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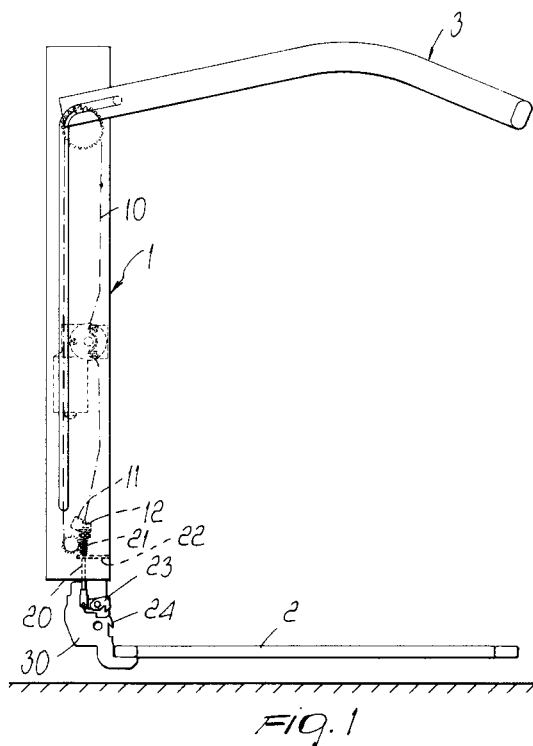
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(54) **Stairlift with means for locking the loading platform**

(57) An apparatus for transporting disabled people, with means for interlocking the loading platform, comprising a supporting frame (1) which can slidingly engage guides connected to a fixed structure. A tilting loading platform (2) for supporting the passenger and at least one safety bar (3) are connected to the frame; the safety bar can move from a safety position, in which it

is arranged transversely, to a disengagement position, in which it allows to access and leave the loading platform, and/or vice versa. The apparatus further comprises mechanical interlocking means (11,12,13) which act on the loading platform and are controlled by actuation means (10) of the safety bar, in order to allow to tilt open the platform only when the safety bar is in the safety position.



EP 1 148 020 A2

Description

[0001] The present invention relates to an apparatus for transporting disabled people, with means for interlocking the loading platform.

[0002] It is known that in apparatuses for transporting disabled people which have a supporting frame running on guides which are connected to a fixed structure and have a loading platform which can be tilted from an horizontal or operating position to a substantially vertical position which is laterally adjacent to the frame, for transfer without carrying a passenger, there is a functional interconnection between the position of a safety bar and the loading platform.

[0003] Substantially, standards prescribe that it must be possible to tilt the loading platform toward the open position only if the safety bar is in the safety position, i. e., arranged substantially transversely.

[0004] This functional interconnection is currently provided by means of microswitches which do not allow to operate the platform if the bar is not in the required operating position; this solution is very complicated from a constructive point of view and cannot be used in the cheaper solutions which provide for manual tilting of the platform.

[0005] Another drawback of the solutions of the prior art is that it is necessary to provide complex wiring which significantly affects the cost of the finished product.

[0006] The aim of the present invention is to eliminate the above-noted drawbacks, by providing an apparatus for transporting disabled people with means for interlocking the loading platform which use a mechanical actuation of the interlocking means, thus simplifying all the manufacturing and wiring steps.

[0007] Within this aim, a particular object of the invention is to provide an apparatus in which it is possible to have an interlocking of the loading platform even in the embodiments in which the platform is tilted manually.

[0008] Another object of the present invention is to provide an apparatus which thanks to its particular constructive characteristics is capable of giving the greatest assurances of reliability and safety in use.

[0009] Another object of the present invention is to provide an apparatus which is easily obtainable starting from commonly commercially available elements and materials and is further competitive from a merely economic point of view.

[0010] This aim and these and other objects which will become better apparent hereinafter are achieved by an apparatus for transporting disabled people, with means for interlocking the loading platform, comprising a supporting frame which can slidably engage guides connected to a fixed structure, a tilting loading platform for supporting the passenger and at least one safety bar being connected to said frame, said safety bar being movable from a safety position, in which it is arranged transversely, to a disengagement position, in which it allows to access and leave said loading platform, charac-

terized in that it comprises mechanical interlocking means which act on said loading platform and are controlled by actuation means of said at least one safety bar.

