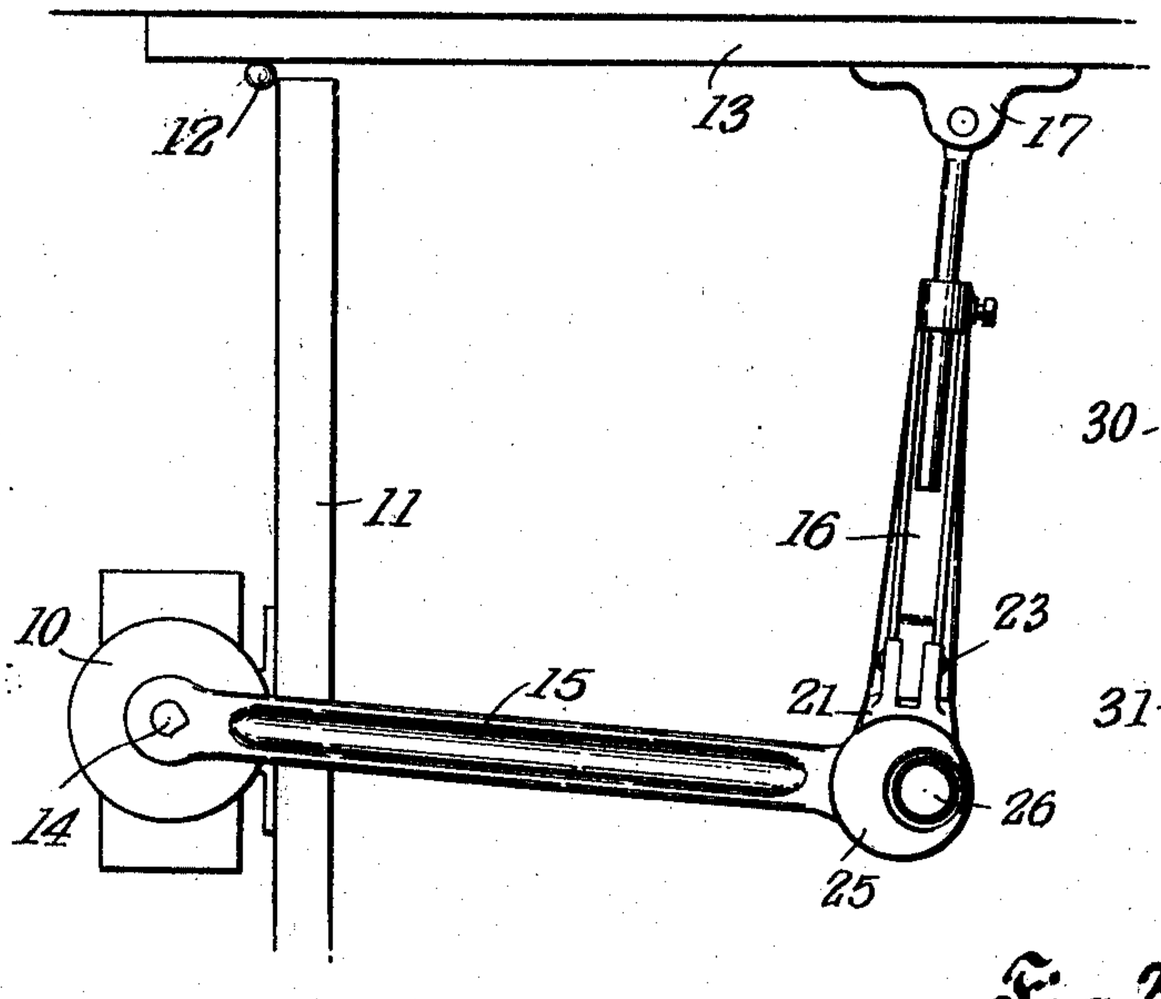
Oct. 7, 1930. N. B. HURD 1,777,672

DOOR HOLDER

Filed Dec. 19, 1928

Fig. 1.



