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(73) Proprietor: **Cartwright, Peter**
Unit 4A, Carlyon Rd. Ind. Estate
Atherstone Warwickshire (GB)

(72) Inventor: **Cartwright, Peter**
Unit 4A, Carlyon Rd. Ind. Estate
Atherstone Warwickshire (GB)

(74) Representative: **Wilson, Nicholas Martin et al**
WITHERS & ROGERS 4 Dyer's Buildings Holborn
London EC1N 2JT (GB)

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Description

This invention relates to an access panel assembly primarily for a suspended ceiling.

An access panel assembly is known from G.B. publication 2116601 which discloses a suspended ceiling access panel pivotally mounted in a frame by means of a fixed pin extending outwardly from each of a pair of side walls of the panel. The pins engage in an L-shaped slot in a respective side wall of the frame arranged to allow the panel to be removed from the frame.

However that design, whilst enabling removal, has two main disadvantages namely:

(i) it is not air sealed. Often building design requires different pressures either side of a suspended ceiling in which case an air sealed access panel assembly is essential, and

(ii) the assembly incorporates outwardly directed portions, such as the flanges on the frame, the pins and the lock tongue, which can foul on light fixtures, ducting etc. within the ceiling space.

An object of the present invention is to provide an improved access panel assembly the design of which allows at least one, and preferably both, of these disadvantages to be overcome.

According to the present invention there is provided an access panel assembly comprising a frame, and an access panel pivotally mounted in the frame by hinge means which, during opening and closing of the panel, permit angular movement and translation of said panel in the plane of the frame, characterised thereby that, during opening and closing, said hinge means permit translation of the panel away from or towards respectively, the pivot axis, in the plane of the panel.

Preferably said translation permits the panel to clear the frame.

In a preferred embodiment the hinge means comprise two rods pivotally mounted on the frame and received by one or more brackets secured to the access panel. The rods may be 'T' shaped and engage with respective 'T' shaped slots in the frame so that, by appropriate manipulation whereby the heads of the rods pass through the slots, the access panel may be removed from the frame.

The hinge axis may move inwardly of the frame as the panel is opened in use. In order to provide air sealing the frame may incorporate a circumferential seal to co-operate with the access panel.

The invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of the preferred access panel assembly in the closed position;

Figure 2 is a perspective view of the access panel assembly in the open position;

Figure 3 is a partial exploded perspective showing the hinge detail of the preferred access panel assembly; and

Figures 4 and 5 are diagrammatic part sidesectional views of the access panel assembly in the closed and open positions respectively.

In the drawings an access panel assembly 1 comprises a frame 2 and an access panel 3. The frame 2 has side walls of a stepped configuration, as shown, such that a lower flange 4 has an outer surface which determines the outer dimensions of the assembly and an inner surface which defines the access panel 3 seating. The frame 2 is either bolted on to a primary channel 5 by means of brackets 6 as shown in phantom lines or, alternatively, can be suspended by rigid rod hangers (not shown).

One side wall 7 of the frame 2 is provided with a pair of T-slots 8 for releasably receiving the hinge mounting of the access panel 3 as will be explained in detail below, whilst an opposed side wall 9 has a lock 10 disposed within its step and adjacent a longitudinal slot (not shown). The lock moved by a locking key so that the tongue protrudes through the slot in the frame 2 and engages under a lock bracket 11 on the access panel 3 thereby locking the panel 3 to the frame 2.

The access panel 3 has depending side flanges 12, of a depth consistent with a ceiling tile 13 to be positioned within the panel 3 in conventional manner, and a removable end wall 14 which allows positioning of the tile 13. The end wall 14 has spaced screw holes 15 which enable the end wall 14 to be secured to a U-shaped bracket 16 welded to the upper surface of the access panel 3.

The bracket 16 has an aligned pair of holes at each end each of which receive a T-shaped hinge rod 17. The hinge rods 17 are slidable relative to the bracket 16 within limits determined by a stop 18 positioned on each of the rods 17 and between the spaced upstanding limbs of U-shaped bracket 16. The heads of the hinge rods 17, which define a movable hinge axis, are dimensioned such that they are able to pass through the slots 8 in the frame 2.

