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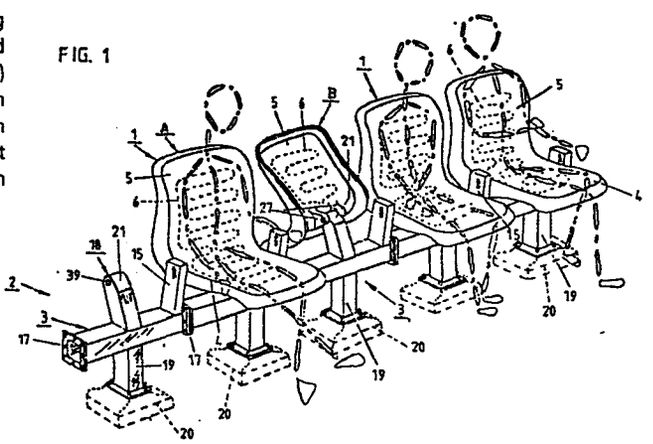
(54) A movable seat having an electrically operated heating device.

(57) A movable seat has an electrically operated heating device. In order to automatically put the electrically operated heating device (6), into operation, the heating device (6) forms a part of an electric circuit (7) with a switch mechanism (9) provided for closing or opening the electric circuit in dependence on various positions (A and B resp.) of the seat (1) for putting the heating device into or out of operation in dependence on said positions (A, B).

FIG. 1



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Berth Nilsson

A movable seat having an electrically operated heating device.

The present invention relates to a movable seat having an electrically operated heating device.

It is often uncomfortable during the cold parts of the year to sit on outdoor seats on sports grounds and similar.

The object of the present invention therefore, is to provide a movable seat having an electrically operated heating device which is automatically put into operation.

This is arrived at according to the invention while the heating device forms a part of an electric circuit with a switch mechanism provided to close or open the electric circuit in dependence on various positions of the seat for putting the heating device into or out of operation in dependence on said positions.

These inventional features permit a person using the seat to put the heating device into operation by setting the seat such that it may be seated upon.

The above and other characterizing features will be further described below with reference to the accompanying drawings, in which

Fig. 1 is a perspective view over a number of electrically heated, movable seats according to the invention and a stand therefor;

Fig. 2 is a schematically diagram over an electric circuit for a seat;

Fig. 3 is a longitudinal section through a seat and a stand for said seat including one type of resetting device;

Fig. 4 is a front view, partly in section, of another stand structure having another type of resetting device and including a damper; and

Fig. 5 is a longitudinal section through a seat and a stand for said seat including a damper according to fig. 4.

With reference to fig. 1, it is shown herein a number of seats 1 according to the invention which are movably mounted on a stand 2. The stand 2, which is optionally extensible, comprises a plurality of sections 3 connected to each other by means of flange portions 17, whereby each section 3 carries a seat 1 via a post 18. Each section 3 may be anchored to the ground through a leg 19 and a base 20 or being movable. In the sitting portion 4 and back support 5 of the seat 1 there is provided an electrically operated heating device 6 for heating the seat during the colder periods of the year, while the seat otherwise is cold and uncomfortable to sit on. The seat 1 is namely preferably intended

for outdoor use, e.g. on sports grounds and in other public places.

The heating device 6, which in the embodiment of fig. 1 extends in loops in the sitting portion 4 and back support 5 of the seat 1, forms a part of an electric circuit 7 (see fig. 2) which is energized by a power supply 8 such as a battery or via a main circuit connection. When a battery is used, all members of the electric circuit 7 outside the seat 1 are preferably located in the stand 2. Thus, the stand 2 further includes a switch mechanism 9 for closing or opening the electric circuit 7 in dependence on various positions of the movable seat 1 for putting the heating device 6 into or out of operation in dependence on said positions. In its most simple embodiment, the switch mechanism 9 merely comprises a contacting member 11 which is controlled by e.g. a cam disk 10 (see also fig. 3) on the seat 1. The cam disk 10 is movable with the seat 1 and connects or disconnects the electric circuit 7 via the contacting member 11 in dependence on the position of the seat 1. However, the electric circuit 7, i.e. the switch mechanism 9 in the electric circuit, preferably further comprises a contacting member 13 controlled by a thermostat 12 (see also fig. 3) for opening or disconnecting the electric circuit when the heating device has reached a certain predetermined temperature. This for obviating overheating of the seat 1. Furthermore, the switch mechanism 9 in the electric circuit 7 may also comprise a contacting member 14 which closes or switch on the electric circuit when a coin vending machine 15 (see also fig. 1 and 3) connected thereto receives a coin 16. When a thermostat 12 and coin vending machine 15 respectively, are provided, the contacting members

13, 14 therefor are preferably connected in series with the contacting member 11 controlled by the cam disk 10 such that the heating device 6 is never in operation if the seat 1 is in a position opening or disconnecting the electric circuit 7 or if the temperature is too high and no coin has been put into the coin vending machine.

