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(54) A door or window.

(57) A door or window comprises a frame 11 defining two openings 12 and 13, one above the other, and two panels 15 and 14 for closing respective openings. One of the panels 15 is slidable from a position in which it closes its respective opening 12 to a position in which it overlaps the other panel 14 and an insect screen 16 extends across this latter opening to prevent insects gaining entry to a building when the one panel is in an open position. The panels 14 and 15 may be light transmitting panels.

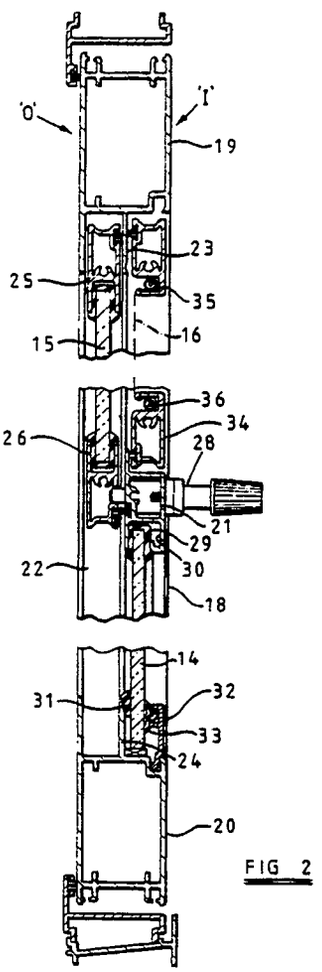

FIG 2

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A Door or Window

This invention relates to a door or window.

Buildings require natural light and ventilation. In many environments it is also important or desirable to prevent the entry of insects to the building. It is known to provide a door opening with an outer security door and an inner insect screen door or vice versa. However, this is often inconvenient particularly in regard to hinged doors as in order to provide ventilation the outer (or inner) door must be left open.

According to one aspect of the present invention there is provided a door or window comprising a frame defining first and second openings one above the other, first and second panels for closing the first and second openings, respectively, the first panel being slidable from a position in which it closes the first opening to a position in which it overlaps the second panel in the second opening, and an insect screen extending across the first opening.

Preferably, the first panel is mounted in a sub-frame which is slidable in the frame of the door.

Advantageously, means are provided to releasably secure the first panel in a position in which it closes the first opening.

Preferably, the first opening is above the second opening.

Preferably, the first panel is provided with a spring balance mechanism to support the first panel in a partially open position.

Conveniently, the insect screen is openably or removably connected to the frame.

In the case of a door, sealing means is preferably provided between the door and a door surround to prevent the entry of insects between the door and the surround when the door is closed. Such sealing means preferably extends continuously around the door and/or the surround and may be fitted in grooves defined by parts which are integral with the frame of the door or the surround. When provided the sealing means may be in the form of brush and/or woolpile seals.

The frame of the door may be formed of extruded aluminium parts and the panels may be light transmitting panels of, for example, transparent or translucent glass.

According to another aspect of the invention, there is provided a door or window comprising a frame defining an opening, a panel slidable in the frame for closing the opening, and an openable or removable insect screen mounted in the frame to extend across said opening.

Preferably, the insect screen is hinged to the frame and means are provided for releasably fastening the insect screen in a closed position.

According to yet another aspect of the invention, there is provided an openable door or an openable window comprising a frame and means for sealing the frame of the door or window to a surround, the sealing means extending around the entire periphery of the frame and being fitted in grooves which are defined by parts integral with the frame.

The invention will now be more particularly described, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 is a schematic perspective view of one embodiment of a door according to the invention,

Figure 2 is a vertical section taken along the line II - II of Figure 1, fitted to an aluminium surround,

Figure 3 is a horizontal section taken along the line III - III of Figure 1, again fitted to an aluminium surround; and

Figure 4 is a horizontal section taken along the line IV - IV of Figure 1, but in this case fitted directly to a timber door surround.

Referring now to the drawings there is shown therein an external door for a building, the door having an outer side 'O' which, when the door is closed, faces externally of the building, and an inner side 'I'. The door comprises a frame 11 defining two openings 12 and 13 arranged one above the other, a glass or other non-pervious light transmitting panel 14 on the inner side of the lower opening 13, a glass or other non-pervious light transmitting panel 15 in the outer side of the upper opening 12, and an insect screen 16 in the inner side of the upper opening 12.

