No. 617,159. Patented Jan. 3, 1899.

D. HOGAN & F. McMAHON.

DOOR CLOSER.

(Application filed May 9, 1898.)

(No Model.)

Fig. 1.

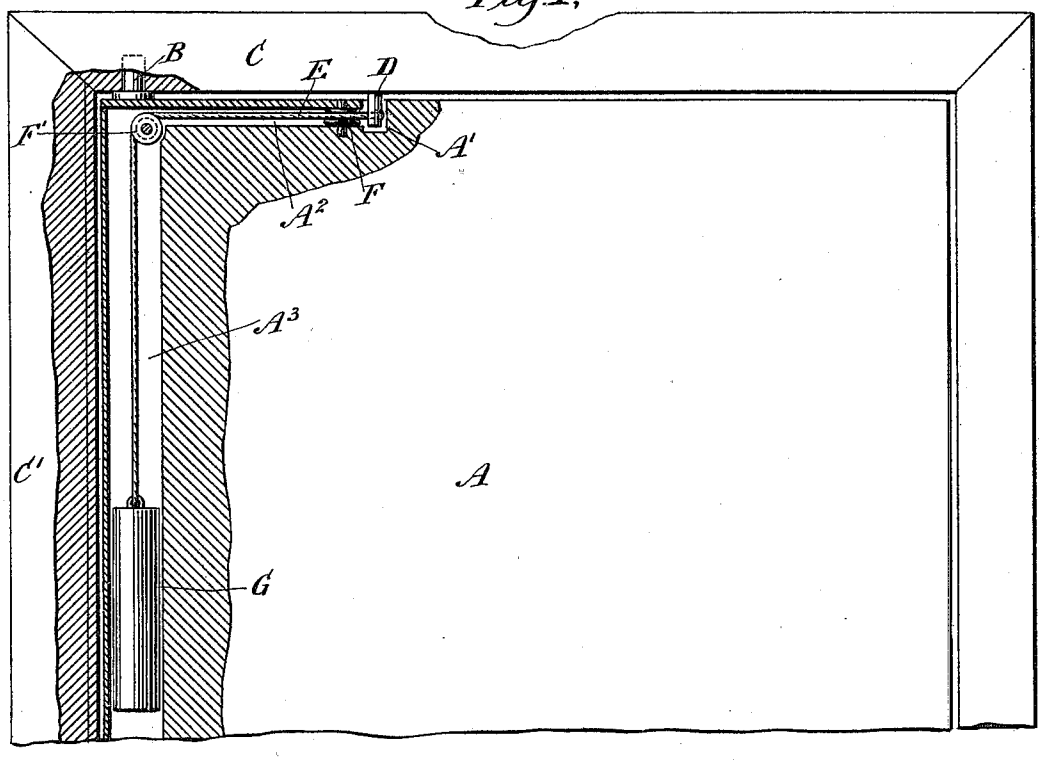


Fig. 2.

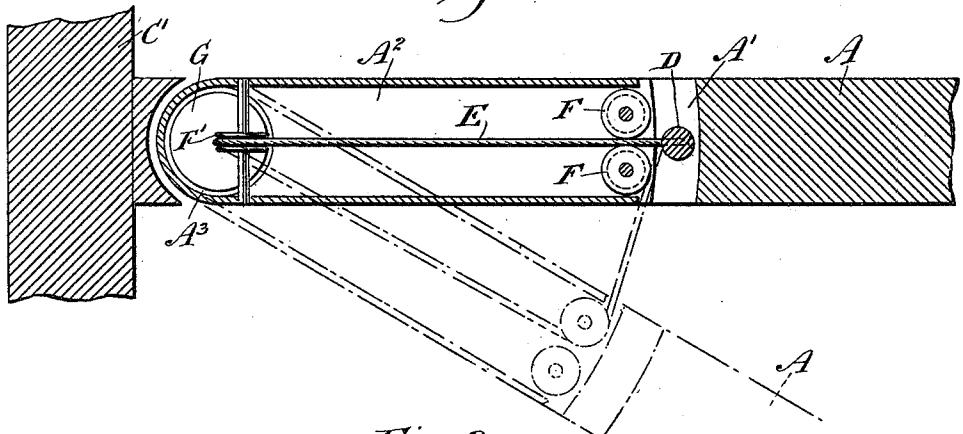
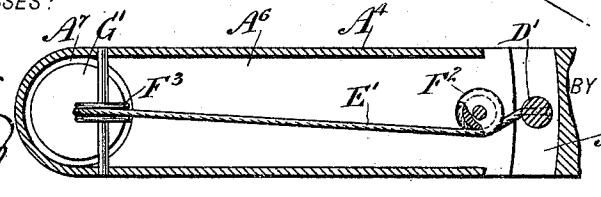


Fig. 3.



