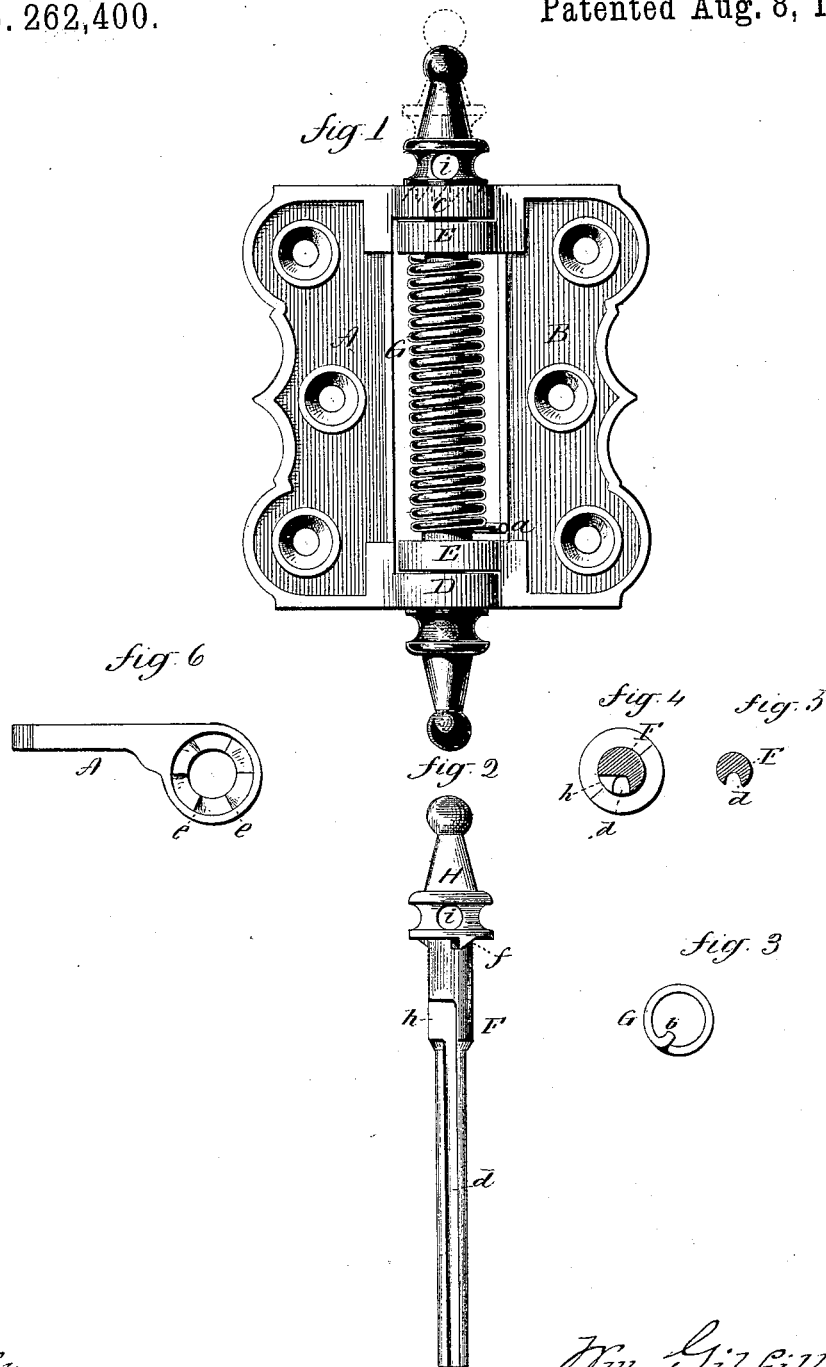


(No Model.)

W. GILFILLAN
SPRING HINGE.

No. 262,400.

Patented Aug. 8, 1882.



Witnesses:
J. A. Shumway
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UNITED STATES PATENT OFFICE.

WILLIAM GILFILLAN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO
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SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 262,400, dated August 8, 1882.

Application filed February 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GILFILLAN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Spring-Hinges; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same,
10 and which said drawings constitute part of this specification, and represent, in—

Figure 1, a face view; Figs. 2, 3, 4, 5, and 6, detached views.

This invention relates to an improvement in
15 that class of spring-hinges in which a spiral spring is arranged on the pintle so as to apply its force between the two leaves of the hinge. In the usual construction the spring is applied so that its force cannot be removed from the
20 spring without entirely disconnecting the spring, and must generally be in place and force applied before the hinge is attached, and when once applied the force of the spring remains so long as the spring lasts, it being generally impossible to remove the force of the
25 spring without destroying the hinge for use as a hinge.

The object of this invention is to construct the hinge so that the force of the spring may
30 be applied or removed at pleasure without interfering with the capacity of the hinge as a hinge, and also so that the power of the spring may be increased or diminished at will; and it consists in the construction as hereinafter described, and particularly recited in the claims.

A represents one leaf, and B the other, of a hinge, the one, A, constructed with ears C D, the other with corresponding ears, E E, through
40 which the pintle extends, so that the leaves may turn in the usual manner for other hinges.