The frame 11 is made of extruded aluminium parts and comprises two side members 17 and 18 connected by top and bottom members 19 and 20, respectively, and a central rail 21 between the two openings 12 and 13 on the inner side only of the door.

As shown more particularly in Figures 2 and 4, the frame 11 defines a guide channel 22 on the outer side of the door and two recesses 23 and 24 on the inner side of the door. The guide channel 22 extends from the top member 19 to the bottom member 21 on the outer side of the central rail 21. The recess 23 is located between the central rail 21 and the top member 19 and the recess 24 is located between the central rail 21 and the bottom member 20.

The glass panel 15 is mounted in an aluminium sub-frame 25 and is sealed therein by an elastomeric, wedge gasket 26 provided between the panel 15 and the sub-frame 25. The sub-frame

25 is slidable in the guide channel 22 from an upper position (shown in Figure 2) in which the panel 15 closes the upper opening 12 to a lower position (not shown) in which the panel 15 extends behind the glass panel 14 to provide for ventilation through the upper opening 12. A spring balance mechanism comprising conventional spring balances 27, such as are used in sash windows, is connected to the sub-frame 25 to support the panel 15, when desired, in a partially open position and a locking device 28 is fitted to the central rail 21 to releasably secure the panel 15 in its upper position.

An elastomeric, wedge gasket 29 is fitted on the upper edge of the glass panel 14 (see Figure 2) and the panel 14 and gasket 29 are fitted in a groove 30 in the underside of the central rail 21. The panel 14 also lies against elastomeric sealing strips 31 provided on both side members 17 and 18 and on the bottom member 20 and is held in place in the recess 24 by aluminium slats 32 which support elastomeric sealing strips 33 and which are fitted to the side members 17 and 18 and to the bottom member 20.

The insect screen 16 is in the form of a flexible sheet of fine mesh and is supported by an aluminium sub-frame 34. The insect screen 16 is stretched across the opening in the sub-frame 34 and is retained in an endless groove 35 on the inner side of the sub-frame 34 by elastomeric beads 36 push-fitted in the groove 35. The sub-frame 34 is mounted in the recess 23 where it is connected to the side member 18 by hinges 37 (see Figure 3) and is held in a closed position by a latching device 38. The sub-frame 34 can, however, be swung open upon releasing the latching device 38 to gain access to the panel 15.

A mortice or other lock 47 is mounted in the side member 17 in conventional manner.

Brush or woolpile seals 39 are fitted in grooves 40 on the outer sides of the sub-frames 25 and 34.

In the arrangement described above, the panels 14 and 15 and the insect screen 16 are mounted within the outer confines of the frame 11 so as not to detract from the appearance of the door.

In Figures 2 and 3, the door is mounted on hinges 48 in an aluminium door surround 41. In this case, woolpile seals 42 are slidably fitted in grooves 43 defined by parts which are integral with the surround 41. The woolpile seals 42 make contact with the frame 11 when the door is closed to exclude the ingress of dust and to prevent the entry of insects between the door and its surround 41.

As shown in Figure 4, the door is mounted on hinges 48 in a timber surround 44 and, in this case, brush or woolpile seals 45 extend around the entire periphery of the frame 11. These seals 45 are slidably fitted in grooves 46 defined by parts which are integral with the peripheral surface of the frame 11. These seals 45 could also be used with two way opening doors.

To provide ventilation to the interior of the building, the panel 15 is lowered into overlapping relationship with the panel 14 by opening the sub-frame 34, releasing the locking device 28 and sliding the panel 15 and its sub-frame 25 downwards. The sub-frame 34 supporting the insect screen 16 is then closed and latched to the frame 11 to prevent the entry of insects.

When ventilation is no longer required the panel 15 is raised in similar manner.

The use of a sliding panel 15 has the advantage that the amount of ventilation provided through the door can be varied by varying the extent to which the panel 15 is lowered.

The above embodiment is given by way of example only and various modifications will be apparent to persons skilled in the art without departing from the scope of the invention.

For example, one or other or both of the panels 14 and 15 could be non-light transmitting. The frame 11 could be of timber rather than of extruded aluminium parts. Also the insect screen and sub-frame 34 could be removable from the frame 11 rather than be openable relative thereto. The invention can also be applied to windows as well as doors.

Claims

1. A door or window comprising a frame (11) defining first (12) and second (13) openings one above the other, first (15) and second (14) panels for closing the first and second openings, respectively, the first panel being slidable from a position in which it closes the first opening to a position in which it overlaps the second panel in the second opening, and an insect screen (16) extending across the first opening.

