

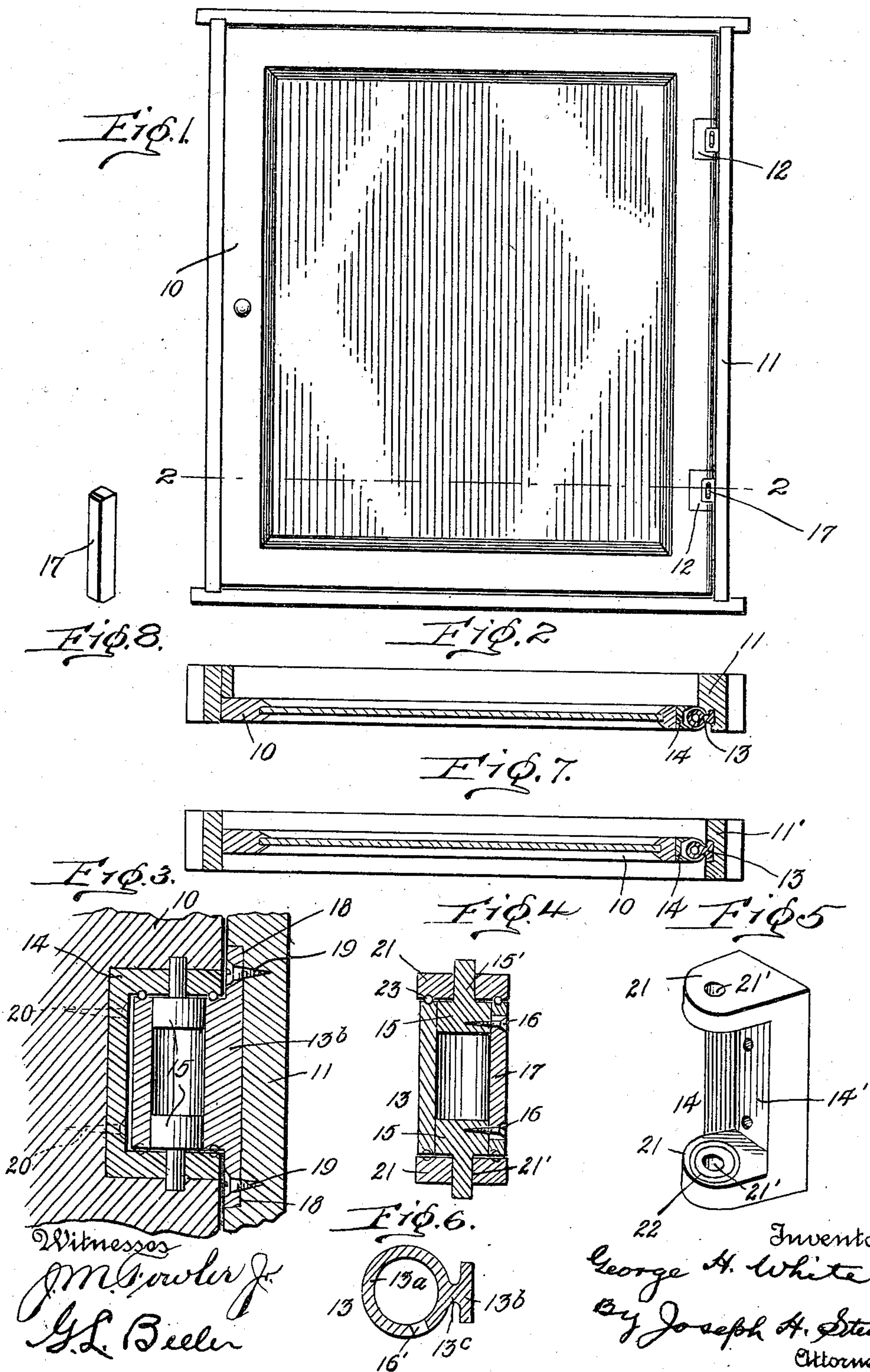
G. H. WHITE.

DOOR HINGE.

APPLICATION FILED MAY 18, 1910.

965,265.

Patented July 26, 1910.



UNITED STATES PATENT OFFICE.

GEORGE H. WHITE, OF CINCINNATI, OHIO.

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Specification of Letters Patent.

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Application filed May 18, 1910. Serial No. 562,016.

To all whom it may concern:

Be it known that I, GEORGE H. WHITE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Door-Hinge, of which the following is a specification.

This invention relates to builders' hardware, and particularly to a novel form of hinge to be used upon doors, windows, or other swinging parts, all as will be more fully hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a conventional form of door mounted upon a pair of my improved hinges; Fig. 2 is a transverse section on the broken line 2—2 of Fig. 1; Fig. 3 is a vertical sectional detail through one of the hinges; Fig. 4 is a vertical section through one of the hinges taken at an angle of substantially 90° to the plane of Fig. 3; Fig. 5 is a detail perspective of the lap member of the hinge; Fig. 6 is a transverse section of the butt member of the hinge; Fig. 7 is a view corresponding to that of Fig. 2, showing a modification of door frame, and Fig. 8 is a detail perspective of the removable block described below.