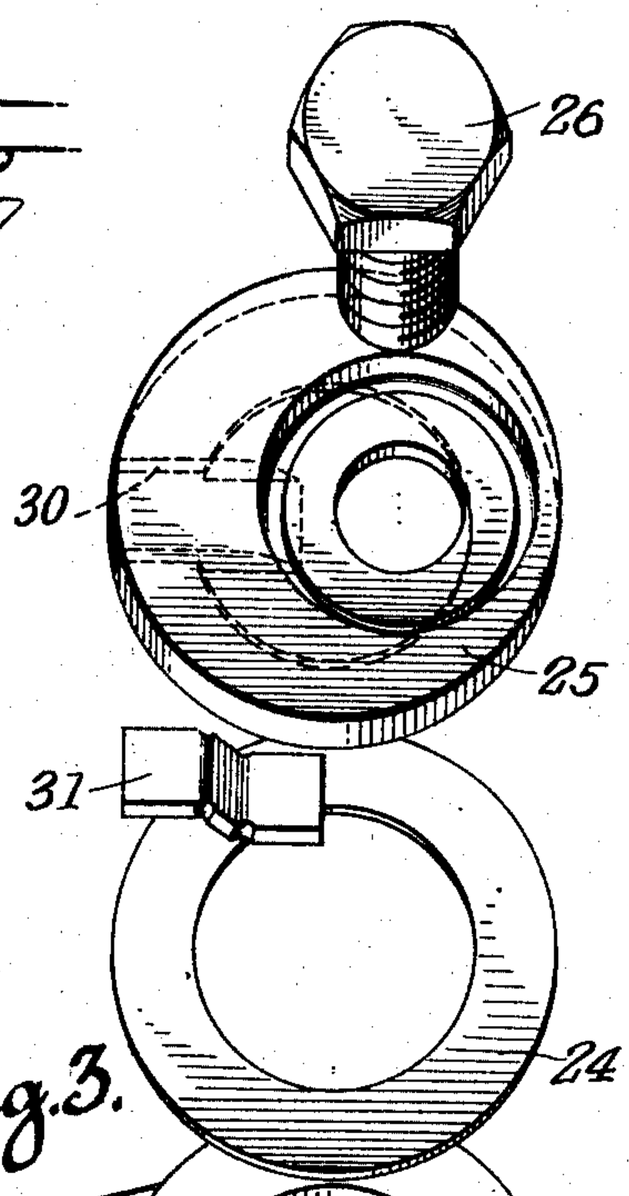


Fig. 3.

