

(No Model.)

M. REDLINGER.  
SPRING HINGE.

No. 443,057.

Patented Dec. 16, 1890.

Fig. 1.

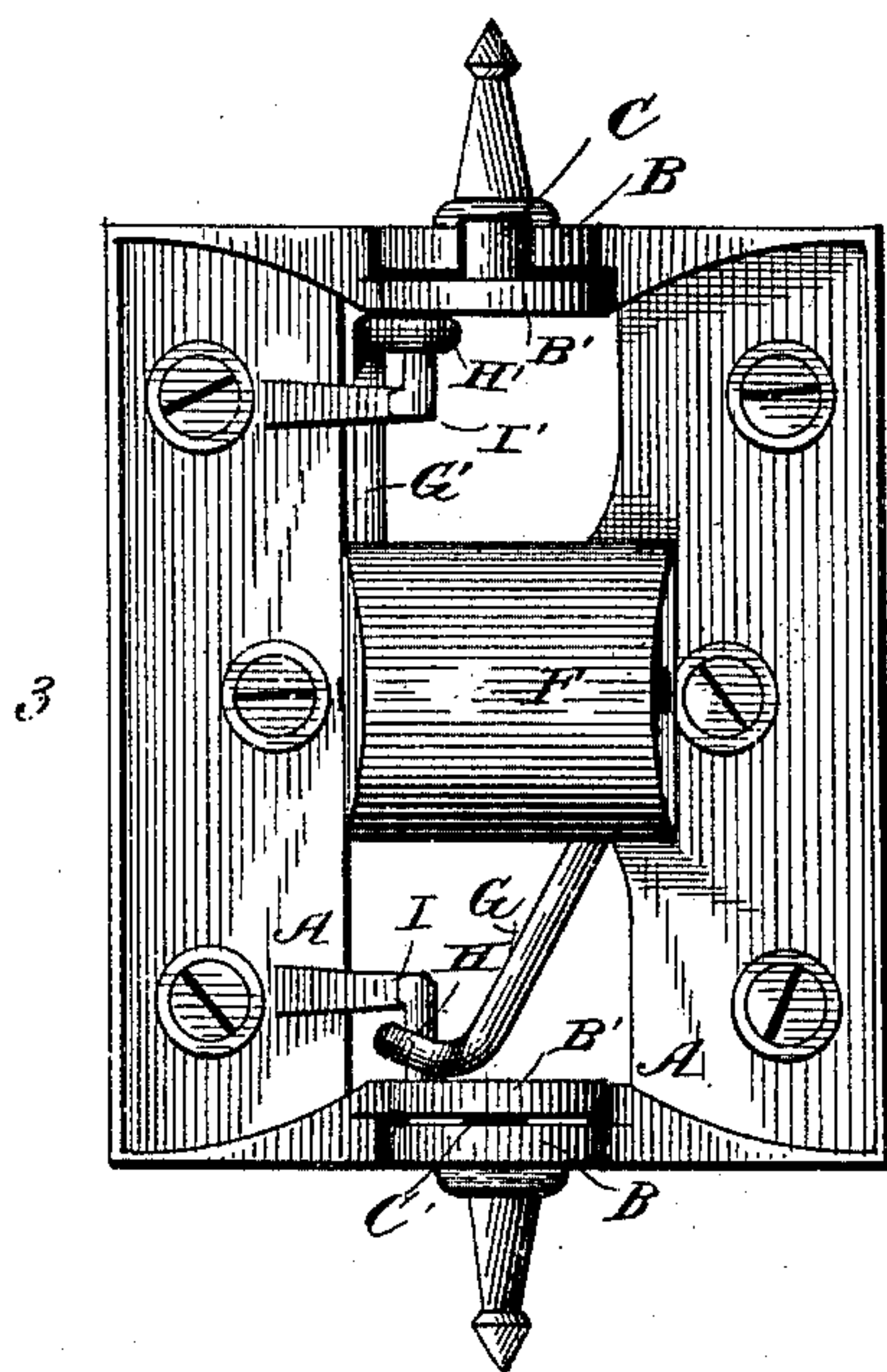


Fig. 2.

