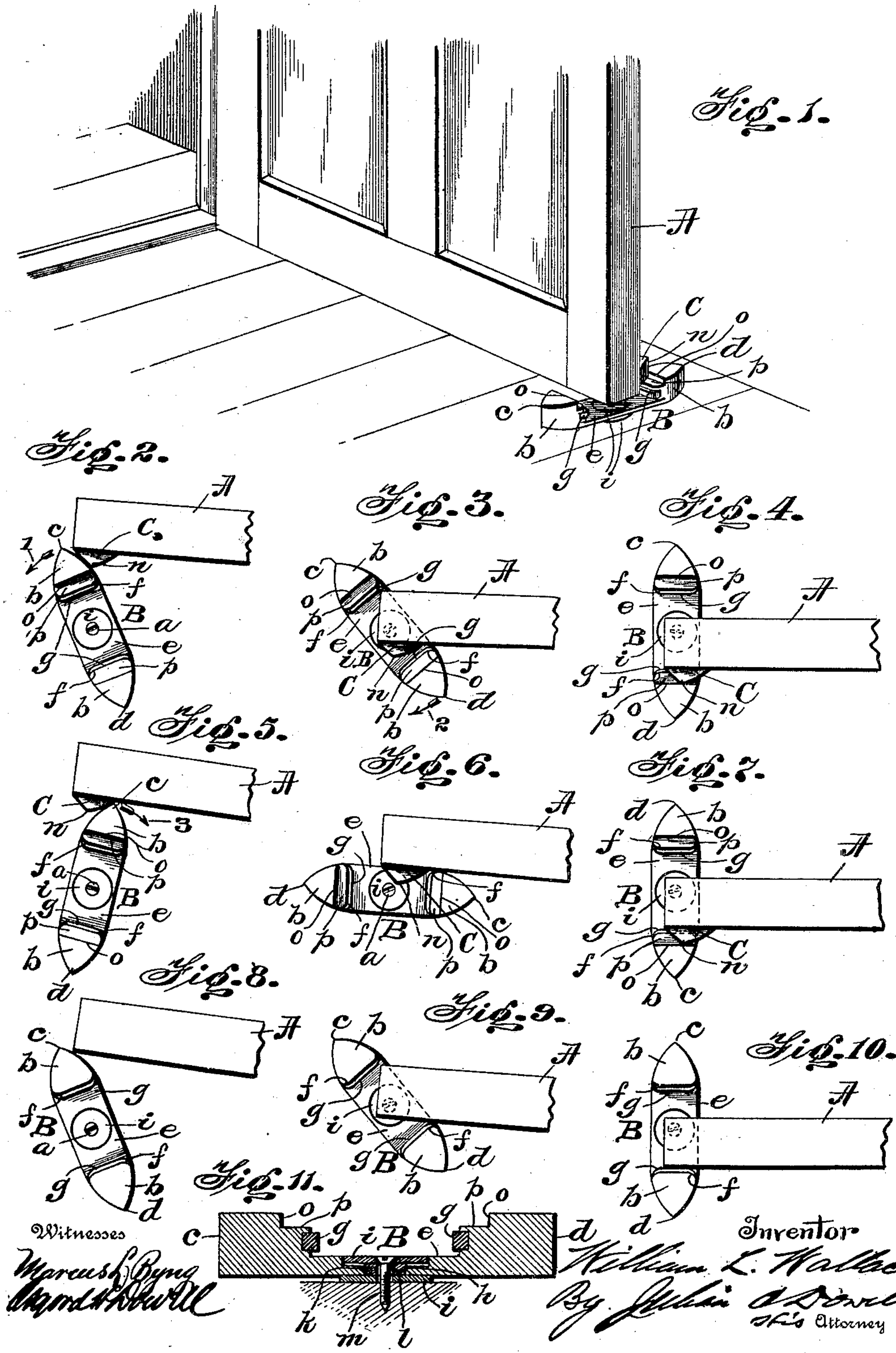
No. 676,929. Patented June 25, 1901.

W. L. WALLACE.

DOOR CHECK.

(Application filed Jan. 19, 1901.)

(No Model.) 2 Sheets—Sheet 1.



Witnesses

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Fig. 12.

