No. 672,521. Patented Apr. 23, 1901.

G. L. COOPER & W. M. KIRKPATRICK.

SPRING HINGE.

(Application filed Aug. 17, 1900.)

(No Model.)

Fig. 1.

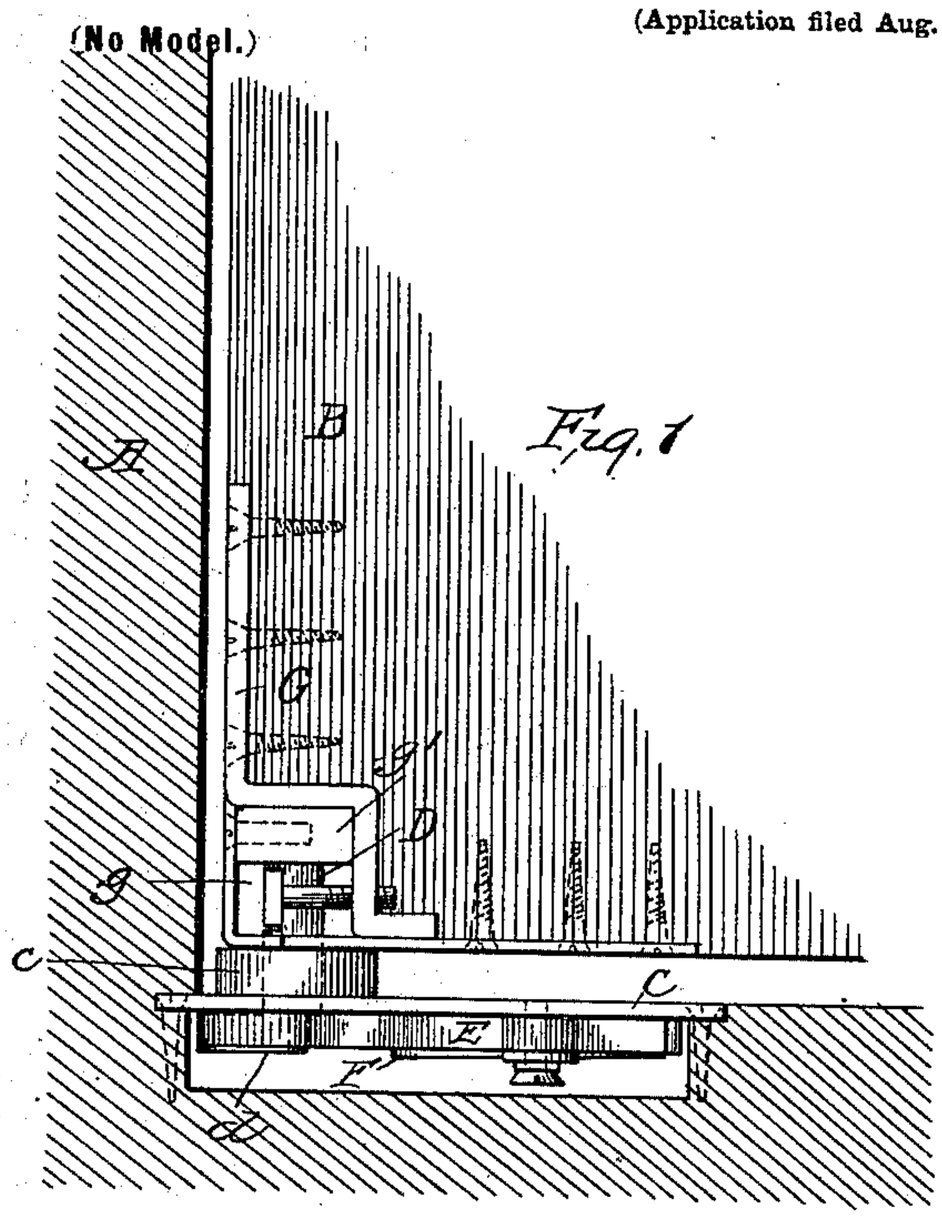


Fig. 2.