In use the hinge rods 17 are positioned within the slots 8 so that, in the closed position of the access panel 3 with the locking tongue in engagement with bracket 11 as shown in Figures 1 and 4, the hinge rods 17 extend horizontally with the stops 18 in abutment with the inside surface of the farther of the limbs of bracket 16. When it is desired to open the access panel 3, the lock 10 is released by manipulation of a lock key through guide 19. This allows the access panel 3 to hinge about the hinge axis made possible by the provision of the slots 8 with the rods 17 passing into the horizontally extending portions of the respective slots 8. Simultaneously, as the access panel 3 starts to open, it drops downwardly along the rods 17 until the stops 18 abut the inside surface of the nearer of the limbs of the bracket 16 and the head of the rods 17, defining the hinge axis, moves towards the slots 8 as seen from Figures 4 and 5. In this way the access panel 8 moves radially of the hinge axis as well as angularly to drop clear of the lower

flange 4 of the frame 2 so that it can be opened fully into the position shown in Figure 2.

If it is desired to remove the access panel 3 from the frame 2, the access panel 3 is held and lifted slightly until the heads of the rods 17 are aligned with the heads of the respective slots 8. Then the access panel 3 can be moved away from the side wall 7 to release the access panel 3 from the frame 2.

As indicated in the introduction of the specification an important advantage of the present invention is that it allows the incorporation of air sealing. This sealing is provided by means of a peripheral sealing gasket 20 positioned on the inside of the step of frame 2 as shown in Figures 4 and 5. Because the access panel 3 drops away from its hinge points on release, the sealing is effected by simple pressure of the access panel 3 against the gasket 20 without rubbing movement of the panel across the gasket 20 which would otherwise be the case.

The access panel assembly 1 is suitably made of metal material and the sealing gasket 20 may be neoprene.

Claims

1. An access panel assembly comprising a frame, (2) and an access panel (3) pivotally mounted in the frame (2) by hinge means 8, 16, 17, 18 which, during opening and closing of the panel, (3), permit angular movement and translation of said panel (3) in the plane of the frame, (2) characterised thereby that, during opening and closing, said hinge means (8, 16, 17 18) permit translation of the panel (3) away from or towards respectively, the pivot axis, in the plane of the panel (3).

2. An assembly according to Claim 1 characterised thereby that said translation permits the panel (3) to clear the frame (2).

3. An assembly according to claim 1 or claim 2 characterised thereby that the hinge means comprises a pair of rods (17) pivotally mounted on the frame (2) and slidably received by one or respective brackets (16) secured to the panel (3).

4. An assembly according to claim 3 characterised thereby that the rods (17) are held in slots (8) in the frame (2) so that, by appropriate manipulation whereby the heads of the rods (17) pass through the slots (8) the panel (31) may be released from the frame (2).

5. An assembly according to any preceding claim characterised thereby that the pivot axis of said hinge means moves inwardly of the frame (2) as the panel is opened in use.

6. An assembly according to any preceding claim characterised thereby that the frame (2) is stepped in cross-section and includes a flange (4) the outer surface of which defines the outer dimensions of the assembly and the inner surface of which defines the access panel seating.

7. An assembly according to any preceding claim characterised thereby that the frame (2) includes a circumferential seal (20) which cooperates with the panel (3) on closure to provide air sealing.

8. An assembly according to claim 7 characterised thereby that said seal (20) is disposed on an outwardly facing surface of the frame (2).

9. An assembly according to claim 8 wherein the seal (20) is of neoprene.

Patentansprüche

1. Zugangspaneelvorrichtung mit einem Rahmen (2) und einem Zugangspaneel (3), das schwenkbar im Rahmen (2) über Scharniereinrichtungen (8, 16, 17, 18) angebracht ist, die während des öffnens und Schließens des paneels (3) eine Winkelbewegung und eine Translationsbewegung des Paneels (3) in der Ebene des Rahmens (2) erlauben, dadurch gekennzeichnet, daß während des öffnens und des Schließens die Scharniereinrichtungen (8, 16, 17, 18) eine Translationsbewegung des Paneels (3) jeweils von der Schwenkachse weg oder zu der Schwenkachse hin in der Ebene des Paneels (3) erlauben.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Translationsbewegung ein Lösen des Paneels (3) vom Rahmen (2) ermöglicht.