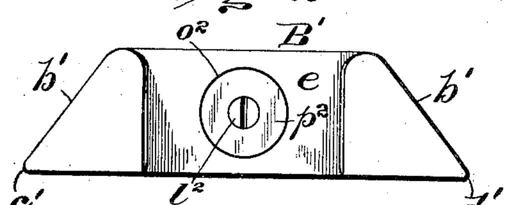


Fig. 13.

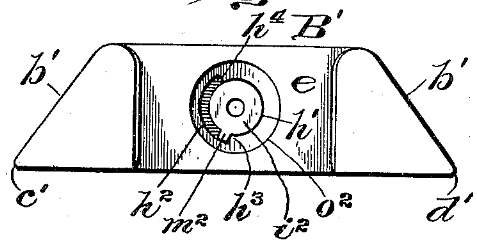


Fig. 14.

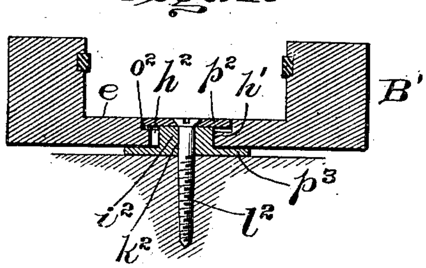


Fig. 15.

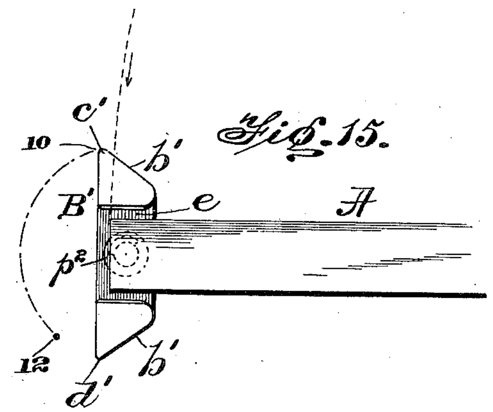


Fig. 16.

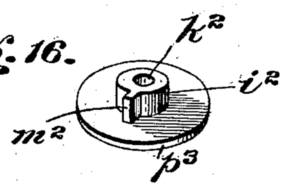


Fig. 17.

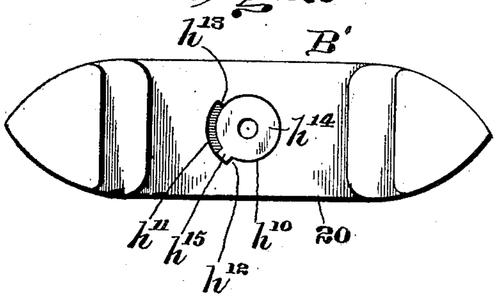
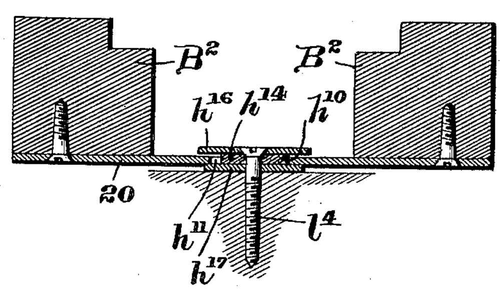


Fig. 18.



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UNITED STATES PATENT OFFICE.

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DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 676,929, dated June 25, 1901.

Application filed January 19, 1901. Serial No. 43,940. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LINDSAY WALLACE, a citizen of the United States, residing at Sweetwater, in the county of Monroe and State of Tennessee, have invented certain new and useful Improvements in Door-Checks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to door checks or retainers; and it consists, substantially, in the improvements hereinafter more particularly described, and pointed out in the claims.

The principal object of the invention is to provide a device which when mounted in proper position in the path of movement of a door will engage the door automatically and retain the same in open position until released.

A further object is to provide a device for this purpose which does not require to be manipulated or set each time the door is opened or released and one also that is practically noiseless in use, besides being simple and easily constructed, as well as inexpensive to manufacture and composed of few parts.

A still further object of the invention is to dispense with the use of springs or weights in this class of devices and to provide a device which will operate effectually and with certainty at all times; also, a device which will not mar the surface of the door with which it coöperates and which does not present an unsightly appearance.

