Sept. 6, 1932. A. D. WATERS 1,875,965

DOOR HOLDER

Filed March 27, 1929

Fig. 1

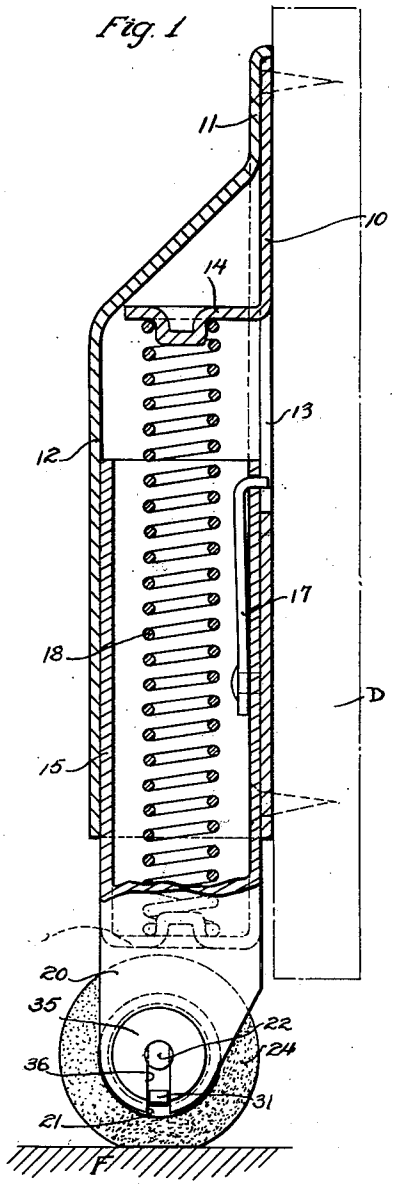


Fig. 2

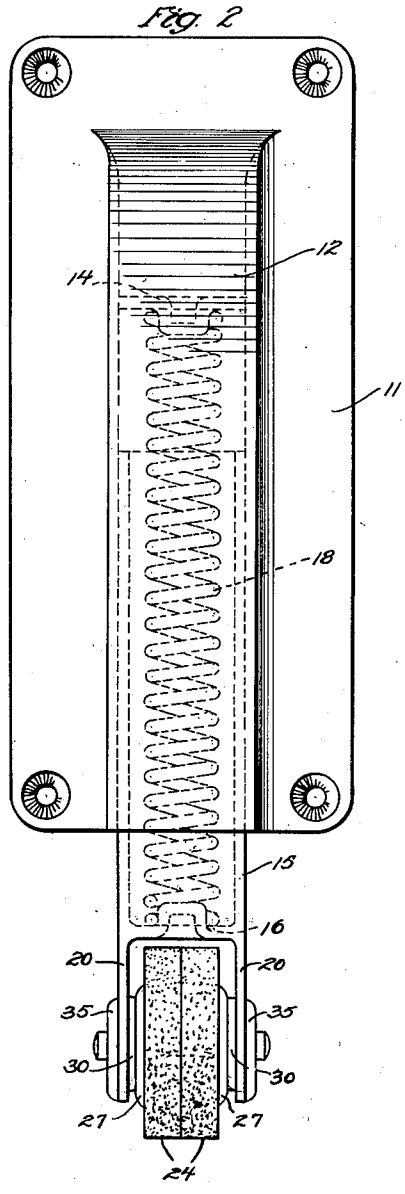


Fig. 3

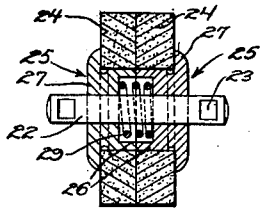


Fig. 4

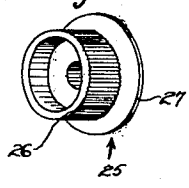
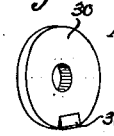


Fig. 5



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UNITED STATES PATENT OFFICE

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DOOR HOLDER

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This invention relates to door holders of the type having a rotatable, and preferably yielding, floor engaging member or roller which is resiliently urged against the floor.

The aim of the present invention is to provide a door holder of this sort which is very practical in that it will effectively serve the desired purposes.

A further aim of the invention is to provide a door holder which is characterized by its simplicity in construction, its effectiveness in operation, and its durability.

