

Sept. 6, 1932.

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1,875,873

DOUBLE DOOR ARRESTING MECHANISM

Filed Sept. 4, 1931

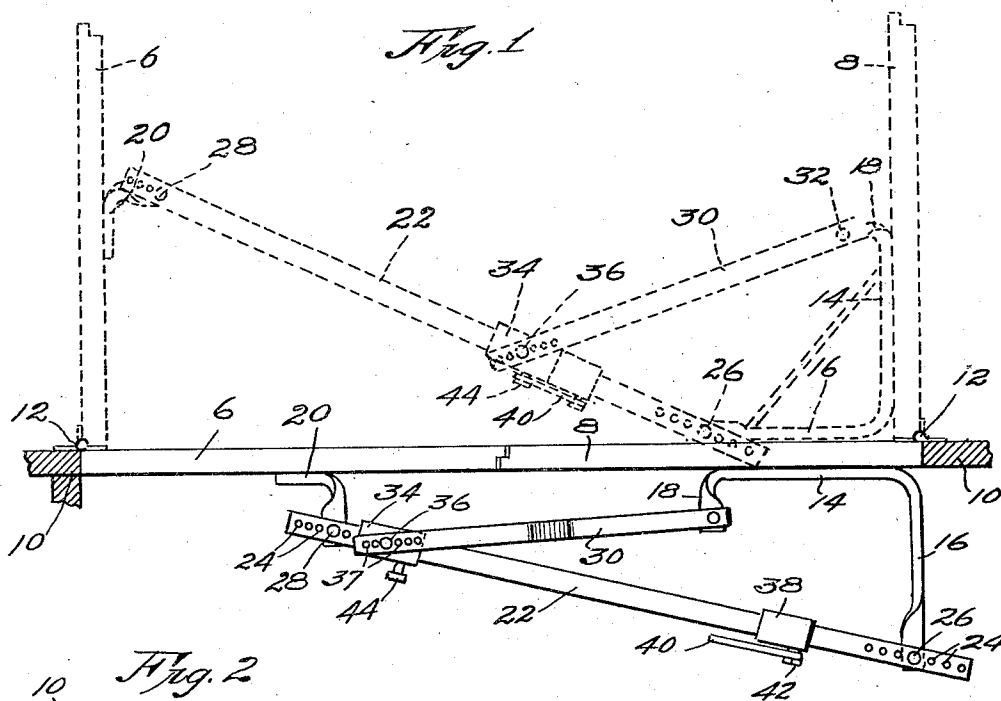
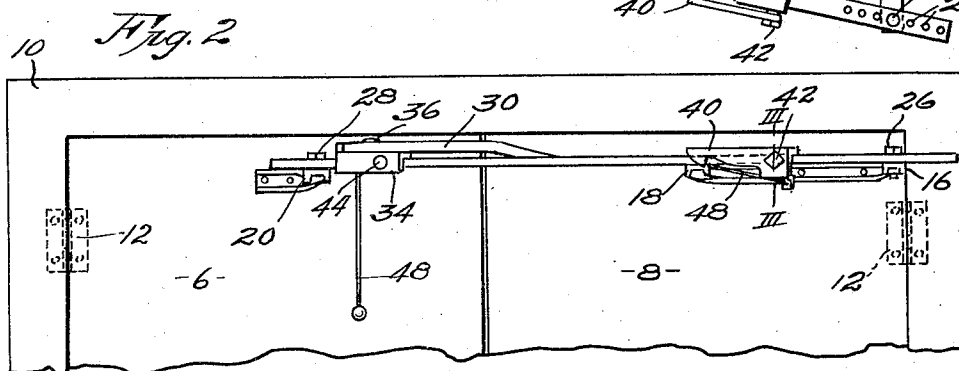
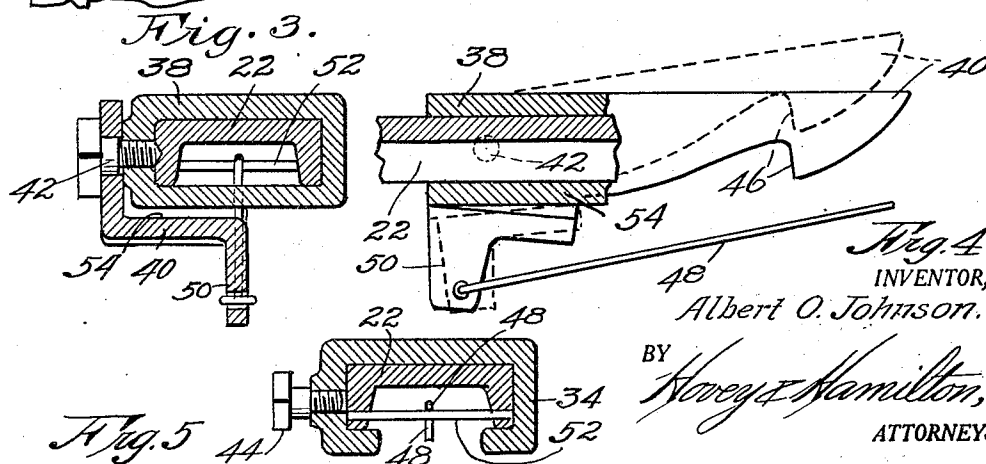


Fig. 4
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DOUBLE-DOOR ARRESTING MECHANISM

Application filed September 4, 1931. Serial No. 561,102.