[0011] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of two preferred but not exclusive embodiments of an apparatus for transporting disabled people with means for interlocking the loading platform, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a schematic view of an apparatus with a retractable bar in the active platform unlocking position, with the platform in the active position;

Figure 2 is an enlarged-scale view of a detail of the interlocking means;

Figure 3 is a view of the apparatus with the platform tilted shut and the bar in the inactive position;

Figure 4 is an enlarged-scale view of the interlocking means in the position of Figure 3;

Figure 5 is a schematic view of an apparatus with a tilting bar, shown with the platform in the active position;

Figure 6 is a view of an apparatus with a tilting bar arranged in the inactive position, which blocks actuation of the tilting of the platform.

[0012] With reference to the figures, and particularly to Figures 1 to 4, the apparatus for transporting disabled people with means for interlocking the loading platform, according to the invention, comprises a frame, generally designated by the reference numeral 1, which can engage in a per se known manner guides which are connected to a fixed structure, for example at a flight of stairs.

[0013] A tilting loading platform 2, on which the passenger can be transported, is connected to the frame 1.

[0014] At least one retractable safety bar, generally designated by the reference numeral 3, is connected to the frame 1 and is connected, for its actuation, to actuation means which are the subject of a copending application in the name of this same Applicant and are advantageously constituted by a chain 10 which is connected to a pivot rigidly coupled to the bar.

[0015] The safety bar can be arranged in the active or safety position, in which it is arranged transversely and allows to tilt the platform.

[0016] The particularity of the invention is that there are mechanical interlocking means which in the specific case are provided by means of an L-shaped element 11 with a concave region 12 in which a pin 13 connected to the chain 10 can engage.

[0017] The engagement of the pin 13 occurs when the chain 10 has completed the step for arranging the retractable bar 3 in the safety position.

[0018] The L-shaped element 11 is connected to a rod 20 by interposing elastic return means 21 which act between the L-shaped element 11 and a fixed abutment

22.

[0019] The rod 20 is articulated to a pawl 23 which, in the locking position, engages a tooth 24 which is formed on the body 30 that allows the pivoting of the platform 2 to the supporting frame 1.

[0020] With this arrangement, therefore, the platform can be unlocked only when the bar is in the safety position, i.e., arranged transversely, and said unlocking is provided by using the same elements that move the safety bar.

[0021] A similar constructive solution for the interlocking means can also be provided in the case of a tilting safety bar, as shown in Figures 5 and 6.

[0022] In this solution there is an eccentric element 40 which is connected on the rotation axis of the tilting safety bar, designated by the reference numeral 3', and is articulated to a traction element 42 which is connected to the pawl, again designated by the reference numeral 23, which in the interlocking position, i.e., when the bar is arranged in the raised or disengagement position, engages the tooth 24, preventing the tilting of the platform.

[0023] Elastic return means are provided on the traction element 42 and are constituted by a spring 43 which acts between a point of the traction element 42 and an L-shaped abutment element 44 which is fixed to the frame 1.

[0024] In this embodiment it is not possible to actuate the safety bar if the platform is not in a fully closed or open position, i.e., it is not possible to move the tilting bar into the inactive position, since the traction element 42 which engages the crest 28 that is laterally adjacent to the tooth 24 prevents the rotation of the bar supporting block, which is actuated by means of the actuation motor 50, which acts on the movable rod 51 being hinged to said block.

[0025] From the above description it is evident that the invention achieves the intended aim and objects and in particular the fact is stressed that the entire interlocking system, by way of the adoption of mechanical means for connection to the actuation means, allows to avoid the need to provide an appropriate actuation system for interlocking, allowing instead to use the same means that move the safety bar in order to engage or disengage the pawl that locks the rotation of the loading platform.

[0026] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

[0027] All the details may further be replaced with other technically equivalent elements.

[0028] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements.

[0029] The disclosures in Italian Patent Application No. MI2000A000865 from which this application claims priority are incorporated herein by reference.

[0030] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of in-

creasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. An apparatus for transporting disabled people with means for interlocking the loading platform, comprising a supporting frame which can slidably engage guides connected to a fixed structure, a tilting loading platform for supporting the passenger and at least one safety bar being connected to said frame, said safety bar being movable from a safety position, in which it is arranged transversely, to a disengagement position, in which it allows to access and leave said loading platform, **characterized in that** it comprises mechanical interlocking means which act on said loading platform and are controlled by actuation means of said at least one safety bar.
2. The apparatus according to claim 1, **characterized in that** said mechanical interlocking means comprise an L-shaped element with a concave region in which a pivot connected to the movement chain of said safety bar can engage.
3. The apparatus according to the preceding claims, **characterized in that** it comprises elastic return means which are interposed on a rod for supporting said L-shaped element and act between said L-shaped element and a fixed abutment.
4. The apparatus according to one or more of the preceding claims, **characterized in that** it comprises a pawl which is articulated to said rod and can be detachably coupled to a tooth formed on the body that allows the pivoting of said loading platform.
5. The apparatus according to claim 1, **characterized in that** said mechanical interlocking means comprise a traction element which is pivoted to said pawl and is connected to an eccentric element arranged on the rotation axis of said tilting safety bar.
6. The apparatus according to one or more of the preceding claims, **characterized in that** when said loading platform is not completely closed or open the rotation of said tilting safety bar is not allowed.

