

[54] **STOPPER FOR HOLDING A DOOR OPEN**

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[57] **ABSTRACT**

A stopper for holding a door open which has a male part having a mounting leg to be installed onto a floor and a magnetic absorber provided on the peripheral edge thereof, and a female part to be installed onto a door having a magnetic concave absorber for the peripheral edge of the male part. Thus, the opened door is kept open without any difficulty.

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[51] **Int. Cl.**.....E05c 19/16

[58] **Field of Search**.....16/86 A;
292/DIG. 15, 251.5

[56] **References Cited**

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5 Claims, 5 Drawing Figures

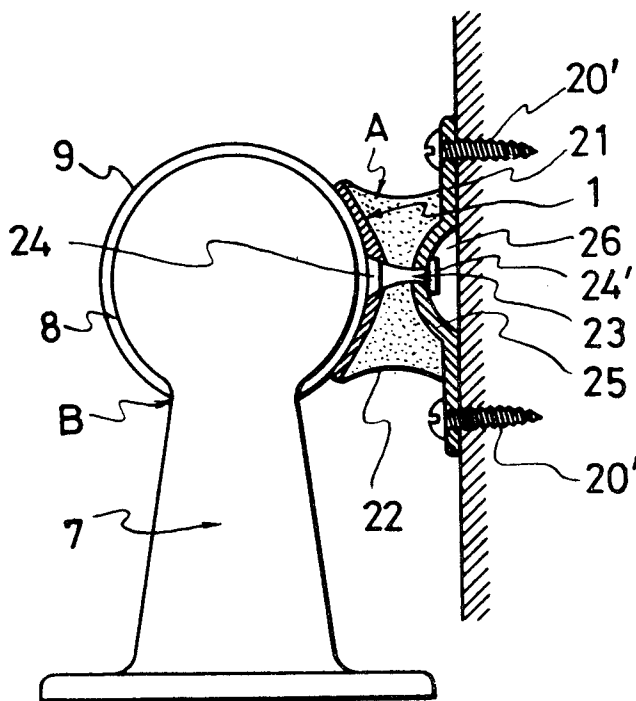


FIG. 1A.

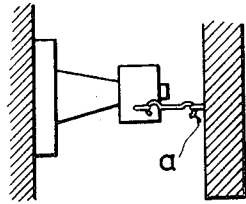


FIG. 1B.

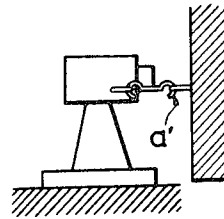


FIG. 2.

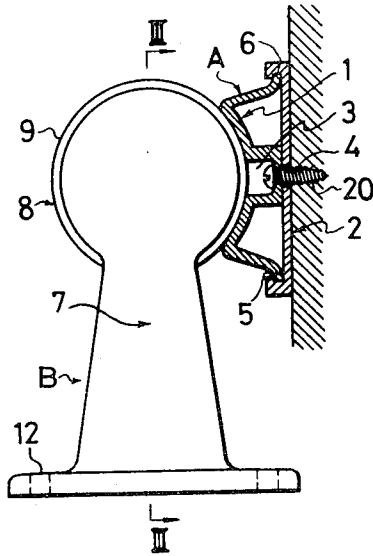


FIG. 3.