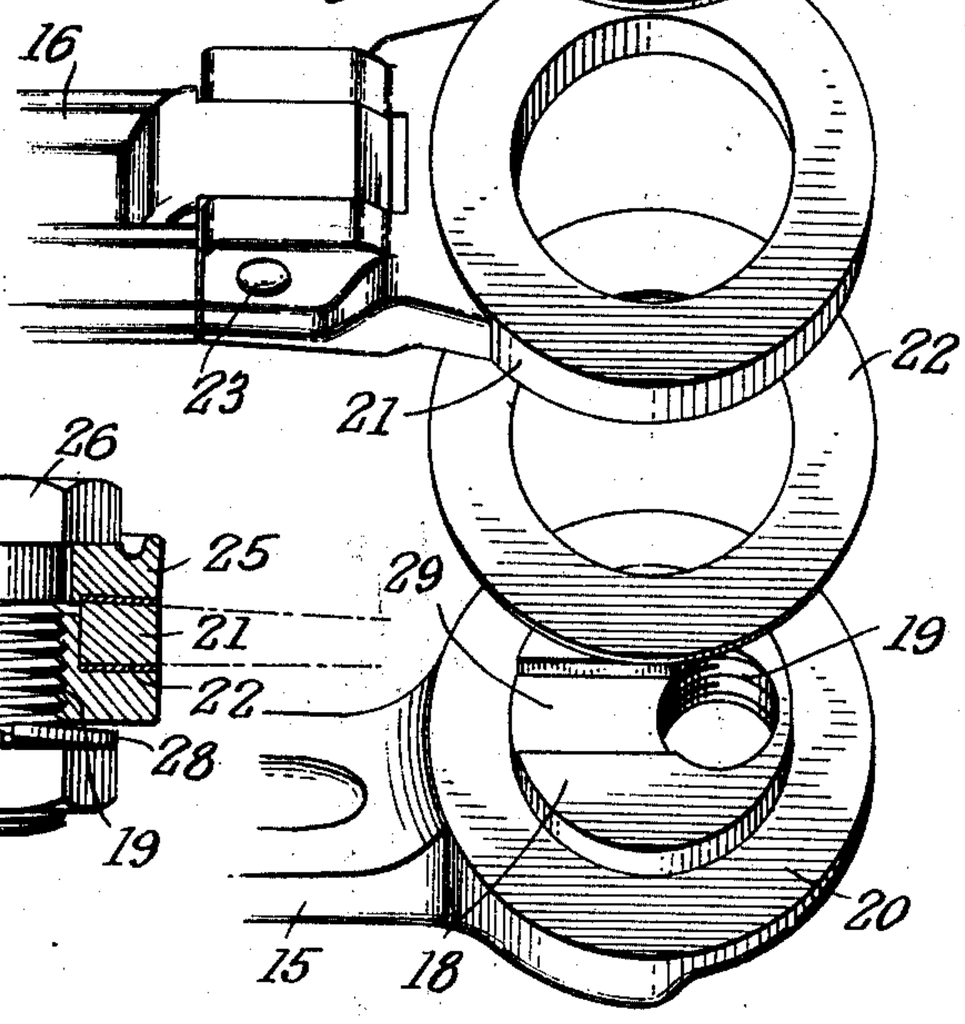
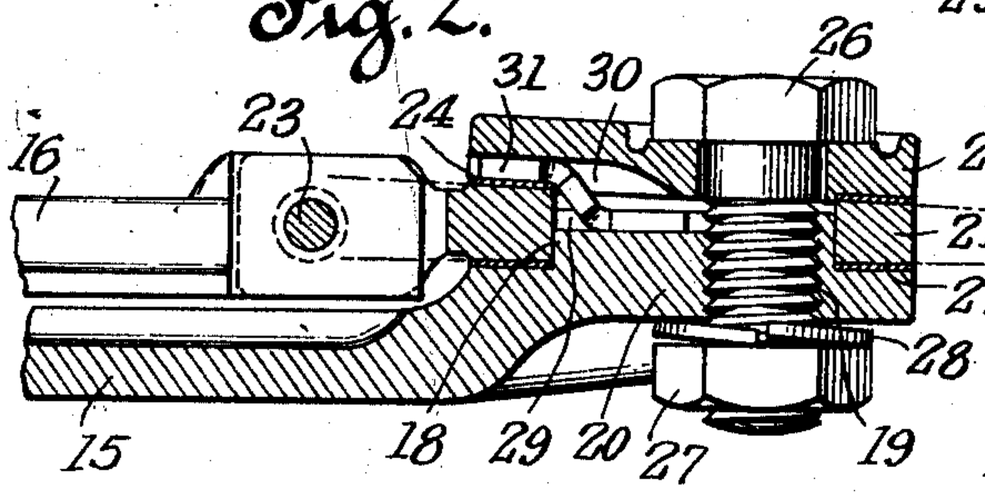


Fig. 2.



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UNITED STATES PATENT OFFICE

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DOOR HOLDER

Application filed December 19, 1928. Serial No. 326,921.

This invention relates to door stops or holders adapted to retain a door in any desired angle relative to its casing.

The principal object of the present invention is to provide an improved form of door stop for holding a door ajar at any desired position, and comprises an improvement upon the form of door stop disclosed in my United States Patent No. 1,595,098.

In the accompanying drawing:—

Fig. 1 is a plan view showing my invention applied to a door, the door being shown in its open position;

Fig. 2 is a vertical sectional view through the joint connecting the two pivoted arms of the mechanism; and

Fig. 3 shows in spaced relation to each other the members forming the frictional stop for the door holder.

In the above mentioned drawing, I have shown but one embodiment of the invention which is now deemed preferable, but it will be understood that changes and modifications may be made within the scope of the appended claims.

Referring more in detail to the figures of the drawing I provide a door check or closing mechanism 10 of any well known type, this being indicated merely in outline as it forms no part of the present invention. The door stop or holder may, and frequently is, employed without any form of closing mechanism. This check 10 as shown in Fig. 1 is mounted upon an intermediate part of the door 11 which is hinged at the point 12 as shown, to the door casing or frame 13. Attached to the oscillating shaft 14 of the door check or closing means 10 is an arm 15. At a point in the door casing or frame 13 is attached another arm 16 preferably by means of a pivotal joint within a block 17 attached directly to the top of the door frame 13. This latter arm 16 may, as shown, be made adjustable as to its length to adapt the mechanism for doors of different sizes or proportions.

