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(71) Applicant: **WINBERG, Ragnar**
S-254 58 Helsingborg (SE)

(72) Inventor: **The designation of the inventor has not yet been filed**

(54) **Device for billboards**

(57) Device at billboards where the board has an upper frame (1), two side frames (2,3) and one lower frame (5), where the message when lifted consists of only a plastic film (7) whose lower edge has been fastened to a tube (22) whose length corresponds to the width of the message and where the message before being lifted has been rolled on the tube, characterized by the fact that the board is equipped with a lifting ruler (6) which has a groove (30) in which a strip fastened to the upper edge of the film (29) can be inserted when the lifting ruler is in its lowest position by the tube being held close to the lifting ruler along the whole of its length and there being a catch (28) in the lower frame which stops the tube from turning and a cover (17) which can be in an outer position for inserting and removing the tube and an inner position where it stops the tube from bending upwards noticeably when in its lifted position the message is stretched between the lifting ruler and the tube.

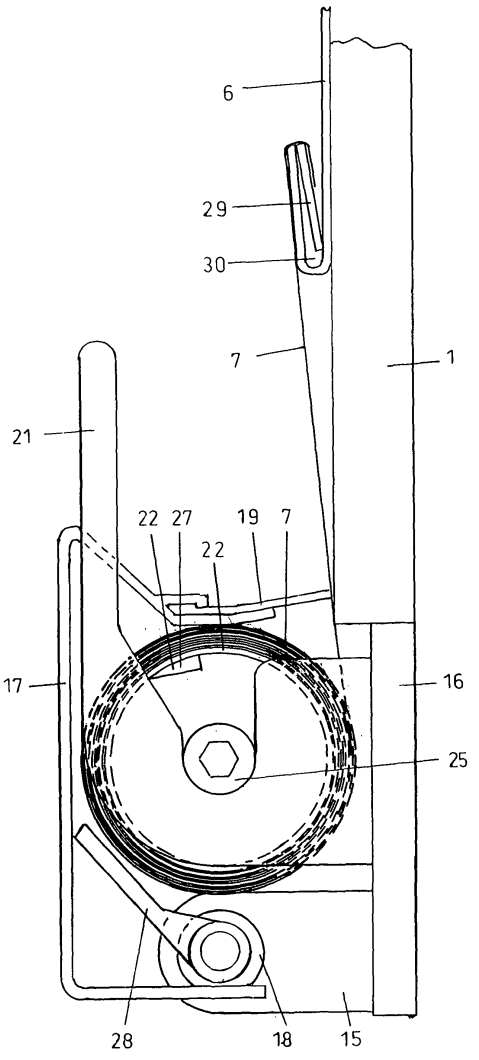

FIG 5

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Description

[0001] The invention in question is intended for ordinary billboards, especially the big ones whose height is about three metres and whose breadth is about four metres.

[0002] The purpose of the invention is to eliminate the use of adhesive paste and to simplify the changing of messages especially by the fact that the bill-poster only needs to stand at one side of the lower frame of the billboard to carry out the whole changing of the message.

[0003] Since many decades the application of messages on big boards is made by applying a number of 6 to 18 printed sheets of paper with water-soluble paste onto the surface of the board. The paste is applied either directly on the board or on the sheets. The sheets overlap each other and if the paste is applied directly on the board this must be completed with paste in the overlappings. When a new message is to be applied this can be done on an earlier one. When the board has generally five to seven messages on top of each other all are removed in layers and the board is scraped clean. After that new messages can be applied. This method has several disadvantages. The paper must be damp when applied, otherwise it can bubble. The application of paste is unhygienic and after some time splashes and running paste will make especially the lower frame of the board dirty. Paste can also make areas outside the board dirty. If the application of paste is insufficient, corners of the posters may come loose at strong winds and then the whole poster sheets may blow away. At strong winds it can be difficult to handle the separate poster sheets. It is also difficult to check the taking off of layers of paper at strong winds. At temperatures below zero there may be difficulties when pasting. Furthermore it is inconvenient for the bill poster to stand on a ladder when the topmost poster sheets are to be applied. If the lower frame of the board is high above the ground a stand may be necessary. It may be necessary to move it two or three times along the board which may be very time-wasting.

