

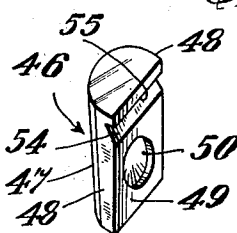
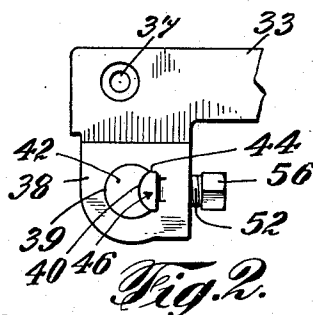
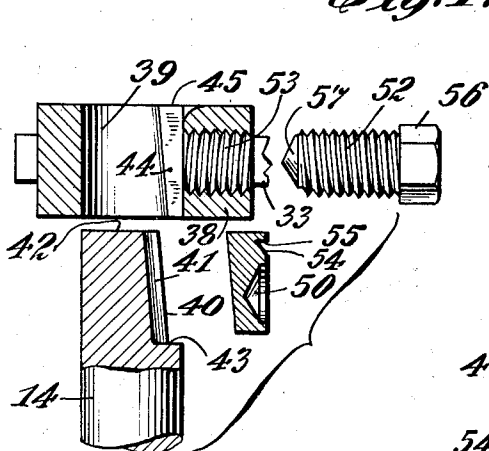
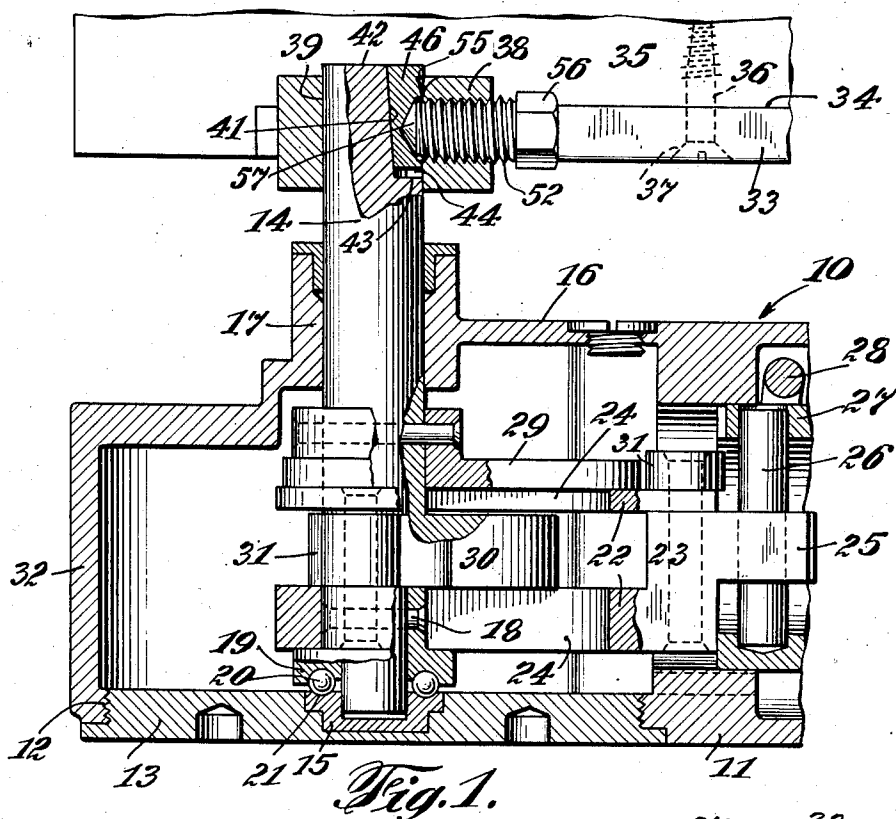
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ADJUSTABLE DOOR SUPPORT AND COUPLING

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ADJUSTABLE DOOR SUPPORT AND
COUPLING

Emil Bommer, Brooklyn, N. Y.