The seat 1 is in a position A closing the electric circuit 7 via the switch mechanism 9, whereby the heating device 6 is activated, when someone sits on the seat. In the embodiment of fig. 1 and 3, the back side of the seat 1 is then engaging an inclined upper surface 21 on the post 18. The seat 1 is displaceable from said position A closing the electric circuit 7 via the switch mechanism 9 to a position B disconnecting or opening the electric circuit via the switch mechanism, wherein the sitting portion 4 of the seat 1 is directed upwards. Such an arrangement is provided for preventing rain and snow from heaping up on the sitting portion 4. Alternatively, where, as is shown in the drawings, the seat 1 comprises a sitting portion 4 which is formed integral with the back support 5, the seat is displaceable to such a position B disconnecting or opening the electric circuit 7, wherein the sitting portion 4 covers at least a part of the back support 5 from above, whereby the back support 5 is also protected from being socked by rain or snow. In the embodiment of fog. 1 and 3, another upper, inclined surface 22 on the post 18 now provides an engaging surface for the back side of the seat 1.

The seat 1 is movable from the position B opening the electric circuit 7 to the position A closing the electric circuit against the action of a resetting device 23, which seeks to reset the seat to the position opening the electric circuit. This for

preventing the heating device 6 from being activated and put into operation unintentionally, without anyone sitting on the seat. The resetting device 23, which is provided between the seat 1 and the stand 2, is preferably located inside the stand.

In the embodiment of fig. 3, the resetting device 23 is consequently located in the post 18 to the stand 2 and comprises a tension spring 24, one end of which is attached to the inner surface of the post. The other end of the tension spring 24 is attached to a cam disk 25, which is rigidly connected to the axis 26 extending through an aperture 39 in the post and rigidly anchored between two flanges 27 on the back side of the seat 1, whereby the seat is movably mounted on the post. The cam disk 10 for controlling the contacting member 11 which closes and opens the electric circuit 7 for operating the heating device 6 in dependence of the position of the seat 1 is also rigidly connected to the axis 26. In the position A closing the electric circuit 7 (illustrated with solid lines), the tension spring 24 is stretched and the cam disk 10 pressed against the contacting member 11 such that the contacts therein are brought together. If the temperature is sufficiently low and a coin is inserted into the coin vending machine, the electric circuit 7 is closed and the heating device 6 in operation. When a person sitting on the seat 1 rises, the tension spring 24 contracts and the seat 1 is displaced by the spring force via the cam disk 25 and the axis 26, which then are rotated, and reset towards the position B opening the electric circuit 7 (illustrated with the dotted and dashed lines). The electric circuit 7 is disconnected or opened while the cam disk 10, upon rotation of the axis 26, ceases to engage the contacting member 11.

Fig. 4 illustrates an alternative embodiment of the resetting

device 23. This resetting device 23 comprises a torsion spring 28 provided within a tube 29 of the stand 2, said tube extending between two members constituting the legs 30 of the stand. The tube 29 is rotatably journalled between the legs 30 and includes brackets 36 rigidly connected to the tube, whereby the seat 1 is fixedly mounted on said brackets via the flanges 27 provided on the back side of the seat. One end of the torsion spring 28 is attached to the inner surface of the tube 29, while the other end is attached to one of the legs 30. When the seat 1 moves from the position B (see fig. 5) closing the electric circuit 7 to the position A opening the electric circuit (see fig. 5), the spring 28 is twisted and streched. When the seat 1 is no longer used, the tube 29 is rotated by the resetting force of the torsion spring 28 and the seat is displaced to the position B opening the electric circuit 7. As in the prior embodiment, the legs 30 may be anchored to the ground via a base 38 or provided with a support of a suitable type, such that the stand 2 with the seat 1 is movable.