[0004] A newer method has appeared, which among other things is described in the Swedish Patent 501 806. Here the big board is equipped with a covering transparent elastic plastic film, immediately outside the board area, which can easily be opened or closed at the lower frame of the board. From the lower frame poster lengths can here be put up by means of a long tool. The procedure eliminates some of the inconveniences of the traditional way of putting up posters. The new procedure has some disadvantages, however. The plastic film itself with its edges means expenses. The film can be demolished by vandals through cutting to pieces or paint spraying. The film can give undesired reflexes and as time goes on it loses its elasticity through "shrinkage". When you take off the old lengths they can fall down when they leave hold of the fastening at the top. Also at this procedure the bill poster must move along the lower frame of the board.

[0005] Another way of changing messages on a billboard is shown in the PCT-application WO 98/28730. Here all the sheets of paper which are to form the message have been fastened together and rolled up on a bar whose length is the same as the breadth of the board. The whole compound message is hoisted up at the same time by a hoisting device. Also here the bill poster must move along the board when changing messages. If the lower frame of the board is high above the ground, a stand is required, which must be moved several times, especially if the board is six metres wide, which is said in the description.

[0006] Also in the device according to Patent EP 1 054 375 you must move along the board when changing messages.

[0007] As a result of the invention the bill poster can carry out the whole change of messages from the same place by rolling up the old message on a tube, take it from the board, apply the new message on the board, hoist it and stretch it.

[0008] The invention has the special characteristics which are evident from the patent claims and will be described in detail in the following by means of figures where the execution is shown in principle.

[0009] Figure 1 shows the board seen from the front.

[0010] Figure 2 shows parts of the lower part of the board seen from the front.

Figures 3 - 5 show the lower part of the board seen from the side where the changing of messages is in different positions.

[0011] In Figure 1 the hard back of the board is indicated with 1. The side frames of the board are indicated with 2 and 3, its upper frame with 4 and its lower frame with 5. On a lifting ruler 6 the upper edge of a plastic film 7 has been fastened. The two ends of the lifting ruler, just as the plastic film, reach in under the side frames. The message which has been produced on plastic film has been rolled up on a tube when mounted. In this figure it is hidden by the lower frame. The lifting ruler is hoisted by means of the wire ropes 8 and 9 which run over four wheels 10. The two ropes are put together at 11 to one somewhat elastic rope 12 which by means of a plug-in crank 13 can be wound on a wheel 14 with a ratchet.

[0012] In Figure 2 the lower frame can be seen which is indicated with 5 and whose outer part is a cover 17 which can be folded to an outer position and mounted with bearings in a number of supports 15.

[0013] In Figures 3 - 5 the back of the board is indicated with 1. It can consist of for example several sheets of form plywood. Immediately below it there is a metal profile 16. Both the form plywood and the metal profile can be fastened directly on a house front or the board can be standing by itself and then with profiles behind it. If the board has been mounted on a plane surface the form plywood can be excluded. The lower frame 5 has here been put forward by an outer cover 17 of an aluminium profile which, in its lower part, has been fastened to an axle 18. The axle is mounted with bearings in the supports

15 which are fastened to the metal profile 16. The cover is held against the board surface by a spring (not shown in the figure). In the cover a rubber blade 19 has been fastened. At each outer end of the metal profile there is an axle support 20 and 21. 22 indicates a thin-walled and therefore light aluminium tube at whose ends there are gables 23. At the centre of each gable an Allen screw has been fastened. Outside the gable to the right a ratchet wheel 26 with a groove 27 has been fastened. 28 indicates a catch. On the outside of the tube the message has been rolled on and its lower part has been fastened to the tube with double adhesive tape. In its upper end the message has been fastened to a stiffening strip 29. The lifting ruler 6 according to the figures is of two millimetres stainless metal and has been bent so that a groove 30 has been formed, intended for the stiffening strip. The lifting ruler 6 is hoisted by the two ropes 8 and 9 of which the rope 9 has been marked in these figures.

