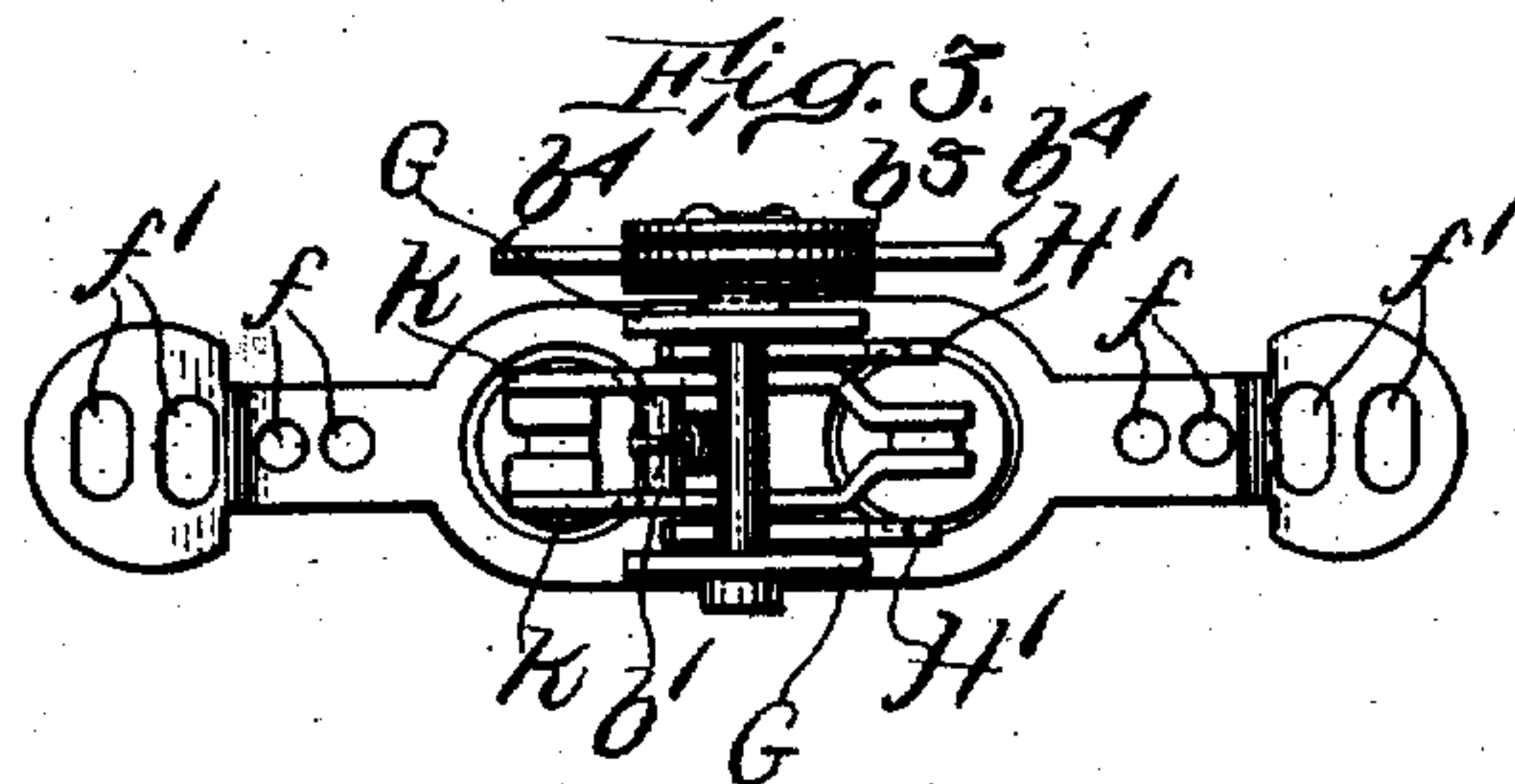
