

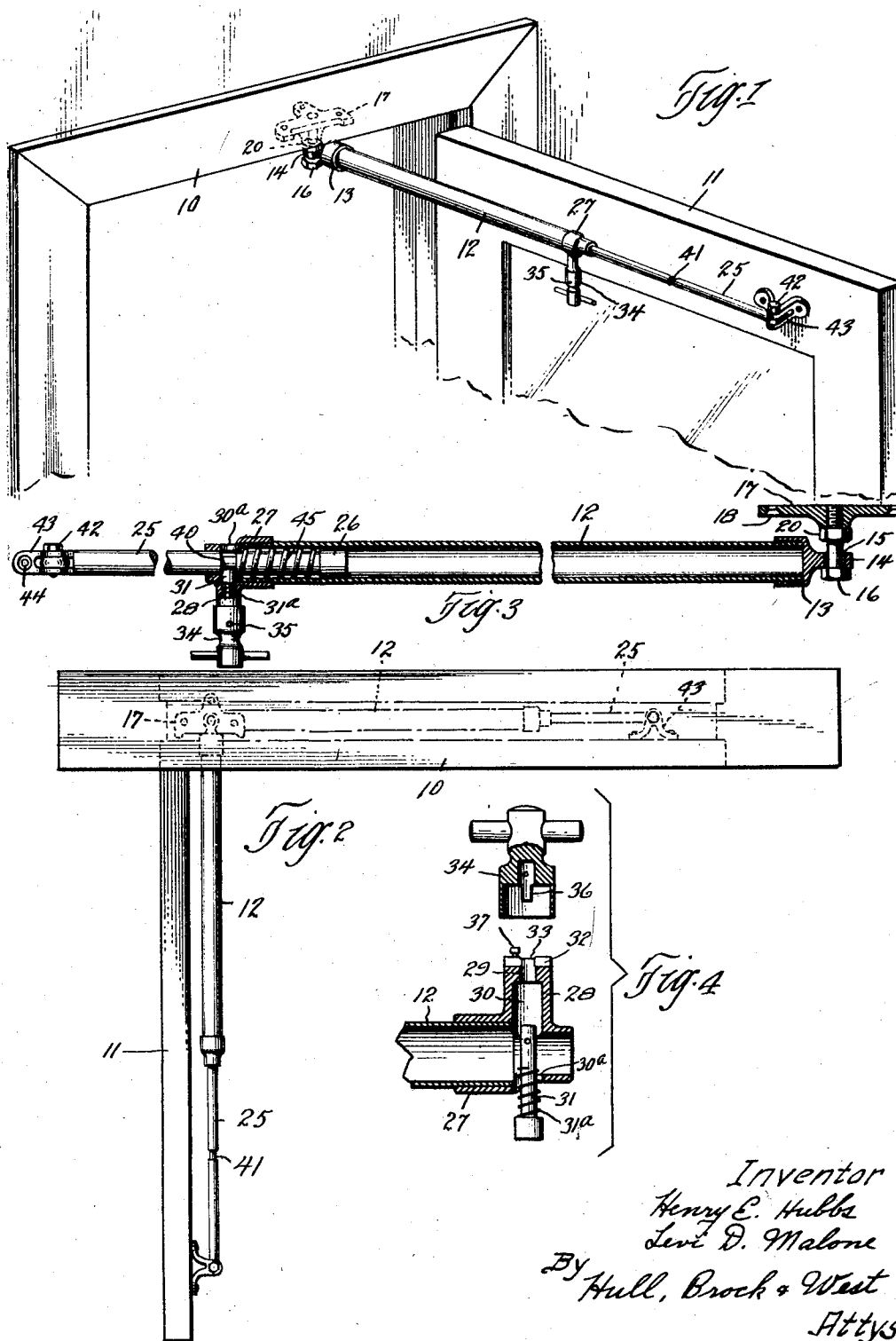
June 10, 1930.

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1,763,238

DOOR STOP AND HOLDER

Filed April 1, 1929



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UNITED STATES PATENT OFFICE

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DOOR STOP AND HOLDER

Application filed April 1, 1929. Serial No. 351,472.

This invention relates to door stops and has for its object the provision of a door stop and holder which will prevent the door equipped therewith from being opened beyond a given point, and which will function as a latch to hold the door in the open position or at such predetermined intermediate position as may be desired.

With this and such other objects in view as will be apparent from the following description, the invention resides in all the novel features of construction and combination of parts hereinafter described, illustrated in the drawing and particularly pointed out in the appended claims.

In the drawings, Fig. 1 is a perspective view of the top part of a door and frame with the door stop and holder in place.

Fig. 2 is a top plan view of the door and frame showing the stop and holder in full lines when the door is opened to its limit. The relative position of the parts when door is closed shown in dotted lines.