This invention relates to apparatus constructed for use with hingedly mounted doors and has for a primary object the provision of mechanism used to an advantage with a pair of oppositely swinging double doors which it is desired to arrest when the same are at the fully opened or closed position.

This invention has for a further object the contemplation of double-door arresting mechanism which includes in its structure, means for automatically latching all of the parts of the apparatus in an immovable position after the doors with which the mechanism is associated have been manually moved to a predetermined position where, for all practical purposes, they are in the fully opened position.

A still further object of the instant invention is to provide an arresting mechanism for oppositely swinging double doors which is strong, rugged, and durable; will not become maladjusted through long continued use, and is exceptionally effective in performing the intended function through the use of but few parts.

During the following specification, referring to the accompanying drawing, a large number of minor objects will appear and the operation of the device will be rendered clear as the description of the parts and their combination is set down.

In the drawing:

Figure 1 is a top plan view of arresting mechanism embodying the present invention, illustrating the same in two extreme positions.

Fig. 2 is an edge elevation of mechanism in door-closed position.

Fig. 3 is an enlarged, fragmentary, detailed section through the main bar near one end and on line III—III of Fig. 2.

Fig. 4 is a broken side elevation of the gravity-actuated dog, illustrating the same in two positions, and,

Fig. 5 is a detailed cross sectional view similar to Fig. 3, but taken through the main bar near the other end thereof.

Arresting mechanism embodying the concepts of the invention functions best when constructed for use with a pair of oppositely swinging double doors 6 and 8, each of which has its vertical free edge rabbeted to afford

positive interconnection when doors 6 and 8 are closed, as shown in full lines of Fig. 1. Each of said doors 6 and 8 are hingedly swung upon casing 10 through the intermediacy of the well known hinges 12 and when doors 6 and 8 are moved to a position shown in dotted lines of Fig. 1 they are herein construed to be in the fully opened position, or at one end of their arcuate path of travel.

One of the essential features of the invention is the firmly affixing of these doors in either the open or closed position, such affixing being automatically performed by the mechanism which may consist of a bracket 14, carried by door 8 adjacent its hingedly supported edge. Bracket 14 includes a long arm 16 and a short arm 18, each of which preferably terminate in the same horizontal plane. Upon door 6 is mounted fixture 20, and bar 22 interconnects the free end of fixture 20 and the extended end of arm 16 of bracket 14. For adjustment and ease of assembling, bar 22 is provided with a series of holes 24 formed through each end thereof. A pin 26 interconnects long arm 16 and one end of bar 22 as pin 28 likewise joins fixture 20 and the opposite end of bar 22.

To perform the desired function, a link 30 essentially interconnects bar 22 and arm 18 of bracket 14. One end of link 30 is pivotally affixed as at 32 to short arm 18 and the other end of link 30 is associated with bar 22 through the intermediacy of slide 34. It is to this slide 34 that link 30 is pivotally joined by a connector 36 which allows movement when the mechanism is operated. Connector 36 might be passed through any one of holes 37 for the purpose of adjusting the effecting length of link 30.

The construction just set forth permits the yieldable holding of doors 6 and 8 in the closed position provided the connector 36 joining link and slide 30 and 34 respectively lies to one side of a line extending between the vertical hinge line of hinges 12 supporting door 6 and pin 26. That is to say, connector 36 should be on the opposite side of the line just described than doors 6 and 8. This past-center positioning injects sufficient rigidity into the parts of the mechanism to hold doors

6 and 8 in the closed position and movement on the part of door 6 is required before door 8 even starts to open. This movement extends only to an amount sufficient to draw
 5 connector 36 to a line extending between hinge 12 and pin 26.

From this point on the doors 6 and 8 are free to move and opening force need be exerted on but one of the doors. Link 30 and bar
 10 22 will transmit opening power to the other door and when they have assumed the open position as shown in dotted lines of Fig. 1, the novel latching apparatus will automatically function to maintain the doors in this
 15 position until the means for actuating the latch to the inoperative position is brought into play. One embodiment of the latching mechanism contemplated by the invention includes a yoke 38 rigid with bar 22 which
 20 rockingly supports dog 40 through the intermediacy of pintle 42. A laterally extending catch 44 may be formed on, or carried as a part of, slide 34 and positioned to engage dog 40 when doors 6 and 8 are opened.