A further aim of the invention is to provide an improved door holder with means of a practical, durable and effective nature for frictionally holding the roller against free rotation and for automatically taking up wear of the parts.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing, wherein is shown one of the many embodiments which the present invention may take:

Figure 1 is a side view of the holder with parts in section, the door being shown diagrammatically in edge view and a portion of the floor with which the roller is engaged being shown in section;

Fig. 2 is a front view of the door holder;

Fig. 3 is a transverse central sectional view through the roller;

Fig. 4 is a perspective view of one of the parts which are adapted to carry the roller sections; and

Fig. 5 is a perspective view of one of the friction washers.

Referring to the drawing in detail, the holder is shown as having a casing formed of a base plate 10 and a face plate 11, the latter having a rectangular rib 12, which, together with the base plate, forms a hollow vertical barrel rectangular in cross section. Obviously, the casing may be of any suitable shape, that shown in the drawing being illustrated by way of exemplification only. If desired, the barrel may be of circular or other form and, instead of standing out from the door, as illustrated, it may be located within the plane of the door. The base plate has a slot 13 at the upper edge of which is an outwardly extending finger or wall 14. The numeral 15 designates a bolt corresponding in cross section to and slidably fitting within the barrel 12. The bolt may be in the form of a hollow tube provided with a bottom end wall 16. In order to hold the bolt within the casing before the latter is attached to the door, there may be fixed to the bolt a spring 17 having its upper end turned outwardly so as to operate in the slot 13 and overhang the lower edge of that slot. Positioned within the barrel and the bolt and between the walls 14 and 16 is a spring 18 for resiliently holding the floor engaging roller in engagement with the floor while permitting the roller to accommodate itself to any unevenness or irregularities in the floor as it passes thereover. The lower end of the bolt is provided with a pair of depending arms 20 provided with vertical slots 21 which extend to the lower ends of the arms. The numeral 22 designates a pin or bearing member on which the floor engaging element is rotatably mounted. This pin has its ends fitting in the slots 21 and, in order to prevent the pin from rotating, it has flattened faces 23, the diametrical distance between which is substantially equal to the width of the slots 21.

In accordance with the present invention, the roller has a floor engaging member preferably of yielding material, such as rubber. In the present illustrative disclosure, the floor engaging member is shown as being formed of two complementary ring-like parts 24, 24 positioned side by side, but it is within the spirit of some of the appended claims to have a floor engaging member of one part or more than two as desired. The floor engaging member, comprising the parts 24, 24, is carried by a metal core which, in the present instance, is in the form of two complementary parts or hubs 25, 25 preferably of like con-

struction and positioned in reverse relation to one another. Each of the hubs 25 has a cylindrical portion 26 adapted to fit closely within the opening of the respective roller part 24 and a head or flange 27 adapted to engage against the side face of the respective roller part 24. The inner ends of the hubs 25, 25 are counterbored to provide a recess or chamber for a spring 29 which constitutes means for urging the parts 25, 25 outwardly and against cooperating fixed frictional elements. In the present illustrative disclosure, these fixed frictional elements are in the form of disks or washers 30 which are positioned between the arms 20 of the bolt and the ends of the core of the roller. In order to prevent these disks from rotating, they may be provided with bent-out lugs 31 which extend into the slots 21 of the arms 20. The core parts 25, 25 constitute frictional elements rotatable with the floor engaging member or the parts thereof. The peripheries of the cylindrical portions 26 of the core parts may be corrugated, as shown in Fig. 4, in order to prevent slippage between the roller parts 24 and the core parts. Obviously, the construction of the core of the roller may be varied in accordance with the different constructions of floor engaging members which may be employed. In Figs. 1 and 2, I have shown on the outside of each arm 20 a disk 35 having a slot 36 corresponding to the slots 21 and adapted to receive the flattened portions 23 of the pin 22.

