E. J. G. PHILLIPS.

MEANS FOR SLIDINGLY SUPPORTING FOLDING DOORS.

APPLICATION FILED MAR. 12, 1915.

1,160,198.

Patented Nov. 16, 1915.

2 SHEETS—SHEET 1.

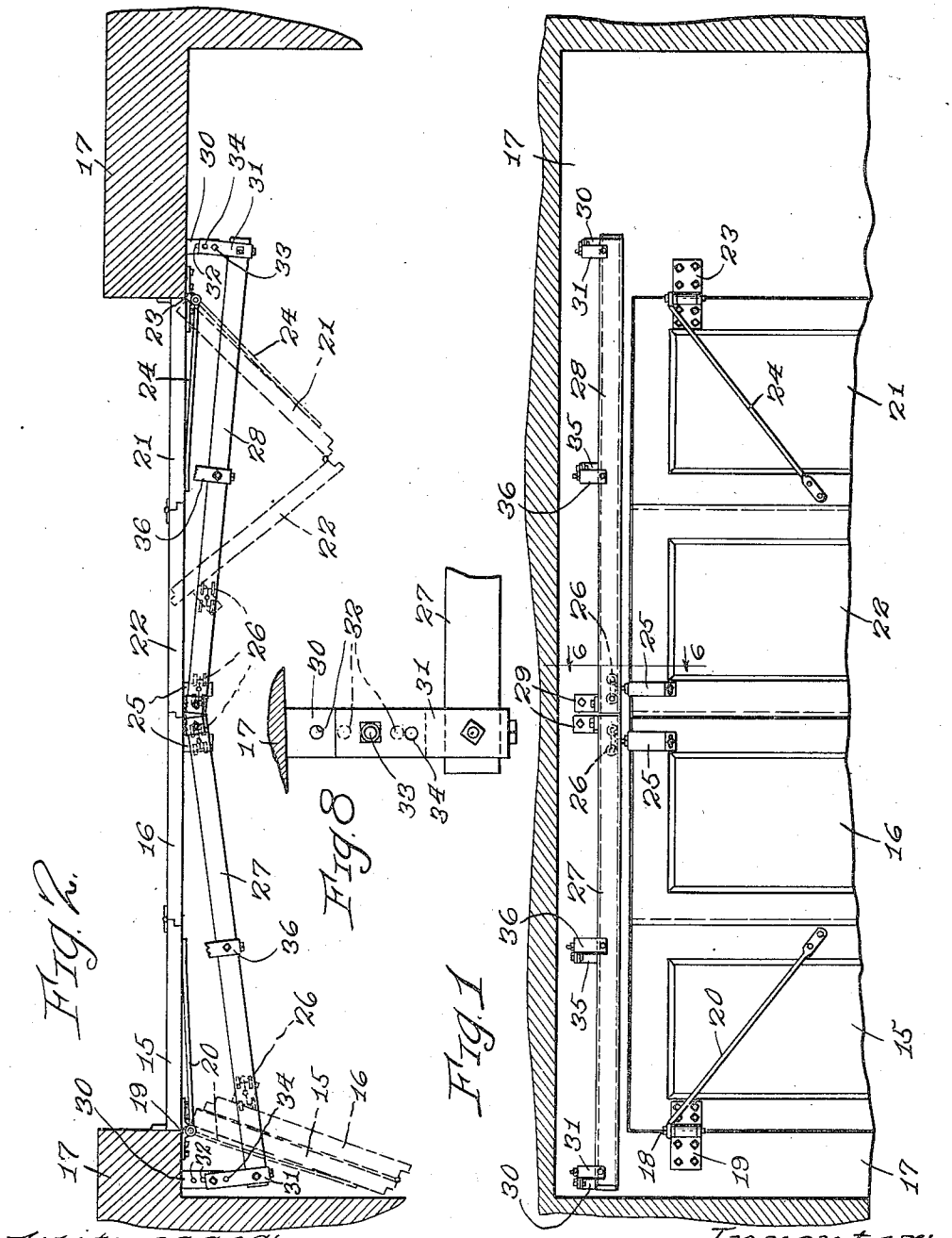


Fig. 1.

Fig. 2.

Fig. 3.