3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Scharniereinrichtungen zwei Stangen (17) umfassen, die schwenkbar am Rahmen (2) angebracht sind und gleitend verschiebbar von einem oder von jeweiligen Trägern (16) aufgenommen sind, die am Paneel (3) befestigt sind.

4. Vorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß die Stangen (17) in Schlitzen (8) im Rahmen (2) so gehalten sind, daß durch eine geeignete Handhabung, bei der die Köpfe der Stangen (17) durch die Schlitze (8) hindurchgehen, das Paneel (3) vom Rahmen (2) gelöst werden kann.

5. Vorrichtung nach einem vorhergehenden Anspruch, dadurch gekennzeichnet, daß die Schwenkachse der Scharniereinrichtungen sich vom Rahmen (2) nach innen bewegt, wenn das paneel bei der Benutzung geöffnet wird.

6. Vorrichtung nach einem vorhergehenden Anspruch, dadurch gekennzeichnet, daß der Rahmen (2) im Querschnitt stufenförmige ausgebildet ist und einen Flansch (4) aufweist, dessen Außenfläche die Außenabmessungen der Vorrichtung bestimmt und dessen Innenfläche den Zugangspaneelsitz bildet.

7. Vorrichtung nach einem vorhergehenden Anspruch, dadurch gekennzeichnet, daß der Rahmen (2) eine Umfangsdichtung (20) aufweist, die mit dem Paneel (3) beim Schließen zusammenarbeitet, um einen luftdichten Abschluß zu liefern.

8. Vorrichtung nach Anspruch 7, dadurch gekennzeichnet, daß die Dichtung (20) an einer nach außen gewandten Fläche des Rahmens (2) angeordnet ist.

9. Vorrichtung nach Anspruch 8, dadurch gekennzeichnet, daß die Dichtung (20) aus Neopren besteht.

Revendications

1. Ensemble de panneau d'accès, comprenant un châssis (2), et un panneau d'accès (3) monté pivotant dans le châssis (2) par des moyens d'articulation (8, 16, 17, 18) qui, lors de l'ouverture et de la fermeture du panneau (3), permettent un mouvement angulaire et une translation du panneau (3) dans le plan du châssis (2), caractérisé en ce que, lors de l'ouverture et de la fermeture, les moyens d'articulation (8, 16, 17, 18) permettent la translation du panneau (3) dans le plan du panneau (3), respectivement en éloignement de ou vers l'axe de pivotement.

2. Ensemble selon la revendication 1, caractérisé en ce que ladite translation permet au panneau (3) de se dégager du châssis (2).

3. Ensemble selon la revendication 1 ou 2, caractérisé en ce que les moyens d'articulation comprennent une paire de tiges (17) montées en pivotement sur le châssis (2) et reçues en coulissement par un ou des supports respectifs (16) fixés sur le panneau (3).

4. Ensemble selon la revendication 3, caractérisé en ce que les tiges (17) sont maintenues dans des fentes (8) du châssis (2) de telle sorte que, par une manipulation appropriée selon laquelle les têtes de tiges (17) passent au travers des fentes (8), le panneau (3) peut être détaché du châssis (2).

5. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que l'axe de pivotement des moyens d'articulation se déplace à l'intérieur du châssis (2) tandis que le panneau est ouvert.

6. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que le châssis (2) est de section échelonnée, et comprend une bride (4) dont la surface extérieure définit les dimensions extérieures de l'ensemble, et dont la surface intérieure définit l'assise du panneau d'accès.

7. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que le châssis (2) comprend un joint d'étanchéité périphérique (20), qui coopère avec le panneau (3), lors de la fermeture, pour fournir une étanchéité à l'air.