The embodiment of fig. 4 and 5 also comprises a damper 31 for damping the movement of the seat 1 caused by the torsion spring 28. Here, the damper 31 consists of a gas spring 32, the cylinder 33 of which is attached to one of the legs 30, while the piston 34 thereof is articulated with an arm 35 which is rigidly connected to the tube 29. In the position A closing the electric circuit 7 of the seat 1 (illustrated with solid lines in fig. 5), the piston 34 is fully extended. When the torsion spring 28 resets the seat 1 to its position B opening the electric circuit 7 (dotted and dashed lines in fig. 5), the piston 34 is moved into the cylinder 33. The resetting of the seat 1 is hereby damped by the compression of the gas, e.g. air, enclosed in the cylinder 33.

A beam 37 on the stand 2 provides a stop for the gas spring 32 in the position B opening the electric circuit 7 of the seat 1. A damper structure of the above type may also be arranged for the resetting device of fig. 3. Other types of dampers may also be provided.

It is obvious for a skilled person that the present invention may be modified and amended within the scope of the following claims without departing from the idea and object of the invention.

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C L A I M S :

1. A movable seat having an electrically operated heating device, c h a r a c t e r i s e d i n that the heating device (6) forms a part of an electric circuit (7) with a switch mechanism (9) provided for closing or opening the electric circuit in dependence on various positions (A, B) of the seat (1) for putting the heating device into or out of operation in dependence on said positions.

2. The movable seat according to claim 1, c h a r a c t e r i s e d i n that the seat (1), when sitting thereon, is in a position (A) closing the electric circuit (7) via the switch mechanism (9).

3. The movable seat according to claim 2, c h a r a c t e r i s e d i n that the seat (1) is displaceable from the position (A) closing the electric circuit (7) via the switch mechanism (9) to a position (B) opening said electric circuit via the switch mechanism, at which the sitting portion (4) of the seat is directed upwards.

4. The movable seat according to any of claim 1-3, whereby

the seat comprises a sitting portion integrally formed with a back support, c h a r a c t e r i s e d i n that the seat (1) is displaceable to such a position (B) opening the electric circuit (7) via the switch mechanism (9), wherein the sitting portion (4) at least partially covers the back support (5) from above.

5. The movable seat according to any of claim 1-4, c h a r a c t e r i s e d i n that the electric circuit (7) comprises a thermostat (12) for opening said electric circuit when the heating device (6) has reached a certain temperature.

6. The movable seat according to any of claim 1-5, c h a r a c t e r i s e d i n that the electric circuit (7) comprises a contacting member (14) for closing said electric circuit when a coin (16) is inserted into a coin vending machine (15).

7. The movable seat according to any of claim 1-6, c h a r a c t e r i s e d i n that the seat (1) is movable from its position (B) opening the electric circuit (7) to its position (A) closing said electric circuit against the action of a resetting device (23) seeking to reset the seat to its position opening said electric circuit.

8. The movable seat according to claim 7, c h a r a c t e r i s e d i n that the resetting device (23) comprises a spring (24-28) provided between the seat (1) and a stand (2) for said seat, whereby a damper (31) is provided to damp the movement of the seat caused by the spring.

9. The movable seat according to claim 8, c h a r a c t e r i s e d i n that the resetting device (23) causing movement of the seat (1) is located within the stand (2) on which the seat is mounted.

10. The movable seat according to any preceding claims, ... c h a r a c t e r i s e d i n that all members (8, 9) of the electric circuit (7) located outside the seat (1) are provided in a stand (2) on which the seat is mounted.

