

Sept. 5, 1933.

J. ZIELINSKI ET AL  
DOOR AND WINDOW CLOSER

1,925,945

Filed April 9, 1932

Fig. 1.

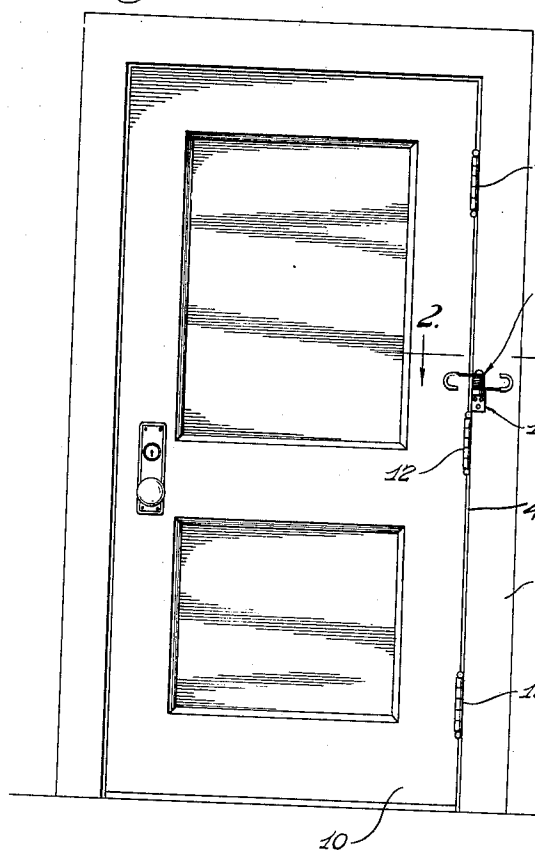


Fig. 2.

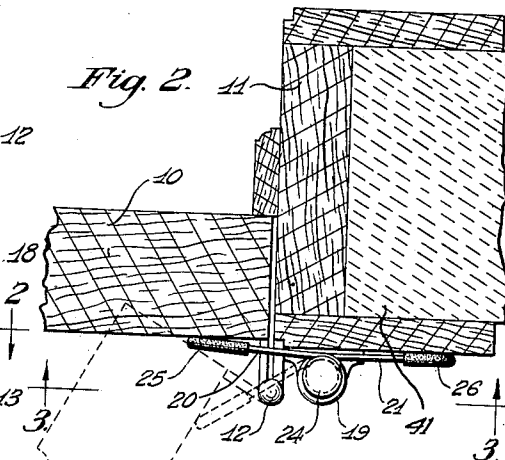


Fig. 3.

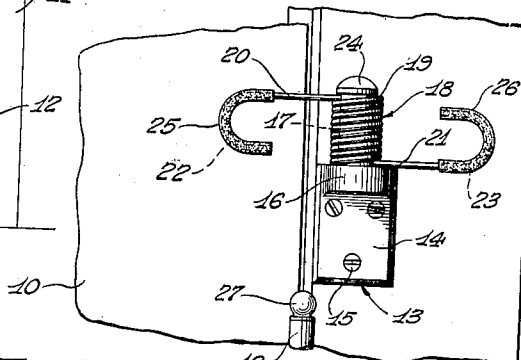


Fig. 4.

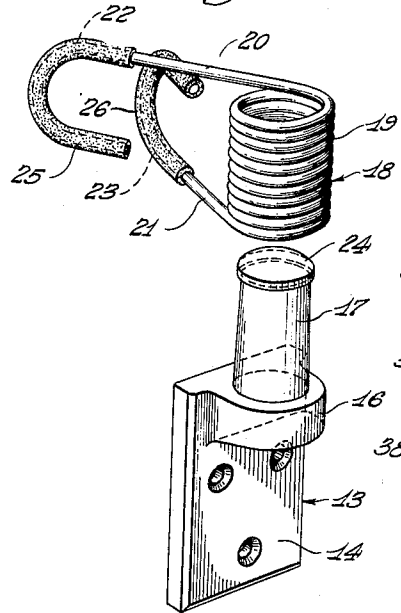
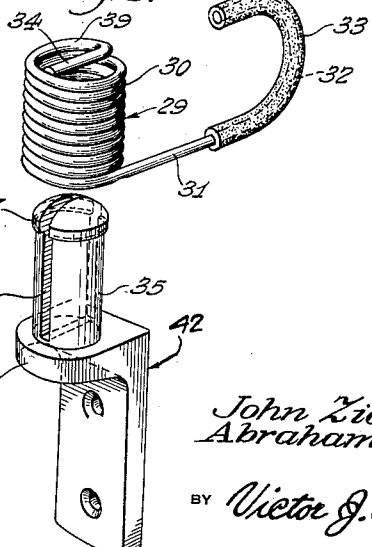


Fig. 5.