[0014] The aluminium tube 22 according to the figures has an outer diameter of 50 millimetres, a material thickness of 1.25 millimetres and weighs 0.53 kilos per metre. It is four metres long and, with gables, ratchet wheels and Allen screws, it weighs 2.3 kilos. The plastic film which carries the message can preferably be of polypropylene plastic with an important element of chalk. With a square metre weight of 0.2 kilos it can, including the stiffening strip and the film remaining on the tube, weigh 2.8 kilos, thus 5.1 kilos together. This weight is manageable even if only with both hands you hold the tube far to the side of its centre of gravity.

[0015] The tube with the rolled-on message can be pushed on the cover 17 so that first its further end is put somewhere on the cover and then the tube is pushed on the cover towards the further support 20 so that the axle 24 will be inside the support 20 while the other end of the tube is held a little above the cover 17. Then the nearest part of the tube is pushed so that the axle 25 comes inside the nearest support 21 and the whole tube rests on the cover 17. After that the tube is turned so that the stiffening strip 29 of the message comes into the groove 30 on the lifting ruler. Then the cover is moved to its outer position according to Figure 4 and the tube falls down into its lower position according to Figure 4.

[0016] According to Figure 5 the cover has been pushed to its inner position at which the rubber strip 19 fits tightly against the message so that dirt, rain water or snow cannot get into the pinch formed by the rolled film and the tube. When the cover now stops the tube with its rolled-on layers of film from moving upwards the hoisting can start. As the lifting proceeds and the tube is more and more rolled off its centre can move a little upwards but it is stopped by the cover 17. When the lifting has proceeded so far that the whole message is almost lifted the catch 28 is inserted so that it enters the groove 27 on the ratchet wheel 26 and the tube is locked. By letting the rope wheel 14 with its ratchet wheel turn a little more the message is stretched between the lifting ruler and the tube. The cover 17 stops the tube from being bent upwards which could have been the case if the tube had only been mounted with bearings at its both ends.

[0017] When an old message is taken down the catch at the rope wheel is loosened. This is lightly braked so that the lifting ruler does not fall down. By means of a screwdriver with an Allen ball which is inserted into the Allen screw the tube 22 can be turned round at which the message is rolled on the tube and the braked lifting ruler pulled down. After that you only have to fold out the cover 17 to its outer position and lift off the tube so that the stiffening strip of the message is lifted from the groove and take off the tube with the rolled-on message.

[0018] To prevent "billowing" of the message the back side of the board can be somewhat convex between the upper and lower frames. If the message then is very much stretched it will stay tight to the underlying surface. Stretching it hard is possible as the cover 17 stops the tube from bending upwards. If the tube bends upwards the message will be bubbly.

[0019] The message can be lit from behind. As plastic film expands markedly at changes of temperature it is good that the lifting ruler can move a little. This is made possible by the rope 12 being elastic.

[0020] In the figure the ratchet wheel 26 has only one groove 27 for the catch 28. Then a certain part, for example three fourths of a round of the film must be rolled on the tube to get the message in the right place on the board. The ratchet can instead have many cogs.

[0021] The lower frame can alternatively be shaped so that, while the cover 17 is in its outer position, the tube with the rolled-on film can get directly down into the right position before the lifting without first having supported itself against the cover 17. In this case the cover 17 shall also be pushed to its inner position before the lifting is started.

[0022] By letting the cover 17 stop the tube from bending upwards when the message is stretched the tube can have low resistance to bending and thus low weight.

Claims

1. Device for billboards where the board has an upper frame (1), two side frames (2,3) and a lower frame (5) where the message when put up consists only of a plastic film (7) whose lower edge has been fastened to a tube (22) or a bar whose length corresponds to the breadth of the message and where, before being put up, the message has been rolled on the tube, **characterized by the fact** that the board is equipped with a lifting ruler (6) which has a groove (30) in which a stiffening strip (29) fastened to the upper edge of the film can be inserted when the lifting ruler is in its lowest position by the tube or the bar being held close to the lifting ruler along the whole of its length and that in the lower frame there is a catch (28) which stops the tube from turning and a cover (17) which can be put in an outer position

for putting in and taking out the tube and in an inner position where it stops the tube from being bent upwards noticeably when the message in its lifted position is stretched between the lifting ruler and the tube.