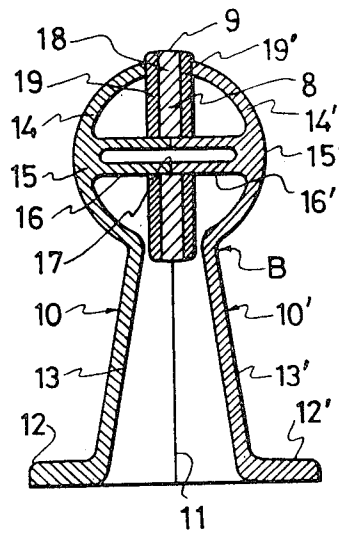
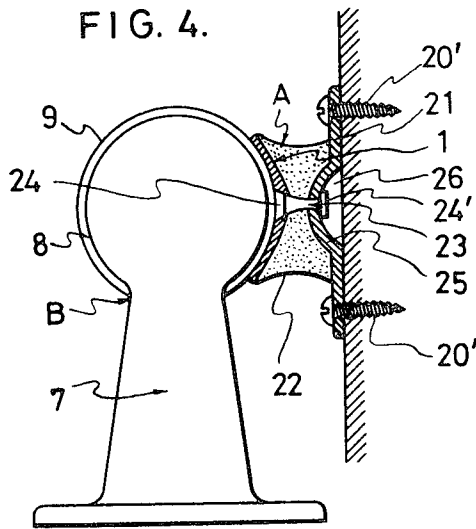


FIG. 4.



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STOPPER FOR HOLDING A DOOR OPEN

This invention relates to a stopper for holding an openable door of a house or furniture in an open state.

Heretofore, in order to hold the door open, there existed several types of stoppers such as, for example, a stopper installed to the side plate of a wainscot panel as shown in FIG. 1A, and a stopper installed onto the floor as entirely different types as shown in FIG. 1B, and accordingly it was necessary to select a stopper depending upon the installation arrangement, but in order to keep the door open, the hook *a* or *a'* had to be engaged in one operation by a person bending from the waist which is difficult.

This invention contemplates to eliminate the aforementioned disadvantages of the conventional stopper and to provide a novel stopper for holding an openable door of a house or furniture in open state.

According to one aspect of this invention, there is provided a stopper for holding a door open which comprises a male part having a mounting leg to be installed onto a floor and a magnetic absorber provided on the peripheral edge thereof, and a female part to be installed onto a door having a magnetic recess absorber for the peripheral edge of the male part.

The other features and advantages of this invention will become apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIGS. 1A and 1B are side views of the conventional stoppers in engagement;

FIG. 2 is a side view of the stopper constructed according to this invention in engagement as one embodiment;

FIG. 3 is a sectional view of the stopper taken along the line III—III in FIG. 2; and

FIG. 4 is a side view of another embodiment of the stopper of this invention.

Reference is now made to the drawings, particularly to FIGS. 2 and 3, which show one embodiment of the stopper of this invention.

The stopper of this invention comprises a female part A and male part B. The female part A comprises a magnetic absorber 1 made of magnetic material such as iron and mounting seat 2. The magnetic absorber 1 is so formed as to be of the concave surface of a sphere or has an arcuate surface on the surface thereof and has a recessed portion 3 at the center of the concave surface, in which portion 3 a mounting hole 4 is provided through the seat 2. And, the magnetic absorber 1 also has engaging edges 5 at opposite sides, as shown. The mounting seat 2 has engaging channels 6 at opposite sides for engaging the engaging edges 5 of the magnetic absorber 1.

On the other hand, the male part B comprises a mounting leg stand 7 made of synthetic resin and a magnetic absorber 8 made of magnet exposing at the circular peripheral end surface 9. In the embodiment shown in the drawings, the mounting leg stand 7 is so composed as to have two divided leg stands 10 and 10' longitudinally jointed at the jointing portions 11 thereof by adhesive in such a manner that the magnetic absorber 8 is interleaved between the divided leg stands 10 and 10'. More particularly, the divided leg stands 10 and 10' have mounting bases 12 and 12', legs 13 and 13' integrally formed to the bases 12 and 12', respectively, and semi-spherical portions 14 and 14' integrally

formed to the legs 13 and 13', respectively, and cylindrical supporting arms 16 and 16 horizontally projected from the centers 15 and 15' of the spherical portions 14 and 14', respectively and engaged with a port 17 provided at the center of the magnetic absorber 8.