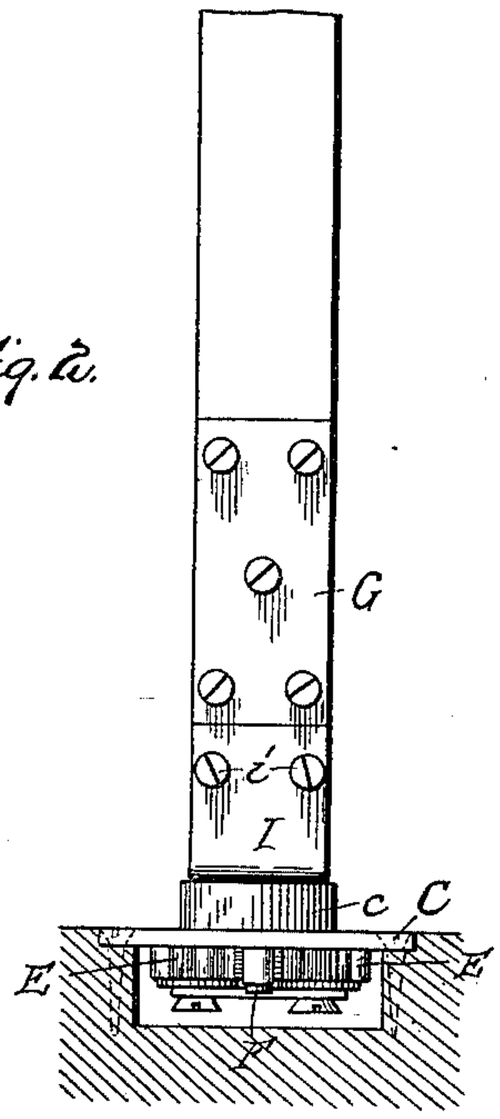


Fig. 3.

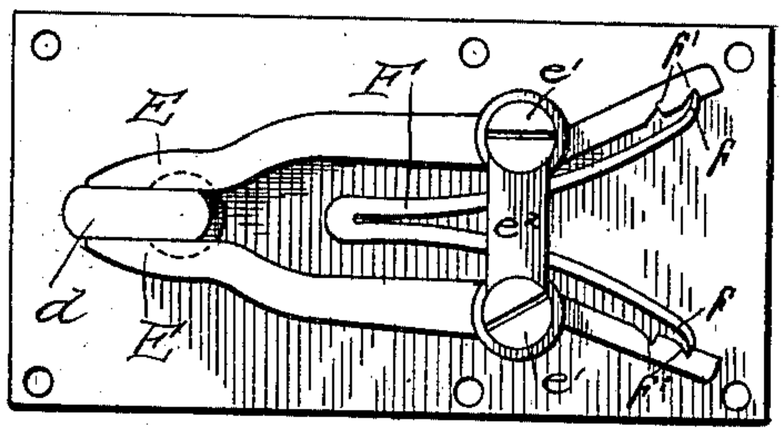
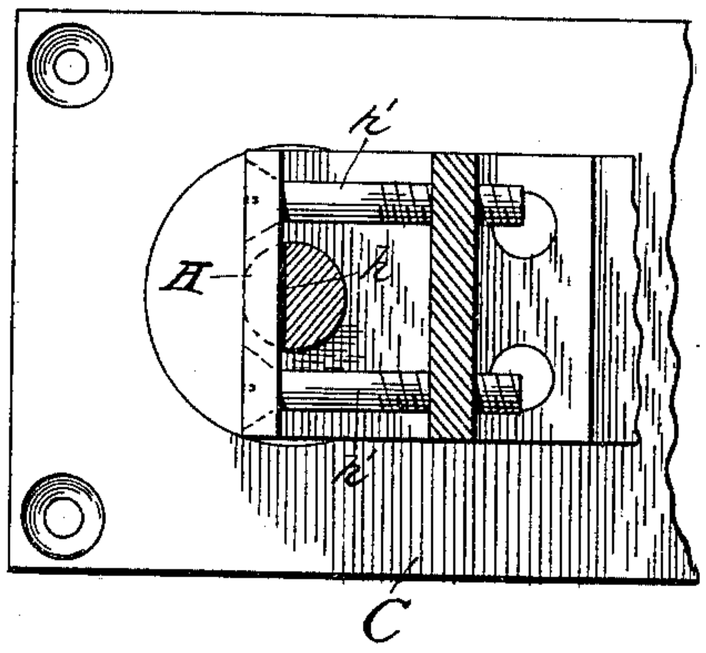


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE L. COOPER AND WILLIAM M. KIRKPATRICK, OF SHELBY, OHIO, ASSIGNORS OF ONE-HALF TO JONAS FEIGHNER, OF SAME PLACE.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 672,521, dated April 23, 1901.

Application filed August 17, 1900. Serial No. 27,182. (No model.)

To all whom it may concern:

Be it known that we, GEORGE L. COOPER and WILLIAM M. KIRKPATRICK, citizens of the United States, residing at Shelby, Ohio, have invented certain new and useful Improvements in Double-Acting Spring-Hinges, of which the following is a specification.

