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(54) A tilt-up door system

(57) A tilt-up door system comprising a door (1) which is capable of closing an opening in a wall in use, which door (1) is capable of tilting movement from a closed position, in which it closes said opening, to an open position, in which it releases said opening, which tilt-up door system is furthermore provided with a detachably provided locking element (27), which comprises at least two bars (29,31) which can telescope one into another and which can be locked in position relative to each other, as well as locking pins (23,25) which are positioned at the bar ends that face away from each other, wherein the door (1) can be locked in its closed position by means of said locking element (27), wherein the tilt-up door system comprises two guide sections (3,5) extending transversely to the wall, in which guide sections (3,5) longitudinal sides of the door (1) are positioned in the open position of the door (1), wherein each guide section (3,5) is provided with a recess (19,21) near the wall, between which recesses (19,21) the locking element (27) extends in the closed position of the door, whilst the locking pins (23,25) are positioned in said recesses (19,21).

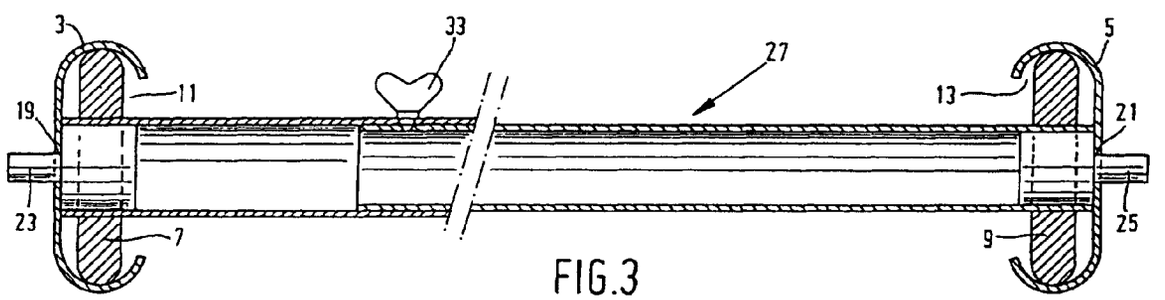

FIG.3

EP 0 937 850 A1

Description

[0001] The invention relates to a tilt-up door system comprising a door which is capable of closing an opening in a wall in use, which door is capable of tilting movement from a closed position, in which it closes said opening, to an open position, in which it releases said opening, which tilt-up door system is furthermore provided with a detachably provided locking element, which comprises at least two bars which can telescope one into another and which can be locked in position relative to each other, as well as locking pins which are positioned at the bar ends that face away from each other, wherein the door can be locked in its closed position by means of said locking element.

[0002] In a similar tilt-up door system, which is known from British patent application GB-A-2,299,615, the locking pins of the locking element are positioned in recesses formed in the wall in the closed position of the door. In the embodiment which is shown in said British patent application, the locking element is positioned near the lower side of the tilt-up door. Such a tilt-up door is for example used for closing an opening in a garage wall. With tilt-up doors of this kind, the lower side of the tilt-up door is always moved outwards, whilst the upper side of the tilt-up door is tilted in the direction of the garage. With the tilt-up door system which is shown in British patent application GB-A-2,299,615, the locking mechanism will be positioned on the outside of the garage, therefore, so as to prevent the lower side of the tilt-up door from tilting outwards. The locking element is accessible to unauthorized persons, therefore.

[0003] In practice it has become apparent that such an external locking arrangement indeed provides a burglary-retarding effect, but that the tilt-up door is not particularly capable of resisting external violence, especially at the upper side thereof.

[0004] The objective of the invention is to provide a tilt-up door system which provides an especially reliable burglary-retarding effect.

[0005] This objective is accomplished with the tilt-up door system according to the invention in that the tilt-up door system comprises two guide sections extending transversely to the wall, in which guide sections longitudinal sides of the door are positioned in the open position of the door, wherein each guide section is provided with a recess near the wall, between which recesses the locking element extends in the closed position of the door, whilst the locking pins are positioned in said recesses.

[0006] The recesses can be formed in said guide sections in a simple manner. By positioning the recess relatively closely to the wall, a locking element extending between said recesses, with the locking pins positioned in said recess, effectively prevents the door from tilting in the direction of the guide sections. In this way the door is locked against movement in any direction.

[0007] One embodiment of the tilt-up door system according to the invention is characterized in that the longitudinal sides of the door are each provided with at least one guide roller which is capable of movement within said guide, wherein the locking element abuts against said guide rollers in the closed position of the door.

[0008] Thus, movement of the guide rollers in said guide rollers is prevented in a simple manner.