Fig. 3 is an elevation of the device partly in section, with the telescoping members locked in extended position; and Fig. 4 is an enlarged detail sectional view through the locking head with the parts disassembled.

Again referring to the drawing and describing the parts shown therein by reference numerals, 10 designates the top part of a door frame in which the door 11 is hinged. The door stop and holder of my invention which is shown in Fig. 1 secured in place to the door and frame comprises a tubular cylinder member 12 having a cap member 13 closing one end. The cap member 13 is preferably screw threaded over the outer end of the cylinder 12 and has a flattened extension 14 provided with an aperture 15 for receiving a bolt member 16 on which the cylinder is pivoted.

The bolt 16 in turn is threaded into an attaching plate 17, which is provided with apertures adapted to receiving screws or other means for securing the same to a door frame. A nut 20 on the bolt 16 locks the same in the plate 17. It will be noted that the bolt 16 is of sufficient length to allow

a limited sliding movement of the member 16 thereon for the purpose later described.

Slidably received in the other end of the cylinder 12 is a rod 25 having a head 26 which fits closely within the bore of the cylinder, the rod being somewhat smaller in diameter than the bore of the cylinder 12.

A member 27 having a bore in its outer end in which the rod 25 has a sliding fit is screw threaded to the end of the cylinder 12. Projecting laterally from said member is a boss 28 having a bore 29 therethrough and a counterbore 30 at its inner end in which the enlarged end of a locking pin 31 has longitudinal movement. A spring 31^a positioned in the counterbore 30 about the pin 31 and bearing against the enlarged head of the pin urges the pin 31 toward the rod 25 at all times. It will be noted that an aperture 30^a in the fitting 27 opposite the counterbore 30 in the lug 28 permits the pin 31 to be assembled in the boss 28 prior to inserting the rod 25 in the casing 12.

The outer end of the boss 28 is provided with notches 32 arranged diametrically thereacross, these notches 32 being of a substantial depth. Arranged at right angles to the notches 32 are very shallow notches 33.

A handle member 34 is secured to the outer end of the locking pin 31 by means of a small pin 35 which passes through aligned apertures in the handle and pin 31. The handle 34 has its inner end provided with a bore which fits over the boss and swivels thereon. Within the hollow end of the handle are diametrically disposed lugs 36 which are adapted to fit into the notches 32 in the boss allowing the pin 31 which is secured to the handle to move lengthwise a distance equal to the depth of the notch so the enlarged end under the pressure of spring 32 is forced into the groove or notch 40 in the bar 25 to hold the bar in a fixed position in the cylinder 12. On pulling out on the handle 34 and turning it so the lugs 36 fit into the notches 33, the bar 25 is free to slide in the cylinder and the handle is held from rotation by the notches 33. To limit the movement of the handle 34 a small pin or lug 37 is provided on the end of the boss 28

against which one of the lugs 36 strikes when the handle is turned in one direction so that they are in alignment with notches 32, and when the handle is turned in the opposite direction until the other lug 36 strikes the pin, the lugs 36 are then in alignment with notches 33.

The rod 25, as above stated, is provided with a circumferential groove or notch 40 near the inner end 26 into which the lock pin 31 is adapted to engage to hold the parts 12 and 25 in extended position. The rod 25 may be provided with similar grooves or notches at intermediate points along its lengths as at 41 in Fig. 1.

A coil spring 45 is positioned about the rod 25 within the cylinder 12 between the fitting 27 and the head 26 on said rod. This spring cushions the outward movement of the rod 26 as it reaches its extended position. The spring is of a length, however, that it fits between the groove 40 and head 26 on the rod so that when the latch 31 is in released position it will catch in the groove 40.

The outer end of the rod 25 is flattened and has an aperture therethrough to receive a pivot pin 42 by which it is hinged to a bracket 43 having a bifurcated portion between which the end of the rod 25 is received. The bracket 43 is provided with apertures 44 through which fastening means may pass for securing the same to the door on which the check is to be used.

In using the door check the bracket 17, to which the cylinder is pivoted, is secured by screws or other suitable fastening means to the under surface of the top part of the door frame near the side on which the door is hinged. With the rod 25 extended until the lock pin 31 engages the groove 40 the door is opened to the limit to which it is desired that it be swung, and the bracket 43 secured to the place on the door that it then reaches.

If the bracket 43 is not in proper alignment with the rod 25, and cylinder 12, when secured to the door, the plunger is apt to bind in the cylinder. To prevent this binding the pivot bolt 16 as above described is sufficiently long to allow some sliding movement of the member 13 thereon. This permits free movement of the rod 25 in the cylinder 12 at all times.

