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DOOR SUPPORT AND CLOSER

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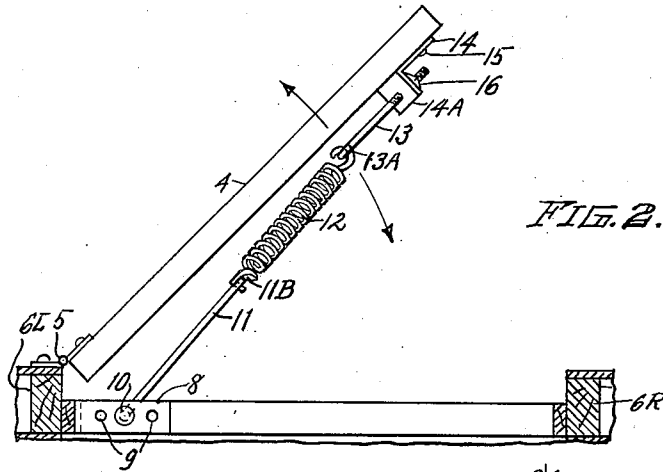


FIG. 2.

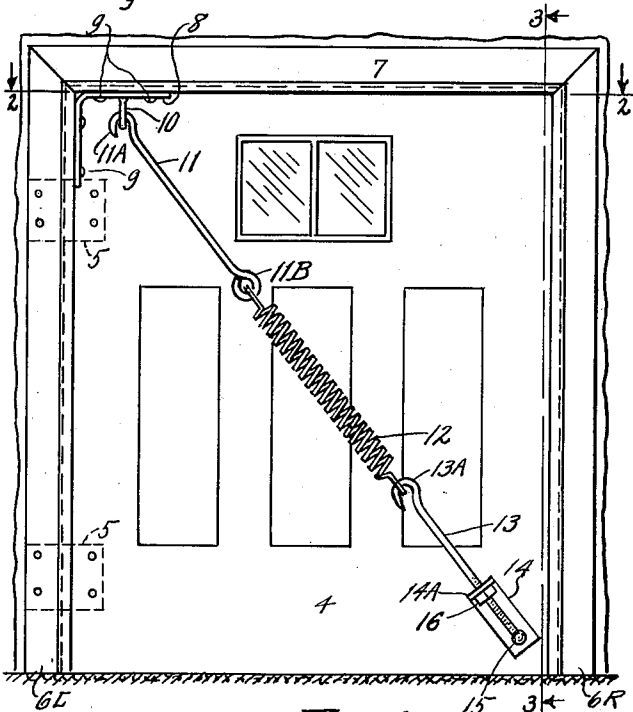


FIG. 1.

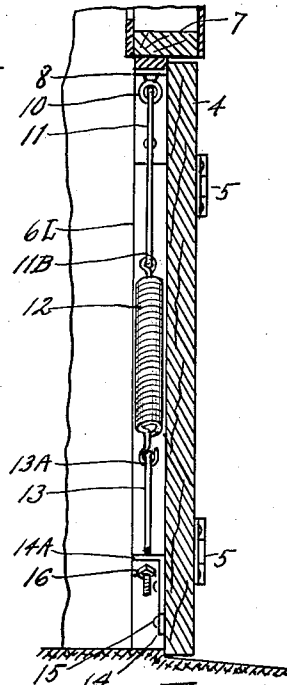


FIG. 3.

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DOOR SUPPORT AND CLOSER

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3 Claims. (Cl. 16—72)

My invention relates to a combination door support and closing device applicable particularly to large doors such as in garages, warehouses, boathouses etc., including gates. In all instances, except for gates and doors in outdoor construction, this improved device is not exposed to the elements.

The main object of the invention is to provide a highly efficient and inexpensive door support and closer as hereinafter fully described and as illustrated in the accompanying drawing which discloses a preferred construction as for a warehouse door or the like.

Fig. 1 is an interior elevation of a single door with my improved device in operative position. This door may represent one of a pair of garage doors.

Fig. 2 is a top view as one line 2—2 in Fig. 1 but showing the door opened about half way.

Fig. 3 is a vertical sectional elevation of the closed door looking toward its hinged edge from near its free edge, as on line 3—3 in Fig. 1.

Referring to the drawing by reference numerals, like characters designating corresponding parts in the various views, a single door 4 is shown, hinged at 5 to the jamb 6L of the door frame of which 6R is the right jamb and 7 is the lintel.

This door 4 may represent one of a pair of garage or warehouse doors or even a gate with frame means corresponding to a door frame.