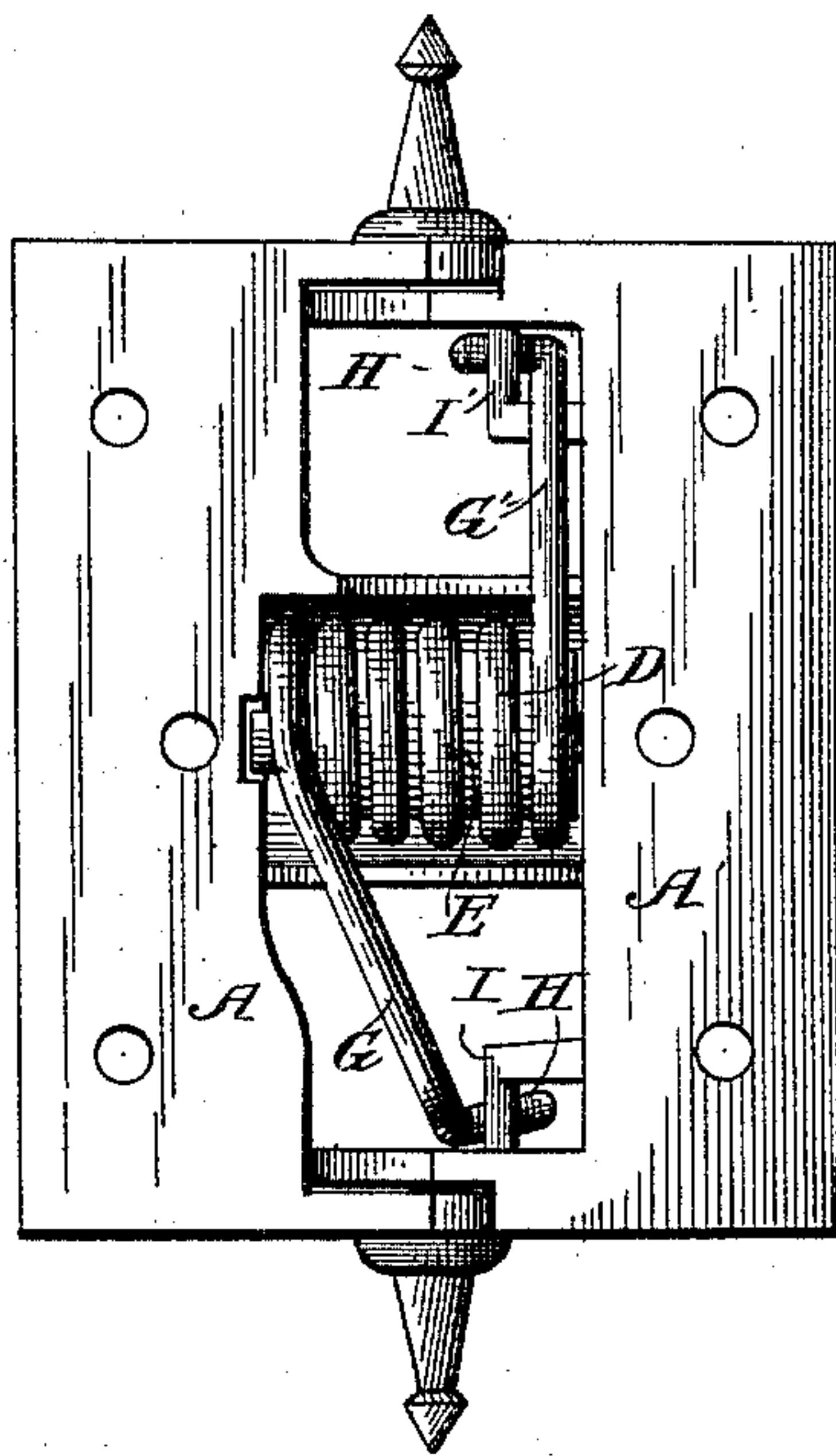
