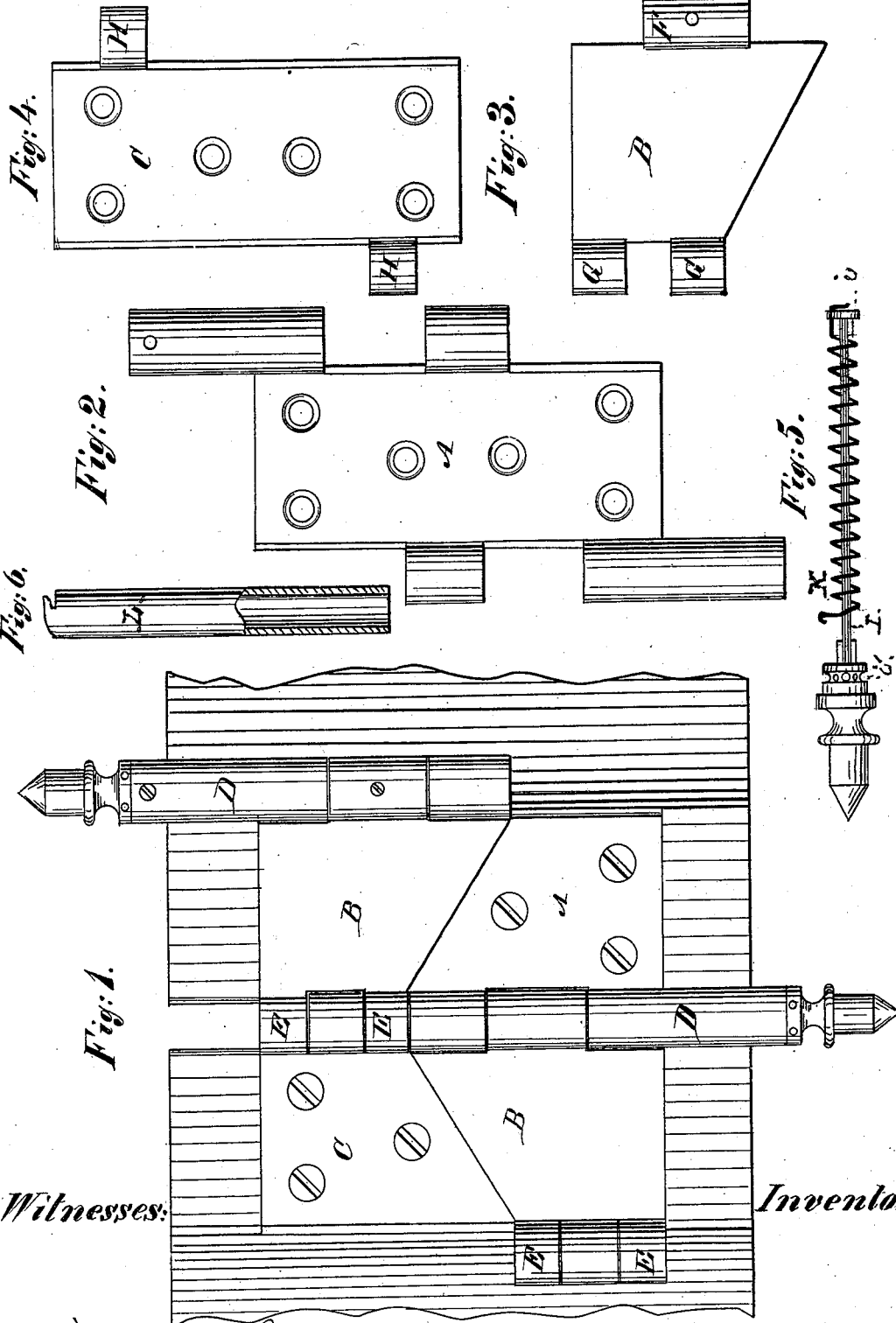


G. Z. HOUSE.  
Combination Spring Hinge.

No. 167,900.

Patented Sept. 21, 1875.



Witnesses:

Inventor:

*William H. Gardner*  
*Charles H. Peyer*

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# UNITED STATES PATENT OFFICE.

GARRETT Z. HOUSE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF HIS  
RIGHT TO ORSON A. HOUSE, OF SAME PLACE.

## IMPROVEMENT IN COMBINATION SPRING-HINGES.

Specification forming part of Letters Patent No. 167,900, dated September 21, 1875; application filed  
August 6, 1875.

