

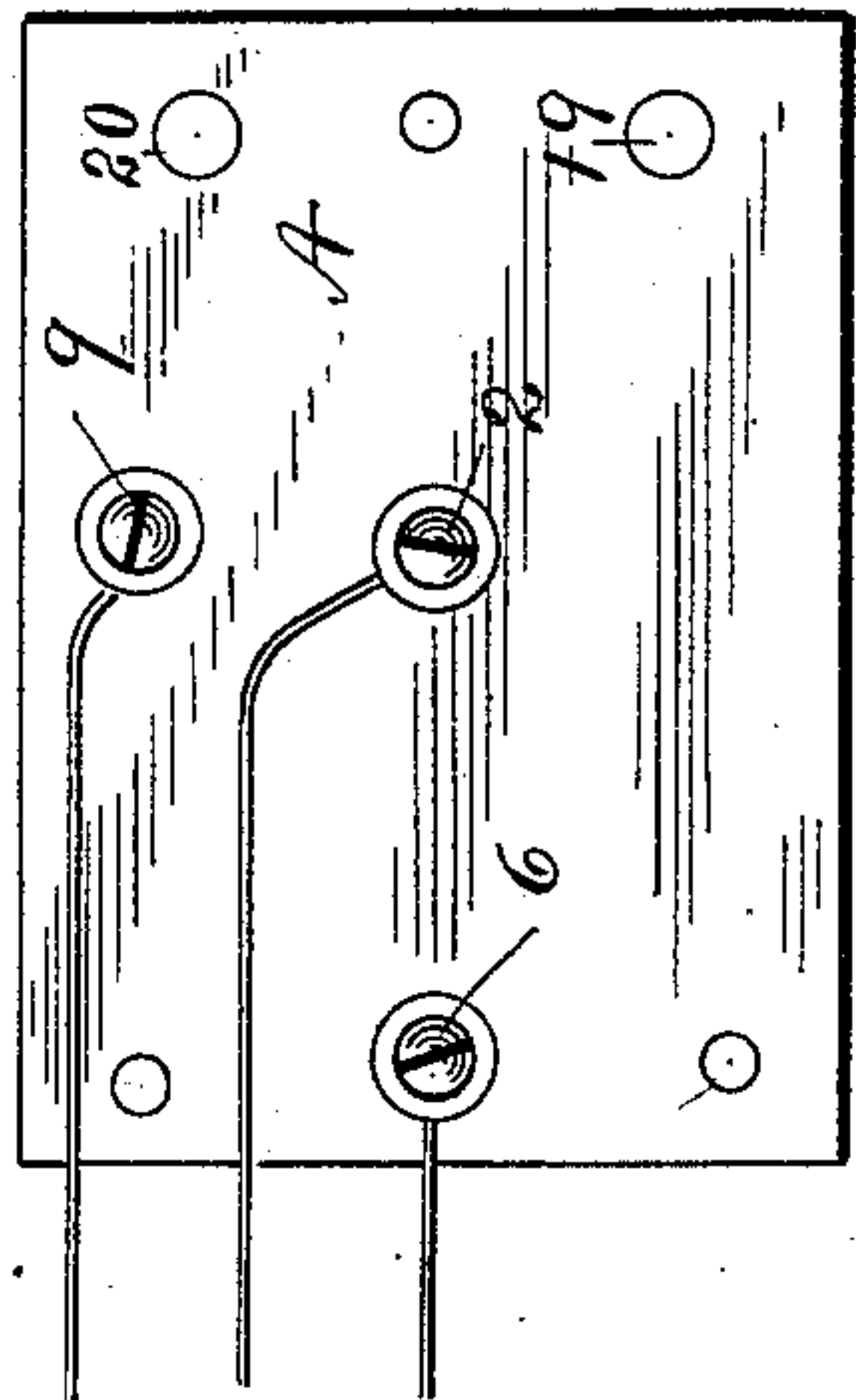
