

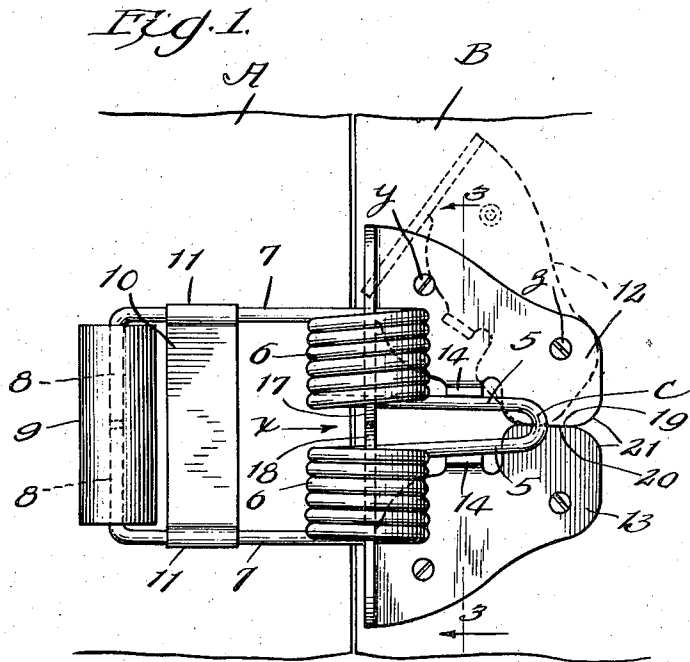
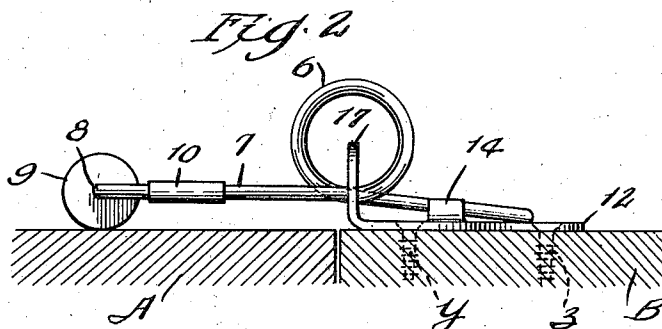
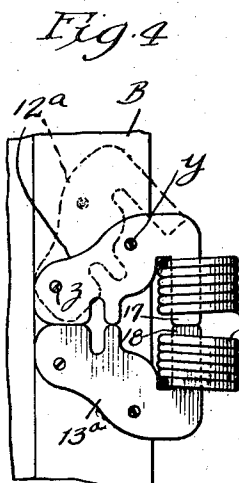
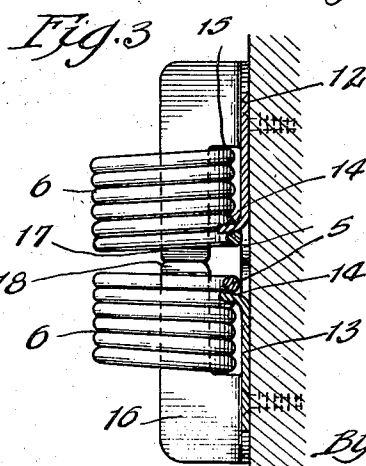
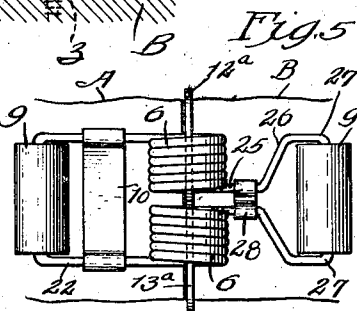
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A. H. FLORETH

2,150,435

DOOR CLOSER AND MOUNT

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DOOR CLOSER AND MOUNT

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15 Claims. (Cl. 16—76)

My invention relates to means for closing doors, and more particularly to a spring device and mounting for use upon screen-doors and the like. However, the principles of the instant device may be embodied in structures for closing a variety of types of doors.