8. Ensemble selon la revendication 7, caractérisé en ce que le joint d'étanchéité (20) est disposé sur une surface du châssis (2) qui est tournée vers l'extérieur.

9. Ensemble selon la revendication 8, dans lequel le joint d'étanchéité (20) est en néoprène.

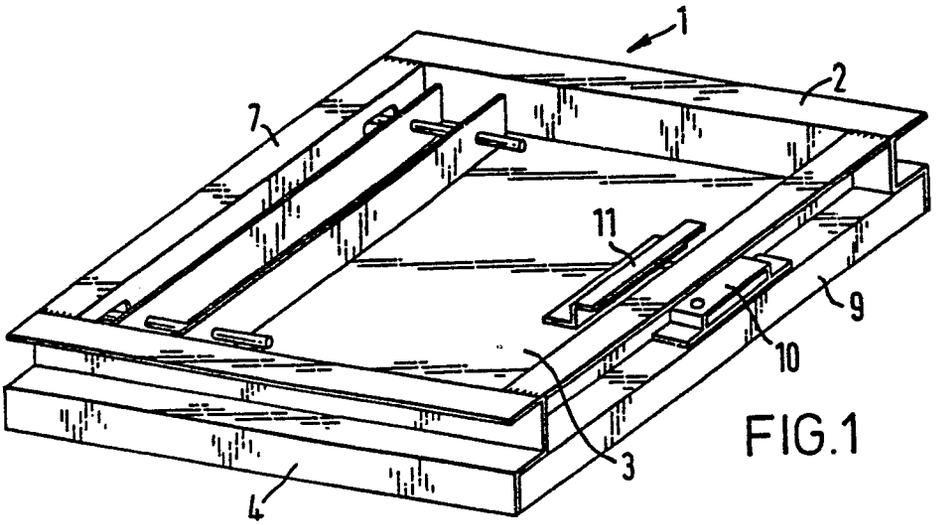

FIG.1

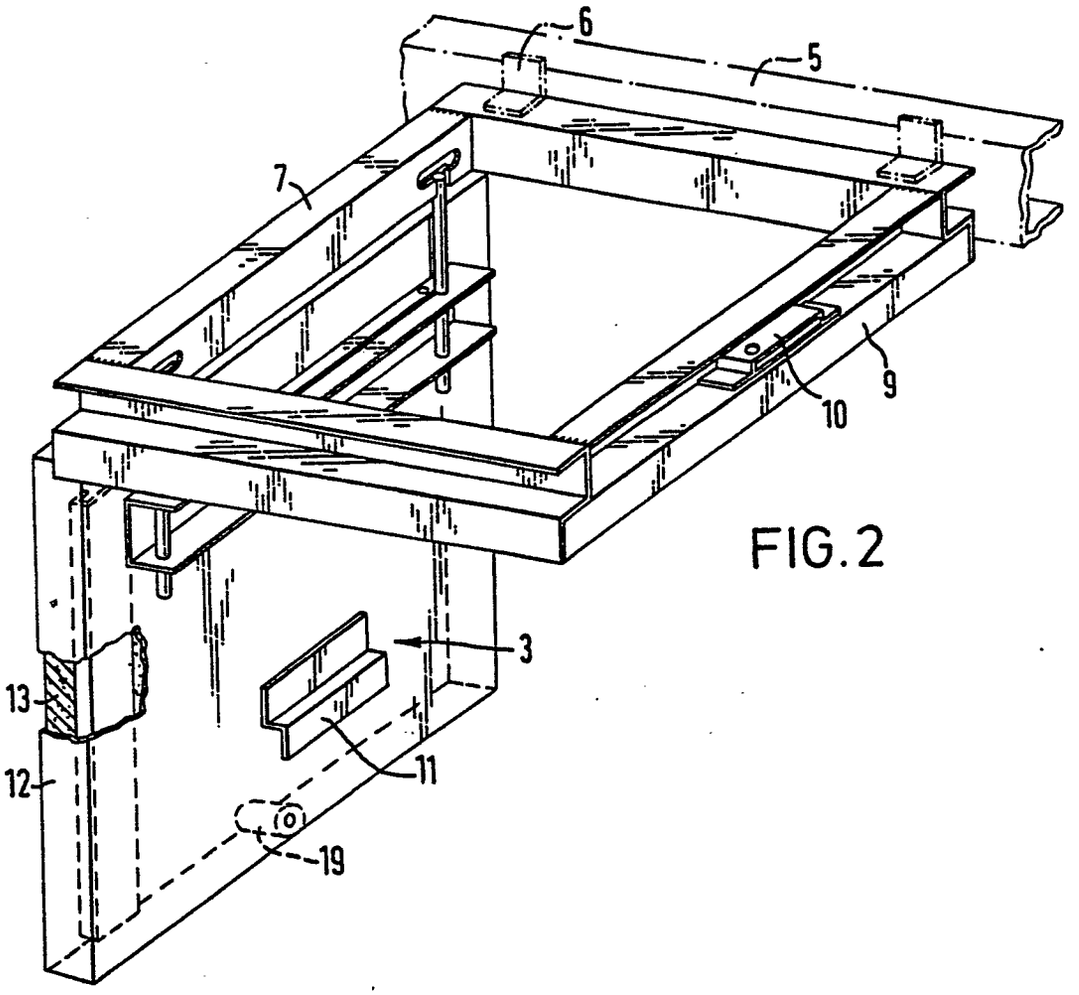