25 As clearly shown in Fig. 4, the inclined portion of dog 40 will ride up and over catch 44 to a point where shoulder 46 will rest on one side of catch 44 to preclude movement in one direction. When dog 40 has moved to the
 30 position just mentioned, slide 34 will engage yoke 38 and preclude movement in the opposite direction. Obviously, therefore, when doors 6 and 8 are open and slide 34 is in engagement with yoke 38 and dog 40 is resting by gravity upon catch 44, all members of the mechanism will be secured against relative movement.

To allow doors 6 and 8 to be closed again it is but necessary to move dog 40 to a position
 40 where it is out of engagement with catch 44. To do this cable 48 is provided, one end of which is attached to a depending portion 50 of dog 40, the other end of which hangs freely below slide 34, as illustrated in Fig. 2. Bar
 45 22 is channel iron and cable 48 is housed within this channel for a portion of its length. A tie-pin 52 may be utilized to act as a support for cable 48 at the point where it is desired to have the same drop down.
 50 The upward movement of dog 40 is limited by angled surface 54 which strikes the bottom of yoke 38 when cable 48 has moved dog 40 out of engagement with catch 44.

Manifestly, the parts of this arresting mechanism embodying the invention might be made of any suitable material and the dimensions of the same altered in conformity with the strength required to hold and actuate the doors with which the mechanism is to be
 60 associated.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

65 1. Arresting mechanism for oppositely swinging double-doors comprising a bracket

carried by one door adjacent its hingedly supported edge; a fixture mounted on the other door at a point spaced from the hingedly supported edge thereof; a bar extending between
 70 said bracket and fixture; a slide on said bar; and a link interconnecting said slide and bracket, the point of connection between slide and link being on the opposite side of a line extending between the vertical hinge line of
 75 said fixture-supporting door and the point of connection between bracket and bar when the double-doors are closed, whereby to maintain the same in the closed position.

2. Arresting mechanism for oppositely swinging double-doors comprising a bracket
 80 carried by one door adjacent its hingedly supported edge; a fixture mounted on the other door at a point spaced from the hingedly supported edge thereof; a bar extending
 85 between said bracket and fixture; a slide on said bar; a link interconnecting said slide and bracket; a latch associated with said bar in the path of travel of said slide whereby to secure the mechanism against movement; and means for actuating said latch to the in-
 90 operative position.

3. Arresting mechanism for oppositely swinging double-doors comprising a bracket
 95 carried by one door adjacent its hingedly supported edge; a fixture mounted on the other door at a point spaced from the hingedly supported edge thereof; a bar extending
 100 between said bracket and fixture; a slide on said bar; a link interconnecting said slide and bracket; a dog pivotally associated with said bar in the path of travel of said slide, said dog being moved into latching engagement with said slide by the slide and gravity; and means for moving the dog to the
 105 inoperative position.

4. Arresting mechanism for oppositely swinging double-doors comprising a bracket
 110 carried by one door adjacent its hingedly supported edge; a fixture mounted on the other door at a point spaced from the hingedly supported edge thereof; a bar extending between said bracket and fixture; a slide on
 115 said bar; a link interconnecting said slide and bracket; a dog pivotally associated with said bar in the path of travel of said slide; and a catch formed on said slide for engagement with said dog when the doors are in the open position.

5. Arresting mechanism for oppositely swinging double-doors comprising a bracket
 120 carried by one door adjacent its hingedly supported edge; a fixture mounted on the other door at a point spaced from the hingedly supported edge thereof; a bar extending
 125 between said bracket and fixture; a slide on said bar; a link interconnecting said slide and bracket; a yoke rigid to said bar; a dog pivotally associated with said yoke; and a catch formed on said slide for engagement with said dog when the doors are in the open
 130 position.

position, said yoke and slide abutting to prevent movement of the doors in one direction, and said catch and dog acting to prevent movement of the doors in the opposite
5 direction.

6. In double-door arresting mechanism, a fixture mounted on one door; a bracket carried by the other door; a bar extending between said bracket and fixture; a link inter-
10 connecting said bar and bracket, said bracket including a short arm and a long arm, said bar being pivotally attached to said long arm, said link being pivotally attached to said short arm; a slide at the point of con-
15 nection between bar and link; and means to engage said slide when the doors are open to preclude movement thereof.

7. In double-door arresting mechanism, a fixture mounted on one door; a bracket carried by the other door; a bar extending between said bracket and fixture; a link inter-
20 connecting said bar and bracket; a slide at the point of connection between bar and link; a gravity actuated dog carried by said bar to engage the slide at one end of its path of
25 travel; and means for moving the dog to the inoperative position, said means including a cable housed within said bar and extending longitudinally thereof for a portion of the
30 length of both cable and bar.

In testimony whereof, I hereunto affix my signature.

ALBERT O. JOHNSON.

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