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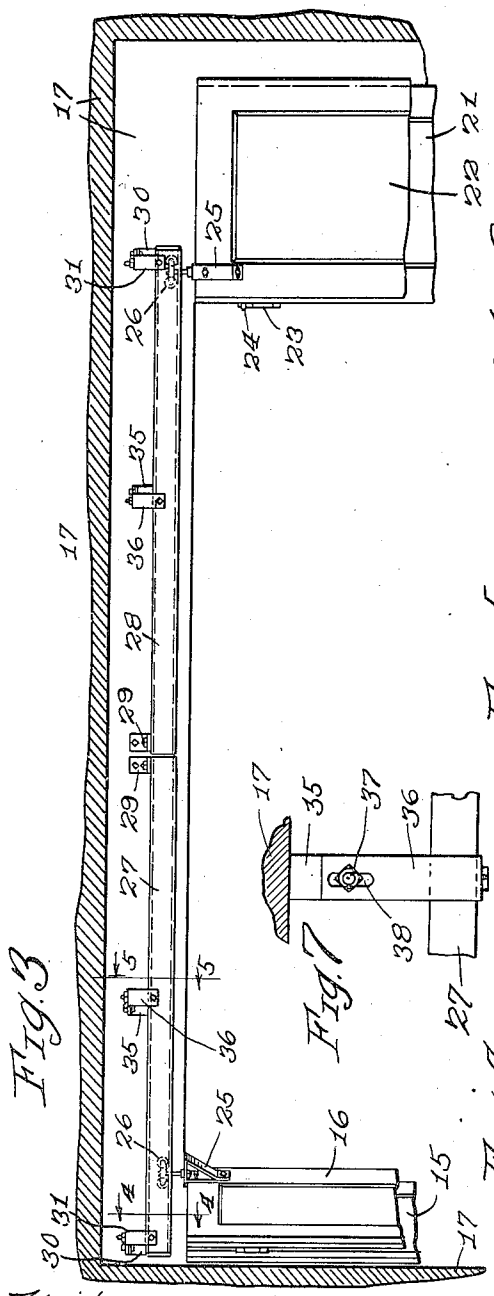


Fig. 3

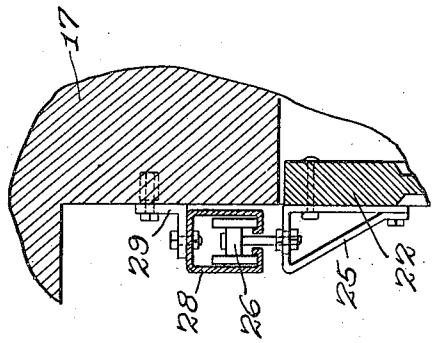


Fig. 6

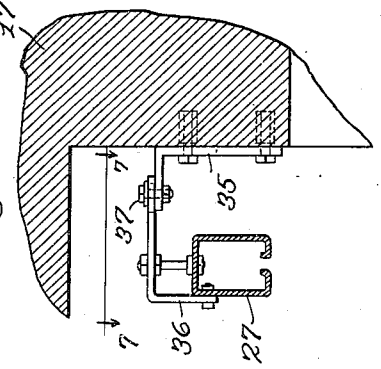


Fig. 5

Fig. 7

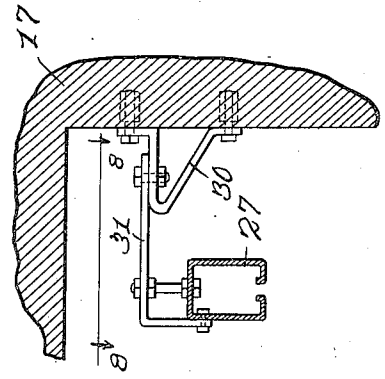


Fig. 4

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UNITED STATES PATENT OFFICE.

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MEANS FOR SLIDINGLY SUPPORTING FOLDING DOORS.

1,160,198. Specification of Letters Patent. Patented Nov. 16, 1915.

Application filed March 12, 1915. Serial No. 13,843.