These and additional objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective, representing the use of my improved device in catching and retaining a door in open position. Figs. 2 to 7, inclusive, are diagrammatic plan views of my improved device, indicating the manner of operation of the same in several of the positions in which the device is apt to be when the door is moved or carried into contact therewith. Figs. 8 to 10, inclusive, are similar views of a slightly-different form of my improved device in various positions corresponding to the positions thereof indicated in Figs. 2, 3, and 4. Fig. 11 is an enlarged longitudinal sectional view of one form of my device. Fig. 12 is a top plan view of another embodiment of my invention, enlarged; and Fig. 13, a similar view with the top plate or washer removed. Fig. 14 is an enlarged central sectional view taken through the peculiarly-constructed pivotal support or hub-bearing preferably employed with the construction shown in Figs. 12 and 13. Fig. 15 is a diagrammatic view to indicate the movement and operation of the device shown in Figs. 12 and 13. Fig. 16 is a perspective view in detail of the peculiarly-constructed hub or bearing. Fig. 17 is also an enlarged top plan view, with the top plate removed, of the device as constructed in accordance with the form shown in Figs. 1 to 7, inclusive, and in Fig. 11, but employing practically the same form of pivotal support or hub-bearing shown in Figs. 12 to 15, and with the top plate removed. Fig. 18 is a longitudinal sectional view of Fig. 17.

Before proceeding with a more detailed description it may be stated that my improved device comprises, substantially, an oblong block so constructed that when the door is brought into contact therewith the same is moved or carried around on a central pivot in such manner that the door is caught and retained in the open position until released. The device can be operated to release the door by simple application of the foot, and thus no bending or stooping of the body is necessary to effect such release. Preferably the ends of the device are beveled or tapered, and the said device is loosely mounted on a central pivot located at any suitable point practically in the plane of the arc of the circle swept by the outer edge of the door in its opening and closing movements. The device may be constructed of wood, hard rubber, metal, or other suitable material and is practically noiseless in operation and not liable to get out of order.

In the accompanying drawings, A represents an ordinary swinging door, which is shown in Fig. 1 in an open position, where it is held or engaged by my improved device B. Said device can be constructed in different ways, as hereinafter explained, and the same comprises what may be termed an "oblong block" mounted on a central pivot *a* and ca-

pable of turning thereon in either direction. The ends of the device are beveled on each side at *b*, forming points or apices *c d*, which are in direct line with the axis or center of the said central pivot *a*, and said block or device B is also formed with a channel or recess *e*, the width of which is somewhat in excess of the thickness of the door A, so as to permit the sides of the door to be properly received between the sides of the said recess. In order to furnish an unobstructed movement between the device and the door, the sides of the channel or recess *e* are rounded off at the corners, as seen at *f*, and when the said device B is constructed of other material than rubber a suitable hard-rubber cushion *g* is preferably seated in each side of the said channel or recess, so as to render the operation as noiseless as possible.