FIG.2

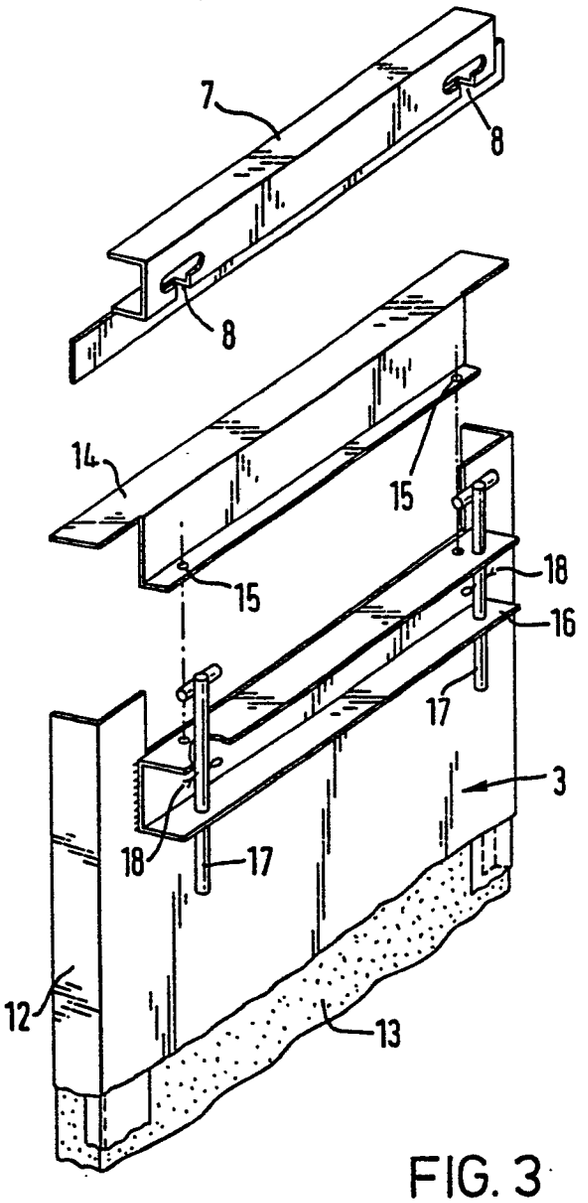

FIG. 3

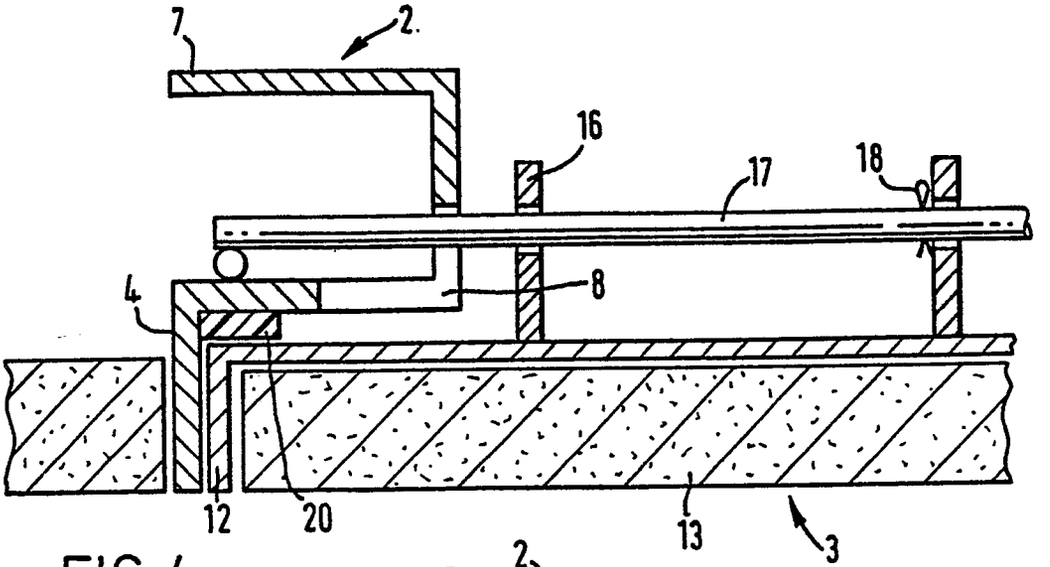

FIG. 4

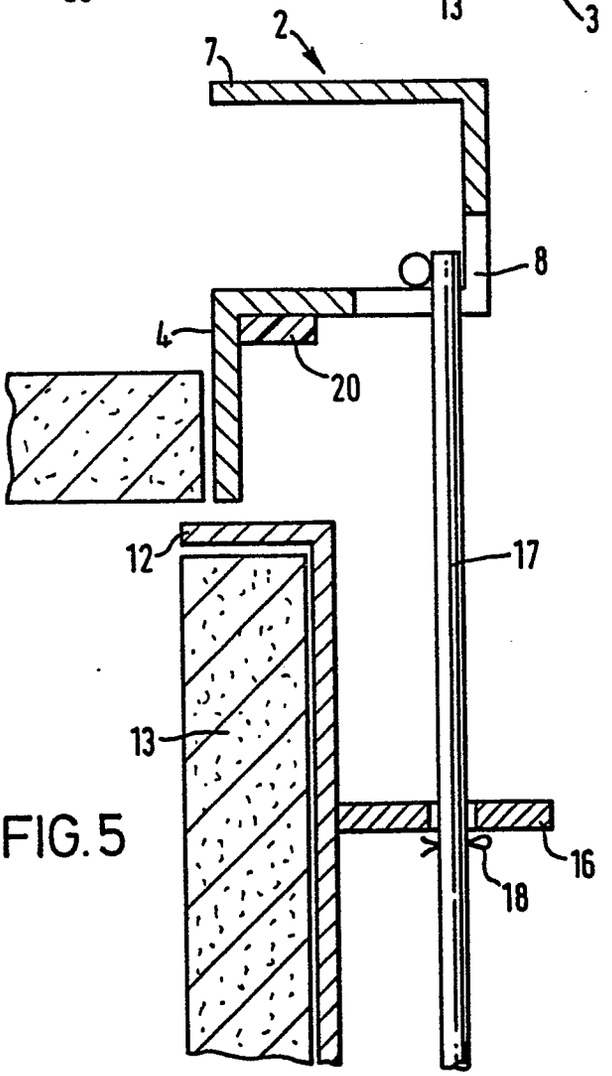

FIG. 5