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## UNITED STATES PATENT OFFICE

1,925,945

## DOOR AND WINDOW CLOSER

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Chicago, Ill.

Application April 9, 1932. Serial No. 604,262

1 Claim. (Cl. 16—76)

This invention relates to certain novel improvements in door and window closers, and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

This invention relates to a closer for swinging doors, windows, and the like. The invention comprises a cylindrical spiral spring consisting of a number of windings and the end windings terminating in oppositely directed projecting arms. When the closer is mounted in working position one of the arms abuts the swinging door or window while the other arm abuts the relatively stationary door or window frame. When the door or window is opened the spring is compressed so that when the door or window is freed and the compressing force released from the spring, the spring acts on the door or window to close the same. Attempts have been made to mount this type of door closer on the pintle or on a stud-like extension of the door or window hinge but we have found that this type of door closer is very unsatisfactory in use when so mounted because when the spring is compressed by the opening of the door or window the compression of the spring causes the same to jump or bound upwardly off the pintle or stud-like extension of the hinge.

It is therefore an object of our invention to overcome the foregoing and other difficulties and to provide a new and inexpensive mounting for securing the spring closer optionally upon either the window or door casing or upon the door or window itself in such a manner that when the spring is compressed it will not jump or bound off its mounting.

Another object of the invention is to improve upon the closer itself, and to provide novel sleeves on the projecting arms of the closer to prevent the arms from marring the door or window and the casing.

Experience teaches that it is frequently impossible to mount a spring door closer having two oppositely projecting arms on either a door or a door frame or support but that in these cases it is possible to use a spring door closer having only one projecting arm. It is therefore another object of our invention to provide an improved spring door closer having only one arm and to provide a novel bracket for mounting the same in places where the door closer having two arms cannot be used.

Another object of the invention is to construct the bracket so that the same may be used

with spring door closers having either one or two projecting arms and to construct said bracket so that the door closer having only one projecting arm may be mounted on the bracket with the single arm of the door closer projecting away from and used on either side of the bracket.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is an elevational view showing the invention applied to a door;

Fig. 2 is a top plan view on line 2—2 in Fig. 1, partly in section;

Fig. 3 is a front elevational view on line 3—3 in Fig. 2;

Fig. 4 is a detached perspective detail view of our improved closer and mounting; and

Fig. 5 is a perspective view of a modification of our invention.

In the drawing 10 indicates a door hinged to a casing 11 as at 12. In the description to follow and in the claim the term "hinged member" will be applied to the door 10, it being understood that this term is generic and includes both hinged doors and hinged windows.

In practising our invention we provide a mounting generally indicated at 13 and including a plate portion 14 which may be attached to the casing 11 or to the hinged member 10 by suitable fastening elements such as screws 15. In the drawing, however, for illustration the mounting 13 is shown attached to the casing. This mounting 13 includes a portion or boss 16 which projects right-angularly from the plate portion 14 and the mounting also includes a cylindrical knob or post portion 17 which projects from the boss 16.

Our improved closer includes a cylindrical spiral compression spring 18 which consists of a series of windings 19. The end windings 19 of the spring 18 terminate in oppositely directed projecting arms 20 and 21 which terminate in angled end portions 22 and 23. In practising our invention we mount the spring 18 on the post portion 17 of the mounting 13 so that the arm 20 bears on the hinged member 10 while the arm 11 bears on the casing 11. To prevent the spring from jumping off the post portion 17 of the mounting when the hinged member 10 is swung open and the spring 18 com-

pressed we provide an enlarged or flanged head 24 on the post portion 17. When the hinged member 10 is opened and the spring 18 placed under compression the arm 20 that bears on the hinged member 10 projects under the head 24 and the compression of the spring causes the arm 20 to bear up against the bottom side of head 24, thereby preventing the spring from jumping off its mounting when placed under compression.

