July 29, 1969 F. ZIEGLER 3,457,676

SUSPENSION FITTING FOR SLIDING DOORS

Filed Sept. 28, 1967

FIG. 1

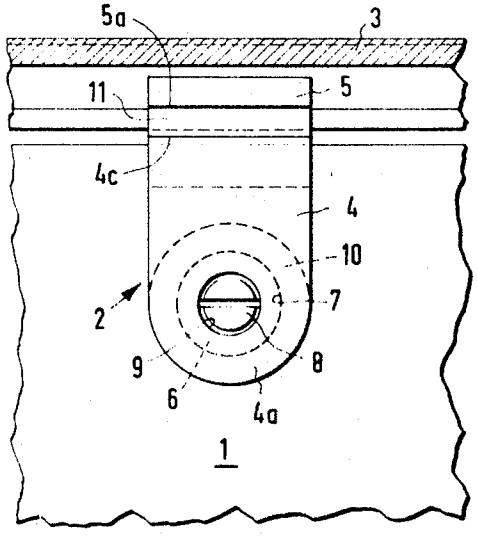
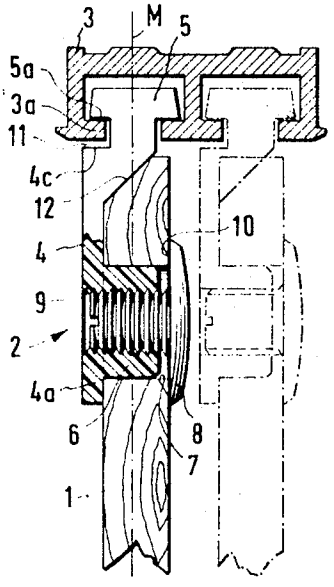


FIG. 2



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United States Patent Office 3,457,676 Patented July 29, 1969

3,457,676

SUSPENSION FITTING FOR SLIDING DOORS

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Filed Sept. 28, 1967, Ser. No. 671,401
Claims priority, application Switzerland, Sept. 29, 1966, 14,067/66
Int. Cl. E05d 13/02
U.S. Cl. 49—409 5 Claims

ABSTRACT OF THE DISCLOSURE

A suspension fitting for sliding doors having a runner rail in which a lower portion has a prismatic member secured in the door by means of a screw threaded in the prismatic member.

The invention relates to a suspension fitting for sliding doors, in particular sliding doors on furniture, having an upper part guided in a runner rail and a lower part adapted to be connected to the door at the lateral face thereof. Such fittings are suitable only for relatively thick door panels (having a thickness of at least 10 mm.).

In the case of sliding doors of lesser thickness, use is therefore still made of the old groove guide whereby the grooves must be adapted to the thickness of the door leaf. The considerable disadvantages of this design are known; the door leaf becomes jammed, because it readily warps; the groove-base face is rapidly worn and must therefore be specially protected.

Quite especially disadvantageous is the considerable danger of soiling of the grooves.

The invention is based on the problem of how to provide a suspension fitting for relatively thin sliding doors, which said fitting is free from the above-mentioned disadvantages. Proceeding from a fitting of the type mentioned at the outset, this problem is according to the invention solved by the arrangement whereby there is provided at the lower part a prismatic member which is adapted to be inserted in a passage aperture in the door and is formed with a tapped bore into which engages a screw pressing the door against the lower part.

Since the lower part is not let into the door but only the prismatic member engages in a passage bore in the door, the suspension fitting according to the invention may be used for doors having slight and also varying thickness, for example a thickness of 5 mm. to 8 mm. Reliable securing is guaranteed by the positive connection between the prismatic member and by the screw pressing the door against the lower part.

The lower part may be designed as a strip-shaped web and extends beyond the prismatic member. In this way, a good abutment face for the door is provided. In order to prevent tilting of the holder against the door, in the case of one embodiment having a lower portion arranged offset relatively to the suspension central plane determined by the upper portion, the upper portion may merge into the lower portion via an oblique face on the side facing the door. This oblique face then engages in a corresponding recess in the upper edge of the door.

The fitting according to the invention, wherein preferably the prismatic member is designed to be cylindrical at the lower portion, may be made in one piece. The manufacturing costs are then especially low, above all if it is manufactured from a plastic material, for example from a polyamide. A plastics material of this kind also provides satisfactory sliding properties for the head of the suspension fitting and ensures a low degree of wear.

In the following text, the invention is discussed in detail with reference to an example of embodiment illustrated in the drawings, wherein:

FIGURE 1 shows a front elevation of the embodiment as seen in the direction towards the lateral face of the door and a longitudinal section through the slide rail carrying the suspension fitting.

FIGURE 2 shows an end face elevation, partly in section, of the example of embodiment and a cross-section through the slide rail.