To all whom it may concern:

Be it known that I, ELLIS J. G. PHILLIPS, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Means for Slidingly Supporting Folding Doors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to means for slidingly supporting folding doors, and it has for its principal object the provision of a form of device adapted to meet varying conditions of use. As will be readily appreciated, in doors of this sort the position to which the doors are adapted to fold back varies very materially as well as the width and thickness of the doors.

By my invention I have sought to provide a construction of supporting means which shall be applicable to any conditions which are likely to be met, whereby it is possible for a dealer to supply the requirements of his customers from a very limited stock of goods.

Another advantage consists in the ease with which orders for the devices are given and filled without danger of mistake as to the precise article required.

Another advantage lies in the fact that upon a change being found necessary in view of changed conditions such change can be accommodated by the use of the same supporting means without the necessity of reordering to meet the changed conditions.

It is another object of my invention to improve devices of this type in sundry details hereinafter pointed out.

The preferred means by which I have accomplished my objects are illustrated in the accompanying drawings and are hereinafter specifically described.

That which I believe to be new and desire to cover by this application is set forth in the claims.

In the drawings:—Figure 1 is an inside view of a set of four doors supported by my improved supporting means, the lower portions of the doors being broken away; Fig. 2 is a top view of the supporting means shown in Fig. 1 with the wall to which the wall-brackets are to be attached broken away above the doors for clearness of illustration, the doors being shown in closed position, the view also showing in dotted lines the doors at one side in the process of being opened and the doors at the other side swung back to the limit of their opening movement; Fig. 3 is a view similar to Fig. 1, but with the doors at both sides swung back in opened condition; Fig. 4 is an enlarged detail showing one of the outer end brackets, being taken substantially at line 4—4 of Fig. 3; Fig. 5 is an enlarged detail of one of the intermediate brackets, being taken substantially at line 5—5 of Fig. 3; Fig. 6 is an enlarged detail, being taken substantially at line 6—6 of Fig. 1; Fig. 7 is an enlarged detail, being a top or plan view of one of the intermediate brackets as seen from line 7—7 of Fig. 5; and Fig. 8 is an enlarged detail, being a top view of one of the end brackets substantially as seen at line 8—8 of Fig. 4.

Referring to the several figures of the drawings in which corresponding parts are indicated by the same reference characters,—15—16 indicate two doors suitably hinged together, the door 15 being secured by means of hinges at one side of a doorway in a wall 17 forming one side of a building such as a garage, for example. The bolt 18 of the upper hinge 19 by which the door 15 is pivotally mounted at one side of the doorway is extended above the flaps of the hinge to receive an eye on the upper end of a diagonally-disposed brace-rod 20 which is fixedly secured by any suitable means to the opposite edge of the door 15.

At the opposite side of the doorway are secured two doors 21—22 suitably hinged together and secured in position in the doorway by means comprising a hinge 23 and a diagonally-extending brace-bar 24, as just described.

Each of the doors 16—22 is provided with a door-bracket 25 at its upper inner edge, such brackets being adjustably mounted upon the doors by means of bolts passing through suitable horizontally-disposed slots in the said brackets. Pivotally connected with each of the door-brackets 25 is a hanger 26 of any suitable type adapted to turn on a vertical axis relative to the door. Track sections 27—28 of any suitable type adapted to coöperate with the carriages 26 are secured, as hereinafter described, above the doorway, the construction being such that as the doors are swung inward and folded against each other the carriage 26 of each two con-

nected doors travels along its track section 27—28 serving to support the two doors in their swinging operation.

Each of the track sections 27—28 is supported at its inner end by means of a bracket 29 which is secured by any suitable means to the wall 17 above the doorway. The outer end of each of the track sections 27—28 is supported by means of a wall bracket 30 secured by any suitable means to the wall 17 in appropriate position. Pivotally secured to each of the wall-brackets 30 is an extention arm 31 to the extending end of which the outer end of the track section 27—28 is connected in any suitable manner. As best shown in Fig. 8, the upper end of the bracket 30 is provided with a plurality of holes 32 through which a bolt 33 is passed for connecting the extension arm 31 thereto, the bolt 33 being adapted to pass through either one of two holes 34 through the extension arm 31. The holes 34 in the extension arm 31 are spaced at a distance apart equal to one and one-half times the distance between the holes 32, whereby the bracket 30 and the extension arm 31 are adjustable relative to each other by distances equal to one-half the distance between the holes 32, as will be readily understood.