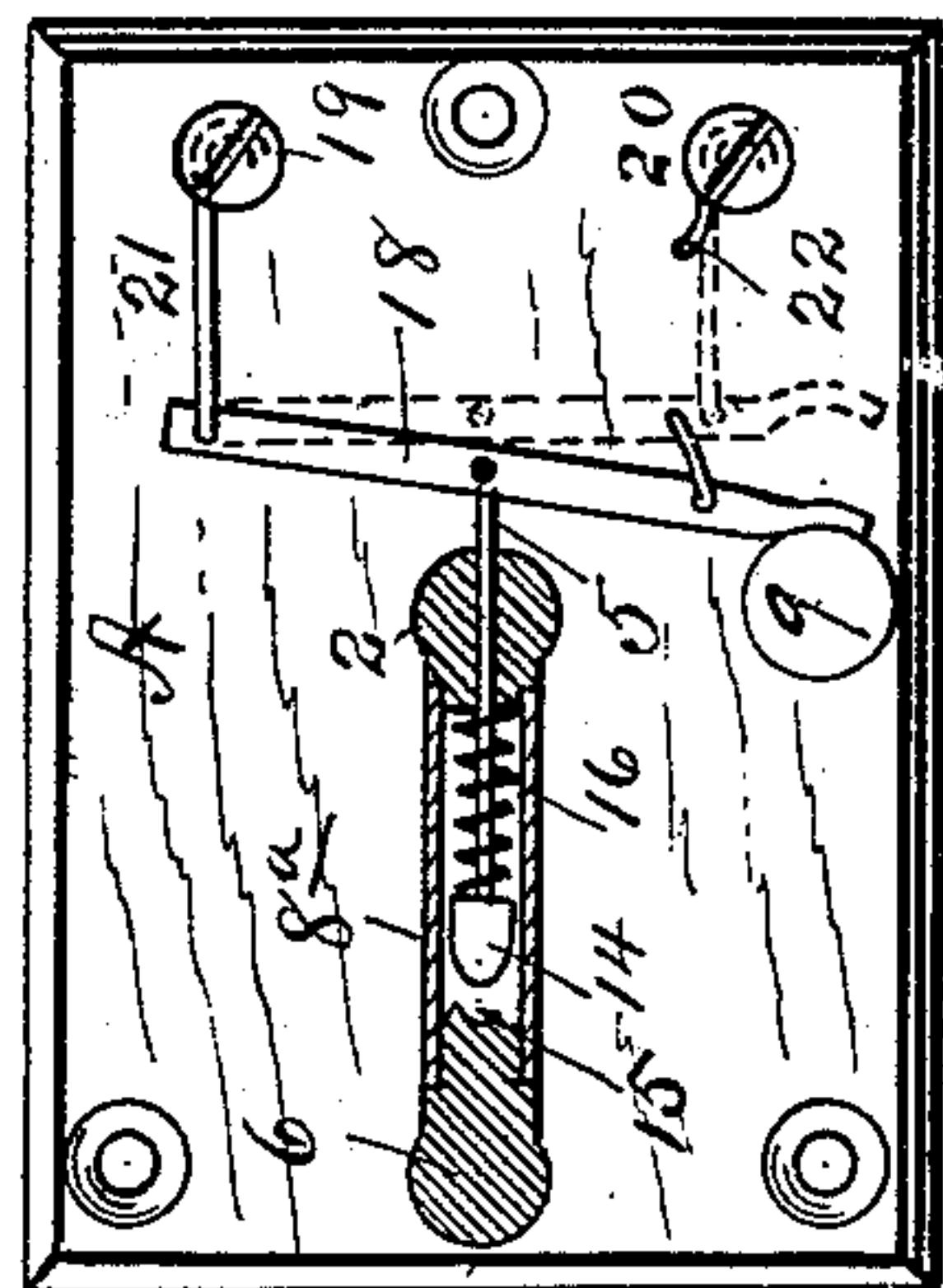