The present device consists generally of a hollow cylindrical coiled spring body having arms extended in one direction from its end convolutions and other arms extended in an opposite direction from intermediate convolutions, said arms providing pressure members that are urged respectively against the door and the door frame. Combined with this spring structure is a mounting device that preferably embodies the characteristic that it may be separated or opened, after one of its parts is secured to the door-frame, for the purpose of assembling the spring structure therewith. The mounting device is constructed in a manner that permits it being closed and its movable part secured in place and thereby maintain the spring device against unintentional removal. Furthermore, portions of the mounting device are especially constructed in order that at no time will the pressure member which is nearest the mounting plate come into actual contact with the door or door-frame. This prevents marring or damaging the woodwork either during the installing of the door closer or during the use or operation of my improved device. The construction and arrangement of the parts is such that the device is easy to install and this may be done without the use of special tools. My improved door-closer is effective in performing its functions, and it is sturdily made so that it will withstand severe usage. Also it is economical to manufacture and therefore may be sold for a reasonable retail price.

Other objects and advantages of my invention will be apparent to persons skilled in the art after the construction and operation of my improved door-closer is understood from the within disclosure. I prefer to practice my invention in substantially the manner hereinafter fully described and as particularly pointed out in the appended claims. The accompanying drawing is referred to for a better understanding of the characteristics and use of my invention; said drawing, while more or less schematic, discloses a typical or preferred form in which my door-closer may be made and assembled.

In the drawing:—

Figure 1 is a view in front elevation showing my door-closer and mount secured to a door-frame and in position for use.

Figure 2 is a top plan of the structure illustrated in Figure 1.

Figure 3 is a vertical section taken on line 3—3 of Figure 1.

Figure 4 is a vertical elevation showing a modified construction, drawn to a reduced scale.

Figure 5 is a front elevation of the structure shown in Figure 4.

Referring to the drawing A designates the door that is secured by suitable hinges (not shown) to the door-frame B in the usual manner. The door closer device embodies a piece of wire of the required length and of suitable gage, that is bent at about its center of length into a presser member C that is formed with two connected arms 5 and is of a U-shape. These arms extend tangent from the adjacent inner convolutions of a hollow cylindrical body composed of a pair of oppositely coiled springs 6 that are disposed in superposed axial alinement with each other, and said coils are spaced from each other to provide a gap x between the coils which permits entrance of the presser member arms 5 when the door is moved open to its fullest extent, thus preventing distortion of the closer device. The springs 6 are preferably right-hand and left-hand coils, and they afford the means for mounting the closer spring upon its supporting bracket. There are upper and lower arms 7 that extend tangent from the outermost, or upper and lower convolutions of the cylindrical spring body and they project in a direction opposite to the presser member C. These arms are disposed substantially parallel to each other and at their outer and free ends they are provided with laterally disposed members 8 that are bent so as to extend towards each other so that they combine to provide a journal for the roller 9 that is rotatably mounted thereon. The journal members 8 may be readily inserted into the bore of roller 9 by spreading the arms 7 during assembly of the device, and after the roller has been properly disposed suitable means are clamped to the arms for the purpose of maintaining them in fixed relation to each other so that they will move simultaneously. This clamping means is preferably a metal plate 10 that extends between the arms 7 and has its end portions seamed or beaded around the wire arms as shown at 11 in the drawing, thus forming a connector which reinforces the structure. The arms 7, together with the roller and its journals, provides another presser member which yieldably engages the door so that when the latter is moved the roller will have a rolling action against the engaged surface of the door and the cylindrical body will urge the door to a closed position when the door is released.

The means for mounting the closer is preferably in the form of a bracket member that is preferably a two-part construction. As shown in Figure 1, this bracket is made in such manner that one of its members remains rigidly mounted on the door-frame and the other member is

adapted to be released and moved upward on a pivot to permit insertion or removal of the cylindrical body in the manner shown in dotted lines in Figure 1. The bracket embodies two plates 12 and 13 of complementary irregular formation that are secured to the outer face of the door-frame by screws or the like. Lateral lips 14 are formed on adjacent portions of the plates, which lips act as stops which are engaged by the edges of the presser member C and prevent sideways movement thereof when said member is disposed between said lips. At the edges of the plates which are nearest the juncture of the door and door-frame there are L-shaped extensions the shorter arms 15 and 16 of which project horizontally from upper and lower portions of the respective plates so as to position their respective longer arms 17 and 18 in vertical positions and spaced from the bodies of the plates. These plates are oppositely shaped, to provide right-hand and left-hand elements and the said longer arms of the L-shaped extensions provide posts to receive the coiled cylindrical body of the closer device. As seen in Figures 1 and 3 the ends of the posts 17 and 18 abut each other and the facing edges of the shorter arms 15 and 16 act as stops to be engaged with the outermost convolutions of the spring coils 6 forming the cylindrical body. The lower portions of the plates remote to the posts are preferably of a substantially right-angular formation with straight edge portions 19 and 20 that abut each other preferably in the plane of the abutting ends of the posts. The adjacent corners of the plates are rounded or arcuate as shown at 21 in Figure 1 the purpose of which will later be explained.