Each of the track sections 27—28 is supported at an intermediate point by means of a wall-bracket 35 secured by any suitable means upon the wall 17 above the doorway. An extension-arm 36 secured in any suitable manner at one end to the track section is secured at its other end by a bolt 37 to the bracket 35, the opening into the extension-arm 36 for the bolt 37 being in the form of a slot 38 as best shown in Fig. 7.

When it is desired to install a set of supporting means of the type just described, the wall-brackets are secured in position upon the wall 17 and the track 27 is secured thereto. The carriage 26 having been mounted upon the track and secured to the door, the doors are moved to closed position. The connection between the carriage 26 and the door-bracket 25 is then adjusted along the horizontally-extending slot in the upper end of the bracket 25 so that the door stands in the desired position relative to the inner end of the track. The doors are next moved to their folded open position, either in position parallel with the doorway, as shown at the right in Fig. 3, in position approximately at right angles to the doorway, as shown at the left in Fig. 3, or in any other desired position. The door-brackets 25 are then adjusted by means of the horizontally-extending slots therein and the extension-arms 31 are adjusted relative to the wall-brackets 30, to suit the thickness of the doors and the angle to which they are to be opened. The extension-arms 36 of the intermediate brackets are thereupon adjusted relative to the wall-brackets 35, whereupon the device is in condition for operation.

By the use of the diagonally-extending brace-bars 20—24 the doors are supported when in folded back open position and are prevented from being loosened and weakened by the strain of the weight upon the outer door.

So far as I am aware, I am the first in the art to provide supporting means of this type which are adjustable to meet varying conditions of use as to the thickness of the doors and the angle at which the doors are to be held in their opened position, and my claims are to be construed accordingly.

What I claim as my invention and desire to secure by Letters Patent, is—

1. In a device for slidably supporting hinged folding doors, the combination of a hanger secured to one of said doors, a track along which said hanger is movable, and means for supporting said track adjustably in position at an angle to the doorway whereby the track may be adjusted to suit varying conditions as to the thickness of the doors and as to the angle at which the doors are to stand folded together when opened.

2. In a device for slidably supporting hinged folding doors, the combination of a hanger secured to one of said doors, a track along which said hanger is movable, means pivotally connected with one end of said track for supporting it in position, and adjustable means for supporting the other end of said track whereby the track may be adjusted to different angles relative to the doorway to suit varying conditions as to the thickness of the doors and as to the angle at which the doors are to stand folded together when opened.

3. In a device for slidably supporting hinged folding doors, the combination of a hanger secured to one of said doors, a track along which said hanger is movable, means pivotally connected with one end of said track for supporting it in position, and adjustable means for supporting the other end of said track whereby the track may be adjusted to different angles relative to the doorway to suit varying conditions as to the thickness of the doors and as to the angle at which the doors are to stand folded together when opened, said adjustable supporting means comprising a bracket having a plurality of holes spaced a fixed distance apart in a horizontally-extending portion, an extension-arm secured to said track and having a plurality of holes in a horizontally-extending portion, and a bolt passing through two of said holes as desired for connecting said extension-arm to said bracket, the holes in one of said parts being spaced apart by a distance substantially equal to two-thirds of the distance by which the holes in the other part are spaced apart.

4. In a device for slidably supporting hinged folding doors, the combination of a hanger secured to one of said doors and adapted to be adjusted horizontally both toward and from the face of the door and along the face of the door, a straight track section along which said hanger is movable, means pivotally connected with one end of said track section for supporting it in position, adjustable means for supporting the other end of said track section whereby the track may be adjusted to different angles relative to the doorway to suit varying conditions, and adjustable means for supporting said track section intermediately of its ends.

5. The combination of a swinging door, a second door hinged thereto and adapted to be folded thereagainst, a hanger adjustably secured to said second door near one edge thereof, a track along which said hanger is movable, means for supporting said track adjustably in position at an angle to the doorway whereby the track may be adjusted to suit varying conditions, and a diagonally-disposed brace-rod pivotally connected near one edge of the first-named door upon the axis upon which said door swings and fixedly secured to the other edge of said door.

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