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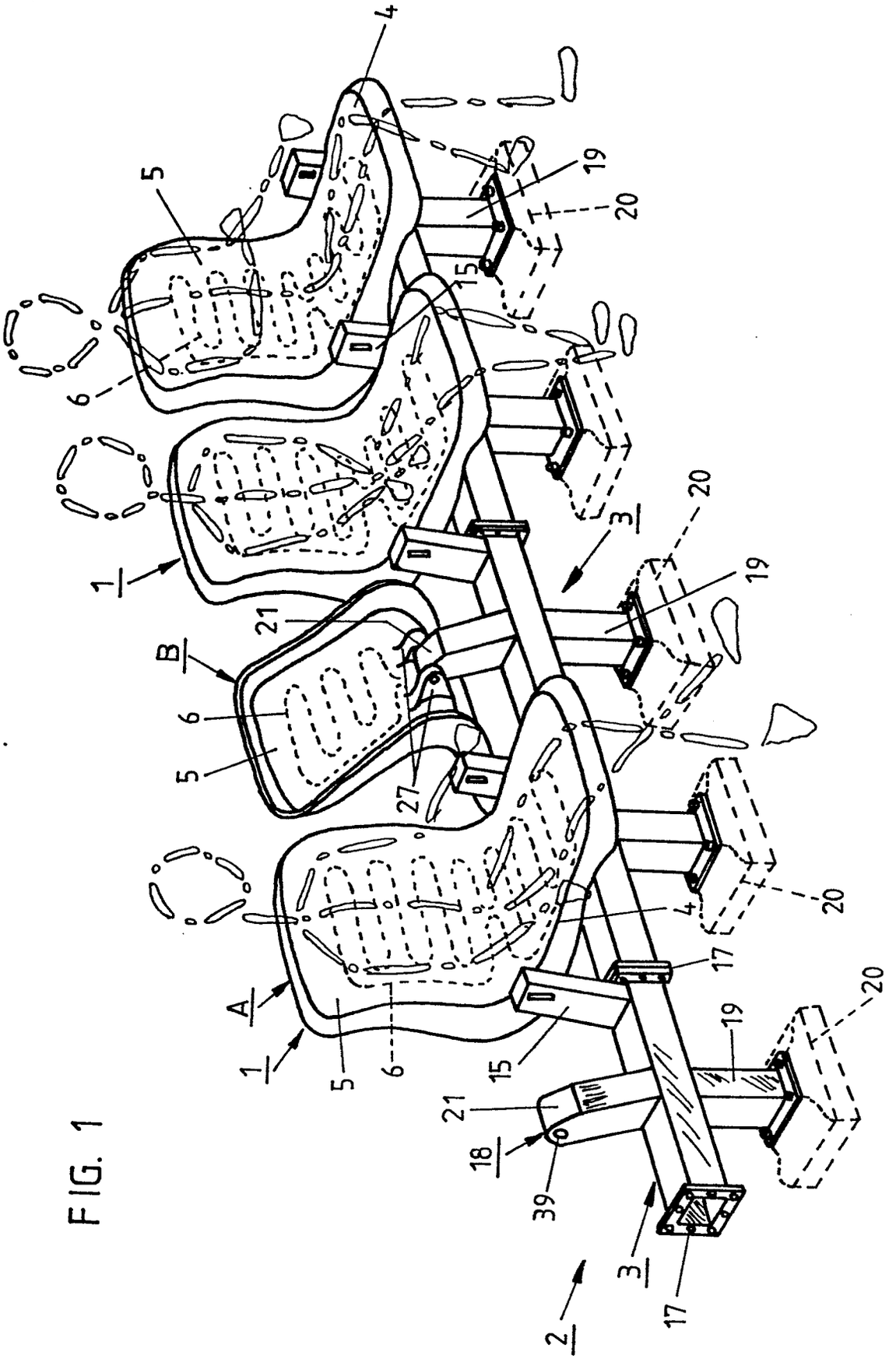

