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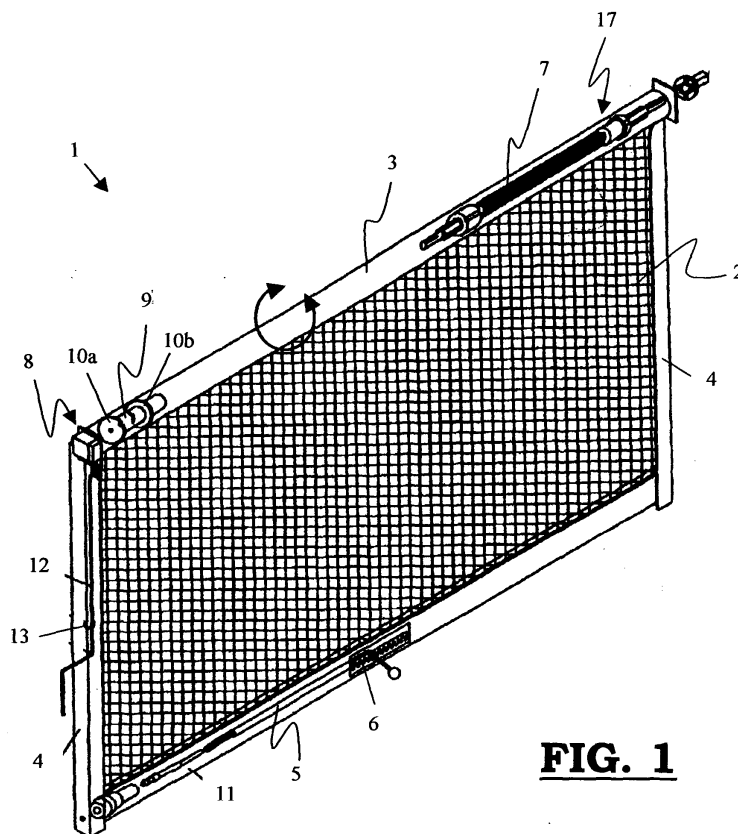
(54) **Roller gate**

(57) The invention relates to a roller gate, comprising

- a first up and unreliable flexible screen (2) for screening off a space;
- blocking means (5) for placing the flexible screen

(2) in a blocking position;

wherein resilient means (7) are provided for rolling up and unrolling the flexible screen (2), and stretching means (8) are provided for stretching the flexible screen (2) after it has been placed in the blocking position, in order to remain tight when exposed to pressure forces.



**FIG. 1**

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## Description

**[0001]** The invention relates to a roller gate, comprising a first up and unrollable flexible screen for screening off a space, and blocking means for placing the flexible screen in a blocking position.

**[0002]** Until today, several such roller gates are known.

**[0003]** In US 5,690,317, a spring roller-mounted pull-out screen for use as a safety barrier across a doorway is described. This screen has a control mechanism which prevents the screen from extending when impacted by a child. The roller is locked against rotation in a direction allowing the screen to unwind unless released by a manual push-button. The roller automatically locks after the screen has been extended and fitted in place. The automatic locking mechanism operates by a friction drive which releases a pawl to spring into engagement with a ratchet wheel when the screen has been pulled out and released.

**[0004]** The disadvantage of this system is that it can not be used when it is exposed to wind pressure, for instance when it is used in agricultural or industrial buildings. When a screen as described in US 5,690,317 would be used in such applications, wherein the screens are often exposed to considerable wind pressures, the screen will not remain tight, and will begin to flutter.

**[0005]** In US 5,503,211, a flexible safety screen is described which is designed for being rolled up in an enclosure located above a doorway, and for being unrolled from the enclosure for tensioned attachment to the floor, in order to protect the occupants in a room for intruders. In a first preferred embodiment, the screen is up and unrolled by means of an electric motor and gear mechanism. And according to a second embodiment of the invention, the screen is manually up and unrolled on the shaft and tightened after being secured to the floor, by means of a crank and ratchet mechanism. In a most preferred embodiment of the invention, the screen exists of a flexible nylon webbing.