From the construction of the device as shown in Figs. 1 to 7, inclusive, and more particularly as shown in enlarged sectional view at Fig. 11, it will be seen that the said device is formed with a central opening *h* and that the same is provided on its top and bottom surfaces with wear-plates or washers *i i*. Located in said central opening between the said washers is a sleeve or nut *k*, having a smooth opening or bore *l*, coinciding with similar openings in the washers, and passing through these openings is a screw *m* for securing the said device in position either at the side of an adjacent wall or at the proper point of the floor-surface over and slightly above which the lower edge of the door moves in the opening and closing of the latter. In order to absolutely insure the proper working of the device in whatever position the latter may happen to be at the time the door is opened, I preferably employ a wedge or double-inclined block C, secured to the inner side of the door near the lower inner corner thereof, the apex *n* of said wedge being so located as to intersect the axial line of the device B in the movement of the door to its open position. Thus accordingly as one side or the other of the device B is struck by one side or the other of the wedge the said device will be turned on its axis in one direction or the other and be brought around in position to engage and retain the door, as shown in Figs. 1, 7, and 10. In order to permit the device to be brought to a position substantially at right angles to the sides of the door, (thus to effectually catch and retain the door in open position,) as well as to provide for the accommodation of the wedge, the said device B is notched or recessed at *o* in its upper surface near each end, so that as the sides of the door are received between the sides of the channel or recess *e* the wedge C will move over the bottom surfaces *p* of said recesses *o*, and thus enable the device to move to the requisite or desired position. It will be understood that it makes no difference what position the device or block B is in at the time the same is struck by the wedge on the door, since said device is equally operative in any and all positions thereof in the range of its movements. If the apex *n* of the wedge engages either of the apices *c d* of the said device B, the latter will be carried to one side or the other by the weight of the door, due to the fact that the said apices *c*, *d*, and *n* are rounded, and the device B is sufficiently loose on its pivot to permit a yielding thereof. Assuming the outer side of the wedge C to be brought into contact with the inner surface of one of the beveled ends of the device, as shown in Fig. 2, it will be seen that the said device B will first be carried in the direction of arrow 1 until brought to the position of Fig. 3 by the continued outward movement of the door. By this time the wedge C has passed entirely clear of the device, and the inner surface of the door is brought against the adjacent corner *f* of the device, whereupon the movement of the latter is reversed to the direction of the arrow marked 2 in Fig. 3, and the still further continued outward movement of the door brings the device to the position shown in Fig. 4, in which position the door is held or retained until release of the same is effected by properly turning or moving the device either by the application of the hand or foot. The operation is the same whether the door is brought against one end or the other of the device while in the positions indicated or at points intermediate of said positions. As shown in Fig. 5, if the outer beveled side of either end of the device B is struck by the inner side of the wedge C the device is turned in the direction of arrow 3, Fig. 5, and is continued to be turned in the same direction by the continued movement of the door until brought to the position indicated in Fig. 7, where it will be seen that the points or apices *c d* are the reverse to what is shown in Fig. 4. This is due to the fact that in the last-described operation the movement of the device B is not reversed as in the operation first described. Fig. 6 represents the device in a position substantially intermediate of the positions shown in Figs. 5 and 7 and is employed to indicate the continued movement of the device in the same direction after moving from the position of Fig. 5.

As shown in Figs. 8 to 10, inclusive, I dispense with the use of the wedge on the door, and consequently dispense with the notches or recesses *o* in the upper surface of the device B also. These figures correspond with Figs. 2, 3, and 4, and they show like movements of the device when the door is brought directly into contact with the device without the use of the wedge. It is of course apparent that the details of construction of my improved device can be changed or altered in immaterial degree and that the same can also be made either plain or ornamental in appearance.

In Figs. 12 to 15, inclusive, I have shown another embodiment of my invention, and

wherein the device B′ instead of being beveled on each side at the ends is preferably beveled on one side only at each end, as indicated at b', the extreme ends or corners c' d' thereof corresponding to the apices c and d. (Shown in Figs. 1 to 11, inclusive.) This device may be supported in like manner, as already explained with reference to the construction of said Figs. 1 to 11; but inasmuch as a limited movement of the device is all that is necessary in some instances for effective operation I prefer to provide a pivot or bearing for the device, which while constructed to permit but a limited movement thereof is also adjustable to permit the device to move or turn all the way around in either direction as before. Thus in said Figs. 12 to 15 the device B′ is constructed with a central opening h', which is enlarged at h^2 for a suitable extent of the wall or circumference thereof, so as to form shoulders or stops h^3 h^4, and fitted in said opening from beneath is a hub or bearing i^2, having a central opening k^2 for the passage of a fastening-screw l^2 and provided on one side with a lug m^2, which enters the enlarged part h^2 of opening h', and which construction permits the device B′ to have a movement on the hub i^2, which is limited in either direction by the said shoulders or stops h^3 h^4. The bottom of the channel e of the device is recessed at o^2, surrounding the opening h', to provide for the reception of the top plate or washer p^2, and the bottom of the hub or bearing i^2 is formed or provided with a rigid wear-plate or washer p^3, which rests upon the floor or other support when the device is in place for use. The said top and bottom plates p^2 and p^3 are each provided also with a central opening for the passage of the fastening l^2. Now it is evident that by inserting screw l^2 and screwing the device very tightly to the floor or other support the said device can only turn to the extent of space between shoulders or stops h^3 h^4; but by partially unscrewing or loosening the screw l^2 the friction between the parts is lessened or reduced, and the device can turn all the way around in either direction, since in that case not only has the device proper a limited movement on its hub or bearing i^2, but the said hub has also a complete movement on its screw or pivot. I have provided this particular form of the device for the reason that it is preferable in some instances, and, as is about to be described, I can apply the form of bearing or support shown in Figs. 12 to 15 to the construction of device shown in Figs. 1 to 11. In each case herein shown, however, the central opening in the device is the same in size, so as to enable the employment of either of the particular forms of pivotal supports or bearings desired. As shown in Fig. 15, when the device shown in Figs. 12 to 15 is screwed tightly to the floor or other support in proper position the same moves back and forth in the limited arc of a circle, (indicated between the points 10 and 12,) and thus is always in position to properly engage with the door, substantially in the manner already described; but, as before stated, by slightly loosening the screw l^2 said device can turn all the way in either direction, also as hereinbefore explained.