Throughout the following description and on the several figures of the drawings similar parts are referred to by like reference characters.

Among the several objects of this invention are to provide hinges which are exceedingly neat in appearance, having no projecting parts; to hold the door in such a position that it will always be close to the stile, having at no time a crack or space between the door and stile in which for instance a child's fingers may be caught and injured; to prevent to a larger extent than ordinarily the warping of the door by reason of the close engagement thereof with the stile; to insure the easy operation of the door on its hinges, and to prevent creaking thereof.

Referring to the drawings by reference characters, 10 indicates any conventional type of swinging member which may be supported upon hinges, and the door frame includes a stile 11 to which the door is hung. Any suitable number of hinges 12 may be employed, such number being indicated as two.

Each hinge includes a butt member 13 and

a lap member 14. Each butt member comprises a cylindrical barrel 13^a, and fastening plate 13^b, said parts being connected by a web 13^c. The barrel 13^a is hollow and open ended and within which a pair of trunnion blocks 15 are slidably mounted. Each of the blocks 15 has an upwardly or downwardly projecting trunnion or pintle 15'. The blocks are held normally in their separated position, as indicated in Figs. 3 and 4, by any suitable means. The means illustrated consists of a pair of screws 16 which pass through a slot 16' of the barrel and into the blocks 15. The screw heads when the screws are holding the blocks in position lie within the outer surface of the barrel and may cooperate with the walls of the slot 16' to prevent displacement of the blocks. In order to slide the blocks toward each other the screws are loosened sufficiently far to remove their heads from the walls of the slot 16' when the blocks may then be moved by sliding the screws along said slot. In order to constitute a neater finish for the hinge when assembled and also to more fully prevent any possibility of the blocks and screws approaching each other each to each a filler or plug 17, illustrated in Fig. 8, is introduced between the screws when the blocks are in their proper separated position. The outer surface or edge of the plug 17 should lie also within the outer surface of the barrel 13^a. The base plate 13^b may be secured to the stile by any convenient means. As illustrated it includes a pair of ears 18 which extend above and below the barrel and through which fastening bolts or screws 19 may pass into the stile.

The lap 14 includes a base plate 14' having a plurality of holes through which fastening screws or bolts 20 are adapted to be passed securing the lap into the edge of the door. The lap should be made in sizes to exactly correspond to the thickness of the door, as illustrated in Figs. 2 and 7, whereby no part thereof will project beyond any part of the door. The lap also includes a pair of bearing plates 21, having vertically alined bearings 21' adapted to receive the pintles 15' above described, the butt barrel 13^a substantially filling the space between said bearing plates 21. The adjacent surfaces of the barrel 13^a and plates 21 may if desired be provided with ball grooves 22, and in said grooves at the upper part of the

hinge may be employed a series of anti-friction balls or rollers 23, not only to sustain the weight of the door but to relieve the pintles from a large portion of the lateral strain which would otherwise come upon them. The antifriction balls may not be needed at the lower portion of the hinges, but the parts should be grooved at both ends so that the hinge will be interchangeable end for end, it being symmetrical in all respects.

With the door frame and stile illustrated in Fig. 2 the door may swing in one direction only, but the hinges are admirably adapted for doors intended to swing open in either of two directions, as indicated in Fig. 7, in which figure the stile 11' is plane next to the edge of the door. The door and hinges are the same for either arrangement of stile.

The hinges above described may be made of any suitable materials and the relative proportions of the parts may be varied as individual tastes may dictate, without departing from the spirit of the invention hereinafter claimed.

While I have shown and described the butt member as connected to the stile and the lap member to the door, it is to be understood that the hinge is susceptible of the reverse arrangement, the butt being attachable to the door and the lap to the stile.

I claim:

1. The hereindescribed hinge comprising, in combination, a butt member including a hollow open ended cylindrical barrel, a pair of trunnion blocks mounted within said barrel, each of said blocks having a pintle projecting normally beyond the end of the barrel, said blocks and pintles being movable toward each other entirely within the bar-

rel, a lap member including a pair of parallel bearing plates between which the aforesaid butt barrel is received and having a pair of alined bearings to receive said pintles, and means to secure said blocks in extended position with their pintles in said bearings.

2. In a door hinge of the character set forth, the combination of a lap member having a pair of parallel spaced bearing plates having alined bearings, a butt member comprising a hollow cylindrical barrel receivable between said bearing plates, said barrel having a longitudinal slot intermediate of its ends, a pair of pintle blocks movable toward and from each other within said barrel to effect engagement between the lap and butt members, and means operative through said slot for controlling the position of said blocks.

3. In a door hinge of the character set forth, the combination of a lap member having a pair of parallel spaced bearing plates having alined bearings, a butt member comprising a hollow cylindrical barrel receivable between said bearing plates, said barrel having a longitudinal slot intermediate of its ends, a pair of pintle blocks movable toward and from each other within said barrel to effect engagement between the lap and butt members, a pair of screws operative in said blocks whereby the blocks may be moved, and a plug filling the slot between said screws, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEORGE H. WHITE.

Witnesses:

SARA F. WHITE,
A. LEE BEATY.