A. ZEMPLINER.

DEVICE FOR RENDERING DOORS SELF CLOSING.

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1,009,125.

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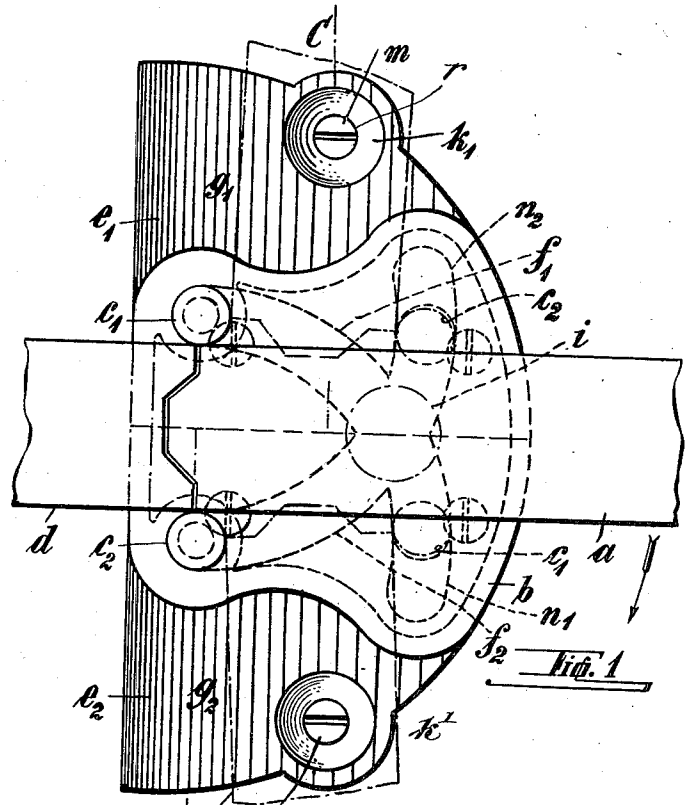

Fig. 1

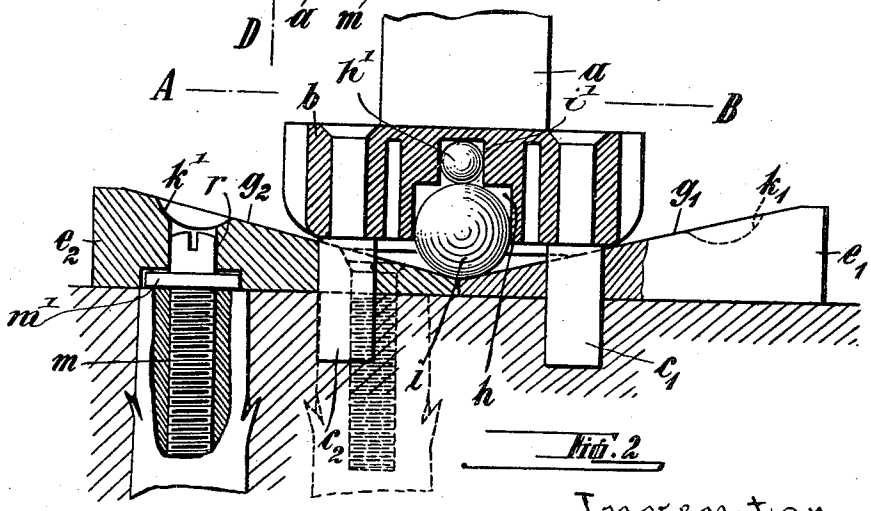

Fig. 2

Witnesses:
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UNITED STATES PATENT OFFICE.

ALFRED ZEMPLINER, OF VIENNA, AUSTRIA-HUNGARY.

DEVICE FOR RENDERING DOORS SELF-CLOSING.

1,009,125. Specification of Letters Patent. **Patented Nov. 21, 1911.**

Application filed May 18, 1911. Serial No. 628,105.

To all whom it may concern:

Be it known that I, ALFRED ZEMPLINER, residing at 11 Halbgasse, at Vienna, in the Austro-Hungarian Empire, a subject of the Emperor of Austria-Hungary, have invented a new and useful Device for Rendering Doors Self-Closing, of which the following is a specification.

My present invention relates to devices for rendering doors self-closing by means of gravity, the weight of the door being available when combined with an inclined surface upon which the door is raised when opened and returns to a normal or closed positoin when freed.

The objects of my invention are to provide a device simple in construction and efficient in action, avoiding such members as springs or the like which gradually become "set" through constant use, or are apt to rupture when highly tempered.

A further object of my invention is to adapt the device to doors of different weights through the adjustment of the angle of the inclined surface.