2. A door or window as claimed in Claim 1, wherein the first panel is mounted in a sub-frame (25) which is slidable in said frame (11).

3. A door or window as claimed in Claim 1 or Claim 2, wherein means (28) are provided to releasably secure the first panel in a position in which it closes the first opening.

4. A door or window as claimed in any one of the preceding claims, wherein the first opening is above the second opening.

5. A door or window as claimed in any one of the preceding claims, wherein the insect screen is openably or removably connected to the frame.

6. A door or window as claimed in any one of the preceding claims, wherein at least one of the

first and second panels is a light transmitting panel.

7. A door or window as claimed in any one of the preceding claims, wherein the first panel is provided with a spring balance mechanism (27) to support the first panel in a partially open position.

8. A door as claimed in any one of the preceding claims, in combination with a door surround (41, 44), the door being mounted in the door surround and sealing means (42, 45) being provided between the door and the door surround to prevent the entry of insects between the door and the surround when the door is closed.

9. A door or window comprising a frame (11) defining an opening (12), a panel (15) slidable in the frame for closing the opening, and an openable or removable insect screen (16) mounted in the frame to extend across said opening.

10. A door or window as claimed in Claim 9, wherein the insect screen is hinged to the frame and means (38) are provided for releasably fastening the insect screen in a closed position.

11. An openable door or an openable window comprising a frame (11) and means (45) for sealing the frame of the door or window to a surround (44), the sealing means extending around the entire periphery of the frame and being fitted in grooves (46) which are defined by parts integral with the frame.