A sliding door **1**, which in the example of embodiment is made from wood but may also be made from veneered pressboard, plastics or the like, is suspended from a hollow profile slide rail **3** by means of a suspension fitting designated, as a whole, by reference numeral **2**; in the case of the example of embodiment, what is concerned is a double rail for two parallel-travelling doors. The rail **3** is let in, thus achieving a low fitting height of the fitting. This is advantageous due to the fact that in this way the necessary thickness of the front frame or body is diminished and the upper edge of the sliding door **1** may be brought up almost to the lower edge of the front frame, so that covering means which are otherwise conventionally used may be dispensed with.

The fitting **2** is designed in one piece and made from polyamide. Connected to the top portion **5** thereof, offset out of the suspension central plane determined by the latter, is a plate-shaped lower portion **4** having at its free end a hollow-cylindrical member **6** the longitudinal axis of which extends perpendicularly to the plane formed by the lower portion **4** and the suspension central plane (this is shown in dot-dash lines in FIGURE 2 and is designated M). The lower portion **4** bears against the rear-side lateral face of the door **1** and the cylindrical member **6** engages in a passage bore **7** in the door **1**. Due to this engagement of the cylindrical body **6** in the bore **7**, the door **1** is positively connected with the suspension fitting **2**.

The bore in the hollow-cylindrical body **6** is designed as a tapped bore **9** in which a screw **8** engages. The head of the said screw has a relatively large-surface shoulder **10** bearing against the clear surface of the door **1**. Thus, the door **1** may be pressed against the lower portion **4** by means of the screw **8**. In order to provide a good abutment surface, the lower portion **4** extends, by means of a portion *4a*, beyond the hollow-cylindrical body **6**.

In order to avoid any tilting of the suspension fitting **2** on the door **1** and to achieve additional rigidity, the upper portion **5** merges, on the side facing the door, via an oblique face **12**, into the lower portion **4** (as shown in FIGURE 2). The oblique portion formed by the oblique face engages in a corresponding recess in the upper edge of the door **1**.

The fitting **2** suspended by means of its upper portion **5** from the slide rail **3** bears through the agency of two oppositely-positioned shoulders *5a* on the slide faces of the rail **3** formed by flanges *3a*. That shoulder *5a* which is disposed on the same side as the lower portion **4** forms together with the upper end face *4c* of the lower portion **4** a groove **11** in which one of the flanges *3a* of the rail **3** engages with a small degree of play. This restricts the tilting of the suspended fitting **2** in the displacement direction, so that neither the upper portion nor the suspended door is able to rub with its upper edge against the rail. Furthermore, this step makes it possible to cause the sliding door to end close below the slide rail.

For the assembly of the sliding door in the appropriate aperture in an article of furniture or an interior structure, first of all the suspension fittings provided for each door leaf (as a rule two per door leaf) are suspended from the slide rail which is still loose and then the rail is inserted and fixed in the guide groove of the article of furniture. Then, the door may be placed in position in the aperture and the holders pressed into the recesses in the door and screwed fast.

Underneath, the door is invisibly guided by means of

holders having a head which is U-shaped in profile and which are screwed into the structural part disposed below the door. One limb of the head engages in a longitudinal groove in the underside of the door whereas the other limb bears against the rear side of the door. In the case of doors of slight thickness, one groove wall is formed by a strip applied on the rear side of the door.

I claim:

1. A suspension fitting, especially for a thin walled, sliding door, particularly for furniture, comprising a runner rail, an upper trailing portion for sliding in the runner rail and a lower portion to be connected to the door at a lateral face thereof, said lower portion being staggered with respect to the hanging axis of the trailing portion, a cylindrical stud on the side face of the lower portion facing the hanging axis of the trailing portion and the height of which is somewhat less than the door thickness projects into a bore of equal diameter in the door, said stud and said lower portion having a concentric threaded bore extending therethrough, and a low-head screw having a head diameter greater than an outer stud diameter and being screwed from the opposite part of the door into the stud thread so as to urge the door against the lower portion of the suspension fitting.

2. A suspension fitting according to claim **1**, in which the upper side of the screw head is smooth, and a slot for a screw driver is provided in the front face of a screw shaft.

3. A suspension fitting according to claim **1**, in which the lower portion is designed as a strip web that extends beyond the stud.

4. A suspension fitting according to claim **1**, in which the connecting portion between said upper trailing portion and said lower portion has an oblique connecting face on the side facing the door which engages a recess in the door.

5. A suspension fitting according to claim **1**, in which the fitting is formed of a polyamide material in one piece.

References Cited

UNITED STATES PATENTS

2,741,794	4/1956	Pearson	16—93
3,203,027	8/1965	Ohman	16—96 X
3,286,299	11/1966	Golden	16—87.4

FOREIGN PATENTS

245,971	3/1966	Austria.
478,108	6/1929	Germany.

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U.S. Cl. X.R.

16—93