The magnetic absorber 8 has a magnet plate 18 and two iron plates 19 and 19' for interleaving the plate 18 for preventing the magnet 18 from demagnetizing. The peripheral edge surface 9 of the magnet plate 8 is preferably formed of the same curvature as that of the concave surface of the female part A. It should be understood that opposite to the composition of the magnetic absorbers 1 and 8 described above and shown in the drawings, the magnetic absorber 1 may be made of magnet, while the magnetic absorber 8 may be made of magnetic material such as iron.

In utilization of thus constructed stopper, the female part A is installed to a predetermined position of the door by a screw, and the male part B is installed to a corresponding position to the female part A on the side surface of the wainscot panel or on the flat surface of the floor.

It should be understood from the foregoing description that since the stopper of this invention comprises a male part B having a mounting leg to be installed onto a floor and a magnetic absorber provided on the peripheral edge thereof, and female part A to be installed onto a door having a magnetic concave absorber for the peripheral edge of the male part B, the female part may be absorbed from either side or upper surface with respect to the male part without providing the conventional types matched for the respective utilizations, and the door may be held open only by opening the door to contact the female part A with the male part B or to approach it thereto without bending the waist so as to engage the hook to the conventional stopper.

Reference is now made to FIG. 4, which shows another embodiment of the stopper of this invention.

This embodiment is further improved so as to contact the female part A with the male part B with more adaptability. In this embodiment, the female part A comprises a magnetic absorber 1 made of magnetic material such as iron and a mounting seat 21. The magnetic absorber 1 is so formed as to be similar to that in the previous embodiment of the concave surface of sphere or arcuate surface on the surface thereof. The female part A also comprises a buffer 22 formed of rubber between the magnetic absorber 1 and the mounting seat 21. And, a connector 23 passes through the buffer 22 at the center in such a manner that the head 24 of the connector 23 may not project from the concave surface of the magnetic absorber 1. A stopper end 24' of the connector 23 is so engaged with a recess 25 provided at the center of the seat 21 opposite to the concave surface of the mounting seat 21 as not to contact with the door with a variable space 26 formed between the end 24' of the connector 23 and the mounting surface of the door.

In utilization of thus constructed stopper of this embodiment, the female part A is installed to a predetermined position of the door by two screws 20' and 20'.

It should be understood from the foregoing description that since the stopper of this embodiment comprises a male part B having a mounting leg to be installed onto a floor and a magnetic absorber provided on the peripheral edge thereof, and a female part A to be installed onto a door having a magnetic concave ab-

sorber for the peripheral edge of the male part and a buffer formed of rubber between the magnetic absorber and the mounting seat, even if some installing errors of the female and male parts on the door or floor exist, when the male part is urged onto the female part, the buffer may deform properly due to its elasticity so that the magnetic absorber 1 of the female part B may sufficiently contact with the circular peripheral end surface of the male part, and it may adapt for the displacements of the female and male parts by long usage, and further even if the door is opened strongly the shock of the female and male parts are absorbed by the elasticity of the buffer 22 provided in the female part.

What is claimed is:

1. In a stopper for holding a door open comprising a male part having a mounting leg to be installed onto a floor and a magnetic absorber provided on the peripheral edge thereof, and a female part to be installed onto a door having a magnetic concave absorber for the pe-

ripheral edge of said male part, the improvement therein wherein the magnetic absorber of said male part includes a magnet plate and two iron plates for interleaving the plate to prevent the magnet from demagnetizing.

2. A stopper according to claim 1, wherein said female part comprises a buffer disposed between the magnetic absorber thereof and the mounting seat.

3. A stopper according to claim 1, wherein said mounting leg is made of synthetic resin and said magnetic absorber of the male part is made of magnet.

4. A stopper according to claim 1, wherein the magnetic absorber of said female part is made of magnetic material.

5. A stopper according to claim 1, wherein the magnetic absorber of said female part is made of magnet, and the magnetic absorber of said male part is made of magnetic material.

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