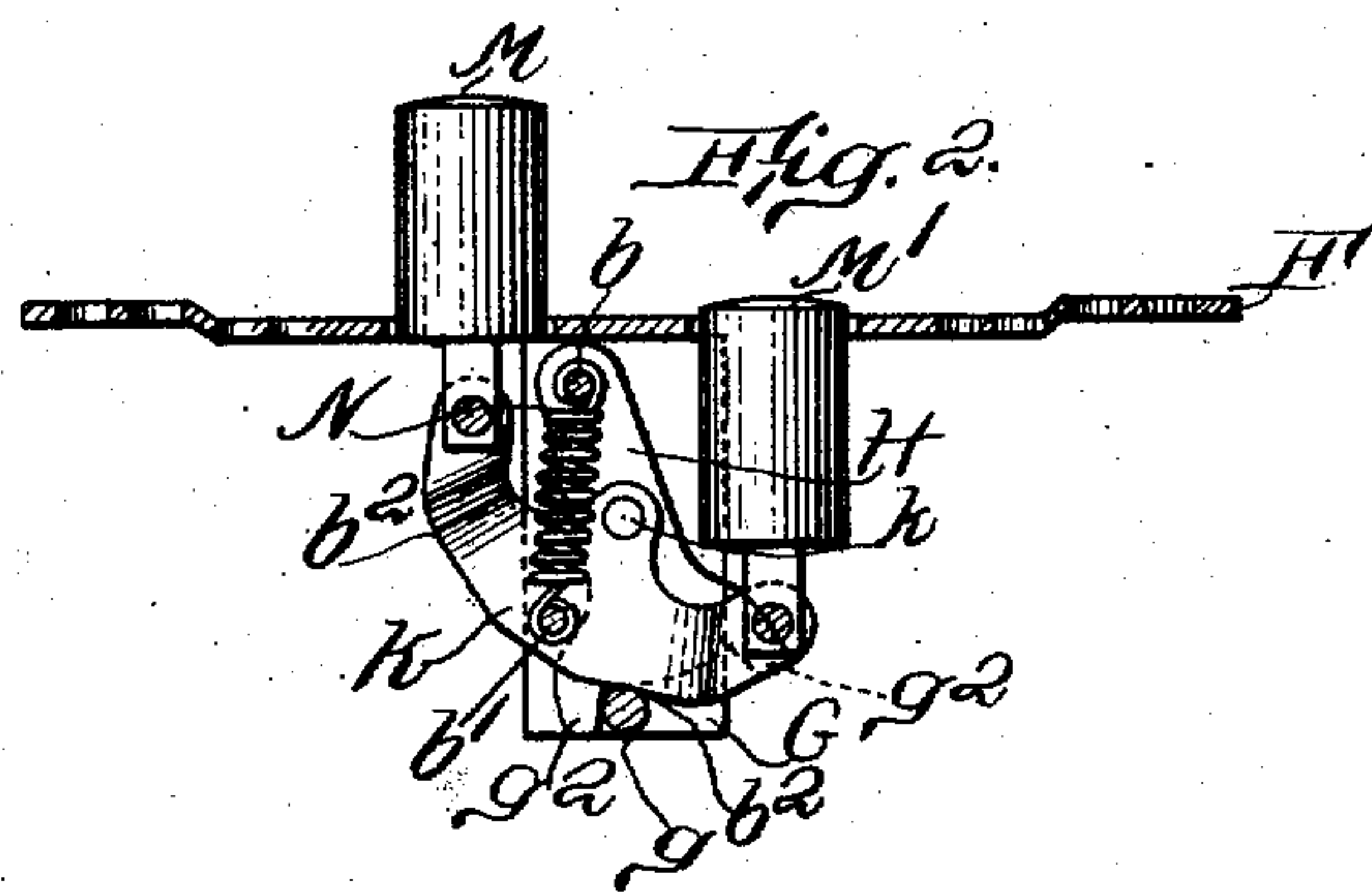