FIG. 1

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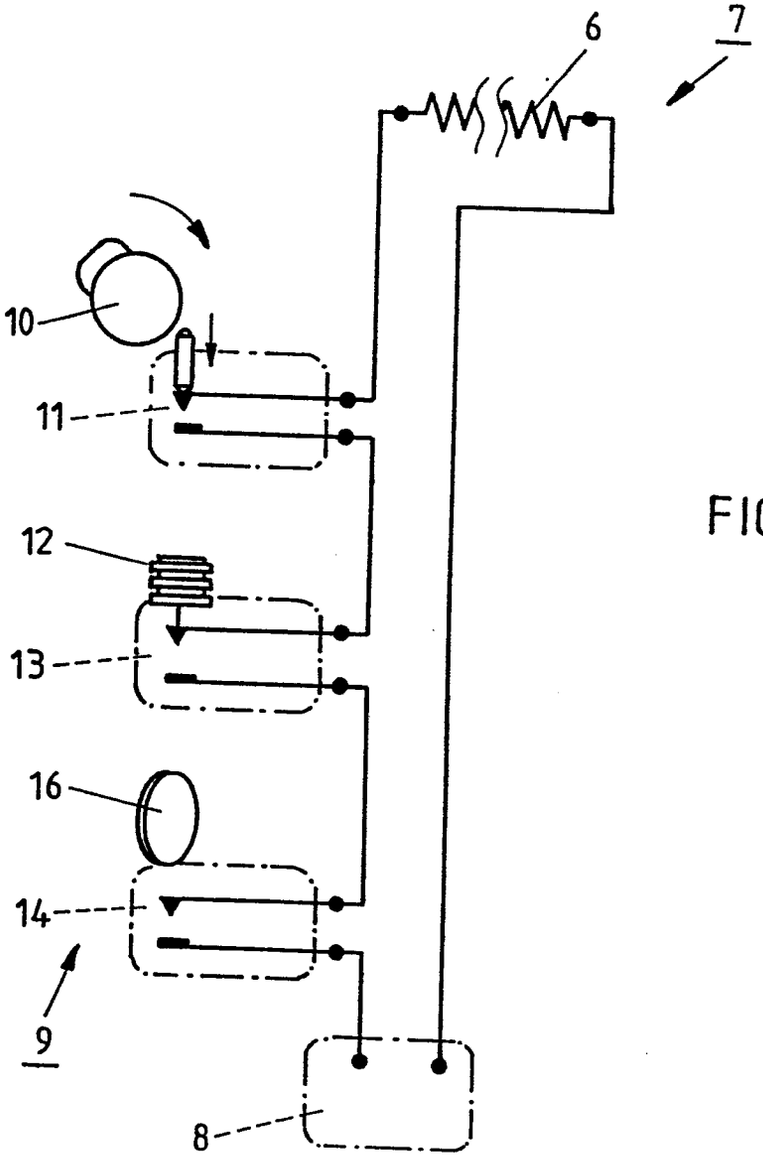

FIG. 2

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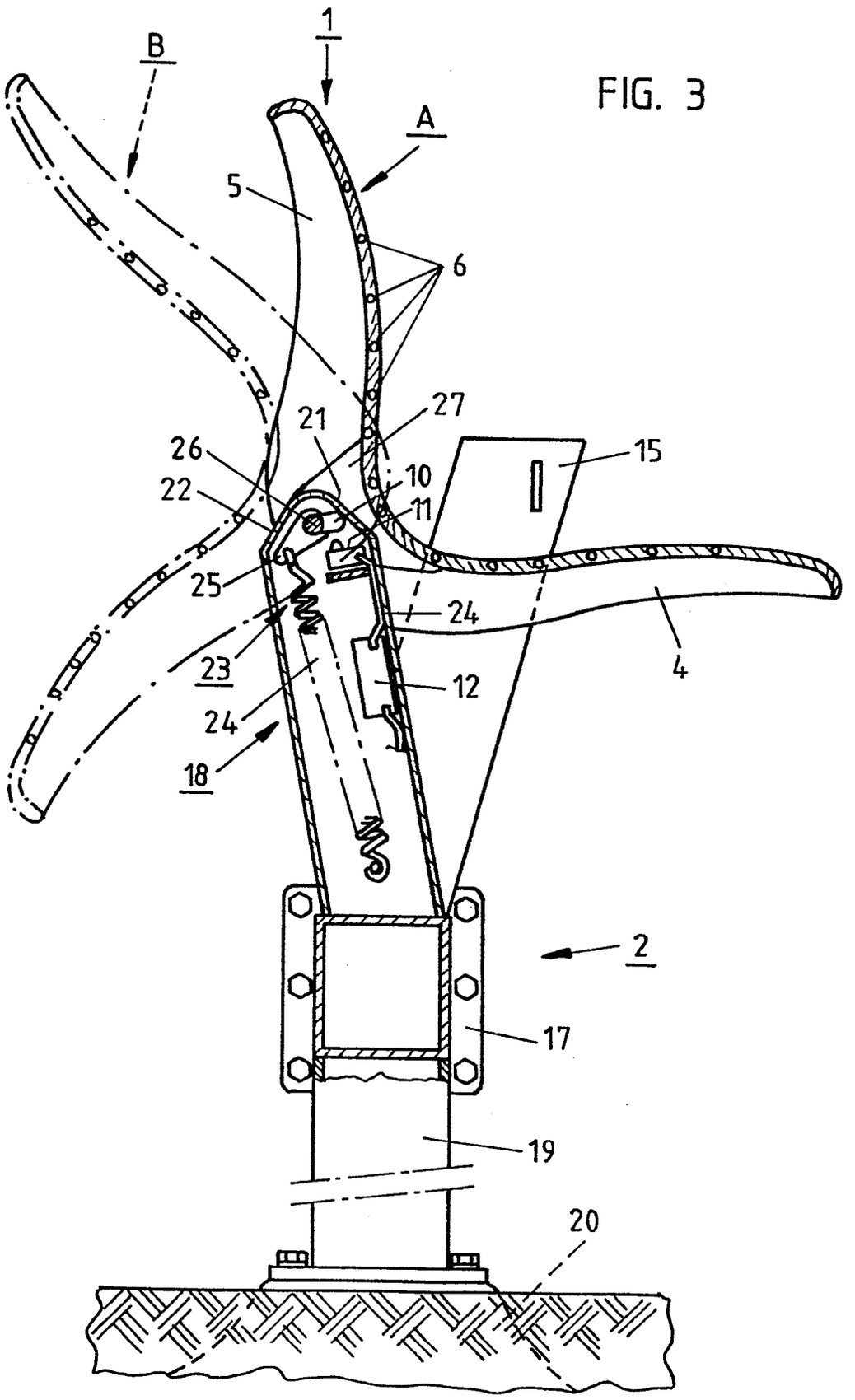
FIG. 3