8 is an L-shaped metal bracket fitting the adjacent inner corner parts of the door frame parts 6L and 7, affixed thereto as with screws 9 inwardly of and parallel to the closed door and adjacent its upper corner at the hinged side. This bracket is of a size to firmly brace this corner of the frame and from about the center of its horizontal arm extends downwardly an eye 10.

The main part of my invention comprises an elongated diagonal device embodying certain adjustable tension means and extends toward the lower corner of the door at its free edge.

Said tension device comprises an upper rod 11 with an open hook 11A for removably engaging the eye 10, the lower end of said rod having an eye 11B engaged by the upper end of a helical tension-coil spring 12. The lower end of said coil spring engages in an eye 13A at the upper end of an adjustment rod 13 the lower portion of which is threaded and said threaded part passing through an aperture in the transverse ear or arm 14A of a door bracket 14. Said bracket 14 is an inverted L-shaped flat bar metal member fixed as at 15 near the lower free corner of the door

at its inner side and in an angular plane such that the threaded rod is retained in the ear part 13A in alinement with the tension spring 12 and upper rod 11. A nut 16 engaging the threaded rod 13 under the ear 13A provides for adjustment of the rod 13 and any desired tension of spring 12 thus drawing members 11, 12, and 13 into taut but yieldable condition.

In Fig. 2 the door is shown opened about half way toward full opening position. Obviously the more the door is opened the greater the spring tension and when the door is released this spring tension will automatically close the door. The device should be in tension at all times for the dual purpose of closing the door and bracing it. With this device mounted and functioning as described a heavy door is properly braced and the sagging tendency is counteracted. The sagging strain otherwise present is taken up by the tension device connected to the frame bracket 8 which bracket also braces and steadies the door frame.

Large door hinges are eliminated by the use of this device, hinges only large enough for the weight of the door being necessary. Hitherto, in most instances large, elongated hinges have been used not only to counteract sagging tendency of a door but also to prevent distortion and breakage of door frame because of the weight on the latter. My device braces the frame as stated (independent of the hinge means) and removes a large part of the sagging strain from the hinges. Therefore the frame bracing and supporting means at the upper corner over the hinged edge of the door and the tension means extending diagonally therefrom to the lower free corner of a gate or door are particularly stressed as a useful, dual purpose combination. This device furthermore is necessarily mounted at the inner side of a door, is therefore normally not exposed to the elements and does not of course affect the exterior appearance of such door.

The use of my improved door device has been fully disclosed simultaneously with the above description of its preferred construction. Modifications in detail of construction and proportions of parts may be embodied without departing from the scope and spirit of the invention as disclosed and the following claims.

I claim:

1. A door support and closing device comprising a diagonally disposed, longitudinally adjustable and yieldable tension member at the inner face of a door, a door frame brace comprising an inverted L-shaped bracket secured to the door

jamb and lintel at the corner of the frame over the hinged edge of the door in parallelism with and interiorly of the door, an eye or the like extending downwardly from the horizontal arm of
 5 said bracket in predetermined spaced relation to the convergence of both arms of the bracket, said diagonal tension member pivotally connected to said eye, a bracket secured to the inside face of the door adjacent its lower free corner, means in
 10 said latter bracket to slidably and adjustably engage the lower part of the tension member, to vary the tension in the latter.

2. The structure specified in claim 1, in which said tension member comprises an upper rod with
 15 a hook engageable with said eye, and an eye at its other end, an intermediate member comprising a helical coil spring engageable with said latter end of the upper rod, a lower rod member threaded and slidably engaged in an aperture in said lower
 20 bracket, the lower end of said spring engageable with the upper end of the lower rod, said rods and spring normally in alinement and in tension, and a nut at the threaded end of the lower bar to regulate the tension.

3. A door frame brace and door supporting and closing device comprising a diagonally disposed elongated tension member adjacent the side of a door opposite its hinged side, a door frame brace comprising an L-shaped bracket fixed to the lin- 5 tel and jamb parts of the frame inwardly of the door at its upper corner over the hinged edge, a bracket fixed to the lower inside face of the door adjacent its lower free corner, said tension mem- 10 ber comprising an upper rod pivotally connected to said frame brace in spaced relation horizontally from the elbow of said bracket and inwardly of the inner face of the door, a lower rod slidably and adjustably retained in said lower bracket on the door, an intermediate close coiled tension 15 spring connecting said rod members under tension and normally in alinement therewith, and means for adjusting the tension, said pivotal connection of the upper end of the tension member offset as described from the inner face of the 20 door to increase tension in the member as the door is opened and provide door closing action.

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