June 16, 1931. A. REESE 1,810,293

DOOR CLOSER

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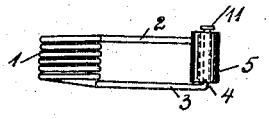


Fig. 1

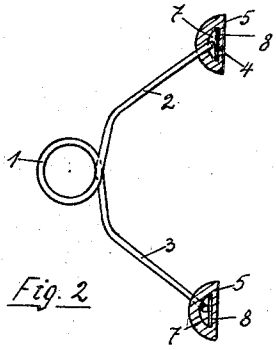


Fig. 2

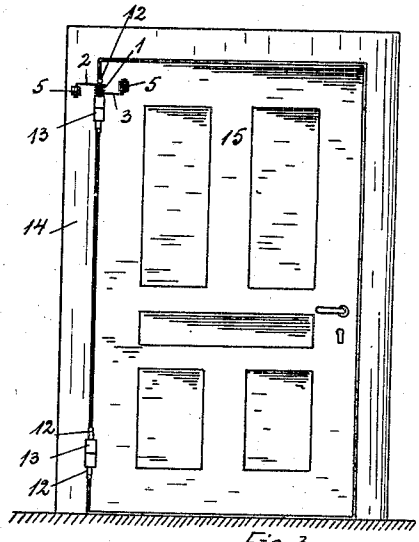


Fig. 3

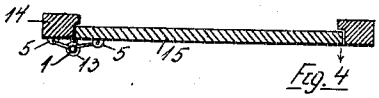


Fig. 4

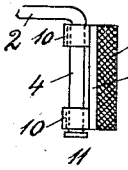


Fig. 5.

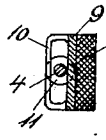


Fig. 6.

Inventor.

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UNITED STATES PATENT OFFICE

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DOOR CLOSER

Application filed May 17, 1929, Serial No. 363,821, and in Germany April 25, 1929.

This invention relates to a device designed for automatically closing doors and which presents, in comparison with the known door closers, the advantages of greater simplicity, lower cost of manufacture and easier application.

The door closer according to the invention consists of a cylindrical spiral spring adapted to be placed over a stud-like extension of the door hinge, the two ends of the spiral spring extended each to form a lever-like arm, the ends of which, bent at right angles, rest shiftably and rotatably each in a pressure button of rubber or similar soft material. When this door closer is in the operative position, the one arm of the spiral spring bears with the elastic pressure button against the door post, the other arm pressing with its soft button against the door and having the tendency, to shut the door or to keep the same shut. When the door is being opened, the ends of the spread asunder arms of the spiral spring can no longer rub against the door or door post, causing damages and impeding the oscillation of the door, but they are merely shifted and rotated in the elastic buttons which, owing to their comparatively large bearing surface remain stationary or almost stationary on the door or on the door frame.

As stated above the cylindrical spiral spring can be placed over the stud-like extension which generally exists on a door hinge, so that it is arranged accurately centrically in the fulcrum of the door. When no extension should be on the door hinge, a metal sleeve entirely or partly slit and adapted to be placed over the door hinge is used according to the invention for holding the cylindrical spiral spring and, if necessary, it is fixed by screws or the like on the door so that its upper end projects from the door hinge designed to receive and to hold the cylindrical spiral spring.

A bow, for instance U-shaped, to be fixed on the door post might further be provided which is inserted through the spiral spring so that this spiral spring is held in the pivot point of the door at any desired height.

A door closer, according to the invention, is illustrated by way of example in several forms of application on the accompanying drawings in which:

Fig. 1 is a side elevation of the door closer.

Fig. 2 is a top plan view of Fig. 1.

Fig. 3 shows a door with door closer placed on the upper extension of the door hinge.

Fig. 4 is a horizontal section through Fig 3 at the height of the door closer.

Figs. 5 and 6 show in side elevation and top plan view respectively another form of construction of the elastic button for the bent ends of the arms of the spiral spring.

The door closer consists essentially of a cylindrical spiral spring 1 comprising several windings, the two ends of which are extended to form arms 2 and 3 respectively. The free end of each arm is bent at right angles and engages shiftably and rotatably each end with a pressure button 5 or 6 of rubber or other elastic material. The pressure button 5 can consist, as shown in Figs. 1 to 4 of a piece of rubber of semicircular cross section having a sufficiently wide hole 7 extending from side to side and lined on the pressure side with a metal plate 8. The end 4 of the arms 2 and 3 inserted through the hole 7 bears against the metal plate 8 so that at the pressing asunder of the ends of said arms and at the shifting of these ends caused thereby a bearing surface for these ends is provided which is smooth and resistant so that the ends can easily slide on the same.

As shown in Figs. 5 and 6 the elastic button consists of a plate 6 of rubber or other soft material fixed on a metal plate 9 which has lugs 10 designed to receive the end 4 of the arms of the spiral spring, which permits, owing to the oblong form of the lugs, shifting and rotating of these ends 4. The end 4 when shifting can slide along the smooth resistant plate 9. On the end 4 a nut 11 secured by a rivet or in any other manner can be fixed to prevent the end 4 from slipping out of the pressure button 5, 6 respectively.

The spiral spring 1 is placed, as shown in Figs. 3 and 4, over the stud-like extension

12 of one of the door hinges 13. The one pressure button 5 bears against the door frame, the other button 5 pressing against the door to shut the same or to keep it shut.

I claim:—

1. A door closer consisting of a spirally wound spring slidable over the door hinge pintle with one end of the door frame and with the other end resiliently on the door, a pressure button of soft material preferably rubber loosely accommodating each of the ends of said spring parallel to the axis of said spring, said spring ends adapted at the swinging of the door to turn and slide in said buttons.

2. A door closer as specified in claim 1, comprising in combination with the spiral spring and the rubber pressure buttons, a metal plate in each of said buttons adapted to act as sliding surface for the ends of said spring.

In testimony whereof I affix my signature.

ALFRED REESE.