Original application January 11, 1932, Serial No.
585,832, now Patent No. 1,978,736. Divided and
this application June 16, 1932, Serial No.
617,643

1 Claim. (Cl. 287—53)

This invention relates to means for supporting a door at different elevations, and relates more particularly to a support and coupling for adjustably supporting a door upon a door check and closer of the kind which is inserted in a recess in the floor.

An object of the invention is to provide in connection with the supporting pintle at the lower end of the door an improved coupling device whereby to support the door at the elevation desired for operation by the door check and closer.

In the use of door checks and closers of the kind placed in a depression in the floor, difficulties are encountered in mounting and maintaining the door for swinging movement at the precise elevation desired. The difficulties in this regard may take various forms, such, for example, as countersinking the door check and closer to the right depth in the floor, which may consist of wood, concrete stone or other material; in providing a vertical pintle of the right height in cooperation with the door check and closer; and in rigidly connecting the door attaching bar to the pintle so that the door cannot move relatively to the pintle.

The adjustable support and coupling of the present invention has been devised with a special view of avoiding the above-mentioned difficulties and others, and it has for its object and purpose the provision of a simple, practical and efficient construction of this character for readily and positively securing the door upon the pintle at the precise vertically adjusted position desired.

The present application is a division of my application for patent Serial No. 585,832, filed January 11, 1932, for Cam mechanism for door check and closer.

The nature of the invention, its general principles and objects above referred to, as well as other objects and advantages, and the manner in which the new and novel features of construction and operation may be embodied in practical form and means, will be hereinafter more fully described, with reference to the example illustrated in the accompanying drawing, in which:

Figure 1 represents a sectional view in elevation of an adjustable support and coupling made in accordance with my invention, the same being illustrated in connection with a door check and closer, fractionally shown;

Fig. 2 is a fragmentary top plan view of the support and coupling detached from the door;

Fig. 3 is a detail view partly in section of the door attaching bar head, wedge device, and set

screw shown in a position to be assembled, the door attaching bar being partly broken away; and

Fig. 4 is a detail view of the wedge device.

Referring with more particularity to the accompanying drawing, the numeral 10 denotes in general the rear portion of an elongated casing of the type which is adapted in accordance with the usual practice to be placed in a suitable cut or cavity in the floor construction. In the bottom wall 11 of the casing is provided a circular threaded opening 12 which is closed and sealed by means of a circular screw plug 13. For rotatively receiving the lower end of the pintle 14, upon which the door is supported, a cup-shaped bearing 15 is countersunk in the central inner face of the plug 13; and in axial alignment with the bearing 15, the top wall 16 of the casing is made with an annular vertically extending bearing 17 through which the vertical pintle extends. Opposite the cup-shaped bearing 15, there is rigidly secured to the pintle by a rivet 18 or other equivalent device, a ball-race bearing 19, and suitable anti-friction balls 20 are disposed between the bearings 19 and 15, the last-named having for the balls 20 a suitable annular raceway or groove 21. The vertical pintle for the door may thus be supported in an anti-friction manner upon the plug 13 which is removably engaged in the bottom wall of the casing.

Mounted for reciprocation backwardly and forwardly on the pintle 14 is a horizontal frame having upper and lower plates 22 united at their forward ends by a front portion 23 and provided with lengthwise extending slots 24 through which the vertical pintle extends. An extension 25 projects forwardly from the portion 23 and carries a coupling pin 26 whereby to connect the frame with a cylinder 27 which is normally urged forward to effect the closing of the door by means of a coil spring 28, said cylinder and coil spring being shown herein only fractionally.

Within the casing the vertical pintle has fixed thereto cam devices 29 and 30 which cooperate with rollers 31 in such manner that the rotary movement of the pintle (either to the right or to the left), accomplished by the opening movement of the door, will result in moving the frame longitudinally toward the casing end 32, thereby tensioning the coil spring 28; while the forward movement of the frame accomplished by the expansion of the coil spring 28 when the open door is released for closing movement, will result in turning the vertical pintle reversely, or in the direction necessary to effect the closing of the door.