**[0006]** The disadvantage of such a system is that the rolling up and unrolling of the screen is performed by means of a crank or an electrical motor. When using a crank, the rolling up or unrolling of the screen happens too slow. When using a motor, the speed of the up and unrolling of the screen depends on the RPM of the motor, and such embodiment is furthermore very expensive.

**[0007]** The purpose of the invention is to provide a roller gate according to the preamble of claim 1, wherein both the up and unrolling movement of the flexible screen happens in a quick way, and the partially or fully unrolled screen remains tight when exposed to pressure force, such as wind pressure.

**[0008]** The purpose of the invention is achieved by providing a roller gate as described in the first claim.

**[0009]** By providing resilient means for rolling up and unrolling the flexible screen, the up and unrolling move-

ment of the flexible screen happens in a quick way, and by providing stretching means for stretching the flexible screen after the flexible screen has been placed in the blocking position, the flexible screen remains tight when exposed pressure forces.

**[0010]** In a preferred embodiment of a roller gate according to the invention, the stretching means comprise a coupling mechanism to allow the stretching of the flexible screen.

**[0011]** The coupling mechanism thereby comprises preferably two fittable gear wheels which allow the stretching of the flexible screen when the gear wheels fit into each other.

**[0012]** In an advantageous embodiment of a roller gate according to the invention, the stretching means comprise operating means for operating the coupling mechanism and for stretching the flexible screen.

Preferably, the operating means consist of a crank. Preferably, in a roller gate according to this invention, a locking element is provided for locking the operating means.

**[0013]** In this way, the operating means are not able to turn back, and the flexible screen remains tight after stretching it.

**[0014]** In an advantageous roller gate according to the invention, a slot is provided to place the flexible screen into a blocking position.

**[0015]** The slot preferably automatically switches on when the flexible screen reaches the place of the blocking position.

**[0016]** In a preferred embodiment of a roller gate according to any the invention, the resilient means comprise a spring coil for rolling up and unrolling the flexible screen.

**[0017]** In an advantageous embodiment of a roller gate according to the invention, the flexible screen is slidably provided in a frame which is mounted into an opening of a structure marking out the space to be screened off

**[0018]** The roller gate according to the invention is preferably used in agricultural and/or industrial buildings.

**[0019]** This invention will now be further clarified in view of the following detailed description of a preferred roller gate according to the invention. The purpose of this description is only to give a clarifying example and to point out additional advantages and particulars of this invention, and may not be interpreted as a restriction of the field of application of the invention and for the protection demanded for in the claims. In this detailed description, by means of reference numbers, reference is made to the attached drawing of which figure 1 is a schematic representation of a roller gate according to the invention.

**[0020]** A roller gate (1) according to the invention, as shown in figure 1, comprises an up and unrollable flexible screen (2) for screening off a space. The screen (2) is rolled up and unrolled of a rotably mounted shaft (3).

The screen (2) is preferably slidably provided in a frame (4) which is mounted into an opening of a structure marking out the space to be screened off.

**[0021]** At the lower part of the flexible screen (2), blocking means (5) are provided for placing the flexible screen (2) in a blocking position. The blocking means consist preferably of a slot (5) which is provided in the lower profile (11) which is mounted at the lower part of the flexible screen (2). Through the slot (5), the flexible screen (2) can be placed in a blocking position. The slot (5) is preferably automatically switched on when the flexible screen (2) reaches the place on the blocking position.

Therefore, the slot (5) is provided of a spring (6). In this embodiment, the blocking position is situated at the lower part of the frame (4). However, the blocking position can also be situated at another place in relation to the frame (4).

**[0022]** The rolling up and unrolling of the flexible screen (2) occurs by means of resilient means (17). This resilient means (17) preferably comprise a spring coil (7) for quickly rolling up and unrolling the flexible screen (2).