On the angled end portion 22 of arm 20 we provide a sleeve 25 to prevent the end portion 22 of the arm 20 from rubbing or marring the hinged member 10 and a similar sleeve 26 is provided on the angled end portion 23 of arm 21. These sleeves may be made of any suitable and preferably soft material and for this purpose rubber is preferred.

It will now be evident that the mounting 13 may be attached to the hinged member 10 instead of to the casing 11 as shown and that the closer will then function substantially as set forth hereinbefore.

From the foregoing description of our invention it will be evident that we have overcome the difficulty, experienced in the prior art and referred to above, that is experienced when it is attempted to mount this type of closer on the pintle or stud-like extension 27 of the hinge 12, and which resides in the fact that when this type of closer is mounted on the pintle or stud-like extension 27 of hinge 12 the spring jumps off the pintle or extension 27 when placed under compression, which it cannot do when mounted in our improved mounting 13 due to the retaining function of head 24 as above set forth.

Experience teaches that it is frequently impossible to mount the spring door closer 18, having the two projecting arms 20 and 21, on either the door or its support 11. This may be due to any one of a number of causes such as, for example, the narrowness of the casing 11 as measured from the edge 40 of door 10 to the adjacent wall 41 or for other reasons. To overcome this difficulty experienced in the use of the spring 18 we provide our improved spring closer generally indicated at 29. Said closer consists of a coil 30 made up of a series of windings forming a substantially cylindrical spring. One of the end windings of the spring has a projecting arm 31. This arm 31 has an angled end portion 32 on which is arranged a suitable sleeve 33. The other end winding of the coil 30 has a portion 34 that is angled across the end of the cylindrical coil 30 that is opposite the end thereof from which the arm 31 projects.

To mount the spring closer 29 we provide a novel mounting or bracket generally indicated at 42. This bracket 34 is similar in construction to the bracket or mounting 13 except that the post portion 35 thereof is provided with an axially extending slot 36 which extends from

the flanged head 37 of the post portion 35 to the boss 38; said head 37 and boss 38 being similar to the head 24 and boss 16 respectively.

The bracket 42 may be mounted on either the door 10 or on the support 11, as best fits conditions, and the coil 30 is then slipped over the post portion 35; the angled end 34 of the coil 30 being entered in the slot 36. The arm 31 is then twisted (to the left Fig. 5) until it extends to the left of the bracket 42. This action places the coil 30 under a slight compression. The angled end 32 of the arm 31 then bears on the door 10 or on the casing 11, depending upon whether the bracket 42 is mounted on the door 10 or on the casing 11, so that when the door is opened the spring coil 30 is further compressed. When the door is released the compressed or tensioned spring coil 30 tends to relieve itself and in so doing closes the door. The angled end 34 of the coil 30 being disposed in slot 36 prevents rotation of the coil 30 relative to the post portion 35 and the uppermost winding 39 of the coil 30 bears under the head 37 of the post portion 35 to prevent the coil 30 from jumping off the post portion 35 when compressed.

When it is desired to use the closer spring 29 with the arm 31 projected to the right of the bracket 42 the coil 30 may be turned upside down from the position in which it is shown in Fig. 5; the angled end 34 of the coil 30 then being disposed at the bottom of the coil 30 and penetrating to the bottom of the slot 36. The arm 31 may then be twisted to extend to the right of bracket 42 so that the angled end 32 of the arm 31 may bear upon the door 11 or upon the casing 11 depending upon whether the bracket 42 is mounted upon the door 10 or upon the casing 11.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. We, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claim.

Having thus described our invention what we claim as new and desire to protect by Letters Patent is:

A door closer comprising a mounting including a plate portion for attachment to a vertical support and including a post portion provided with an axially and vertically extending slot, a compression coil spring to fit about said extension consisting of a series of windings, said coil spring having a portion of one winding angled for insertion into said slot and having a portion projecting from one end winding, said slot being open at its upper end for the reception of said angled winding portion.

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