The free ends of the two arms 15 and 16 are pivotally attached together by means which will be clearly evident from an inspection of Fig. 3. Upon the first arm 15 is provided a cylindrical boss 18 having a threaded hole 19 extending vertically therethrough and located eccentrically of the boss. Surrounding the boss 18 is a bearing surface 20 of annular form. The second arm 16 is provided with a wedge member 21 adapted to surround the boss 18 and adapted to contact with a fibre or metal washer 22 mounted upon the bearing surface 20. The wedge member 21 is tapered so as to be thinner at one side than the other. The second arm 16 may be hinged as shown at 23 in Figs. 1 and 2 relative to the wedge member 21 so that the arm 16 may be attached to the casing above the door and permit the wedge member 21 to rest upon the bearing surface 20 in all positions of the arms 15 and 16. Above the wedge member is a bearing member or plate 25 having an annular bearing surface and having a hole extending vertically through said plate and located eccentrically of said annular bearing surface. A washer 24 of metal or fibre is placed between the lower surface of bearing member or plate 25 and the upper surface of the wedge member 21. A pin bolt, or screw, 26, extending through the hole in the bearing member or plate 25 is threaded through the hole 19 in the first arm 15 and is secured by means of the nut 27 and lock washer 28 as shown clearly in Fig. 2. The bolt or pin 26 limits the extent of separation of the arms 15 and 16 and the plate 25 longitudinally of the pin 26.

It will be noted from the above that opening and closing of the door 11 will move the wedge member 21 about the projection or boss 18 on the first arm 15 so that when it has been moved to a sufficiently wide angle it will bind between the surfaces on the washers 22 and 24.

It is desirable in this form of door holder to prevent rotation of the upper bearing member or plate 25 relative to the first arm 15 and its bearing portion 20, and for that purpose, the boss or projection 18 on the first arm 15 is recessed or channeled to form a key slot 29 as shown in Fig. 3. Similarly the underside of the upper member or plate 25 is channeled or milled out to form a key slot

or recess 30 extending directly toward the axis of the bolt 26. Adapted to rest in these key slots 29 and 30 is a thin key member 31 formed of sheet metal and sufficiently wide so that it can be loosely mounted in both of said slots. The piece 31 as shown in Fig. 3 is bent to lie within the outer portion of the key slot 30 and also within the inner portion of the key slot 29 in the projection or boss 18 on the first arm 15. With this key member 31 in position as shown in Fig. 2, relative horizontal angular movement of the upper bearing member 25 relative to the bearing surface 20 on the first arm 15 is prevented. When the wedge member 21 is rotated relatively to the bearing surface 20 and the bearing on the plate 25, as occurs when the door is opened, it will become jammed between the bearing surface 20 and the plate 25 after a certain degree of rotary movement and will hold the door at a predetermined angle. By adjusting the bolt or screw 26 extending through the threaded hole 19 in the first arm 15 the point at which the jamming action occurs may be varied. The mechanism may be adjusted therefore to permit holding the door 11 in any desired open position. This adjustment may be maintained by locking the bolt or screw 26 in position by means of the nut 27 and lock washer 28.

In my patent above referred to I have provided a lug integral with the plate and fitting in a slot in one of the arms for the purpose of preventing relative rotation of the plate and the arm. It was found that the tilting of the plate (and hence of the lug) due to the wedge action of the wedge member when the door was opened caused the lug to occasionally jam in the slot before the door had been opened to the desired point. My present invention obviates this difficulty by providing a thin key member 31 loosely mounted in the key slots 29 and 30, in place of the lug used in my prior invention. The premature jamming referred to is thereby prevented.

I claim:

1. A door holder mechanism, comprising a pair of arms pivotally joined together, members having opposite bearing surfaces adapted to cooperate with a wedge member for holding the door in a predetermined position, one of said members being connected to one of said arms, a wedge member connected to the other of said arms positioned between said bearing surfaces, means for adjusting the distance between said members and a separate unitary member freely engaging said members having opposite bearing surfaces to hold them against relative rotation, but permit free relative oscillation of said members.

2. A door holder mechanism, comprising a pair of arms pivotally joined together, members having opposite bearing surfaces adapted to cooperate with a wedge member for holding the door in a predetermined position, one of said members being connected to one of said arms, a wedge member connected to the other of said arms positioned between said bearing surfaces, means for adjusting the distance between said members, a recess in the bearing surface of each of said members having opposite bearing surfaces and a separate unitary key freely engaging the said recesses to hold the said members against relative rotation, but permit free relative oscillation of said members.

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