The operation of the device is clear. With the bracket 17 secured to the door frame and bracket 43 secured to the door in the proper positions and the handle 34 of the latch turned so the lugs 36 seat in the shallow notches 33 so the pin 31 cannot enter the grooves or notches 40 or 41 on the rod, the door can be swung open only to the predetermined position, the spring 45 preventing a sudden stop as the limit of the swing is reached. To lock the door in its open position, the handle member 34 is given a quarter turn until the one lug 36 strikes the pin 37 and the lugs 36 then

slip into grooves 32, allowing the pin 31 to engage in the groove or notch 40.

If it is desired that the door be held part way open, the latch pin 31 may be engaged in an intermediate groove or notch such as 41 on the rod 25.

The door stop and holder above described is particularly useful on entrance doors to public buildings, and doors which are hung in series without mullions to prevent their being forced back beyond a given point.

With this device the use of stops or holders at the bottom of the door is unnecessary.

Having thus described our invention, what we claim is:

1. A door stop and holder comprising two members one telescoping within the other and cooperating means on said members for preventing the withdrawal one from the other, bracket means pivoted to the outer ends of each member for securing the end of one member to a door frame and the other to the door hinged therein, and means on said members for locking them in their extended position, said locking means comprising a boss extending laterally from the outer member provided with a bore, a locking pin in said bore extending from the outer end thereof, a spring urging the pin toward the inner telescoping member, which member is provided with a notch near its inner end into which said pin engages, the outer end of said boss having a notch radially extending from the bore therein, and means on the outer end of said locking pin adapted to engage in said notch to permit the said pin to move inwardly, said pin and means when withdrawn from said notch, adapted to be rotated so said means engages the end of said boss and inward movement of said pin is prevented.

2. A door stop and holder comprising a cylinder member closed at one end and provided with means on said closed end for pivotally attaching the same to a door frame, a rod slidably received in the other end of said cylinder, provided at its outer end with means for pivotally attaching the same to a door hinged in the above mentioned frame, said rod provided near its inner end with a notch, latch means on said cylinder member for engaging said notch when the rod is in its extended position, said latch means comprising a laterally extending boss on said cylinder having a bore therein, a pin in said bore, a spring on said pin for pressing it toward said rod and into the notch therein, and cooperating means on the outer end of said boss and on said pin for holding said pin away from said rod to permit the same to telescope in said cylinder.

3. A door stop and holder comprising a cylinder member closed at one end and provided with means on said closed end for pivotally attaching the same to a door frame, a rod slidably received in the other end of said

cylinder, provided at its outer end with means for pivotally attaching the same to a door hinged in the above mentioned frame, said rod provided near its inner end with a notch, latch means on said cylinder member for engaging said notch when the rod is in its extended position, said latch means comprising a laterally extending boss on said cylinder having a bore therein, a pin in said bore, a spring on said pin for pressing it toward said rod and into the notch therein, said pin extending from the end of said boss, a notch in the outer end of said boss, and means on said pin adapted to engage in said notch to permit inward movement of said pin, said means adapted to engage the outer end of said boss when the pin is pulled outward and turned so said means is out of alignment with said notch in the boss to prevent inward movement of said pin.

4. A door stop and holder comprising a cylinder member closed at one end and provided with means on said closed end for pivotally attaching the same to a door frame, a rod slidably received in the other end of said cylinder, provided at its outer end with means for pivotally attaching the same to a door hinged in the above mentioned frame, said rod provided near its inner end with a notch, latch means on said cylinder member for engaging said notch when the rod is in its extended position, said latch means comprising a laterally extending boss on said cylinder having a bore therein, a pin in said bore, a spring on said pin for pressing it toward said rod and into the notch therein, and cooperating means on the outer end of said boss and on said pin for holding said pin away from said rod to permit the same to telescope in said cylinder, said rod having an enlarged inner end fitting the bore of said cylinder, the end of said cylinder having a portion with a bore of reduced diameter in which the rod slides, and which in cooperation with the enlarged end of the rod prevents withdrawal of said rod from said cylinder, and limits the swing of a door in its frame to which said check may be attached.

5. A door stop and holder comprising a cylinder member closed at one end and provided with means on said closed end for pivotally attaching the same to a door frame, a rod slidably received in the other end of said cylinder, provided at its outer end with means for pivotally attaching the same to a door hinged in the above mentioned frame, said rod provided near its inner end with a notch, latch means on said cylinder member for engaging said notch when the rod is in its extended position, said latch means comprising a laterally extending boss on said cylinder having a bore therein, a pin in said bore, a spring on said pin for pressing it toward said rod and into the notch therein, and cooperating means on the outer end of

said boss and on said pin for holding said pin away from said rod to permit the same to telescope in said cylinder, said rod having an enlarged inner end fitting the bore of said cylinder, the end of said cylinder having a portion with a bore of reduced diameter in which the rod slides, and which in cooperation with the enlarged end of the rod prevents withdrawal of said rod from said cylinder, and a spring on said rod within said cylinder against which the enlarged end of said rod strikes when extended to provide a resilient stop therefor.

In testimony whereof, we hereunto affix our signatures.

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