**[0023]** The roller gate (1) is provided with stretching means (8) for stretching the flexible screen (2) after placing it in the blocking position, in order to remain tight when exposed to pressure forces such as wind pressure. The stretching means (8) preferably comprise a coupling mechanism that preferably exists of two fittable gear wheels (10a, 10b). Furthermore, the stretching means (8) preferably comprise operating means (12) for operating the coupling mechanism (9). These operating means preferably consist of a crank (12). Furthermore, preferably a blocking element (13) is provided for blocking the operating means (12). This blocking element (13) can for instance be an eye screw. When the flexible screen (2) is in a blocking position, and consequently the slot (5) is switched on, also the coupling mechanism (9) is switched on and the two gear wheels (10a, 10b) fit into each other, through which they are bolted.

**[0024]** In order to roll up the flexible screen (2) on the shaft (3), the crank has to be turned back with a half revolution, through which the coupling mechanism (9) uncouples. Therefore, the spring (7) will pull at the flexible screen (12), through which the flexible screen (2) quickly rolls up on the shaft (3). Possibly, the person which operates the roller gate can additionally conduct the rolling up of the flexible screen (12) through pushing up the lower profile (11).

**[0025]** When the flexible screen (12) is fully rolled up, then the flexible screen (12) can be unrolled from the shaft (3) by pulling at the lower profile (11). When the screen comes at the place of the blocking position, then the slot (5) switches on, and the flexible screen (2) is in the blocking position. However, the flexible screen (2) is not yet stretched. The stretching of the flexible screen (2) occurs by turning the crank further until the two gear wheels (10a, 10b) of the coupling mechanism (9) fit, and

consequently block the coupling mechanism (9). By turning the crank (12) a bit further, the flexible screen (12) still stretches. Thereafter, the crank (12) is tried up with an eye screw, through which the crank can not be turned back. In this way, the flexible screen (2) remains tight. With providing such a rolling gate, the rolling up and unrolling occurs by resilient means, and not by means of a motor or a crank which limits the speed of the rolling up or unrolling. Only the stretching of the flexible screen occurs by a crank, through which the flexible screen remains tighten when pressure forces act on it.

## Claims

### 1. Roller gate, comprising

- a first up and unrollable flexible screen (2) for screening off a space;
- blocking means (5) for placing the flexible screen (2) in a blocking position;

characterised in that resilient means (7) are provided for rolling up and unrolling the flexible screen (2), and stretching means (8) are provided for stretching the flexible screen (2) after it has been placed in the blocking position, in order to remain tight when exposed to pressure forces.

### 2. Roller gate according to claim 1, wherein the stretching means (8) comprise a coupling mechanism (9) to allow the stretching of the flexible screen (2).

### 3. Roller gate according to claim 2, wherein the coupling mechanism (9) comprises two fittable gear wheels (10a, 10b) which allow the stretching of the flexible screen (2) when the gear wheels (10a, 10b) fit into each other.

### 4. Roller gate according to claim 2 or 3, wherein the stretching means (8) comprise operating means (12) for operating the coupling mechanism (9) and for stretching the flexible screen (2).

### 5. Roller gate according to claim 4, wherein the operating means consist of a crank (12).

### 6. Roller gate according to claim 4 or 5, wherein a blocking element (13) is provided for blocking the operating means (12).

### 7. Roller gate according to any one of claims 1 to claim 6, wherein blocking means consist of a slot (5) which is provided for placing the flexible screen (2) in a blocking position.

### 8. Roller gate according to claim 7, wherein the slot

(5) automatically switches on when the flexible screen (2) reaches the place of the blocking position.

9. Roller gate according to any one of claims 1 to 8, 5  
wherein the resilient means (17) comprise a spring coil (7) for rolling up and unrolling the flexible screen (2).
10. Roller gate according to any one of claims 1 to 9, 10  
wherein the flexible screen (2) is slidably provided in a frame (4) which is mounted into an opening of a structure marking out the space to be screened off.
11. Roller gate according to any one of the preceding 15  
claims, wherein the roller gate is used in agricultural and/or industrial buildings.