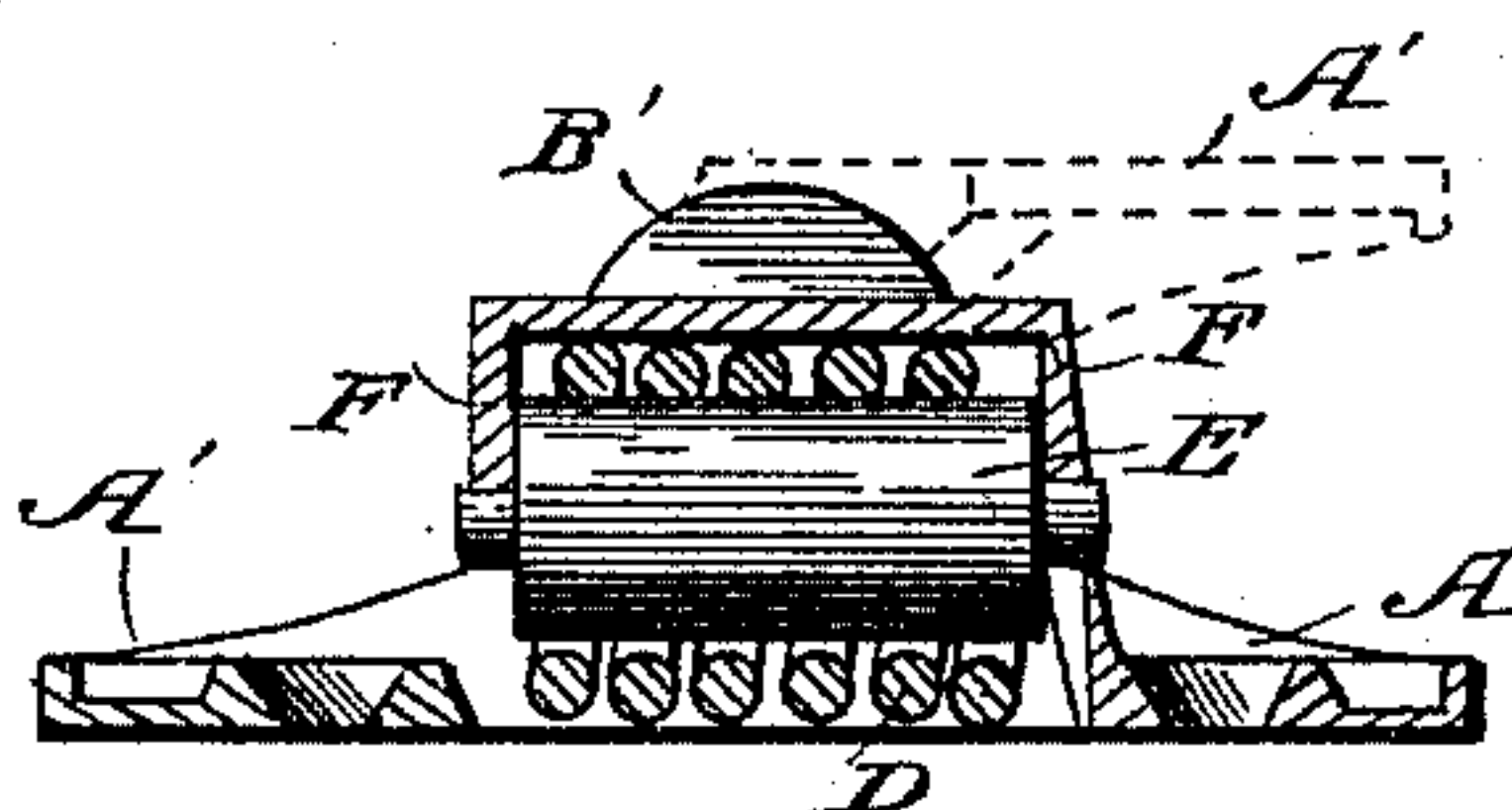