2. Device according to claim 1, **characterized by the fact** that the tube has axles (24, 25) at both ends.

3. Device according to claim 1, **characterized by the fact** that in the lower frame there are supports (20, 21), inside which the axles of the tube (24, 25) can be placed and where the tube with the message can support itself on the cover (17) while the stiffening strip (29) is inserted into the groove (30) of the lifting ruler.

4. Device according to any earlier claim, **characterized by the fact** that the cover (17) is shaped so that in its inner position it is tight to the message along the whole of its length.

5. Device according to any earlier patent claim, **characterized by the fact** that at one end the tube is shaped so that it can be rotated with a screwdriver.

6. Device according to any earlier patent claim, **characterized by the fact** that the board has a hard back side against which the message can support itself.

7. Device according to any earlier patent claim, **characterized by the fact** that both ends of the lifting ruler reach under the side frames and can be guided by them.

8. Device according to any earlier patent claim, **characterized by the fact** that the axles (24, 25) can rest in supports (20, 21) in the lower frame.

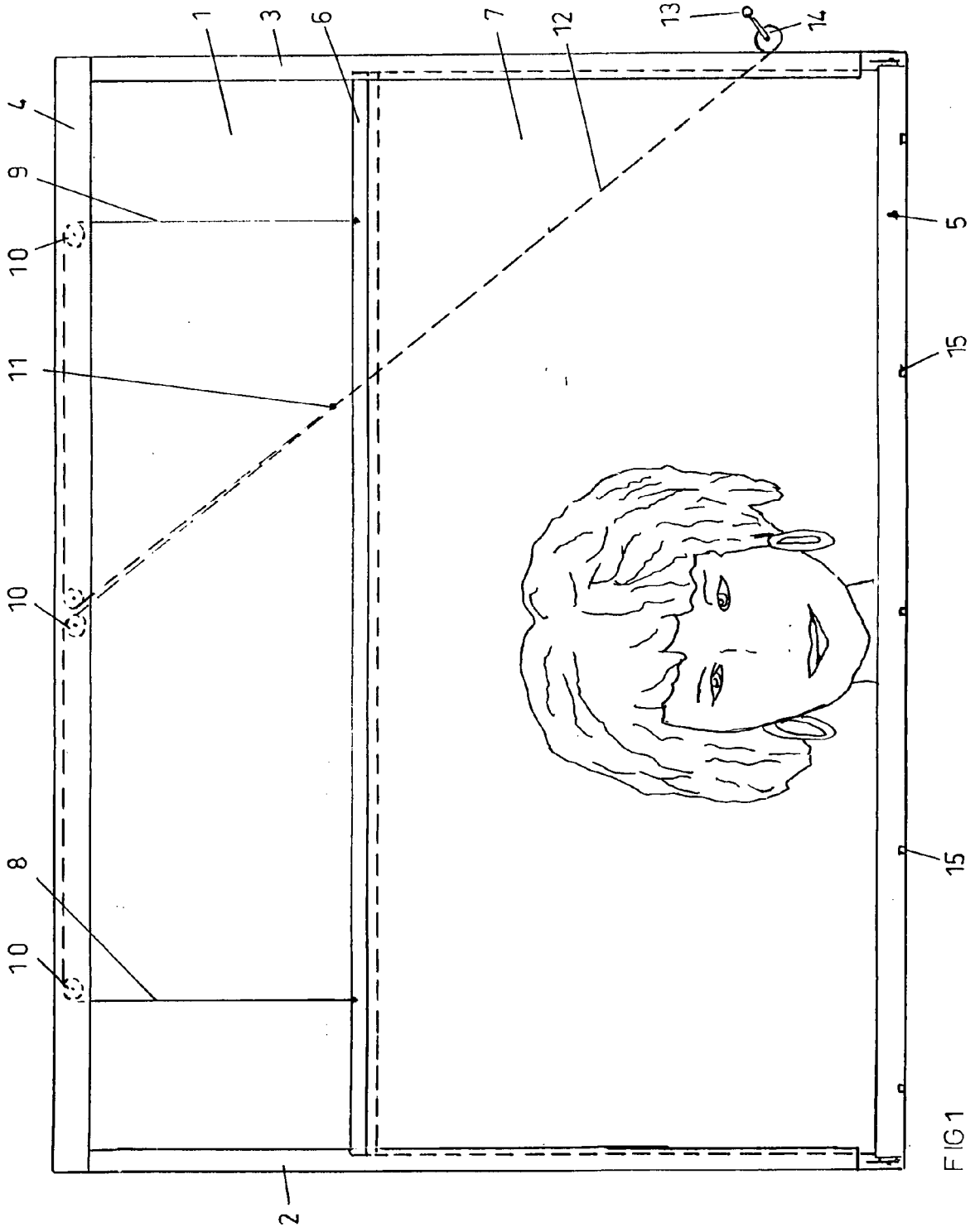

FIG 1

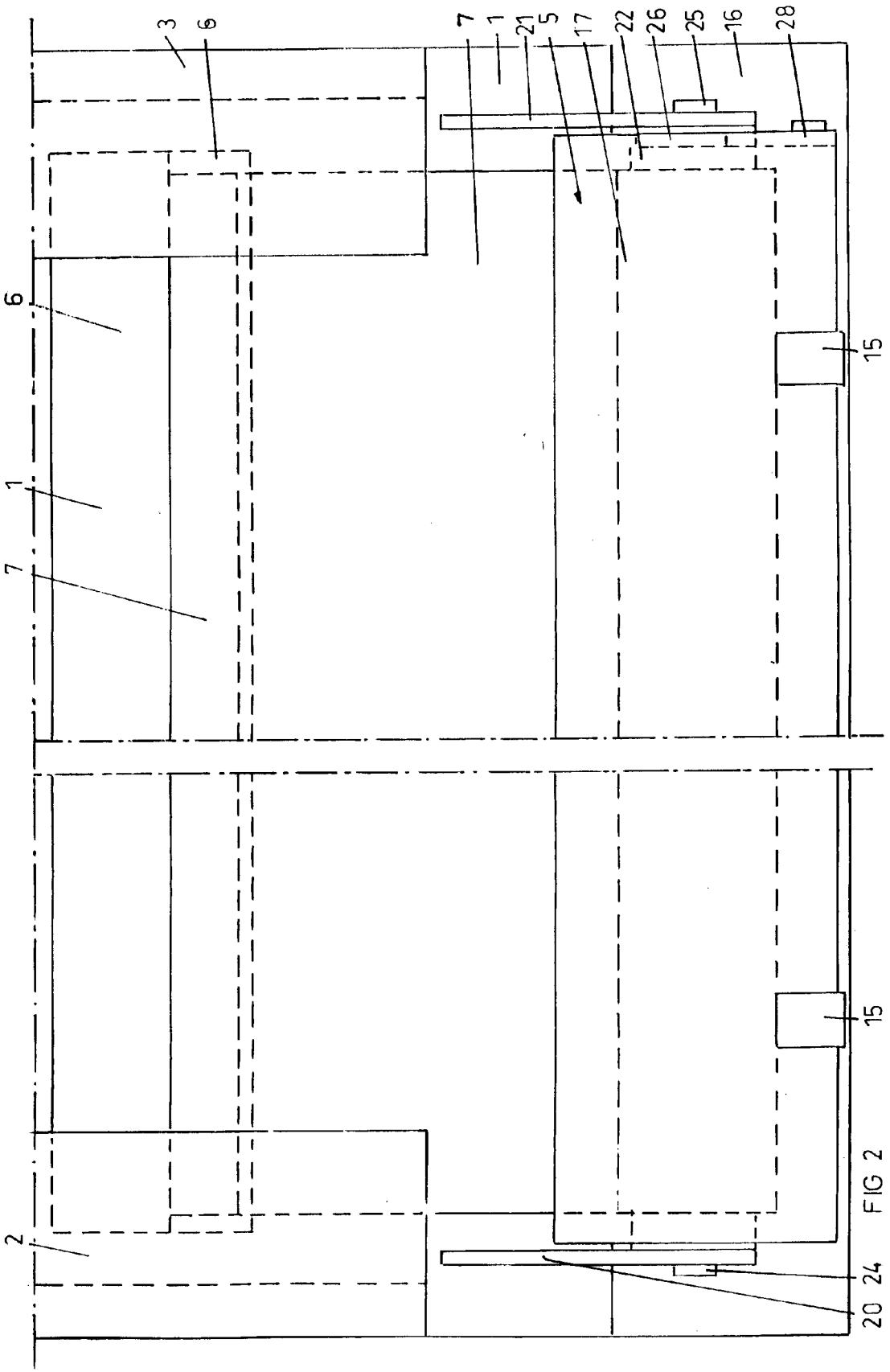

FIG 2

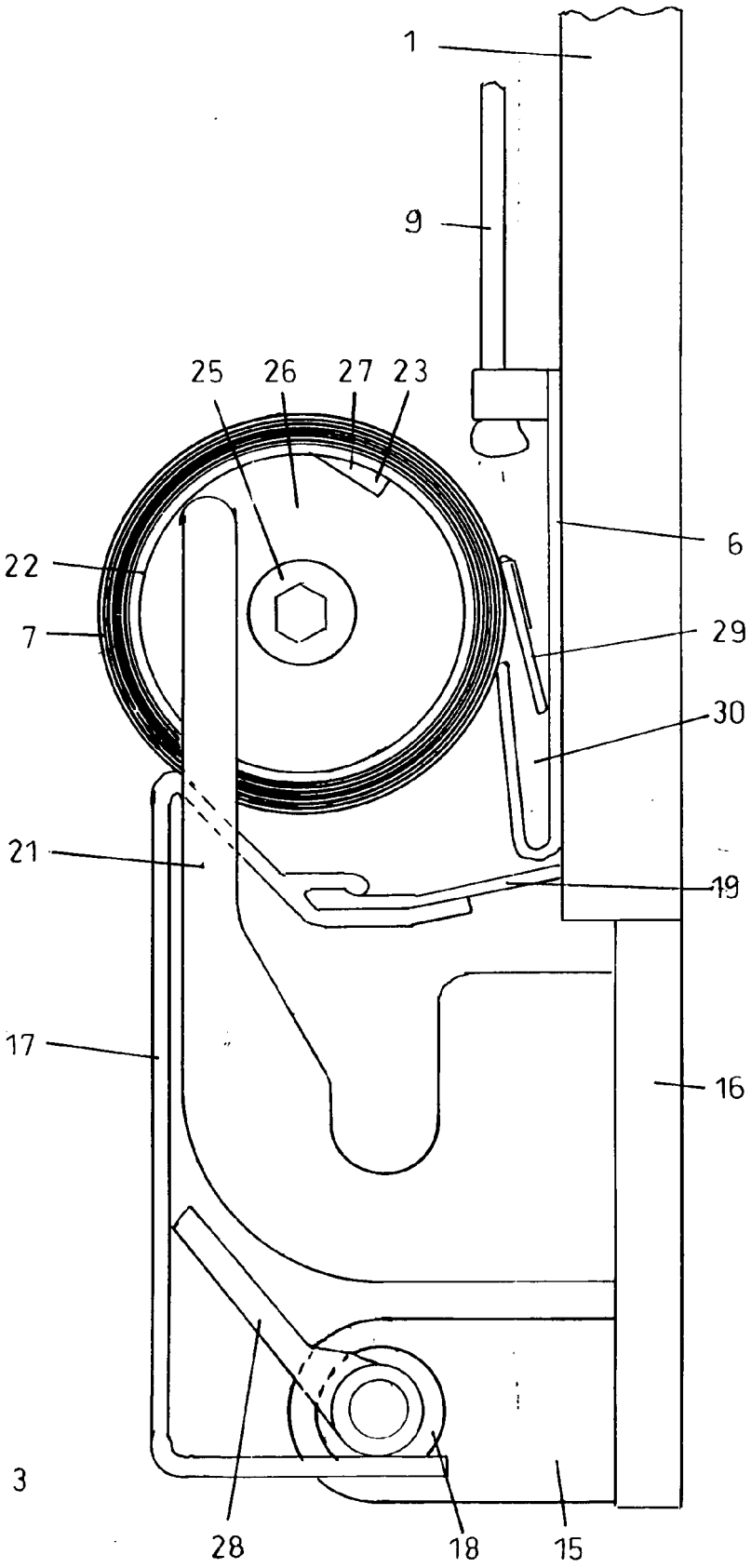

FIG 3

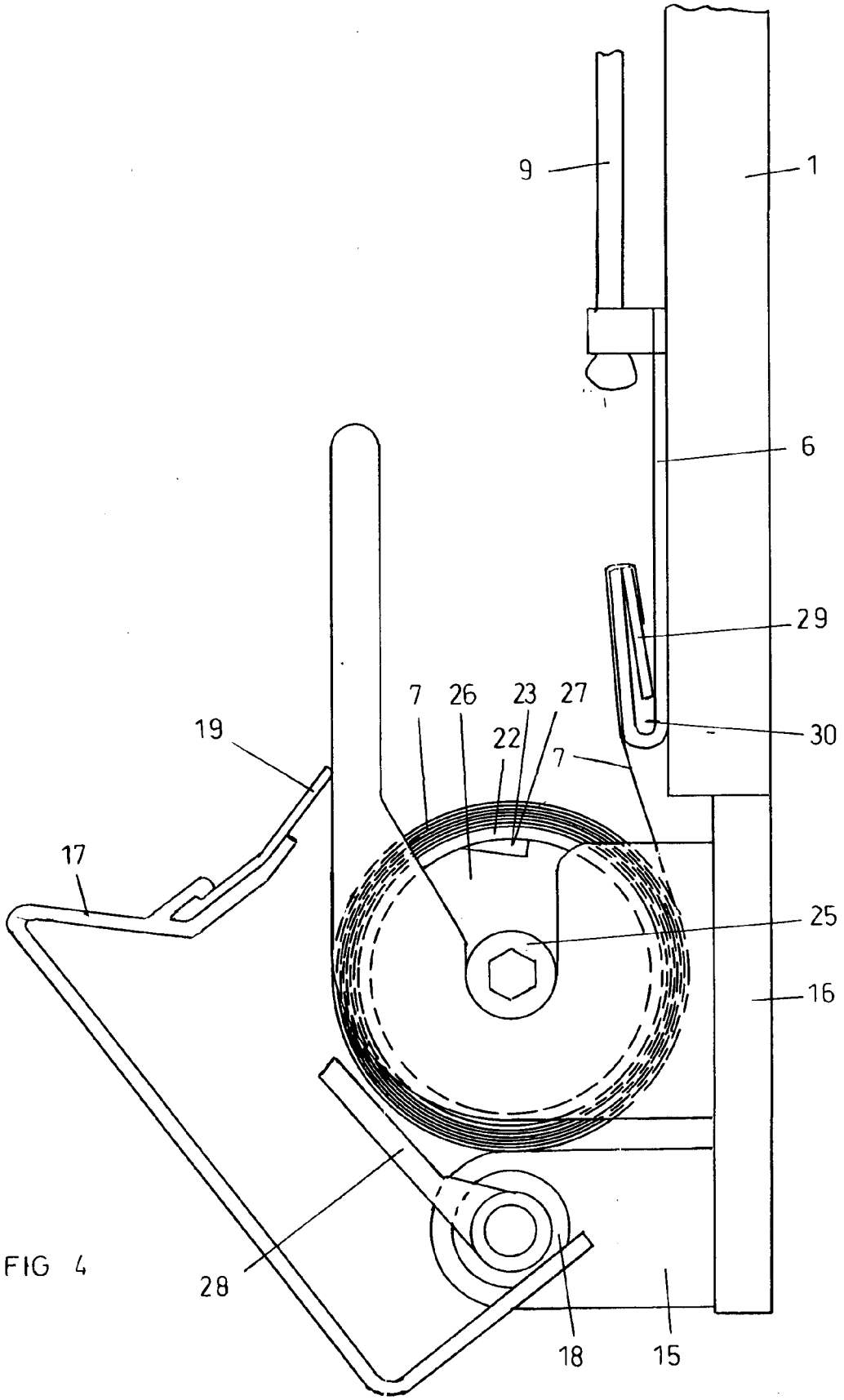