[0009] The invention will be explained in more detail hereafter with reference to the drawings, wherein:

Figure 1 is a perspective a view of a tilt-up door system according to the invention, showing a door in a partially open position;
Figure 2 is a side view of the tilt-up door system of Figure 1, showing the door in its closed position;
Figure 3 is a rear view of the tilt-up door system of Figure 2, showing the door in its closed position;
Figure 4 is a larger-scale detail of the tilt-up door system of Figure 2; and
Figure 5 shows the locking element which is shown in Figure 3.

[0010] Parts that correspond with each other are indicated by the same numerals in the Figures.

[0011] Figure 1 shows a tilt-up door system according to the invention, which comprises a door 1, for example a tilt-up door of a garage, a suitable linkage and a guide system comprising horizontally extending guide sections or guide channels 3, 5, in which guide rollers 7, 9 connected to longitudinal sides of door 1 can move. Guide channels 3, 5 extend horizontally on either side of door 1, at the upper side of door 1, in a direction transversely to the opening to be closed by door 1. Guide channels 3, 5 have a C-shaped cross-section comprising slots 11, 13, which are formed in such a manner that slot 11 of one guide channel 3 extends towards slot 13 in the other guide channel 5. The C-shaped cross-sections of guide channels 3, 5 comprise through openings 19, 21 positioned opposite each other.

[0012] In the closed position which is shown in Figure 2, door 1 can be secured against entry from outside in a usual manner via a lock and latch mechanism (not shown) comprising a lip which engages in door frame 17. According to the invention, a locking element 27 is provided on the inside of door 1, near the upper side thereof, which locking element provides a strong burglary-retarding effect.

[0013] The locking element 27 which is shown in Figures 3, 4 and 5 comprises two bars or tubes 29, 31, which can telescope one into another. Positioned at the ends of tubes 29, 31 that face away from each other are pins 23, 25, which are connected to tubes 29, 31 by means of blocks which are connected to said pins 23, 25.

[0014] Tubes 29, 31 can be fixed with respect to each other by means of a screw 33.

[0015] When the door is to be locked in its closed position, door 1 is moved to the position which is shown in

Figure 2, in which position guide rollers 7, 9 are positioned near the ends of guide channels 3, 5. Following that, locking element 27 is provided. To this end, tubes 29, 31 are telescoped one into another so far that locking pin 23 can be inserted into opening 19 of guide channel 3, after which tube 31 is moved in the direction of the opposite guide channel 5, until pin 25 extends through the opening 21 present in guide channel 5. After the two locking pins 23, 25 have been positioned in the associated openings 19, 21, screw 33 is tightened, thus interconnecting tubes 29, 31.

[0016] The position of openings 19, 21 in guide channels 3, 5 is selected such that locking element 27 will abut against the guide rollers 7, 9 present in guide channels 3, 5, as is shown in Figure 4. Thus, locking element 27 effectively prevents movement of guide rollers 7, 9 from the closed position of door 1.

[0017] The door may also be a roller door, which is provided along its longitudinal sides with elements which can move in guide sections or guide channels 3, 5. In the closed position, locking element 27 thereby abuts against the upper movable element, so that also in this case the door is locked in an efficient manner.

[0018] It is also possible to provide a tube with a number of aligned openings, whilst the other tube is provided with a passage to be positioned opposite one of said openings. Subsequently, a detachable locking pin is passed through the passage and the opening that lie opposite each other.

Claims

1. A tilt-up door system comprising a door which is capable of closing an opening in a wall in use, which door is capable of tilting movement from a closed position, in which it closes said opening, to an open position, in which it releases said opening, which tilt-up door system is furthermore provided with a detachably provided locking element, which comprises at least two bars which can telescope one into another and which can be locked in position relative to each other, as well as locking pins which are positioned at the bar ends that face away from each other, wherein the door can be locked in its closed position by means of said locking element, characterized in that the tilt-up door system comprises two guide sections extending transversely to the wall, in which guide sections longitudinal sides of the door are positioned in the open position of the door, wherein each guide section is provided with a recess near the wall, between which recesses the locking element extends in the closed position of the door, whilst the locking pins are positioned in said recesses.

2. A tilt-up door system according to claim 1, characterized in that the longitudinal sides of the door are each provided with at least one guide roller which is capable of movement within said guide, wherein the locking element abuts against said guide rollers in the closed position of the door.

3. A locking element suitable for use in a tilt-up door system according to claim 1 or 2, characterized in that said locking element comprises at least two bars which can telescope one into another and which can be locked in position relative to each other, as well as locking pins which are positioned at the bar ends that face away from each other.