Fig. 3.



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# UNITED STATES PATENT OFFICE.

MICHAEL REDLINGER, OF FREEPORT, ILLINOIS, ASSIGNOR TO CHARLES MORGAN, ALBERT BAUMGARTEN, AND EDGAR H. MORGAN, ALL OF SAME PLACE.

## SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 443,057, dated December 16, 1890.

Application filed August 14, 1890. Serial No. 361,976. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL REDLINGER, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented  
5 certain new and useful Improvements in Spring-Hinges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable  
10 others skilled in the art to which it pertains to make and use the same.

My invention is in spring-hinges that when the door is opened beyond a certain point reverse and then tend to throw the door still farther open.

15 In the accompanying drawings, Figure 1 is a plan of the hinge. Fig. 2 is a plan of the opposite or inner side of the same. Fig. 3 is a section on the line 3 3, Fig. 1.

The body of the hinge consists of two leaves  
20 A A', connected at each end by ears B B', provided with short pintles C C' at some distance from that face of the hinge that in use rests against the door and casing. Between the pairs of ears lies a spring D, coiled about  
25 an arbor E, lying in a plane transverse to the pintle-line. The arbor is mounted in a frame F, rigidly connected with the leaf A, and preferably so formed as to cover the outer side of the coil. Through this arbor alone  
30 the power of the spring is exerted upon the leaf A. The arbor-bearings may be complete circles in cross-section, or may be open upon the inner side to permit casting without cores. The ends G G' of the coil project op-  
35 positively upon opposite sides of the spring, and are bent into hooks H H', which engage, respectively, rods or loops I I', both upon the leaf A' and upon that side of the pintle opposite to the leaf A. The spring is so formed  
40 that tension must be put upon it in order to put it in engagement with both rods or loops. When thus in engagement, its whole force acts through one hook upon the leaf A', and by reaction an equal force is exerted through  
45 the opposite hook, and tends, like the direct force, to press the leaf toward the plane of the door, thus far supposed to be closed. The effect upon the opposite leaf is precisely the

same as if equal forces drew the hooks in the opposite direction—that is, they act through  
50 a lever-arm equal to the distance of the hooks from the pintle and tend to close the door—for no matter at what point the force is transmitted to the leaf A, it is in effect applied at the hooks, which are at one side of the pin-  
55 tles, and the latter act as a fulcrum, resisting bodily motion of the leaf A.

In practice it is immaterial which leaf is secured to the door; but for convenience in description, let it be supposed to be the leaf A'.  
60 Now when the door is opened one hundred and eighty degrees the rods or loops I I' are carried bodily about the pintle-line to its opposite side, and during the whole time are drawn toward the plane of the closed door  
65 by the action of the spring. In so moving, their distance from the pintle-line first increases and then decreases, and the strain exerted through the hooks at first acts upon one side of the pintle-line and tends to close  
70 the door, but later acts upon the opposite side and then tends to open it. Evidently there is a point where the strain acts upon neither side, but passes directly through the pintle-line, giving a dead or reversing point  
75 where there is no tendency to swing the door in either direction. The location of this point depends upon the place of the rods or loops upon their leaf, and they are usually so placed that the point may be reached when the door  
80 has opened about one hundred and twenty degrees.

The spring is shown as midway between the ends of the hinge, perpendicular to the pintle-line, and projecting equally to the right  
85 and left of that line, and also as parallel to the place of the closed door; but it is not essential that these constructions be exactly followed.

What I claim is—

1. The combination, with suitably-connected hinge-leaves, of a spring-coil secured upon one of said leaves, with its axis transverse to the pintle and having both its ends in engagement with the opposite leaf at one  
95 side of the pintle-line.

2. The combination, with two suitably-connected hinge-leaves, of a spring-arbor mounted upon one of said leaves in a line transverse to the pintle-line, and a spring-coil wound about  
5 said arbor and having both its ends in engagement with suitable rods or loops upon the opposite leaf at one side of the pintle-line.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MICHAEL REDLINGER.

Witnesses:

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