantially symmetrical with respect to said oscillation axis (8) and with the open side turned downwardly.
5. Mobile barrier according to claim 4, characterised in that said protection structure (2) is formed by a pair of substantially parallel and quadrilateral-shaped lateral walls (3, 4), mutually connected along three adjacent sides leaving the fourth side open.
6. Mobile barrier according to claim 5, characterised in that said lateral walls (3, 4) have a substantially trapezoidal shape with oblique sides (3', 3"; 4', 4") substantially vertical when said structure is positioned in said first and in said second extreme positions.
7. Mobile barrier according to any one or more of the preceding claims, characterised in that the oblique sides (3', 3"; 4', 4") of said protection structure (2) have a height (h) equal to or greater than the minimum height established by the security regulations.
8. Mobile barrier according to claim 7, characterised in that said height (h) is greater than or equal to the height of said railing (P).
9. Mobile barrier according to any one or more of the preceding claims, characterised in that said protection structure (2) is of the modular type and is formed by an assembly of tubes, profiled elements or similar component elements.



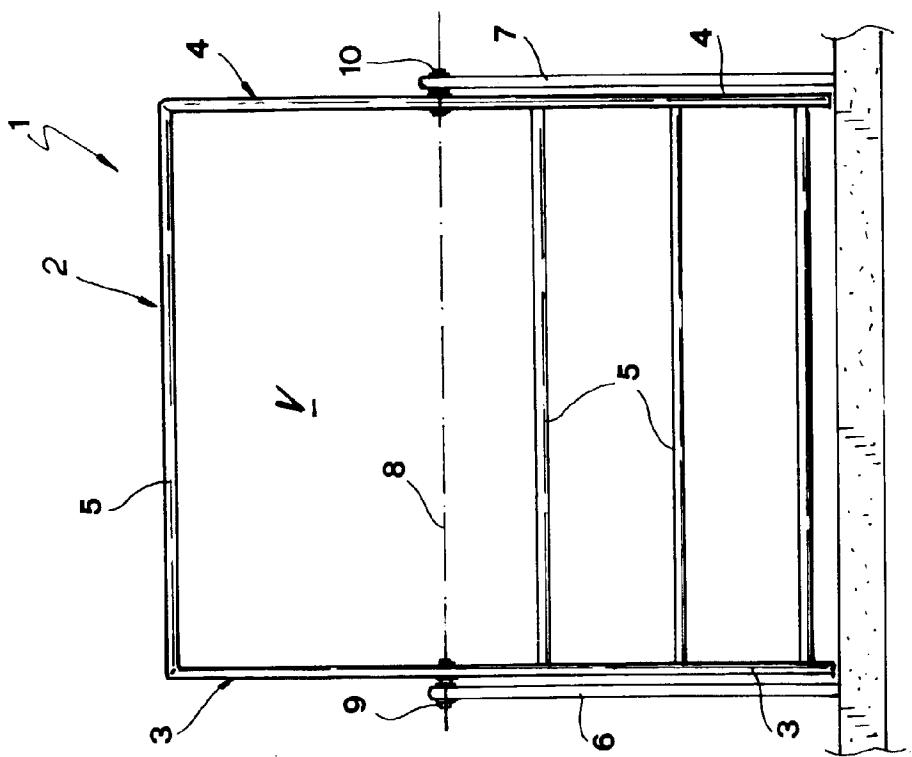


Fig. 3

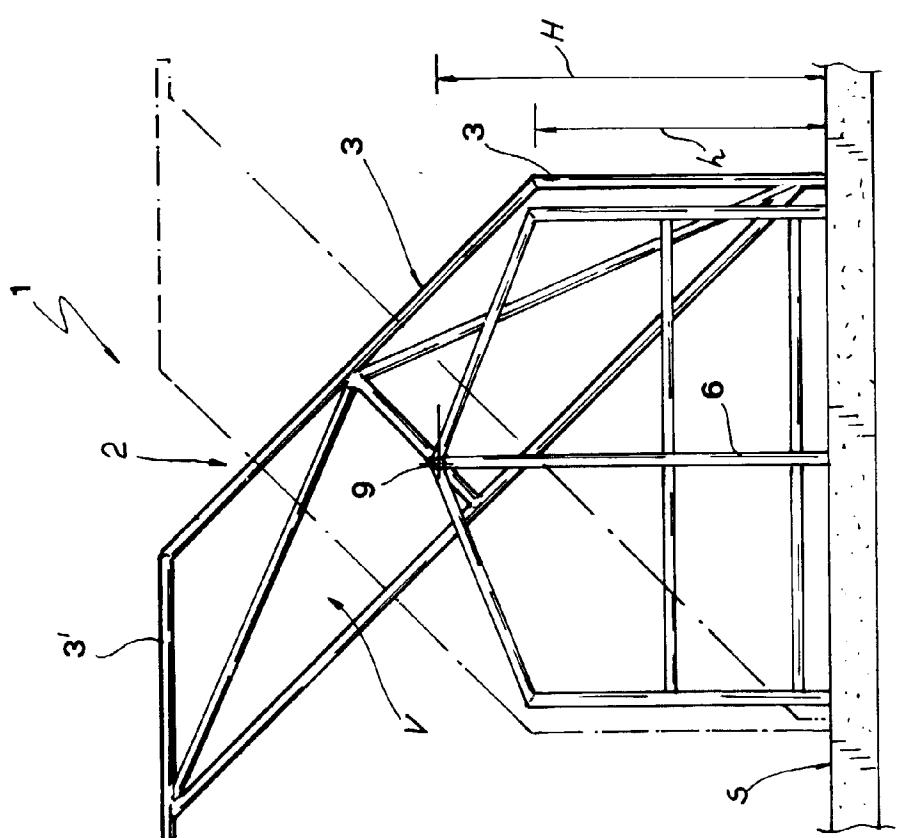


Fig. 2



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	FR 2 410 782 A (ENTREPRISE GAUTIER) 29 June 1979 * the whole document *	1-9	E06B11/00
X	FR 2 408 703 A (S.A. ENTREPOSE) 8 June 1979 * the whole document *	1-9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E06B
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search		Examiner
THE HAGUE	13 May 1998		Depoorter, F
CATEGORY OF CITED DOCUMENTS			
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