The manner of mounting the door closer and bracket is very simple as is also the method of assembling the spring elements on the bracket. The first step is to anchor the bracket plates 12 and 13 upon the door-frame B with the closer structure omitted. These plates are preferably disposed in the manner shown in Figure 1, the posts 17 and 18 being at one side of the juncture of the door and frame with the ends of the posts in abutting relation and with the straight edges 19 and 20 in contact. The securing means or screw *y* that is nearest the post 17 of the upper plate 12 is then removed and the screw *z* loosened slightly so that the said plate 12 may be swung in an upward direction using the screw *z* as a pivot as shown in dotted lines. The next step is to insert the coiled or cylindrical body 6 onto the post 18 which is accomplished by moving the closer member in a downward direction while pressing it inward towards the door or door-frame. While performing this step the roller 9 is engaged with the door and the presser member C is always in contact with the metal plates adjacent their edge portions 19 and 20 which prevents marring or damaging the finish or surface of the door or frame. The final step is to swing the plate 12 back to its initial position during which movement its post 17 enters the upper portion of the coiled cylindrical body 6 until its lower end abuts the end of the other post 18 and the straight edges 19 and 20 are contacting each other. The screw *y* is now replaced and the other or pivot screw *z* is tightened into position. In this final position the lips or stops 14 will be engaged with intermediate portions of the arms 5 of the presser member C and prevent dislodgement of the latter; the end portion of said presser member will con-

tact the surfaces of the plates; and the spring coils 6, of the central cylindrical body will be maintained in position on the posts between the short lateral arms 15 and 16 that connect the posts to the plates so that the coils are substantially encompassed by the mounting device. It will be observed that at no time does the presser member come into contact with the surface of the woodwork, either during the operation of mounting the door closer or during the use of my device.

The plates of the mounting bracket are made in complementary shapes and they are constructed in a manner that permits this bracket structure to be readily mounted upon either the right-hand or the left-hand upright of the door frame depending upon which side the door is hinged. It will be seen that there is a separate or individual post for each of the coiled springs comprising the central cylindrical body with the result that there is less liability of the posts bending than where a single post is used for the purpose of mounting the closer.

In the modified structure illustrated in Figures 4 and 5 the mounting plates are inserted in the usual space between the edge of the door and the adjacent side of the frame and the posts project beyond the plane of the outer surface of the door to receive the central cylindrical body. The upper and lower complementary plates 12a and 13a in this modification are flat throughout, and hence for this purpose the same blank as used in the first-described form may be employed except that said blank need not be bent laterally for the posts 17 and 18 and the lips or stops 14 as in the first form. This effects a saving as the shaping or forming operations on the plates are eliminated and only the blanking operation is needed. This modified type of bracket structure is especially adapted for use in connection with door-closer devices such as disclosed in Figure 5 wherein both the presser-members 22 and 23 are provided with rollers 9 respectively to engage the outer faces of the door and the door frame. The presser-member 23 is formed with arms 25 extending from the inner adjacent convolutions of the respective coils 6, 6 and said member is widened by providing the arms with oblique portions 26. This door-closer is fabricated from two pieces of wire, and the ends of the wires forming the presser-member are bent laterally and extend towards each other to provide the journals 27 for the roller. In order to provide rigidity the arms 25 are connected by a metal strip 28 that is beaded over the arms in the same manner as the strip 10 is connected to the arms of the other presser-member. The manner of assembling the bracket with the door-closer in this modification is substantially the same as hereinbefore described in connection with the preferred form.

While I have herein disclosed a preferred form in which my invention may be made, it will be obvious that this is capable of variation and modification without departing from the principles involved. I therefore desire it understood that I do not limit myself to the precise details of construction herein set forth, but I desire to avail myself of any and all variations and modifications as come within the scope of the appended claims.

What I claim is:—

1. A bracket for a door-closer embodying two plates disposed back of and engaged by a presser-member of the door-closer; posts on said plates

disposed normally in alinement with each other and engaged with another portion of the door-closer; and a plurality of devices for mounting said plates upon a suitable support; one of said devices providing a pivot upon which one of said plates is adapted to be moved upon removal of the other device from said plate whereby the post carried by said plate is moved out of alinement with the other post.