FIG 4

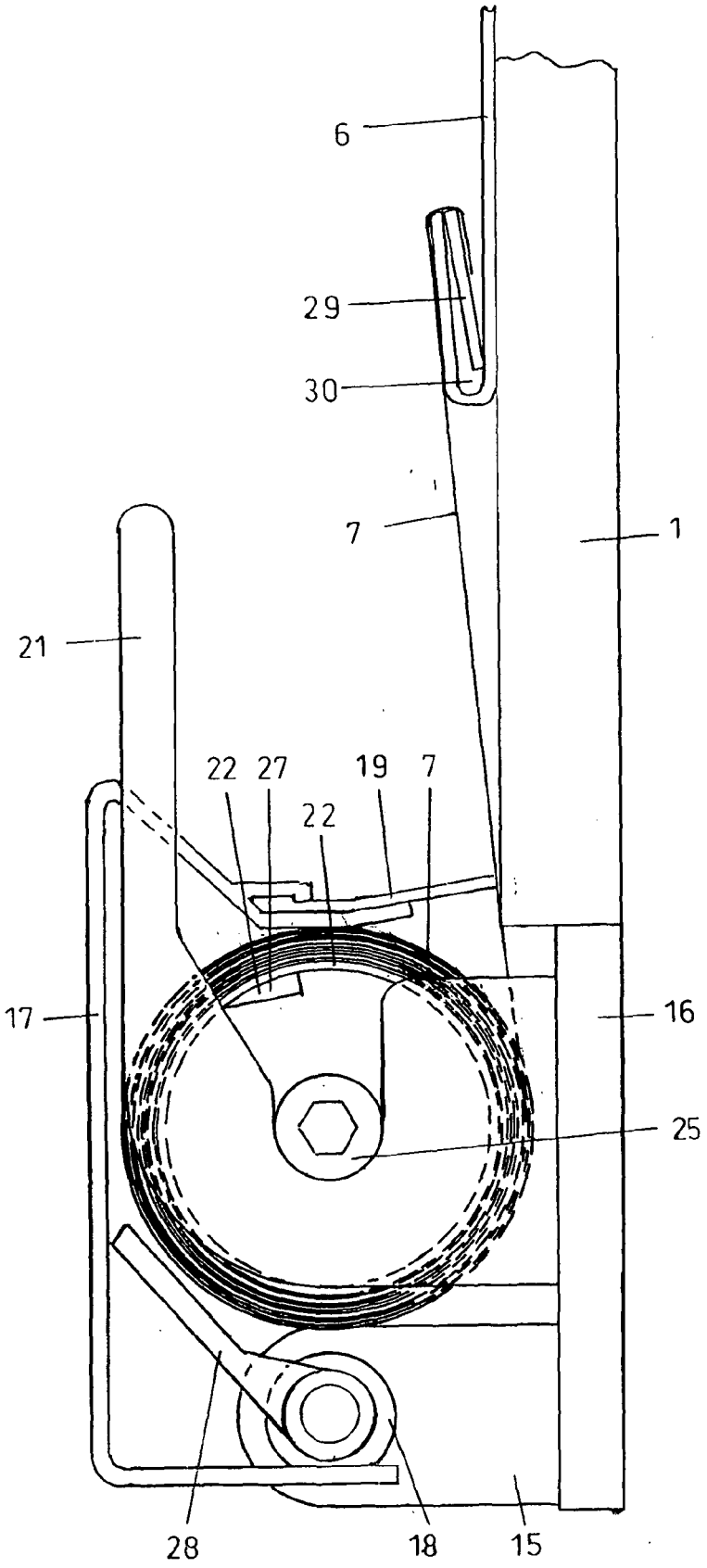

FIG 5

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EUROPEAN SEARCH REPORT

Application Number
EP 07 44 5036

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			G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	3 January 2008	Pavlov, Valeri

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