The operation of my improved door holder will be readily understood from the foregoing description taken in connection with the accompanying drawing. The door holder is secured to a door adjacent the lower free edge thereof, as shown in Fig. 1, the door being diagrammatically shown and being designated by the letter D. The spring 18 resiliently forces the bolt 15 downwardly so as to press the floor engaging member or roller against the floor which is designated by the letter F. The roller will flatten out somewhat, as illustrated in Fig. 1, the extent of flattening depending upon the resiliency or softness of the roller and the pressure of the spring 18. Due to the force with which the roller is urged against the floor, and to friction between the elements 25 and 30, the roller is held against free rotation, and thus the holder will maintain the door in any position of adjustment. However, as the roller may, when sufficient force is applied to the door, turn upon its bearing, the door may be moved when one gives it a push or shove in hurrying through the doorway As the floor engaging member rolls over the floor, it does not mark, scratch, or otherwise disfigure the floor surface. Since the floor engaging roller is resiliently urged against the floor, it may move up and down in accordance with irregularities in the floor.

It will further be observed that with my improved arrangement, the roller is frictionally held against free rotation due to the engagement between the cooperating pairs of frictional elements 25 and 30, the frictional elements 25 being caused to rotate with the roller, and the frictional elements 30 being fixed, and further the frictional elements 25 being urged by the spring 29 against the frictional elements 30. Due to this arrangement, wear between the frictional surfaces is automatically taken up so that the holder will have a long and effective life without the necessity of repairs. Owing to the floor engaging member being in two parts 24, 24, these parts may have a differential rotary movement as they roll over the floor, a feature which may be of advantage as the door swings in an arc.

My improved arrangement is very simple in construction, may be economically made, and has a neat and pleasing appearance.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A door holder of the character described having a roller adapted to engage the floor, means for rotatably supporting said roller, elements respectively fixed and rotatable with said roller and having frictional engaging surfaces, and resilient means for urging said elements into frictional engagement.

2. A door holder of the character described having a roller provided with a yielding portion adapted to engage the floor, means for rotatably supporting said roller, elements respectively non-rotatable and rotatable with said roller and having frictional engaging faces, a spring for resiliently holding said elements in frictional engagement, and means for holding said roller against the floor.

3. A door holder of the character described having a roller provided with a yielding portion adapted to engage the floor, means for rotatably supporting said roller, frictional elements normally fixed against rotary and axial movements, frictional elements rotatable with said roller and adapted to move axially, a spring for resiliently holding said last mentioned elements in engagement with the first

mentioned ones, and means for resiliently holding said roller against the floor.

4. A door holder of the character described having a roller provided with a yielding floor engaging portion, means for rotatably supporting said roller, fixed frictional elements at the ends of said roller, a pair of members rotatable with said roller and adapted to be moved apart and respectively engaging said elements, a spring within said roller for urging said members into frictional engagement with said elements, and means for resiliently holding said roller against the floor.

5. A door holder of the character described having a roller adapted to engage the floor and comprising a yielding floor engaging member and a core formed of two parts, a pin passing axially through said core parts, fixed frictional elements at the ends of said core, and a spring between said core parts adapted to move the latter axially of said pin and against said elements.

6. A door holder of the character described having a bolt provided with a pair of arms, a pin non-rotatably carried by said arms, a roller having a yielding floor engaging portion and a core formed of two parts, said core parts being journalled on said pin and having their adjacent ends formed to provide a recess, a frictional element between each arm and the outer end of each core part, a coiled spring about the pin and within said recess for urging said core parts against said frictional elements, and a spring behind said bolt for urging said roller against the floor.

7. A door holder of the character described having a rotatable roller adapted to engage the floor, and means for urging said roller against the floor with a yielding force, said roller having two like round floor engaging parts supported for differential movement over the floor.

8. A door holder of the character described having a roller adapted to engage the floor, means for rotatably supporting said roller, means for urging said roller against the floor, said roller having a plurality of like resilient floor engaging members mounted for differential rolling movement, and means for frictionally holding the roller parts against free rotation.

9. A door holder of the character described having a roller provided with a two-part core and a two-part resilient floor engaging member, the parts of said floor engaging member being respectively fixed to the parts of the core, means passing through the core for rotatably supporting the same, means for holding the roller against the floor, and means for frictionally holding the roller parts against free rotation.

10. A door holder of the character described having a bolt provide with a pair of depending arms, a pin non-rotatably carried by said arms, a roller between said arms and supported on said pin, frictional disks between the ends of said roller and said arms, said roller including a pair of core parts journalled on said pin and a pair of yielding floor engaging parts respectively fixed to said core parts, the adjacent ends of said core parts having a recess, and a coiled spring within said recess for urging said core parts against the respective frictional disks.

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