

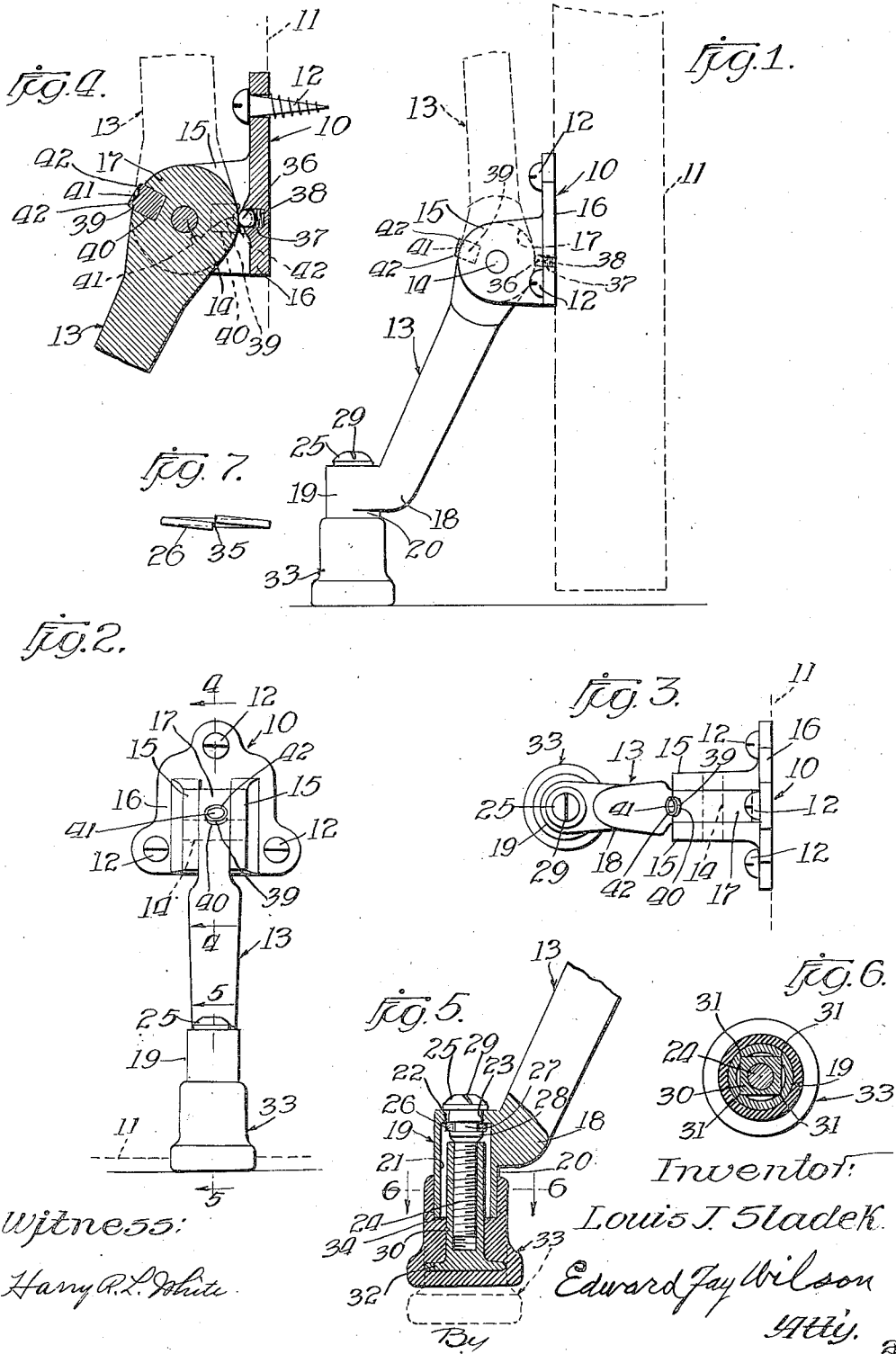
Oct. 26, 1937.

L. J. SLADEK

2,097,349

ADJUSTABLE DOOR STOP

Filed Nov. 6, 1935



UNITED STATES PATENT OFFICE

2,097,349

ADJUSTABLE DOOR STOP

Louis J. Sladek, Chicago, Ill.

Application November 6, 1935, Serial No. 48,530

3 Claims. (Cl. 292—338)

This invention relates to improvements in door stops and has special reference to improvements in stops which are adjustable as to length.

The object of the invention is to provide a door stop of the inclined lever type which can be readily adjusted as to length without removing any part; in which no screw will be exposed to view; in which the adjusting member will be permanently attached to the lever; in which the shoe shall be readily removable for replacement; and which will have a very simple yielding means for retaining the lever in non-operative or raised position.

