Feb. 13, 1951 W. E. BARRETT 2,541,567

HINGE

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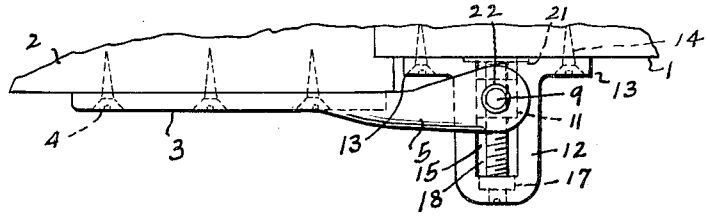


Fig. 1

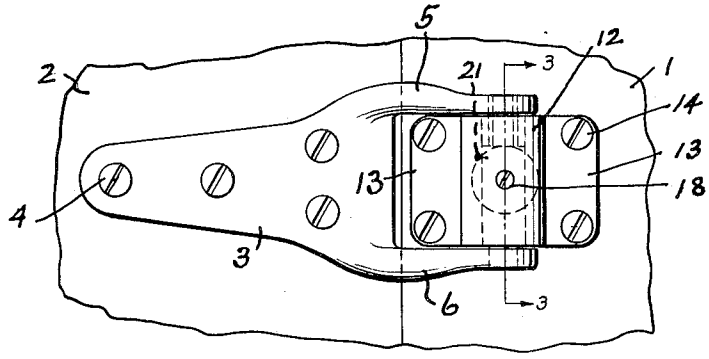


Fig. 2

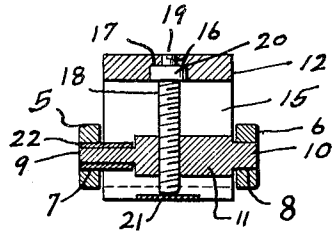


Fig. 3

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4 Claims. (Cl. 16—131)

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This invention relates to a hinge.

An object of the invention is to provide a hinge of the character described specially designed for use on any type of swinging door. It has been particularly designed for use in connection with doors that, when closed, should be air tight, or water tight, although it is well adapted for use on any type of swinging door. The invention herein disclosed constitutes an improvement on that type of hinge disclosed in Patent No. 2,251,865 issued by the United States Patent Office on August 5, 1941.

Another object of the invention is to provide a hinge of the type described whereby the door in connection with which the hinge is used, may be adjusted relative to the associated door frame so that the door will at all times form a close fit with the frame, or with the packing between the door and frame, to the end that a tight joint may be at all times maintained between the door and frame, or frame packing.

It is a further object of the invention to provide a hinge, one member of which is attached to a door and is provided with arms which oscillate on pintle members having a novel type of mounting relative to a stationary member with relation to which the door oscillates.

The invention also embodies novel means for adjusting the pintle members in the stationary member.

With the above and other objects in view the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings wherein:

Figure 1 is a top plan view of the hinge illustrated in assembled relation with the door frame and door which are shown fragmentary.

Figure 2 is an elevational view thereof; and

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Referring now more particularly to the drawings, wherein like numerals of reference designate the same parts in each of the figures, the numeral 1 designates the door frame and the numeral 2 designates the door which is connected to the frame by the hinge herein described.

The numeral 3 designates a hingle plate which may be secured to the door in any appropriate manner as by the conventional screws 4 and said plate has the spaced arms 5 and 6 which are preferably integral with the edges of the plate 3, as best shown in Figure 2.

The free ends of the arms are provided with the pintle bearings, as 7, 8, to receive the end

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pintles 9 and 10 of the pintle block 11. This block is preferably rectangular in cross-section.

There is a U-shaped housing 12 which is secured to the door frame 1 in any preferred manner. As illustrated it has the outwardly turned flanges 13, 13 which may be secured to the frame by the conventional screws 14. The housing has a channel 15 therethrough from top to bottom. The walls of the channel 15 are parallel and form a guide for the pintle block 11 which is adjustably mounted between them, said walls forming guides for the pintle block.

The outer end of the housing 12 is provided with a bearing 16 which extends entirely therethrough and whose inner end is provided with an enlarged bore forming an inside socket 17.

There is a screw shaft 18 which is threaded through the pintle block and whose outer end works through the bearing 16 and may be provided with a transverse slot 19 to receive a screw driver by means of which it may be turned. The shaft 18 is formed with an enlarged cylindrical head 20 which is seated in the socket 17 thus forming a swivelling connection between the screw shaft and the housing. The opposite end of the screw shaft bears against a plate 21 which is clamped between the housing 12 and the door frame 1.