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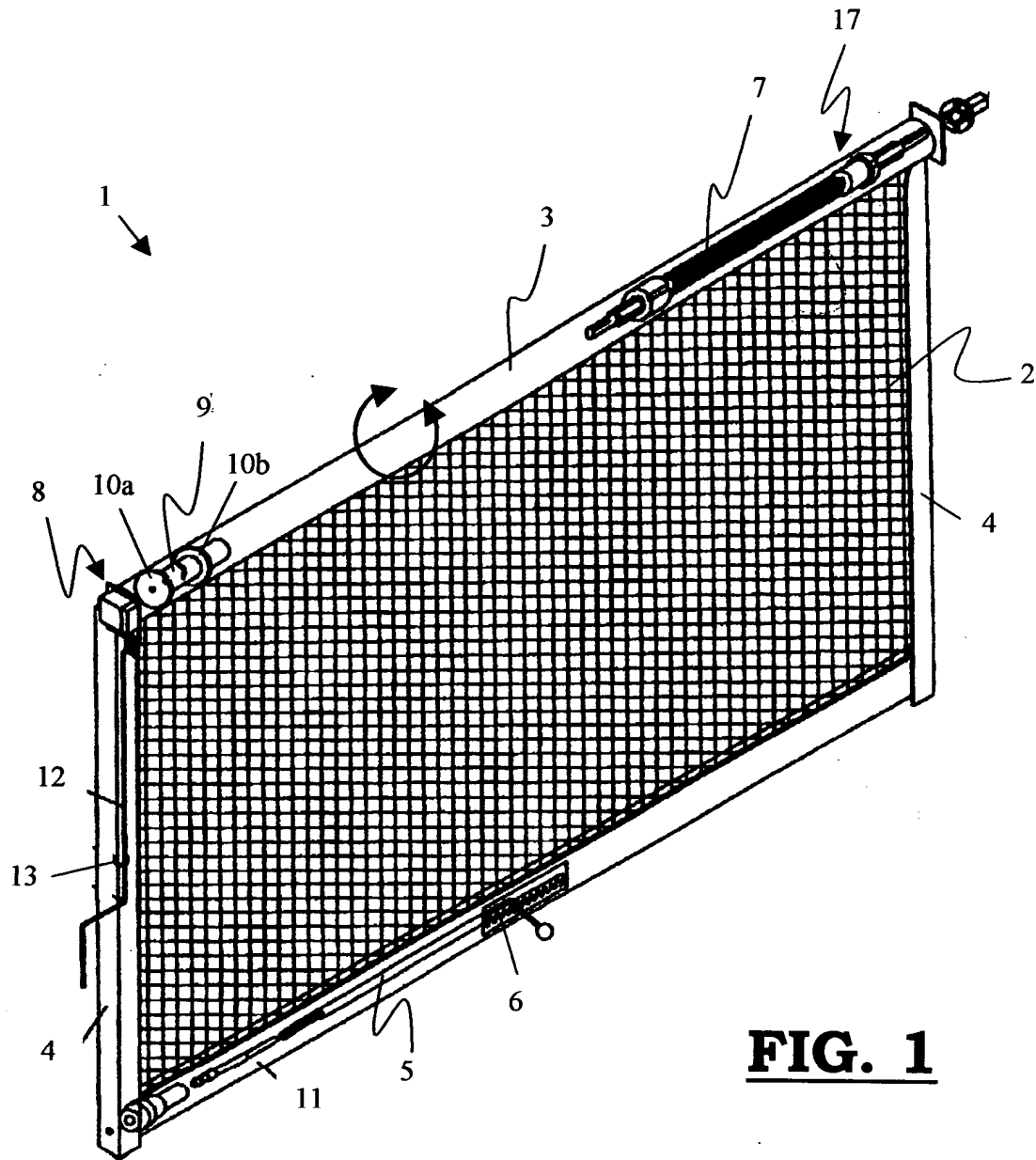
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**FIG. 1**



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# EUROPEAN SEARCH REPORT

Application Number  
EP 05 07 5358

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                   |                                                 |                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                   |                                                 | E06B                                         |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                   |                                                 |                                              |
| Place of search<br>The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                   | Date of completion of the search<br>26 May 2005 | Examiner<br>Vrugt, S                         |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                                   |                                                 |                                              |

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 05 07 5358

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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