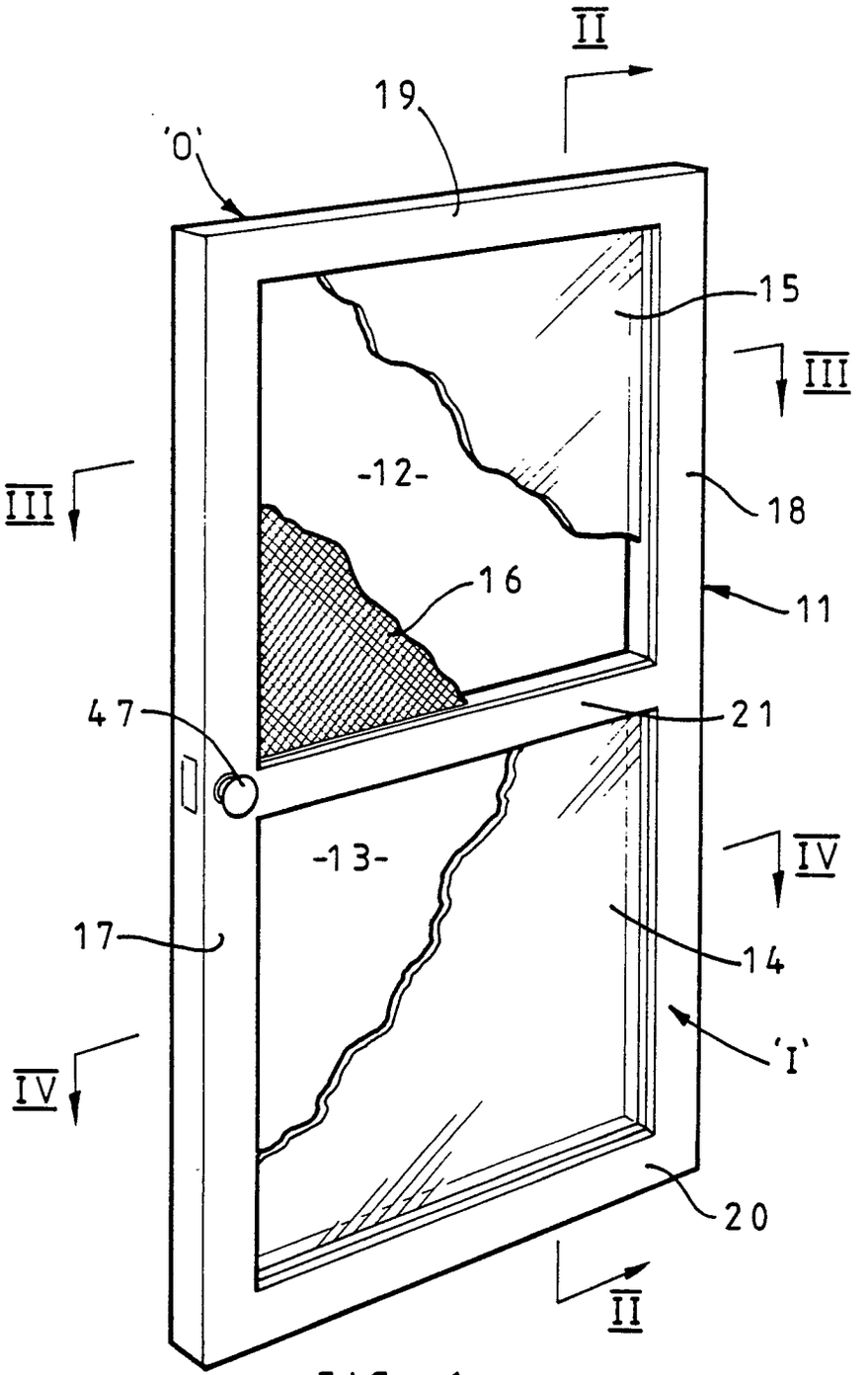

FIG 1

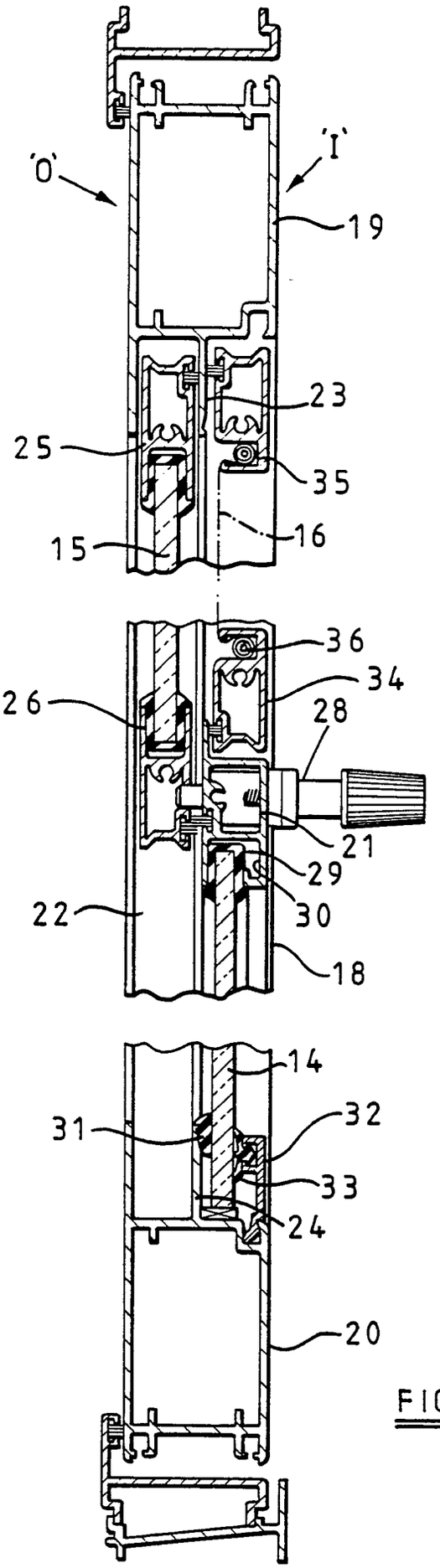

FIG 2

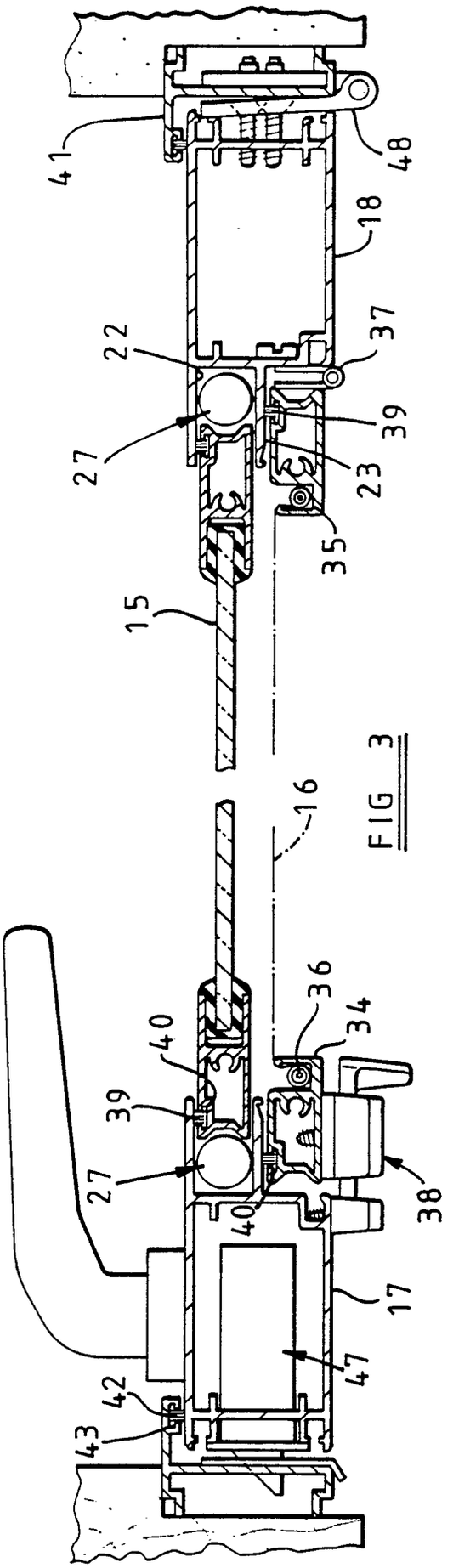
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FIG 3

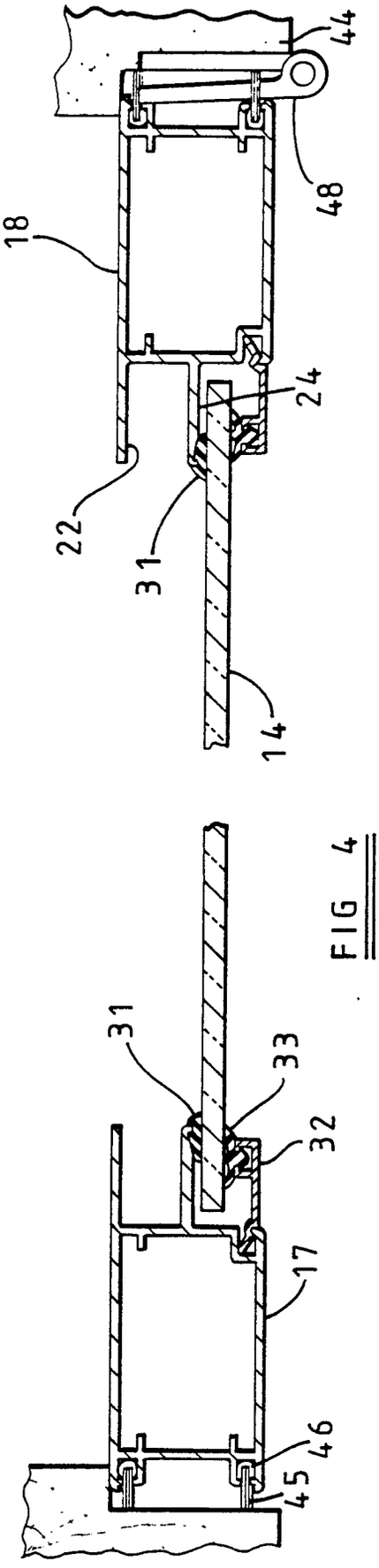
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FIG 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 30 1069

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X Y	US-A-2 298 406 (MILLER) * Page 1, column 2, line 1 - page 2, column 1, line 75; figures 1-7 *	1-6 7	E 06 B 3/44 E 06 B 9/52 E 06 B 3/72
X	US-A-3 177 924 (McPHAIL) * Column 2, lines 31-42; column 3, lines 55-59; column 4, lines 5-14; column 6, line 59 - column 8, line 68; column 9, line 38 - column 10, line 15; column 10, line 51 - column 11, line 20; figures 1-8 *	1,2,3,5,6,8,11	
X Y	US-A-2 511 108 (HANSEN) * Column 1, line 51 - column 4, line 28; figures 1-5 *	9,10 7	
A	US-A-1 728 539 (GESCHICKTER) * Page 1, line 1 - page 2, line 44; figures 1-5 *	5,10	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A	GB-A-2 106 575 (CHING-PIAO)		E 06 B
A	US-A-3 168 172 (ALVAREZ)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22-05-1990	DEPOORTER F.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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