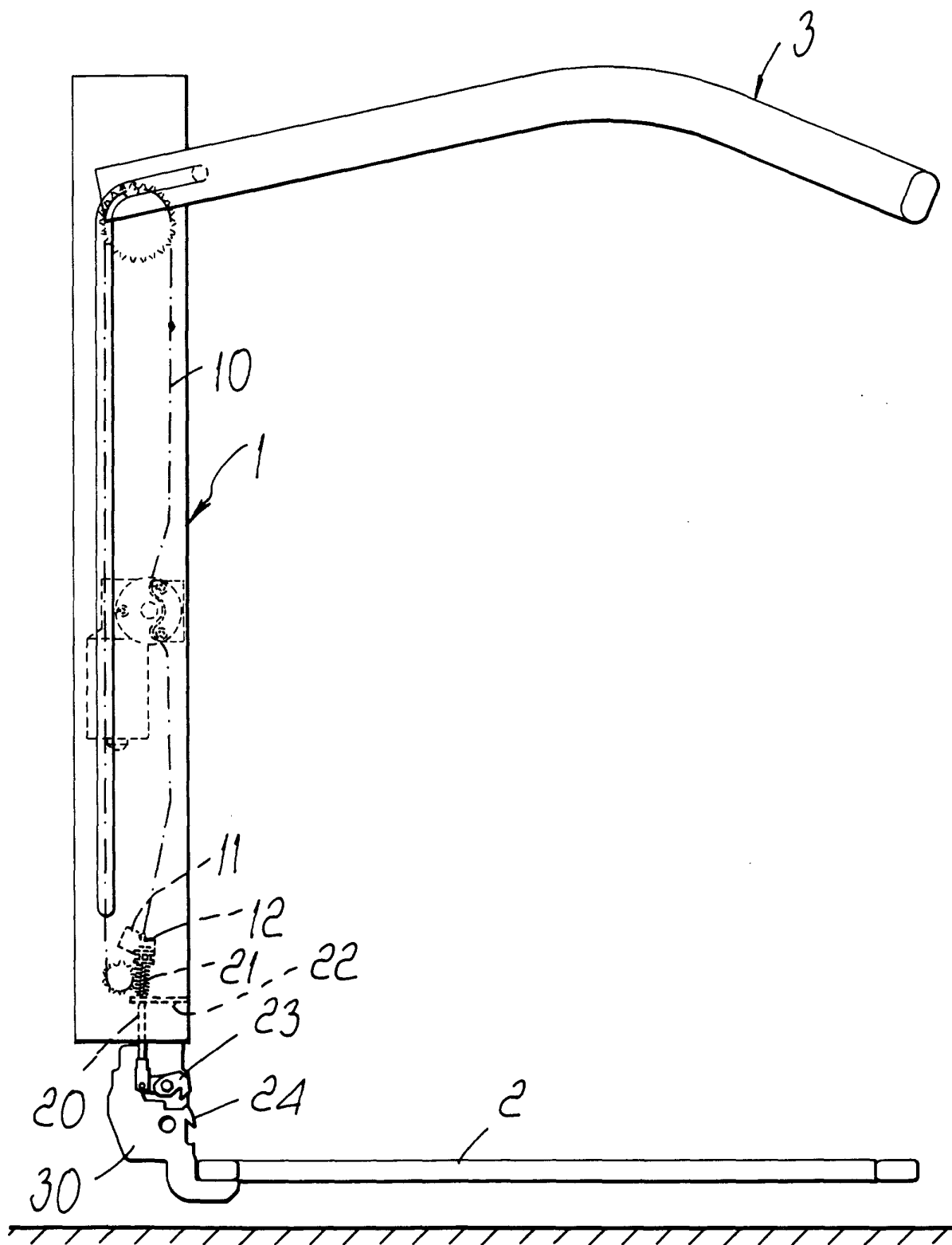


FIG. 1