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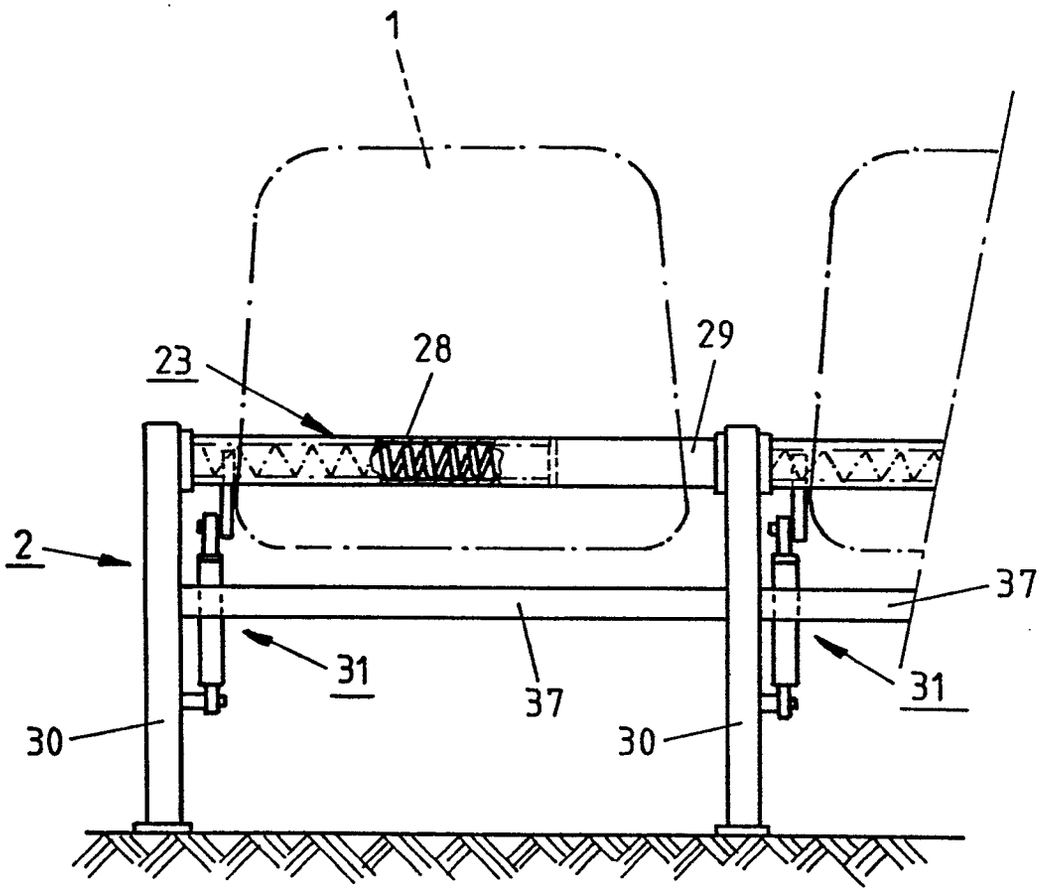

FIG. 4

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FIG. 5