April 16, 1968 J. MATYAS 3,378,058

FOLDING DOOR CONSTRUCTION

Filed Aug. 19, 1966

FIG. 1

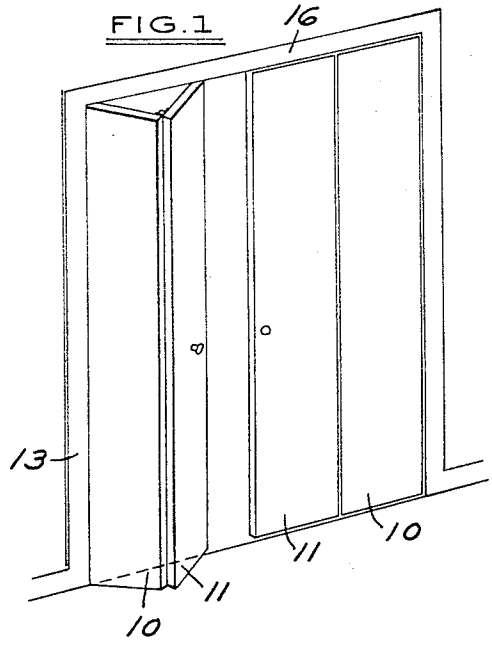


FIG. 3

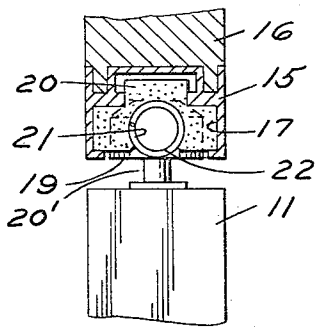


FIG. 2

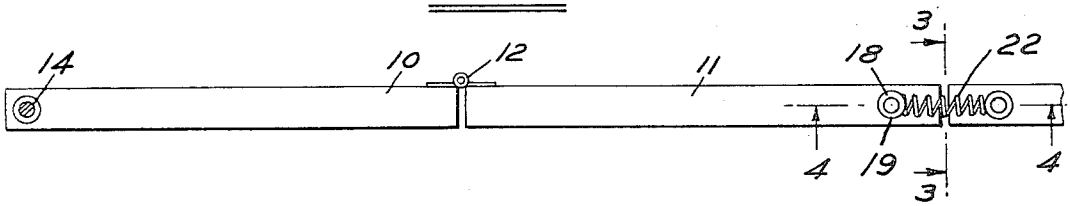
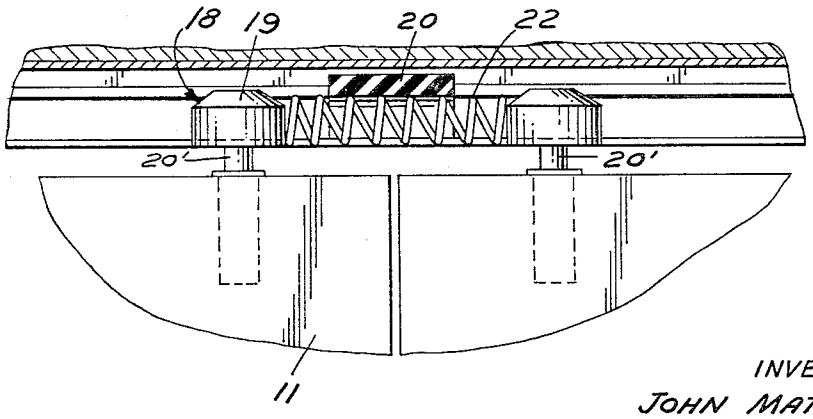


FIG. 4



INVENTOR
JOHN MATYAS

BY

Barnes, Kisselle, Raisch & Choate

ATTORNEYS

United States Patent Office 3,378,058 Patented Apr. 16, 1968

3,378,058

FOLDING DOOR CONSTRUCTION

John Matyas, 13852 Keal Ave., Detroit, Mich. 48227

Filed Aug. 19, 1966, Ser. No. 573,509
9 Claims. (Cl. 160—118)

This invention relates to folding doors and particularly to a folding door construction wherein at least two pairs of door panels are hinged to one another and are adapted to be moved to and from an open folded position and a closed position.

Among the objects of the invention are to provide a resilient bumper construction that is adapted to hold the door panels in closed position and at the same time is relatively inexpensive, easy to adjust, and low in cost.

Basically, the invention comprises providing a block of resilient material in the track which guides the guide members on the folding door panels. The block of resilient material is frictionally held in the track and has a downwardly extending opening. A spring member in the form of a helical coil is forced upwardly into the resilient block with the ends thereof extending generally horizontally into position for engagement by the guide members of the innermost door panels. When the door panels are moved to close the doors and bring the hinge axis of the panels to one side of the track, the guide members engage the ends of the helical coil and provide a resilient force that tends to retain the door panels in closed position. The snubber block is inserted in the panel first and the helical coil is thereafter inserted to hold the snubber block and, in turn, the helical coil in the desired position. Adjustment can readily be made by removing the helical coil and moving the resilient block along the track.

In the drawings:

FIG. 1 is a partly diagrammatic perspective view of a folding door construction embodying the invention.

FIG. 2 is a fragmentary top plan view of the door shown in FIG. 1.

FIG. 3 is a fragmentary sectional view on an enlarged scale taken along the line 3—3 in FIG. 2.