Our invention relates to improvements in double-acting spring-hinges; and the object of the invention is to provide a hinge which may be easily and quickly applied and which will present no unsightly appearance in use.

We have further aimed to provide an extremely simple construction in which the tension of the spring may be easily adjusted and the door may be adjusted to cause it to come to rest exactly in the center of the doorway, the adjustment being effected without necessitating the taking down of the door.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a sufficient portion of a door to illustrate its application. Fig. 2 is an end view. Fig. 3 is a plan view looking from the under side of the device shown in Fig. 1 and disclosing the spring actuating mechanism and the means whereby it is supported in the casing and operatively connected to the door spindle or pivot; Fig. 4, a detail of the adjusting means.

In the drawings, A indicates a portion of a doorway, and B a portion of a door. A slight cavity or recess is made in the door-sill to receive a spring, hereinafter described, which is carried on the under side of the base-plate C, which rests flush with the surface of the sill. This plate carries a bearing *c*, which sustains the weight of the door. A pivot-pin D is secured to the door so as to turn therewith, and this pin extends down through the bearing and is provided on its end beneath the base-plate with a laterally-extending elongated portion or abutment *d*. Two spring-actuated arms E are used, which at one end lie against opposite sides of the abutment *d*, while their opposite ends are forced normally apart by the outwardly-extending arms of a V-shaped spring F. The intermediate portions of the arms E are pivotally mounted upon pivot-pins *e'*, secured to the under side of the base-plate. The bridge-piece e^2 extends across from one pivot-pin to the other, (these pins being preferably in the shape of screws,) and this bridge-piece serves to confine the V-shaped spring in position between the plate C and said bridge-piece. The ends of the spring are turned outwardly, as shown at *f*, and rest in notches *f'* in the arms E. By making a plurality of these notches the tension of the springs may be varied by causing the ends *f* to engage notches nearer the pivot-points of the arms. It will thus be seen that as the door is swung in either direction the abutment will act against one or the other of the arms, forcing it out against the tension of the spring, which thus tends to return the door to its normal position.

In order to provide a convenient means for connecting the pivot-pin C to the door, we preferably use a corner-iron G of the shape shown, secured to the door by screws. An open portion *g* is thus provided, through which the pivot-pin extends, its upper end being rotatably seated in the metal block *g'*, screwed to the corner-iron. The pivot-pin has a flattened face *h* where it passes the open portion of the corner-iron, and a small metal bar H rests against this flattened face, the ends of the bar being connected by screws *h'* with the lower portion of the corner-iron. It will thus be seen that this bar and the screws connect the pin rigidly with the corner-iron and that by loosening one screw and tightening the other the relative position of the door and pivot-pin may be adjusted.

The heads of the screws are connected by a removable plate I, secured in place by screws *i*, its lower end being turned inwardly and abutting against a bottom edge plate K and forming therewith a bearing-surface upon which the door turns.

It will be understood that, if desired, the hinge might be applied as well to the upper corner of the door, the application being precisely the same, except, of course, that the parts would be turned upside down, so that the terms "upper" or "top" and "lower" or "bottom" are convertible terms.

We claim—

1. In combination with a door, a base-plate in line with the corner thereof, a pivot-pin secured to the door and extending through

an opening in the base-plate, arms pivoted beneath the base-plate and bearing against opposite sides of said pin, said pin having flattened portions or abutments and a V-shaped spring exerting tension on the opposite ends of said arms, substantially as described.

2. In combination with a door, a base-plate in line with the corner thereof, a pivot-pin secured to the door and extending through an opening in the base-plate, arms pivoted beneath the base-plate and bearing against opposite sides of said pin, said pin having flattened portions or abutments, a V-shaped spring bearing against said arms, and means whereby said spring may be adjusted in its relation thereto, substantially as described.

3. In combination, the pivot-pin adapted to be secured to the door, the base-plate through which said pin extends, pivoted arms carried by said base-plate and embracing opposite sides of said pin, a V-shaped spring having its ends engaging notches in the opposite ends of said arms and a bridge-piece for confining said spring in place, substantially as described.

4. In combination with the door, a corner-iron, a base-plate, a pin carried by said corner-iron and extending through the base-plate, means carried by the base-plate for applying spring tension to the said pin, a bar bearing against a flattened portion of the pin and screws connecting the ends of said bar with the corner-iron, substantially as described.

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

GEORGE L. COOPER.
WILLIAM M. KIRKPATRICK.

Witnesses:
M. S. RICKEL,
S. F. STAMBAUGH.