As will be noted by an inspection of Figure 3 the pintle 10 is of a size to fit snugly through the bearing 8 of the arm 6 and is of a length such that its outer end will be flush with the outer side of the arm 6; but the pintle 9 is of somewhat less diameter and is considerably longer than the pintle 10. This is for the purpose of convenience in assembly.

After the pintle block is assembled a bushing 22 may then be driven over the pintle 9 and this bushing will form a close fit in the bearing 7.

In assembling the hinge the screw shaft 18 may be screwed through the pintle block 11 until the head 20 is in close relation with said block 11 and the housing 12 may then be fitted between the arms 5, 6 and the pintle 9 inserted through the bearing 7 far enough so that the pintle 10 may be moved into alignment with the bearing 8 and the pintle block 11 then moved outwardly, or toward the arm 6 until the pintle 10 extends through the bearing 8 and the bushing 22 then driven into place. In this way the pintle block may be mounted in place without spreading the arms 5 and 6. The screw shaft 18 may then be screwed through the pintle block 11 until the head 20 seats in the socket 17. The plate 21 is a separate piece and is not installed until the housing 12 is to be secured to the frame

1 at which time said plate 21 is installed opposite the opposing end of the screw shaft 18. When the door is mounted with hinges of the type described, it is obvious that by turning the shaft 18 the pintle block 11, together with its arms and plate 3 may be adjusted toward or from the door frame so that the door may be adjusted to form a nice fit with the frame or with the frame packing.

The drawings and description are illustrative merely while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. In a hinge for connecting a door to a door frame, a housing secured to the door frame and extending away from said frame at an angle and having a channel extending therethrough at a substantial angle to the plane of the door frame, a pintle block disposed in said channel and movable toward and away from the door frame within the channel, end pintles on the block and formed integrally therewith, one of said pintles being longer than the other, a plate secured to the door and having a pair of spaced arms extending over the ends of the housing and its channel and having bearings through which the pintles extend, the combined length of the block and the shorter pintle being less than the distance between the bearings, a bushing over the longer of said pintles and fitted in the corresponding arm bearing, a screw shaft one end of which has a swivelling connection with the outer end of the housing, said shaft being threaded through said block in a direction at a substantial angle with respect to the plane of the door frame and means to rotate the screw shaft to move the pintle block toward and away from the door frame within the confines of the housing.

2. In a hinge for connecting a door to a door frame, a housing secured to the door frame and extending away from said frame at an angle and having a channel extending therethrough at a substantial angle to the plane of the door frame, a pintle block disposed in said channel and movable toward and away from the door frame within the channel, end pintles on the block and formed integrally therewith, one of said pintles being longer than the other, a plate secured to the door and having a pair of spaced arms extending over the ends of the housing and its channel and having bearings through which the pintles extend, the combined length of the block and the shorter pintle being less than the distance between the bearings, a bushing over the longer of said pintles and fitted in the corresponding arm bearing, a screw shaft one end of which has a swivelling connection with the outer end of the housing, said shaft being threaded through said block in a direction at a substantial angle with respect to the plane of the door frame, a bearing plate against which the other end of the shaft bears and means to rotate the screw shaft to move the pintle block toward and away from the door frame within the confines of the housing.

3. A hinge for connecting a door to a door frame comprising, a housing secured to the door frame and having a channel therethrough extending at a substantial angle to the plane of the door frame, a plate secured to the door and having a pair of spaced arms embracing the housing and its channel and having bearings, a pintle block disposed in said channel and movable therein toward and away from the door frame, end pintles formed integrally with the ends of the block and extending through the respective arm bearings, one of said pintles being longer than the other, the combined length of the block and the shorter pintle being less than the distance between the bearings, a bushing fitted over the longer of said pintles into the corresponding arm bearing, the outer end of the housing having a shaft bearing whose inner end is enlarged forming an inside socket, a shaft threaded through the pintle block whose outer end extends through the housing bearing, a head on said shaft which is rotatable in said socket and a bearing plate associated with the housing against which the other end of the shaft bears.

4. In a hinge for connecting a door to a door frame, a housing adapted to be secured to the door frame and extending away from said frame at an angle and having a channel extending therethrough at an angle to the plane of the door frame, a pintle block disposed in said channel, end pintles on the block and formed integrally therewith, one of said pintles being longer than the other, a plate adapted to be secured to the door and having a pair of spaced arms embracing the housing and its channel and having bearings through which the pintles extend, the combined length of the block and the shorter pintle being less than the distance between the bearings, a bushing over the longer of said pintles and fitted into the corresponding arm bearing.

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The following references are of record in the file of this patent:

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