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(54) **Door hinge, in particular for a coldroom, with separable components and intermediate protection element**

(57) A coldroom door hinge comprises a body (2) presenting two parts (3, 4) movable relative to each other but held together by a retaining element (6), a first (3) of said parts (3, 4) being rotatable about a longitudinal axis (W) of said body and being rigid with said door, the second (4) of said parts (3, 4) being fixed to a doorpost, inclined plane portions (10, 11) being present between said parts (3, 4) to cause the first part (3) and second part (4) to separate on rotating the first part (3) about said

longitudinal axis (W), this separation taking place along said axis with consequent lifting of the door from a reference surface or floor. A protection element for said portions (10, 11) is present at said portions (10, 11) or in a region of separation between the parts (3, 4) of the hinge body (2), and is disposed about said portions (10, 11) to protect these portions from dust or the like when the first part (3) and second part (4) of the hinge body (2) separate.

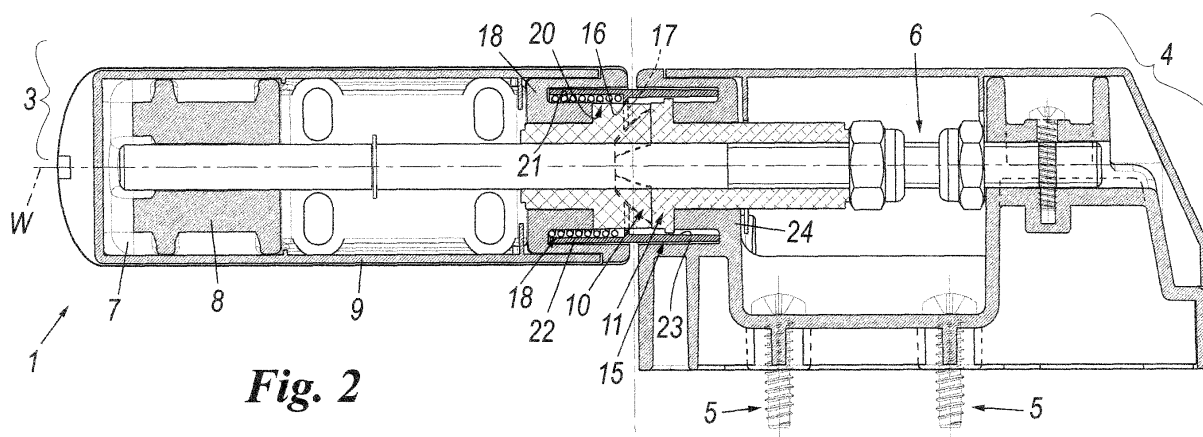


Fig. 2

Description

[0001] The present invention relates to a coldroom door hinge in accordance with the introduction to the main claim.

[0002] A hinge of the stated type comprises a body usually presenting a first part and a second part. The first part is fixed to the coldroom door and rotates therewith about a hinge axis, relative to which the second part is stationary, this being fixed to a doorpost about which the door moves. The two parts of the hinge body move axially while the first part is rotating about the hinge axis, but are held together by a usual coupling element such as a threaded rod with a locking nut, bolt, screw or the like.

[0003] The movement of said hinge body parts away from each other along the hinge axis is achieved by providing, at the adjacent ends of said parts, inclined plane elements or portions which mutually cooperate. The rotation of the door or rather of the first part of the hinge about the hinge axis causes the corresponding inclined plane portion to move along the inclined plane portion of the second part so that they withdraw from each other along the hinge axis.

[0004] With a hinge of the aforesaid type there is a problem regarding the deposition of dust or the like on the inclined plane portions (in particular on their contacting surfaces) as the hinge body parts axially separate. This separation exposes the surfaces of the inclined plane portions to the air, with the consequent possibility of dust depositing on them. With time, this can impede normal hinge operation, with consequent hindering of correct door opening.

[0005] An object of the present invention is to provide a hinge comprising axially separable parts in which the inclined plane portions are protected against atmospheric agents, dust, etc., which could deposit on the contacting surfaces of these portions and/or which with the passing of time could prevent correct hinge operation.

[0006] A particular object of the present invention is to provide a hinge of the stated type which is simple to produce and mount.

[0007] These and other objects which will be apparent to the expert of the art are attained by a hinge in accordance with the accompanying claims.

[0008] The present invention will be more apparent from the accompanying drawings, which are provided by way of non-limiting example and in which:

Figure 1 is a front view of a hinge of the invention during its use; and

Figure 2 is a section on the line II-II of Figure 1.