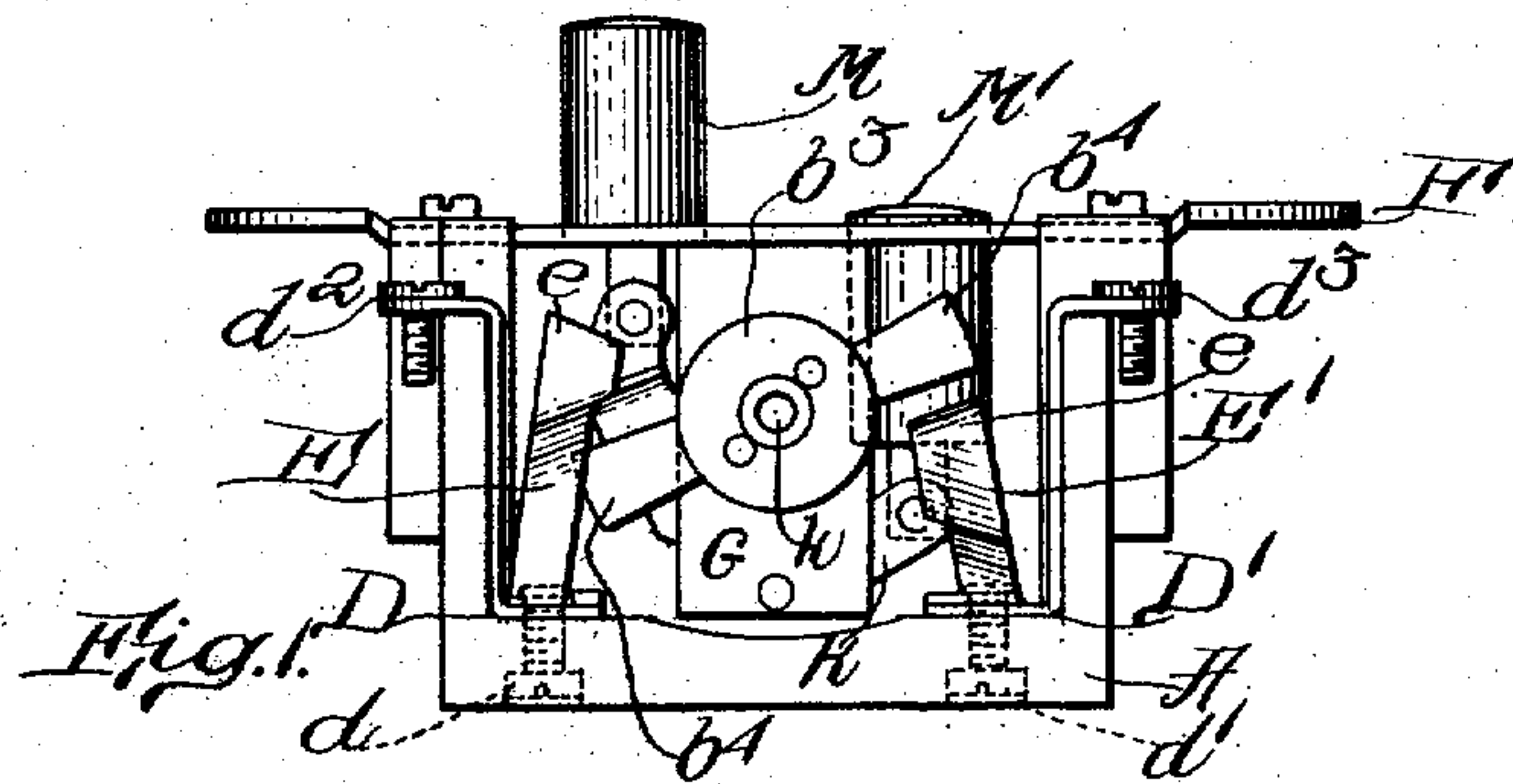