2. A device for mounting a door closer upon a support, said device embodying a pair of plates; posts carried by said plates and disposed normally in alinement with each other; means for securing one of said plates to the support in fixed relation thereto; and a member for attaching the other plate to the support, said member providing a pivot adapting said plate for movement in an arcuate path with respect to the fixed plate, whereby the post carried by said movable plate is disposed out of alinement with the other post and spaced therefrom.

3. A mounting bracket for a door-closer embodying two complementary plates disposed normally edge-to-edge and providing a surface that is contacted by a presser-member of the door-closer; and separable means on said plates for co-actively connecting the door-closer to said bracket; one of said plates adapted for movement relative to the other plate whereby to separate said separable means while the before-mentioned presser-member remains in contact with said plates.

4. A mounting device for a door-closer embodying normally alined posts; and separate plates carrying the respective posts, one of said plates adapted to be maintained stationary upon a support and the other plate having a hinged connection with the support adapting said plate for swinging movement with respect to the stationary plate whereby the post carried by said movable plate is moved out of co-active relation with respect to the other post.

5. A mounting device for a door-closer embodying normally alined posts; and separate plates carrying the respective posts, one of said plates adapted to be maintained stationary upon a support and the other plate having a hinged connection with the support adapting said plate for swinging movement with respect to the stationary plate whereby the post carried by said movable plate is moved out of co-active relation with respect to the other post; and means for securing said hinged plate against movement.

6. A mounting bracket for a door-closer embodying complementary plates disposed edge-to-edge; L-shaped extensions projecting towards each other from spaced side portions of said plates, the longer arms of said extension being off-set from said plates; certain portions of the edges of said plates that are remote to said extensions having normal contact with each other and providing a continuous outer surface; means for fixedly mounting one of said plates on a suitable support; and separate means for attaching the other plate to the support, said separate means providing a pivot adapting said plate for hinging movement on the support to separate adjacent portions of said L-shaped extensions.

7. A mounting bracket for a door-closer embodying complementary plates disposed edge-to-edge; L-shaped extensions projecting towards each other from spaced side portions of said plate, the longer arms of said extensions being off-set from said plates; certain portions of the

edges of said plates that are remote to said extensions having normal contact with each other and providing a continuous outer surface; and means for attaching said plates to a suitable support, certain of said means providing a pivot for one of said plates and adapting said plate for hinging movement on the support.

8. As a new article of manufacture a bracket embodying normally alined members adapted to engage spaced portions of a coiled spring body of a door closer, and supporting means for said members, said means normally engaged by a presser arm of a door closer, said means also adapting one of said normally alined members for movement away from the other member.

9. As a new article of manufacture a bracket embodying normally alined posts adapted to engage spaced portions of a coiled spring body of a door closer, and supporting plates for said posts, said plates normally engaged by a presser arm of a door closer, one of said plates adapting one of said posts for movement away from the other post and out of engagement with the aforesaid coiled spring body.

10. A bracket for a door-closer embodying normally alined members adapted to engage spaced portions of the door-closer; and supporting means for said alined members, said means adapting one of said alined members for movement away from the other member.

11. A bracket for a door-closer embodying mounting means adapted to be secured to a support; and door-closer engaging members on said means which engage with spaced portions of the door-closer; one of said members adapted for movement with respect to the other member whereby the movable member may be engaged with and disengaged from the door-closer.

12. A bracket for a door-closer embodying co-acting plates adapted to be secured the one above the other on a support; and posts on said plates that are off-set with respect thereto, one of said posts extending upward from the lower plate and the other post extending downward from the upper plate whereby the proximate ends of said posts are engaged with a portion of the door-closer, and one of said posts adapted for movement independent of the other post to disengage it from the door-closer.

13. A bracket for a door-closer embodying normally alined posts adapted to engage spaced opposite portions of the door-closer; and supporting means for each post, one of said supporting means adapting the respective post for movement into a position to disengage said post from the door-closer.

14. A mounting bracket for a door-closer embodying normally alined posts adapted to engage portions of a door-closer; supporting means for said posts, one of said posts being adapted for movement into and out of engagement with respect to a door-closer; and means on said supporting means for maintaining a door-closer presser-member in engagement with said supporting means.

15. A mounting bracket for a door-closer embodying co-acting plates, certain portions of said plates maintaining fixed relation in respect to each other; means for mounting said plates for relative movement with respect to each other; and means for limiting movement of the plates towards each other.

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