A further feature relates to the construction by which one end of the adjusting member is exposed in plain view and is preferably slotted to receive a screw-driver for ready and easy rotation.

The exposure of the slotted end or head of the adjusting member is a plain and comprehensible suggestion to any one desiring to adjust the stop as to length, as to just how it can be done and eliminates the necessity of special instructions, which in most cases, cannot be found when the necessity of adjustment occurs.

Another feature resides in the fact that when the stop lever is in operative position, that is dropped down to contact the floor, the adjusting member is vertical and the exposed slotted head is in plain view and the adjusting member stands vertically with the lower floor contacting end of the shoe flat against the floor. If the shoe does not thus contact the floor it plainly indicates that the length of the stop should be adjusted and the slotted head of the adjusting member, being in plain view at the top of the vertical lower part of the stop, clearly indicates the way in which and ease with which the stop can be changed as to length to make the lower end contact the floor properly.

The invention will be more readily and clearly understood by reference to the accompanying drawing, illustrating a preferred embodiment of the invention when taken in conjunction with the following description and the appended claims.

In said drawing:—

Figure 1 is a side elevation showing the lever in operative position in full lines and in raised or inoperative position in dotted lines;

Figure 2 is a front view of the stop with the lever shown in operative position;

Figure 3 is a top plan view of the stop;

Figure 4 is an enlarged fragmentary, vertical, central section on the line 4—4 of Fig. 2;

Figure 5 is an enlarged fragmentary, vertical, central section on the line 5—5 of Fig. 2, and indicating by dotted lines that the stop can be changed as to length by adjusting the shoe up or down;

Figure 6 is a horizontal section on the line 6—6 of Fig. 5; and

Figure 7 illustrates the split spring washer which is used to secure the adjusting member in place.

As shown, this improved stop consists of two main members, a bracket member 10 by which the stop can be secured to a door 11 by screws 12, and a lever 13.

The lever 13 is pivotally mounted at one end on the bracket 10 by a horizontal pivot 14 received in ears 15 projecting from a base 16. The upper end of the lever is received between the ears 15 and the lever is mounted on the pivot 14 to swing up to inoperative position as shown in Fig. 1 in dotted lines or down into operative position as shown in full lines.

In operative position the lever is intended to be inclined in relation to the door 11 as shown in Fig. 1, to brace the door against movement in one direction. The stop is commonly used to hold a door in open position.

The lower end 18 of the lever 13 is formed into a cylindrical boss 19 extending vertically, that is at an inclination to the body of the lever sufficient to set it vertically when the lever is in proper operative position.

The boss 19 is extended below the lower end of the lever as shown at 20, and such extension is cylindrical in shape. The boss and its extension is provided with a longitudinal vertical bore 21 which extends upward from its lower end to a point adjacent to the top of the boss 19. This construction provides a flange 22 closing the top of the bore 21 which is provided with a central opening 23 to receive the shank of an adjusting member or screw 24.

The adjusting member 24 is rotatable in the boss 19 and is held against endwise movement relatively thereto by means of the flange 22. The head 25 of the screw 24 contacts with the outer side of the flange 22 and I provide a washer collar 26 for contact with the inner face of the flange 22.

The collar 26 is preferably, as shown, in the form a split lock washer and is received in a groove 27 formed in the body of the screw just below the flange 22. Below the groove 27 the body of the screw 24 is provided with an integral circumferential collar 28 which is flat on its upper

surface for contact with the spring collar 26 and is cone-shaped or tapered on its lower side to assist in assembling the spring washer with the screw 24 when the screw is in place in the boss 19. In assembling these parts of the device, the screw is placed in the boss 19 with its head 25 in contact with the upper end of the boss, then the spring washer is inserted in the bore 21 on the threaded end of the screw and pushed into contact with the fixed collar 28. Then a tubular tool is inserted and forced against the spring split washer with sufficient pressure to cause it to be expanded by the coned side of the collar 26 and snap into place in the groove 27.

This construction locks the screw 24 in place preventing its removal, holds it against relative longitudinal movement and permits it to rotate freely to accomplish its function in changing the length of the stop.

The head 25 of the screw 24 is preferably provided with a transverse slot 29 as shown to receive a screw-driver point when adjustment of the length of the stop is desired. This screw head as shown, is in plain sight when the stop is in operative position, and preferably when the stop is properly adjusted to operative position, the screw 24 stands vertically.

The screw 24 as shown, is screw-threaded and is adapted to receive an elongated nut 30 provided with a longitudinal bore co-operatively screw-threaded. The nut 30, as explained, is an elongated member and slides freely up and down in the bore 21 of the boss 19, but is prevented from rotation therein preferably by being formed to circumferentially engage the wall of the bore 21. As shown, this circumferential engagement is provided for by making the nut 30 square in cross-section and providing longitudinal grooves 31 in the wall of the bore 21 as best shown in Fig. 6.