[0009] With reference to said figures, these show a hinge 1 comprising a hinge body 2 presenting a first part 3 and a second part 4. The first part 3 is intended to be fixed (by known screws, not shown) to a door, in particular of a coldroom, while the second part 4 is intended to be fixed by screws 5 to a doorpost (not shown) about which

said door moves (relative to a surface or floor). These parts are known and are mutually associated in known manner. In this embodiment they are held together by a threaded rod 6 inserted into the second part 4 and provided with an enlarged head 7 cooperating with an end portion 8 of the first part 3 of the hinge body 2. This end portion is enclosed by a casing 9, as is the remainder of the part 3.

[0010] The two parts 3 and 4 of the hinge body 2 respectively present an inclined plane portion 10, 11 of known type presenting inclined plane or helical surfaces (not shown) which mutually cooperate. Specifically, the first and second part 3, 4 of the body 2 are axially movable along a longitudinal axis W of said body when the first part 3 rotates relative to the second 4 about said axis, during the movement of the door to which it is fixed. This rotation causes sliding of the inclined plane surfaces one on the other, leading to movement of said parts 3 and 4 away from each other along the axis W, while during door closure these parts move towards each other to reach the position shown in the figures.

[0011] During this movement away from each other, the contacting surfaces of the inclined plane portions 10 and 11 become visible and accessible from the outside, hence in order to prevent dust or the like depositing on them and hindering correct hinge operation, according to the invention a protection element 15 is inserted into the body 2 about said portions, this being of substantially cylindrical form with a projecting central ring or collar 16 which, when the hinge body 2 is in its rest position, lies within an annular recess 17 in the inclined plane portion 10 (or at least it juts towards said recess).

[0012] A preloaded compression spring 20 is present between the ring 16 and a component 18 of the first part 3 of the hinge body 2 close to the inclined plane portion 10, and is squeezed between the ring or collar 16 and said component 18 when the hinge body is in its rest position shown in the figures. Specifically, the spring 20 lies within a recess 21 provided in the component 18, in which a portion 22 of the protection element 15 also lies. A second portion 23 of this latter positioned between the ring or collar 16 and an internal part 24 of the second part 4 of the body 2 lies about the inclined plane portion 11 of this latter.

[0013] By virtue of the invention, when the door rotates about the hinge axis W and the parts 3 and 4 of the body 2 withdraw from each other in the usual manner, the inclined plane portions 10 and 11 remain covered by the protection element 15. This rotation is facilitated by the presence of the spring 20 which tends to withdraw the part 3 from the part 4 while at the same time by pressing on the ring or collar 16 it maintains the element 15 in position on the internal part 24 of the stationary second part 4 of the body. In this manner the protection element 15 remains fixed in position, to completely protect the inclined plane portions 10 and 11.

[0014] The described and illustrated embodiment is simple to produce and to mount. By virtue of the protec-

tion element, the inclined plane portions are protected from the atmospheric agents and dust, and can be completely coated with grease or other lubricant, which is maintained in position by the element 15 itself.

[0015] A particular embodiment of the invention has been described, however others are possible in the light of the foregoing description and are to be considered as falling within the scope of the ensuing claims.

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Claims

1. A coldroom door hinge comprising a body (2) presenting two parts (3, 4) movable relative to each other but held together by a retaining element (6), a first (3) of said parts (3, 4) being rotatable about a longitudinal axis (W) of said body and being rigid with said door, the second (4) of said parts (3, 4) being fixed to a doorpost, inclined plane portions (10, 11) being present between said parts (3, 4) to cause the first part (3) and second part (4) to separate on rotating the first part (3) about said longitudinal axis (W), this separation taking place along said axis with consequent lifting of the door from a reference surface or floor, **characterised in that** a protection element for said portions (10, 11) is present at said portions (10, 11) or in a region of separation between the parts (3, 4) of the hinge body (2), and is disposed about said portions (10, 11) to protect these portions from dust or the like when the first part (3) and second part (4) of the hinge body (2) separate. 15 20 25 30
2. A hinge as claimed in claim 1, **characterised in that** the protection element (15) presents a first portion (22) and a second portion (23), this latter disposed about the inclined plane portions (10, 11) of the two parts (3, 4) of the hinge body. 35
3. A hinge as claimed in claim 1, **characterised in that** the protection element (15) presents, between the first and second portion (22, 23), an inner collar (16) on which a spring (20) acts to maintain said element in the position for protecting the parts (10, 11) of the hinge body (2). 40 45
4. A hinge as claimed in claim 2, **characterised in that** the spring (20) lies between the collar (16) and a recess or seat provided in a component (18) of the first hinge part (3). 50
5. A hinge as claimed in claim 3, **characterised in that** said collar (16) projects towards an annular recess (17) of said first hinge part (3). 55
6. A hinge as claimed in claim 1, **characterised in that** the protection element is substantially cylindrical in shape.