*To all whom it may concern:*

Be it known that I, GARRETT Z. HOUSE, of the city, county, and State of New York, have invented certain new and useful Improvements in Combination Spring-Hinges, which are set forth in the following specification, reference being had to the accompanying drawings, which form a part thereof.

The object of my invention is to construct a cheap and practical hinge or butt that will swing a door both ways through the jambs or casings, and hold it closed when at rest, at the same time swing on each alternate corner of the casing, and attach itself firmly to the same at every point of its swing, thus preventing danger of any settling or sagging.

The first part of my invention consists of a double-acting spring-hinge or butt formed of two outer plates or leaves and a sectional center-plate, divided diagonally, with springs connecting the first or main plate on each edge with one end of the sectional center-plates, the other end of the center-plates being hinged to the third plate, as shown in Fig. 1.

The center sectional plate is divided diagonally, as shown in Fig. 1, B B, thus forming an extended spring-joint on both sides, and attaching the same to the first or main plate by springs in knuckles E E. Both of the mainsprings of the hinge are attached to the same or main plate, and act directly and conjointly in holding it within the jamb in a direct line, thus affording a combined supporting power of the two springs, and preventing the door from settling or sagging.

I thus relieve the strain upon the screws and casing, and hold the door in its place, when at rest, by the joint action of the springs, acting on both sides alike. I also obtain a large space in which to use the springs.

The knuckles forming the hinge connecting these plates receive the tubular pintles in which are placed the compound or combination springs. These knuckles should be extended on each side beyond the plates to the distance required to give strength to the springs.

The second part of my invention consists of the combination of torsion and spiral spring,

constructed and made to operate within the tubular pintles, as shown in Fig. 5, and these combined springs are applicable to double or single spring-hinges.

The torsion-spring I construct of two or more leaves of thin flattened steel, like a clock-spring, fastened together, and made to act within the spiral spring, the two springs being connected together at the inner end by means of a small socket-head, made to fit and move easily within the tubular pintle, thus allowing the contraction or extension of the springs and their withdrawal, when required, for examination or repairs. By twisting on the outer end of the torsion-spring it acts on the spiral spring, and vice versa. The torsion-spring passing completely through the spiral spring, the outer end is attached to the ratchet-nib, as shown in Fig. 5. The outer end of the spiral spring is connected by a small hook to the tubular pintle, which is connected to the sectional center-plates, and by them to the third plate, and the torsion-spring being attached by the ratchet-nib to the first plate, the two springs thus act together, and form a compound or combination spring, acting within the tubular pintle in the manner above described and shown by drawings.

My combination or compound spring, thus formed, possesses the force and elasticity of the two springs combined and acting within each other. I thus utilize my space and get double power.

This spring may be applied to all butts and hinges, both single and double acting. They may be removed for examination or repair by unscrewing the ratchet-nib on the outer end and withdrawing it, without disturbing the action of the door.

Figure 1 is a front view of the hinge as put together and in operation. It shows the door fully open, exposing the two sectional center-plates B B and parts of the first plate A and third plate C, the springs D D, and hinge-knuckles E E, connecting with third plate C. Fig. 2 shows the first or main plate A separated from hinge and connections with middle sectional plate B B. Fig. 3 represents the two middle sectional plates B B, with knuckles for the connections F with first plate, and

hinge knuckles or connections G G with last plate. Fig. 4 represents the third plate C with hinge-knuckles H H. Fig. 5 represents the compound or combination torsion and spiral springs I and K, respectively, with the socket-head fastening *i* and ratchet-nib *i'*. Fig. 6 represents the tubular pintle L, in which the compound or combination spring D works.

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

1. The combination and arrangement of the diagonal center-plates B B, giving an increased length of springs, and acting, by the compound or combination springs D D, on first plate A, and, by hinge knuckles or connections G G, on third plate C, forming a hinge held at every

point of its action to either one of the corners of the casing, as set forth and described herein.

2. The combination and arrangement of the torsion and spiral springs I and K, respectively, the one acting within the other, and connected at the inner end by means of a suitable socket-head, *i*, and fastened, respectively, to the two outer plates, forming a compound or combination spring, D, acting within the tubular pintle L, in the manner described and shown, and for the use and purpose hereinbefore set forth.

GARRETT Z. HOUSE.

Witnesses:

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