As shown in Figs. 17 and 18, substantially the same form of device is employed as in Figs. 1 to 11, substituting for the pivotal bearing or support in such figures the pivotal bearing or support of Figs. 12 to 15, with some slight changes. Thus in said Figs. 17 and 18 the device B′ is preferably formed of a flat plate 20, beveled at the ends and having mounted thereon at each end the blocks B^2, which are beveled and constructed substantially the same as the beveled and recessed ends of said Figs. 1 to 11. Said plate 20 is formed with the central opening h^{10}, which is enlarged at h^{11} for a suitable extent at one side, so as to form shoulders or stops h^{12} h^{13} for limiting the independent movement of the device, similarly as in the construction shown in Figs. 12 to 15. Fitting in said opening h^{10} is a hub-plate h^{14}, having a lug or projection h^{15} entering the enlarged part h^{11} of the opening and working between the stops or shoulders h^{12} h^{13}. Beneath said hub-plate is a bottom plate or washer h^{17}, and above the same is a top plate or washer h^{16}. A fastening-screw l^4 is also employed, as in the former constructions. With the embodiment shown in Figs. 17 and 18 the operation is the same as in the construction shown in Figs. 12 to 15.

From the foregoing it will be seen that the devices shown in Figs. 1 to 11, inclusive, can be readily convertible into the device operating as shown in either Figs. 12 to 15 or Figs. 17 and 18. In making the change from the construction shown in Figs. 12 to 15 or Figs. 17 and 18 to either of the constructions shown in Figs. 1 to 11 a smooth-bore nut may be employed without the lug or projection thereon, if desired; but the operation will be the same in either case, as already described.

It is obvious that I am not limited in either case to the details of construction shown and described.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A door check or retaining device comprising a block having a central pivot and beveled or tapered at the ends, and constructed with a channel or recess having cushions at the sides thereof, substantially as described.

2. The combination with a door provided with a wedge, of a check or retaining device therefor comprising a block beveled at the ends and adapted to embrace the sides of the door, the said device being recessed near the ends to permit movement of the wedge, and being centrally mounted on a pivot located substantially in the plane of the arc of the circle traversed by the apex of said wedge, substantially as described.

3. A door check or retaining device com-

prising a block having beveled or tapered ends, and constructed with the channel *e* having central opening in its bottom, said device being recessed at *o* near the ends, and provided with the smooth-bore nut in said opening and the washers on opposite sides of said nut, substantially as described.

4. A door check or retaining device comprising a rotatable block beveled or tapered at the ends, and provided with means for limiting the movement thereof at will, substantially as described.

5. A door check or retaining device comprising a rotatable block, and adjustable devices permitting a full or limited movement of the block at will, substantially as described.

6. A door check or retaining device comprising a rotatable block having a central opening enlarged at one side for a suitable distance, a hub or bearing fitting said opening and having a projection entering the enlarged part thereof and top and bottom plates or washers and a screw or other fastening device, substantially as described.

7. A door check or retaining device, comprising an oblong block having a central pivot and beveled or tapered to a point at each end, and constructed with an intermediate channel or recess having end walls arranged substantially at right angles to the longitudinal axis of the block, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM LINDSAY WALLACE.

Witnesses:

G. M. MCKNIGHT,

JOHN M. JONES, Jr.