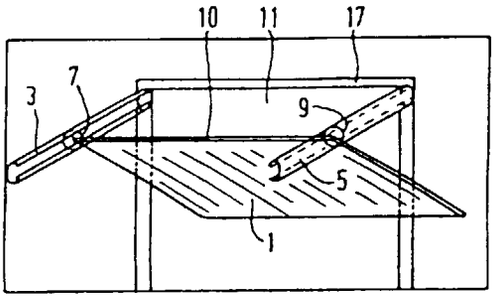

FIG. 1

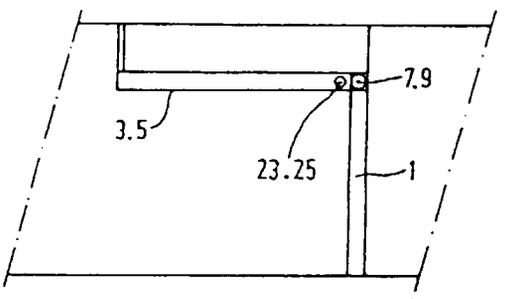

FIG. 2

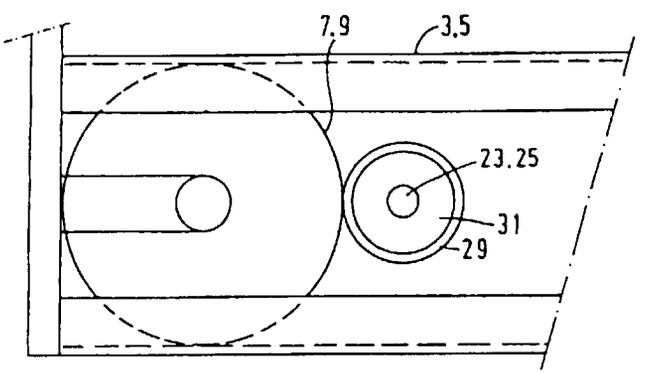

FIG. 4

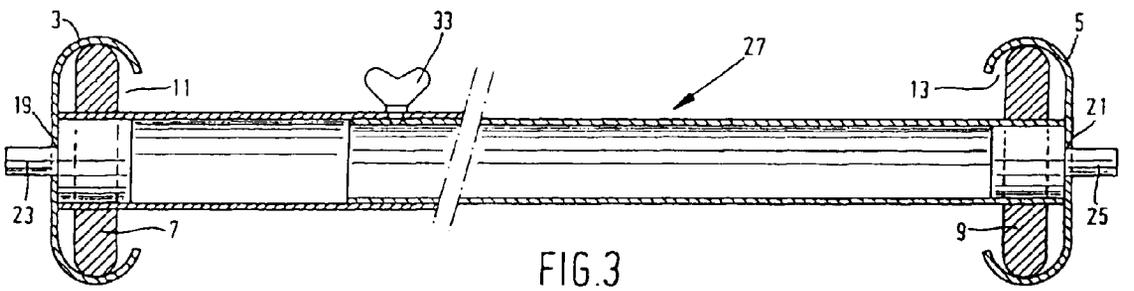

FIG.3

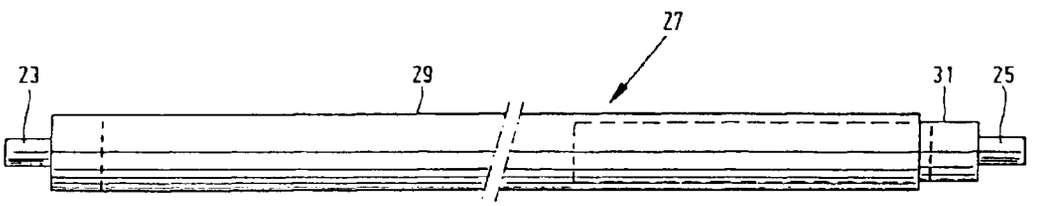

FIG.5

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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0446

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,X	GB 2 299 615 A (WARD ROBERT JAMES) 9 October 1996	3	E05C19/00
A	* the whole document *	1	
X	US 5 540 467 A (BRIFFA FRANKLIN S) 30 July 1996 * figures 1-6 *	3	
A	US 5 533 561 A (L. LANGSTROTH FOREHAND, IV) 9 July 1996 * column 3, line 63 - column 4, line 11; figures 1-5 *	1,2	
A	US 3 933 382 A (COUNTS W RAY ET AL) 20 January 1976 * figures 1-4 *	1,2	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
E05B
E05C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	27 May 1999	PEREZ MENDEZ, J

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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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27-05-1999

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