The lower end of the nut 30 is provided with a head 32 preferably in the form of a horizontally extending flange flat on its bottom which is in position to contact with the floor when the stop is in holding position. Preferably, however, I provide a semi-hard covering for the head 32 preferably comprising a vulcanized on covering 33 which covers the flange head 32 completely and extends some distance up the body of the nut member as shown.

Preferably, also, I make the upper end of the covering 33 in tubular form of a diameter to slide freely upon the outer cylindrical surface of the extension 20 of the boss 19 and thus conceal the space 34 between the lower end of the extension 20 and the covering 33.

The nut 30 with its vulcanized on covering 33 constitutes the shoe of the stop for contact with the floor and as described, this shoe cannot rotate. It can be adjusted up and down by means of the screw to change the length of the stop as indicated in dotted lines in Fig. 5.

The spring washer which is split at one point as shown at 35 to permit it to expand in assembling it with the other parts, is also yieldable longitudinally of the screw 24 and serves to hold the screw endwise with a slightly yielding pressure and to provide sufficient friction to prevent the screw being rotated except intentionally for changing the length of the stop.

For yieldingly holding the lever 10 in its upper or non-operative position, I provide a yielding spring structure. The lever 13 is preferably made of brass and is preferably finished and polished all over and the upper end 17 is preferably cylindrical in form having a smooth outer surface.

I provide a yielding stop fixed on the base 10 between the lugs 15 and preferably comprising a steel ball 36 received in a hole 37 provided in the inner side of the base. The hole 37 is closed at its bottom and serves as a container for a compression spring 38 behind the ball 36. In assembling, the spring is first put in the hole 37 and the ball 35 is then put in and the rim of the open end of the hole 37 is then formed inwardly sufficient to hold the ball from escaping and yet expose nearly half of the ball.

To provide a socket on the end 17 of the lever to receive the ball for holding the lever in in-operative position, I preferably provide a socket member 39 of harder metal, preferably steel, and insert it in a hole 40 provided in the periphery of the end 17 of the lever. The socket member is driven into the hole 40 and is provided on its outer end with a spherical-like depression 41 to receive the ball 36. The exposed end of the socket member projects enough beyond the cylindrical surface of the lever end 17 to cause the ball 36 to be pressed into the socket when in engagement therewith, the ball being held back sufficiently to prevent its contact with the cylindrical surface of the lever end 17. To cause the ball to be pushed back against the spring pressure when passing into engagement with the socket 39, the outer edge 42 of the exposed end of the socket member 39 is slightly rounded or beveled as shown.

Preferably the base 10 is provided with one of the screws 12 located centrally at the top and two of the screws 12 at its lower end, one at each side. Such an arrangement of the holding screws is very effective for holding the base firmly in place and resisting the strains produced when it is attempted to swing the door against the holding action of the stop.

As many modifications of my invention will readily suggest themselves to one skilled in the art, I do not limit or confine my invention to the specific details of construction and combinations of parts herein shown and described, except within the scope of the appended claims.

I claim:

1. In a door stop of the lever type, the lever provided with a hollow boss on its free end arranged to stand substantially vertically when the lever is in holding position, a shoe member extending up both inside and outside of said boss and movable longitudinally thereof, an adjusting member extending through the boss and having a screw-threaded engagement with the shoe, means for holding said member against relative longitudinal movement, means for holding the shoe against rotation and said adjusting member having its upper end exposed.

2. In a door stop of the lever type, the lever having a boss at its free end provided with a central longitudinal opening, a shoe slidably mounted on the boss, a shoe adjusting member extending through said opening and having screw-threaded engagement with the shoe, the arrangement being such that the upper end of the adjusting member is exposed, and the shoe having a portion which extends up within said central opening in the boss, means providing circumferential engagement between said portion and said boss for preventing rotational movement of said shoe, the shoe comprising a central longitudinal member including said upwardly extending portion and having an enlarged head at its lower end, and a slightly yieldable envelope covering the lower part of said member and having a

tubular extension at its upper end adapted to slide over the lower end of said boss.

3. In a door stop of the lever type, the lever having a boss on its free end and arranged to stand substantially vertically when the lever is in holding position, a shoe movable longitudinally on said boss, the boss having a central longitudinal bore, an internal integral flange at the upper end of the boss, a shoe adjusting member arranged to be inserted through said flange into said bore and having a head arranged to contact the outer surface of said flange, the adjusting

member having a circumferential integral collar spaced from its head, said collar having a coned lower surface, a spring ring adapted to be inserted into the bore from the lower end thereof and to be forced past said collar, to a position between the collar and the head of the adjusting member, and arranged and adapted to contact the inner surface of said flange, and said spring ring being slightly yieldable longitudinally of the adjusting member.

LOUIS J. SLADEK.