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UNITED STATES PATENT OFFICE.

DENIS HOGAN AND FRANK McMAHON, OF NEW YORK, N. Y.

DOOR-CLOSER.

SPECIFICATION forming part of Letters Patent No. 617,159, dated January 3, 1899.

Application filed May 9, 1898. Serial No. 680,173. (No model.)

To all whom it may concern:

Be it known that we, DENIS HOGAN and FRANK MCMAHON, both of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Swinging Doors, of which the following is a full, clear, and exact description..

The object of the invention is to provide certain new and useful improvements in swinging doors whereby a door can be readily swung inward or outward and on its release from either position swings automatically into a closed position in a very simple manner and without the use of expensive double hinges or the like now employed for the purpose.

The invention consists of novel features and parts and combinations of the same, as will be described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement, with parts in section. Fig. 2 is an enlarged sectional plan view of the same, and Fig. 3 a similar view of a modified form of the same.

The door A on which the improvement is applied is hung on vertically-disposed pivots B, engaging the top and bottom of the door-frame C, the upper pivot only being shown in the drawings, so that the door A can readily swing inward and outward. At the top of the door-frame C is secured a pin D, extending downwardly into a recess A′, formed transversely in the door, and to this depending pin is secured one end of a cord, chain, rope, or like flexible connection E, passing forwardly between two oppositely-arranged pulleys F, journaled in suitable bearings on the top of the door A and in a longitudinal recess A^2, leading from the recess A′ to a vertically-disposed bore A^3, arranged between the pivots B—that is, in axial alinement with the same. The flexible connection E extends from the pulleys F through the recess A^2 and then passes over a pulley F′, so as to hang down in the bore A^3 and support at its lower end a weight G, which is free to rise and fall in the said bore. It is evident that the weight G exerts a pull on the flexible connection E and firmly holds the door A in a closed position, as the said flexible connection is connected with the pin D, normally extending into the recess A′ at the middle of the door. When the door is swung inward or outward, the pulleys F in moving with the door engage the flexible connection, and as the latter is fastened to the pin D it is evident that the weight G is drawn up in the bore A^3, owing to the movement given to the flexible connection by the corresponding pulley F. As soon as the door is released after it has swung into an open position then the weight G causes a closing of the door—that is, swings it back to its former normal position, owing to the pull of the weight G on the flexible connection E, attached to the fixed pin D. Thus the pulleys F and F′ form a bearing for the flexible connection E, so that the latter and the bearing, together with the pin D, act as a lever on the door to swing the same shut after the opened door is released. It is understood that when the door is swung in one direction the flexible connection E engages one of the pulleys F, and when the door is opened in the opposite direction then the said flexible connection engages the opposite pulley F. If desired, a single pulley F^2 may be employed for the same purpose, as indicated in Fig. 3. In this case, however, the flexible connection E′ is wound once or several times around the pulley F^2, the outer end being attached to a pin D′, depending from the door-casing into a recess A^5 in the door A^4. The flexible connection E′ extends from the pulley F^2 through a recess A^6 and then passes over a pulley F^3 and hangs down in a bore A^7, in which the weight G′, attached to the lower end of the flexible connection, moves freely.

Now by the construction described the door on being opened causes the flexible connection E′ to wind and unwind on the pulley F^2, so that when the door is released the weight G′ causes a return of the door to its normal position.

It will be seen from the foregoing that the device is very simple and durable in construction, and as the several parts are preferably inclosed within the door they are not visible from the outside and are not liable to get out of order.

We do not limit ourselves to the particular construction described, as it is evident that the same can be varied without deviating from the spirit of the invention. It is further understood that the weight G or G′ is increased or decreased according to the force required to properly close the door after it has been swung into an open position and released, as above mentioned.

As shown in Fig. 2, the pivotal end of the door is preferably rounded off to fit into a correspondingly-shaped recess formed on a bead C′, secured to the door-casing.

It is understood that this device can be readily used as a door-closer on any single or double door hung on butts. The arrangement can be reversed by placing the pin on the swinging door and the flexible connection on the door-casing.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A swinging door provided with a bearing extending on the top of the door at or near the pivoted end thereof, a flexible connection engaging the said bearing, a pin secured to the door-casing and engaged by the said connection, and a weight on the inner end of the flexible connection and held to rise and fall in a vertical bore in the door, the bore being arranged in axial alinement with the pivots on which the door is hung, substantially as shown and described.

2. A swinging door provided with a bearing in the form of two pulleys placed a distance apart and journaled in the top of the door, a flexible connection passing over said pulleys, a weight on one end of the flexible connection and arranged to rise and fall in a bore in the door, and a pin secured to the door-frame and engaged by the outer end of said flexible connection, substantially as shown and described.

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