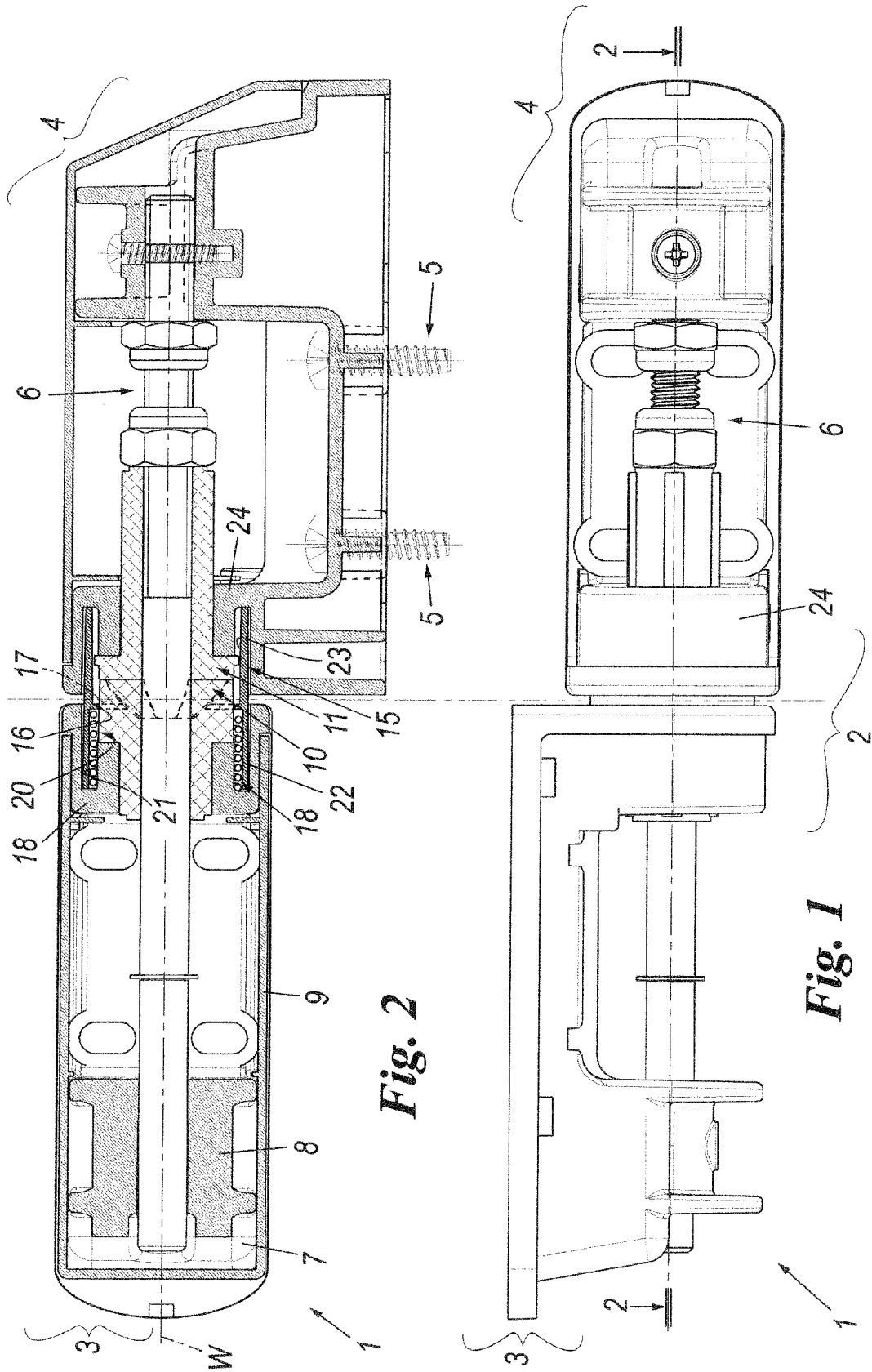


Fig. 2

Fig. 1