F is the pintle. (Shown detached in Fig. 2.) This is constructed to pass down through the respective ears and form a bearing on which the hinges will turn, and around which the
45 spring G is arranged, one end, *a*, of which bears upon one leaf, B, of the hinge. The other end, *b*, is turned inward, as seen in Fig. 3, toward the pintle. In order that the pintle may pass down without interference with this turned-in end *b*,
50 a longitudinal groove, *d*, is made in the pintle,

as seen in Figs. 2, 4, and 5. The end *b* of the spring lying in the groove of the pintle applies the force of the spring between the pintle and the leaf B so that turning that leaf will, through the connection of the spring with the pintle,
55 turn the pintle accordingly; but if the pintle be held so as not to be turned, then the spring will be wound to the extent to which the leaf may be turned, the reaction of the spring causing the return of the leaf B. To engage the pintle
60 with the other leaf, A, so that the force of the spring may be applied, I make one or more notches or shoulders, *e*, in the outer surface of the ear C, around the pintle-opening, as seen in Fig. 6, and on the under side of the head H
65 of the pintle I form one or more corresponding projections, *f*, as seen in Fig. 2. The shoulder on the pintle engaging the corresponding shoulder *e* on the leaf A will prevent the pintle from being turned. Hence when the leaf B is turned
70 the leaf A, if it be held, will resist that turning to the extent of the power of the spring. If the power of the spring be not desired, lift the pintle, as seen in broken lines, Fig. 1, until the shoulder *f* thereon is disengaged from the cor-
75 responding shoulder on the leaf, then the pintle will turn with the part B without any force or effect upon it by the spring, the length of the pintle and its extension through the opposite ears of the other two parts being sufficient
80 to permit this removal. If the power of the spring is not sufficient, it may be increased by turning the pintle from one notch to the next, or other advance notches, until the requisite
85 power of the spring is applied. To permit such turning to be readily made the reverse side of the shoulder is inclined, as indicated in Figs. 2 and 6, so that the shoulder on the pintle works in connection with the shoulder on the
90 leaf like a pawl and ratchet.

The pintle may be entirely removed, the two parts of the hinge attached respectively one to the stationary parts and the other to the swinging door, or whatever it may be, then the two set together, and the pintle inserted and
95 turned to give the required tension to the spring, as before described; or, if the power of the spring is not required, raise the pintle until it is disengaged from its connection with the leaf A—that is, bring the shoulder on the pintle
100

above the shoulder on the ear, and the spring will be free, and the hinge permitted to operate like an ordinary butt-hinge without springs.

To prevent the pintle from working upward, as it might do were it not in some manner secured, I make a transverse notch, *h*, from the groove *d* in the pintle, as seen in Figs. 2 and 4, into which the end *b* of the spring will pass and take its bearing out of line with the groove in the pintle. Hence so long as the end of the spring bears in that notch the pintle cannot work upward or in an axial direction, because the lower side of the notch will strike the under side of the end *b* of the spring and prevent such movement; but the notch should be of sufficient length to permit the necessary axial vertical play of the pintle in turning it to tighten or increase the tension of the spring.

As a convenient means for turning the pintle, a perforation, *i*, is made through the head of the pintle for the insertion of a turning-pin, or, if preferred, it may be polygonal for the application of a wrench.

Other means may be applied for holding the pintle to the leaf on which the spring does not bear, so that the force of the spring will be applied to that leaf—as, for instance, a pin may be introduced through the ear and the pintle whenever the pintle is in place. Then to adjust the pintle or disengage the spring the pin must be removed.

Instead of making the groove from the lower end of the pintle upward toward the head, the lower part or the pintle—say as from the enlargement under the neck, as seen in Fig. 4—may be made of so small a diameter that it will readily pass down through the spring-coil, free from the turned-in end *b*, the longitudinal groove and transverse notch *h* being made in the larger part of the pintle, as seen in Fig. 2, so as to pass into and engage the end *b* of the spring; yet I prefer to make the groove the entire length of the pintle, as shown.

I am aware that spring-hinges have been made with the spring engaged with the pintle and one leaf, the pintle made adjustable so as to increase or reduce the tension of the spring. Hence I do not wish to be understood as claiming broadly such a hinge, or any of the parts, except as in the combination hereinafter recited.

I claim—

1. In a spring-hinge, the combination of the leaves constructed with their respective ears C D and E E with pintle F, having a longitudinal groove, *d*, and extending through the ears to form a bearing on which the leaves will turn, a spiral spring around said pintle and between the ears of the one part, one end bearing upon one leaf, the other end turned inward and extending into the groove of the pintle, the head of the pintle and the corresponding gear, C, of the leaf upon which the spring does not bear constructed with engaging shoulders, whereby the tension of the spring may be adjusted or entirely removed, substantially as described.

2. In a spring-hinge, the combination of the leaves constructed with their respective ears C D and E E, the pintle constructed with the transverse notch *h*, and extending through the ears to form a bearing upon which the leaves will turn, a spiral spring around said pintle and between the ears of the one part, one end bearing upon one leaf, the other turned inward and taking its bearing in the notch *h* of the pintle, and shoulders *e* on the leaf upon which the spring does not bear, and corresponding shoulder, *f*, on the pintle to engage the said pintle with the said leaf, substantially as described.

WILLIAM GILFILLAN.

Witnesses:

WM. S. COOKE,
WM. F. BISHOP.