FIG. 4 is a fragmentary sectional view on an enlarged scale taken along the line 4—4 in FIG. 2.

Referring to FIG. 1, the door construction embodying the invention is adapted to be used with conventional folding doors that comprise at least two pairs of door panels **10, 11** that are hinged to one another along a common axis **12**. The door panel **10** is hinged at its outer edge to the door jamb **13** by vertical hinge pins **14** at the top and bottom thereof. A track **15** in the form of an extrusion or the like is mounted on the top **16** of the door and has a downwardly extending and opening channel **17** which is generally T-shaped as shown in FIG. 3. A guide member **18** in the form of a roller **19** on a shaft **20'** is provided on the innermost door panel **11** of each door adjacent but spaced from the free edge thereof and etxends upwardly into the channel **17** to guide the door panels in their folding and unfolding movement. When the door panels are closed, the hinge axis **12** moves from one side of the axis of the track **15** to the other.

In accordance with the invention, a block **20** of resilient material such as rubber is positioned in the channel **17**. The block has an outer configuration corresponding to the configuration of the channel **17**, herein shown as a T configuration. The block **20** is forced upwardly into the channel. Block **20** includes a downwardly extending cavity **21** that is generally cylindrical. A helical coil spring **22** is forced upwardly into the cavity **21** after the block **20** is placed within the track **15** so that the ends of spring **22** extend horizontally along the axis of the track **15**. The forcing of the helical coil **22** upwardly into the cavity **21** serves to expand the resilient block **20** into greater frictional engagement with the channel **17** and at the same time to hold the helical coil **22** in position within the block **20**. The ends of the helical coil **22** extend along the axis into position for engagement by the guide members **18** as the door panels move to close position. This provides a resilient force tending to hold each pair of door panels **10, 11** in closed position independently of the other pair of door panels. Thus, the construction shown effectively holds each pair of door panels in closed position.

If it is desired to adjust the position of the helical coil **22** along the track, the helical coil **22** is merely removed and reinserted into the resilient block **20**. If a greater adjustment is required, the helical coil **22** may be removed, the resilient block **20** thereafter moved axially along the track and the helical coil again inserted into the cavity **21**.

It can be appreciated that the construction shown can be utilized in connection with folding door constructions wherein more than one pair of panels are hinged to one another.

It can thus be seen that there has been provided an arrangement which will effectively hold each pair of door panels in close position independently of the other, which can be readily adjusted, which can be inserted, and which is low in cost.

I claim:

1. In a folding door construction comprising at least two door panels hinged together along a common axis,
   - means on one of said panels for hinging said one panel to a door jamb,
   - means on the other panel providing a guide member,
   - a track engageable by said guide member,
   - said door panels being movable from a position wherein the common axis lies on one side of the axis of said track to a position wherein said door panels are folded and said common axis lies on the other side of the axis of said track,
   - said track including a downwardly opening channel therein,
   - a compressible resilient block frictionally held within said channel,
   - said block having a downwardly opening cavity therein,
   - a compressible spring member frictionally held in said cavity and having generally horizontally extending compressible ends,
   - said spring member expanding and increasing the frictional resistance to movement between said track and said resilient block.

2. The combination set forth in claim **1** wherein said spring member comprises a helical spring having a substantially constant diameter.

3. The combination set forth in claim **1** wherein said channel in said track is substantially T-shaped,
   - said resilient block having a similar outer configuration.

4. The combination set forth in claim **1** wherein said downwardly opening cavity in said resilient block is generally cylindrical,
   - said spring member comprising a helical spring of substantially constant diameter.

5. The combination set forth in claim **1** including at least two additional door panels hinged to one another along a common axis,
   - means on one of the said last mentioned door panels for hinging said one panel to a door jamb,
   - means on said other last mentioned door panel providing a guide member for engaging said track,

said last mentioned door panels being movable from a position wherein the common axis lies on one side of the axis of said track to a position wherein said door panels are folded and said one axis lies on the other side of said axis of said track,

said compressible spring member extending into position for engagement with said other panel of said last mentioned pair of panels.

6. For use in a folding door construction wherein at least two door panels are hinged together along a common axis, means on one of said panels for hinging said one panel to a door jamb, means on the other panel providing a guide member, a track engageable by said guide members, said door panels being movable from a position wherein the common axis lies on one side of the axis of said track to a position wherein said door panels are folded and said common axis lies on the other side of the axis of said track, said track having an opening channel therein, the combination comprising

a compressible resilient block frictionally held within said channel,

said block having a cavity therein,

a compressible spring member frictionally held in said cavity and having a generally horizontally extending compressible end,

said spring member expanding and increasing the frictional resistance to movement between said track and said resilient block.

7. The combination set forth in claim **5** wherein said spring member comprises a helical spring having a substantially constant diameter.

8. The combination set forth in claim **6** wherein said cavity in said resilient block is generally cylindrical,

said spring member comprising a helical spring of substantally constant diameter.

9. The combination set forth in claim **8** wherein said compressible spring member includes a second generally horizontally extending compressible end adapted to engage a panel of another set of door panels.

References Cited

UNITED STATES PATENTS

1,499,312	6/1924	Ferris	160—199
1,773,634	10/1930	Schneider	160—206 X
2,943,675	7/1960	Ford	160—206

DAVID J. WILLIAMOWSKY, *Primary Examiner.*

DENNIS L. TAYLOR, *Assistant Examiner.*