The invention is applicable to doors adapted to be swung either one way or both ways and further serves as a hinge at the base of the door.

I attain these objects by the construction and arrangement of parts shown in the accompanying drawings, in which:—

Figure 1 is a sectional view transversely through a portion of a door and its casing, fitted with a device embodying my invention and taken substantially on the line A—B of Fig. 2. Fig. 2 is a sectional view taken substantially on the line C—D of Fig. 1.

Similar characters refer to similar parts throughout the views.

The drawing illustrates the application of my invention to swinging doors although the same may be applied to doors which are limited to swing in but one direction with reference to the wall they are included in.

In the drawings, a indicates a portion of the outer stile of a door next to the casing d, and at the part where the door swings. A plate b is adapted for attachment to the under side of the door and is provided with a ball-receiving socket h, in which a ball i of substantially the size of the socket, is confined. As shown in Fig. 2 the socket i may be reduced as at i' to retain a supplementary ball h' which contacts with the ball h and concentrates the weight of the door at this portion. Below the door stationary plates e_1 and e_2, mounted on the floor, are provided with inclined surfaces g_1 and g_2 which are complementally formed diverging upwardly from the center line of the door when closed. Plate b is provided with downwardly projecting pins c_1 and c_2 at both sides of the face of the door and which are guided in slots f_1 and f_2 of the plates e_1 and e_2, respectively. The pins form pivot points upon which the door is swung and the slots are described concentric with the pin opposite to that pin which is guided therein, that is, the slot f_1 is concentric with the pin c_2 when the latter is in the normal position, and similarly slot f_2 is concentric with the pin c_1. When the door is opened one pin remains at the end of the slot, serving as a pivot point, while the other pin moves in the slot concentric with the pivot point. By this construction the pin serving as a pivot point is retained against displacement by the movable pin guided in the slot.

As indicated in Fig. 1, the ball i is equidistant from the pins c_1 and c_2 and its path of movement is coincident with the slot f_1 and f_2 so that the ball moves upon the upper margins of the slots through a portion of the arc of movement when the door is swung substantially a quarter turn or 90°. The ball thus aids in retaining the pivot point of the door in place, the slots f_1 and f_2 being upwardly inclined and merge into the inclined surfaces g_1 and g_2 at n_1 and n_2, respectively, for permitting the ball to move smoothly thereto.

In order to adapt the device to different size doors, or to doors built up of material of different specific gravity, the degree of inclination with the horizontal of the inclined surfaces g_1 and g_2, may be increased or decreased to attain free and easy closing of the door without slamming. This is attained by retaining that portion of the plates e_1 and e_2 near the lateral margin, by means of bolts m, which are provided with collars m_1 below the head thereof. The head and collar fit in a complementary formed recess r in the plates e_1 and e_2, and by raising or lowering the bolt the collar thereof transmits such motion to the plate, the head of the bolt fitting closely the receiving portion of the recess r to prevent movement of the plates laterally. The upper portion k' of the recess r is circular in plan and concave in section, forming a reception for the ball

i when the door is opened wide and serves to retain the door in an open position when such is desired.

The operation of the device is as follows:—Assuming that the door is drawn forward in a direction indicated by an arrow, the door swings on pin c_2 retained in the end of the slot f_2, while the pin c_1 and ball i travel in slot f_1. The pin c_2 is held from displacement by the pin c_1 and the ball i through a movement of the door. When the door is opened the same is raised through the ball i rolling on the inclined surface g_2 and should it be desired to retain the door in an open position, the door is swung sufficiently to allow the ball to rest in the socket k_1. When the door is released it returns by gravity to a closed position.

I claim:—

1. A device for rendering doors self-closing, comprising in combination, a plate fixed to the lower side of the door and provided with a ball receiving socket, a ball of substantially the size of said socket and carried thereby, a base plate mounted on the floor below the door and in a position to be traveled upon by said ball, said base plate being provided with an inclined surface described concentric with the pivot point of said door and rising from that portion of the plate in alinement with the door when closed, and means for tilting said plate whereby the degree of inclination of said inclined surface may be adjusted with respect to the door.

2. A device for swing doors comprising in combination, a plate carried by the door and provided with downwardly projecting pins arranged at opposite sides of the face of the door and a ball receiving socket, a ball carried by said socket, and a base structure, carried by the floor, provided with inclined surfaces diverging upwardly from a portion of the base in alinement with the door when closed, and guide ways for said pins and ball, each guide way being arranged concentric to the pin opposite to that which moves therein and coincident with the path of movement of said ball whereby the pin serving as a pivot point is retained in place as such during movement of the door.

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

ALFRED ZEMPLINER.

Witnesses:
TRAUNER KARL,
AUGUST FUGGER.