

(No Model.)

W. H., C. E. & A. F. GIWITS.
DOOR SPRING.

No. 462,699.

Patented Nov. 10, 1891.

Fig. 1.

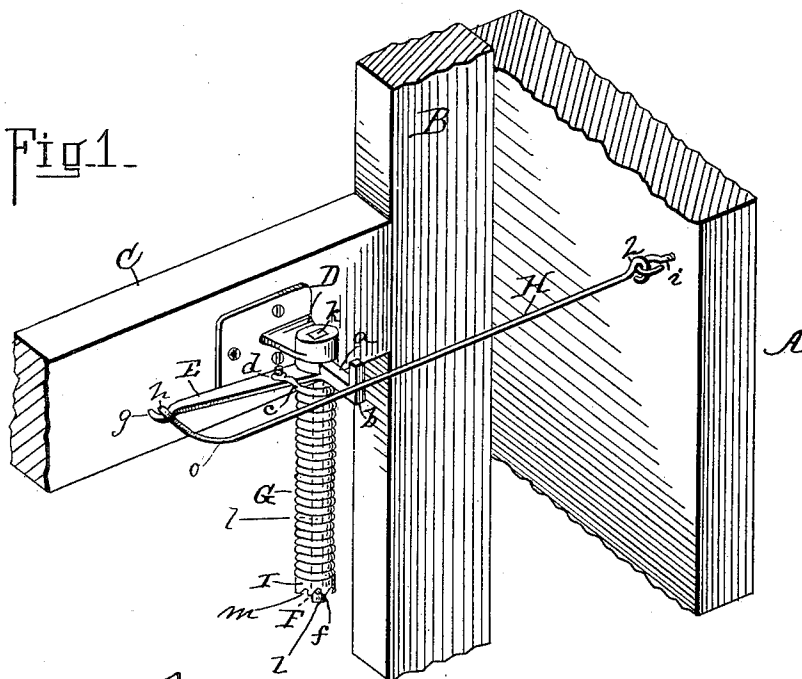
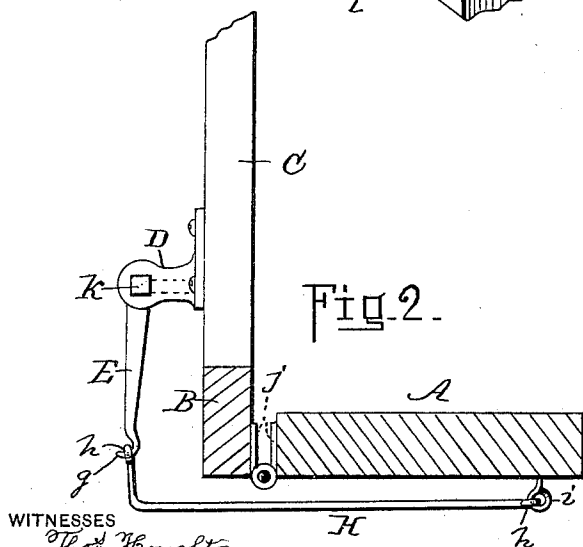


Fig. 2.

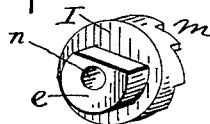


WITNESSES

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Fig. 3.



INVENTORS.

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UNITED STATES PATENT OFFICE.

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DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 462,699, dated November 10, 1891.

Application filed April 23, 1891. Serial No. 390,087. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. GIWITS, CHARLIE E. GIWITS, and ALBERT F. GIWITS, citizens of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Door-Springs; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of the middle portion of a door and door-jamb, the door being closed, with our invention applied thereto. Fig. 2 is a top view of the same, the door being opened. Fig. 3 is a perspective view of the tension-button used at the lower end of the spring.

Our invention relates to door-springs; and it consists in a novel arrangement of the spring and attachments.

In the drawings, A represents a door-jamb; and B a door having the cross-bar C.

D is a supporting-bracket for the spindle F, which is firmly attached to the bracket at *h*.

G is a spiral spring surrounding the spindle, its upper end *c* being secured to lever E at *d*, and its lower end to the inner projection *e* of the tension-button I. The lower end of the spindle passes through hole *n* of the tension-button, moving freely in it, and on the outer side of the tension-button are the teeth *m*, which engage with the locking-pin *f*, passing through the lower end *l* of the spindle.

E is a lever pivotally attached to the spindle, having the hook *g* at its end, with which engages the connecting-rod H, having the eyes *h h*, its other end being attached to the jamb by the screw-eye *i*. *a* is a short arm attached to the lever, having the stop *b*, which checks the movement of the connecting-rod

at a suitable point as the door closes. The connecting-rod is bent at *o*, so as to make the draft of the spring in line with the face of the jamb when the door is fully opened. 50

It is obvious that by the tension-button the door-spring may be set at any desired tension, and that by the length of the stop-arm the motion of the lever in closing the door may be checked at any desired point. 55 Both the stop-arm and the tension-button may be omitted without altering our invention, and in the latter case the spring would be attached to the spindle.

In our device the lever or crank points, 60 when the door is closed, in a direction opposite to the draft of the connecting-rod, and is, substantially, parallel to it, and it would be on a dead-center if the connecting-rod were straight; but the connecting-rod is bent, 65 so that the lever is slightly removed from a dead-center, and yet so that the draft required to move the lever against the resistance of the spring must be stronger than that required when the lever is in any other position, whereby our device is strongest and most effective when the door is closed. The position of the lever when the door is closed may be regulated by the length of the stop-arm. The bent connecting-rod has the additional function of allowing the door to come to or beyond a dead-center when fully opened, which result is accomplished by so locating the bend that it just passes the jamb, whereby the draft of the spring holds it securely in 80 position, as shown in Fig. 2.

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

1. In a door-spring, the combination of the 85 connecting-rod, bracket, spindle, spiral spring, and pivotally-attached lever, extending in a direction opposite to the draft of the connecting-rod and slightly removed from a dead-center, substantially as shown and described. 90

2. A door-spring consisting of a connecting-rod, a supporting-bracket, a spindle rig-

idly attached to the bracket, a tension-button
adjustably attached to the spindle, a spiral
spring surrounding the spindle and attached
at one end to the tension-button and at the
5 other end to the lever, and a lever pivotally
attached to the spindle and extending in a
direction opposite to the draft of the connect-
ing-rod and slightly removed from a dead-cen-
ter, substantially as shown and described.

In testimony whereof we affix our signatures to
in presence of two witnesses.

WILLIAM H. GIWITS.
CHARLIE E. GIWITS.
ALBERT F. GIWITS.

Witnesses:

H. N. ALLEN,
ALEX. MCKNIGHT.