For a full disclosure of the cam mechanism, reference may be had to the above identified parent application; and for a full disclosure of the cylinder 27, coil spring 28 together with all other parts of the complete door check and closer, reference may be had to my application for patent, Serial No. 444,971, filed April 17, 1930, for a door check and closer. The constructional parts of the cam mechanism and of the door check and closer have been shown herein only for the purpose of illustrating the usefulness and advantages of the device of my present invention, and it is to be understood that the adjustable support and coupling of my present invention may be associated with any type of door check and closer or other floor device having means for rotatably supporting the vertical pintle.

It may be important to note here that the cam mechanism above referred to is of a universal character, being movable through a circle of 360° and therefore being suitable for use in door check and closer constructions for a single-acting door, a double-acting door, and as well for either a right or left-hand door; and it is further to be noted that the vertical pintle 14 is mounted in the casing as one with the cam mechanism, for rotation either to the right or left through a full circle.

For mounting the door on the vertical pintle 14, any suitable attaching bar may be applied to the lower edge of the door in any known or approved manner. In the present embodiment, an attaching bar 33 is represented as fitting in a mortise 34 in the lower edge of the door 35, and secured in place by screws 36 which extend upwardly into the door through suitable eyes 37 provided for the purpose in the bar. Said bar is formed adjacent one end with a lateral head 38 provided with a vertical opening or bearing 39 in which the top portion of the pintle is received.

Preferably as shown, the head 38 is enlarged vertically so that the bearing 39 will fit axially along the pintle for a distance sufficient to admit of the employment and adjustment of the coupling means now to be described.

The top portion of the pintle at one side thereof is provided with a vertically extending recess 40 concavely curved at 41. This recess is open at the top 42 of the pintle and its concavely curved defining wall 41 is tapered so that the recess gradually narrows in cross sectional area from the top to the bottom wall 43.

The head 38 is provided with a vertical notch or recess 44 in open communication with the bearing opening 39 and which is also open at the top 45. This notch is of angular form in cross section and is located so as to come opposite the vertical recess in the pintle.

46 denotes a wedge-like member or block which is shaped to fit partly in the recess 40 and partly in the notch 44. For this purpose, the wedge member has a convexly formed side 47 which fits the concavely curved wall 41 and

is tapered in agreement with the tapering of said wall. The opposite sides 48 of the wedge member are of angular form in cross section to fit the angular notch 44. As will be understood from an inspection of Figs. 3 and 4, the sides 48 of the wedge and the angular notch which receives them, may taper lengthwise in substantial agreement with the lengthwise tapering of the side 47.

The flat side 49 of the wedge member 46 has a recess 50 therein shaped to receive the conical inner end 51 of a screw bolt 52 which is threaded through a horizontal screw-threaded opening 53 provided in the head 38. Near its top, the flat side 49 of the wedge may be provided with a recess 54 for receiving a tool adapted to be engaged under the shoulder 55 for the purpose of readily withdrawing the wedge upwardly from the vertical recesses.

With the foregoing simple construction, it will be evident that before tightening the screw bolt 52, the head with the wedge member and hence the attaching bar with the door thereupon may be adjusted vertically to the precise position in which it is desired to have the door swing above the floor. In view of the construction shown, the screw bolt, by the application of a wrench or similar tool to the angular head 56 thereof, may be readily tightened to such an extent that the wedge member, irrespective of its position of vertical adjustment on the pintle, cannot slip downwardly under the weight of the door superimposed on the attaching bar.

Although I have herein disclosed and described only one example and practical embodiment of my improvement as reduced to practice, it will be recognized that the disclosure given is an example only, and is susceptible to more or less modification in the form, proportion and relative arrangement of the various parts, and I, therefore, reserve the privilege of resorting to all such legitimate changes therein as may be fairly incorporated within the spirit and scope of the invention as claimed.

I claim:—

In a door closing means in which a pintle is disposed in a vertical position and a door is provided with a fitting adjustably connected to said pintle, said connection comprising a hub portion on said fitting having a vertical bore to receive said pintle, said pintle having a recess at its upper end opening through the side thereof, said recess increasing in depth in an upward direction, said hub bore having a vertical recess at one side thereof opening into said bore, a tapered slip-block disposed in both of said recesses, said slip block having a circular recess, and a threaded locking element carried by the hub with its inner end disposed in said circular recess.

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