APPLICATION FILED FEB. 15, 1909.

Patented Aug. 2, 1910.



Witnesses:
M. H. Hennessey
H. A. Dugan

Inventor:
Harry R. Hirst
by George A. Rockwell,
Att'y.

UNITED STATES PATENT OFFICE.

HARRY R. HIRST, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO CHARLES S. KNOWLES, OF NEW BEDFORD, MASSACHUSETTS.

ELECTRIC SWITCH.

966,207.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed February 15, 1909. Serial No. 477,905.

To all whom it may concern:

Be it known that I, HARRY R. HIRST, of New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Electric Switch, of which the following is a specification.

My invention relates to electric switches, and my object is to provide a switch which will have the important advantage of a snap make and break, and which will also be very compact in construction and efficient in operation.

My invention consists mainly in the combinations hereinafter described and claimed, and especially in the combination in which the pivot of the rock arm is between the ends of the spring.

In the drawings Figure 1 is an elevation of a switch embodying my invention, the front wall of the casing being removed; Fig. 2 is a central vertical section of said switch; and Fig. 3 is a bottom plan of said switch.

Casing A is of insulating material, such as porcelain. Within the casing are the binding posts D and D', and the contact terminals E and E'. Each contact terminal has a right-angled foot portion resting on the foot of the binding post and at its opposite end has a contact portion *e*. The terminals and binding posts are held in position by screws *d* and *d'*. The upper ends of the binding posts carry the binding screws *d*² and *d*³. Plate F has screw holes *f* *f* by which it may be attached to the casing and has also apertures *f'* *f'* by which with the aid of screws or otherwise the casing and switch may be screwed to a wall or partition. To the under side of the plate F are fastened the bearing plates G G in which I pivotally secure lever H which is composed of the two parallel portions H' H' connected near the top by pin *b*. Each portion H' has fingers *g*² *g*² which limit the reciprocatory movement of the lever H by coming in contact with pin *g* which extends between the plates G G.

Mounted to oscillate with lever H is the hub *b*³ carrying the knife blade contact terminals *b*⁴ *b*⁴. Mounted to oscillate on plates G G are the members K K which together form a rock arm, whose pivot *k* is coincident with the pivot of lever H. These rock arms are connected to each other by pin *b'* and at their ends are pivotally connected to the push-buttons M and M'. The rock arms

have slight extensions *b*² *b*² which strike pin *g* to limit the reciprocatory movement. Spring N is connected at one end with pin *b* and at the other end with pin *b'* for a purpose to be presently described.

In using my switch, assuming that it is in the position shown, the button M is pushed down, whereupon the rock arm swings on its pivot and carries pin *b'* over toward a line from pin *b* to pivot *k*. This movement stores power in the spring by increasing the tension until pin *b'* passes the line above referred to and then the power stored in the spring is free to act and does act to give a rapid movement to the lever and consequently a snap make and break of the terminals *b*⁴ *b*⁴, this operation being in reality the storing of power by the movement of the spring until the moment when it is desired to move the lever, and then at that moment utilizing the power at its maximum.

It is to be noted as an important advantage of the preferred form of my switch that I use the space between the levels of the lower and upper ends of the spring for the movement of the rock arm and lever with the result that my switch is much more compact than heretofore, and it is to be observed that in the form of switch shown the length of the spring practically determines the depth of the switch because the pivots of the rock arm and lever are between the ends of the spring. With this arrangement I may have a very short throw for the lever which is conducive to the general compactness of the switch, it being the fact that the less depth the switch has the more desirable it is. It is also to be noted that in the form shown the lever and rock arms have the same pivot which allows me to use very few parts and to make a very simple construction.

What I claim is:

1. An electric switch of the character described comprising a pivoted rock arm; a pivoted lever; a spring connecting the rock arm and lever; and a single stop which limits the movements in both directions of both the rock arm and lever.

2. An electric switch of the character described comprising a pivoted rock arm; a pivoted lever; a tension spring connecting the rock arm and lever, the pivot of the rock arm being between the ends of the spring;

and a single stop which limits the movements in both directions of both the rock arm and lever.

3. An electric switch of the character described comprising a bearing; a pivoted rock arm mounted in the bearing and having projections; a lever pivoted in said bearing near its middle, the pivots of the rock arm and lever being co-incident; a tension spring
5 connecting the rock arm with said lever; a
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single stop mounted in said bearing to engage said projections and one end of said lever to limit the movement in both directions of both the rock arm and lever; and push buttons connected with the rock arm. 15

HARRY R. HIRST.

Witnesses:

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