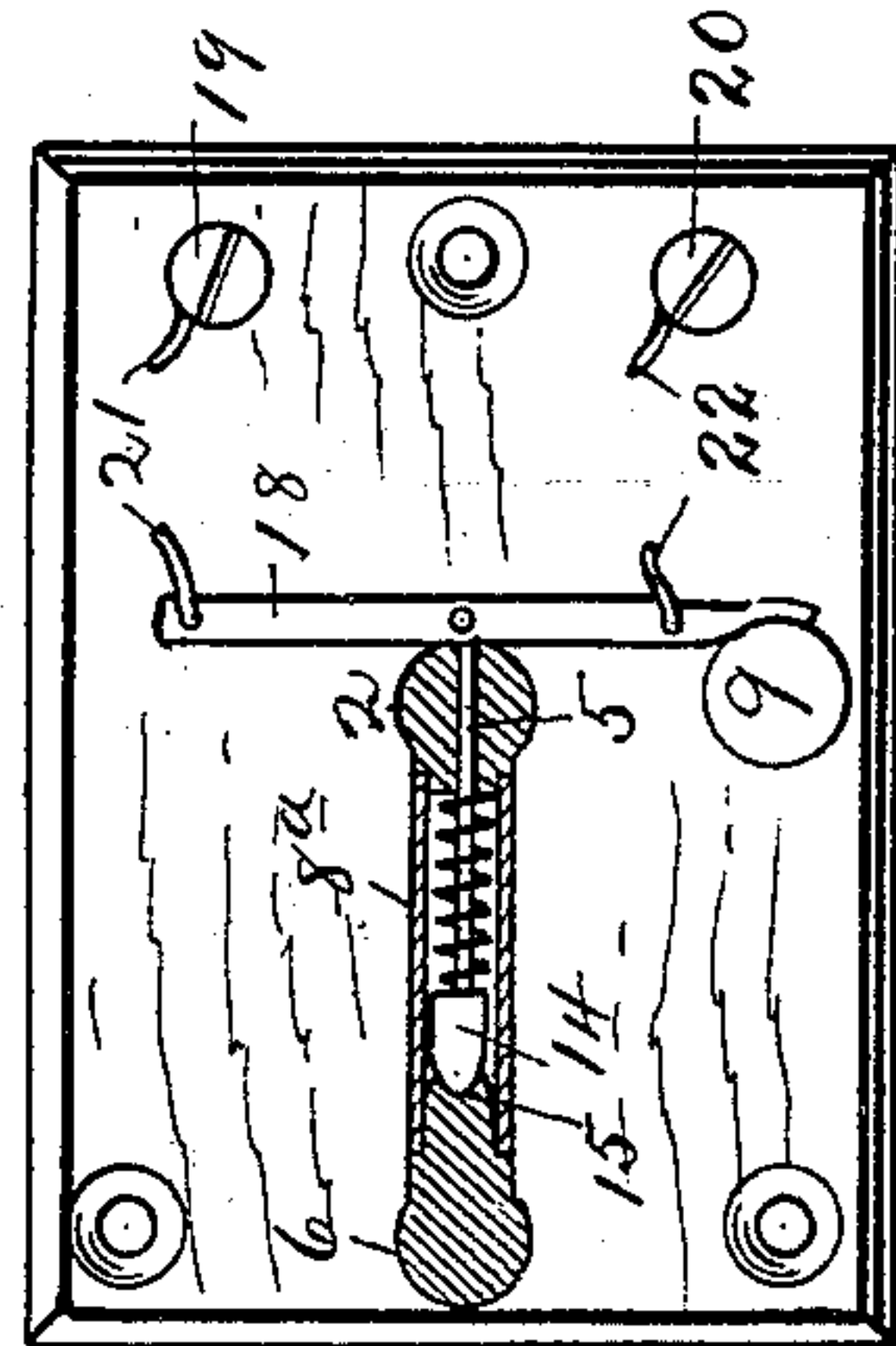
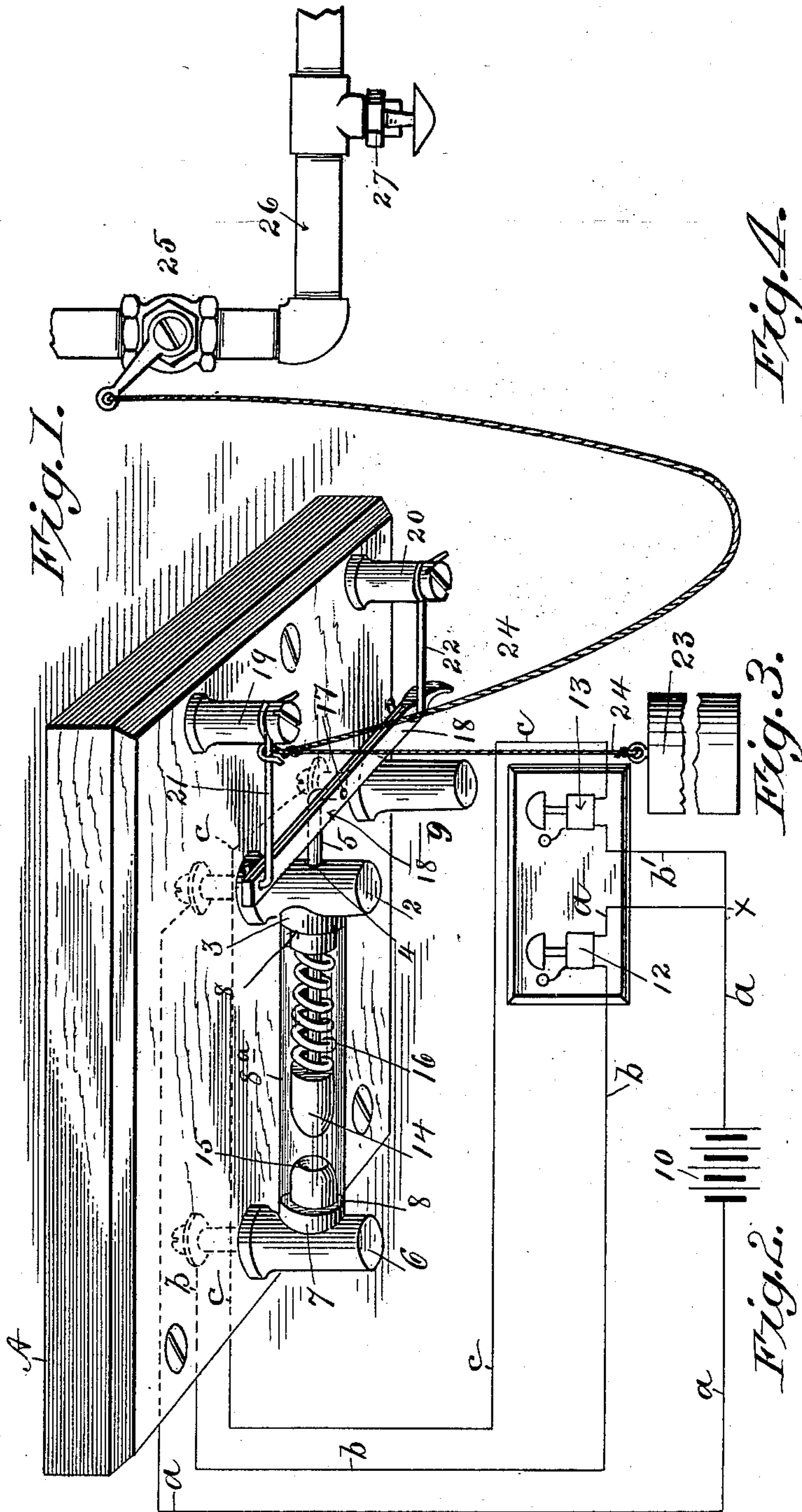
No. 622,917.

Patented Apr. 11, 1899.

J. H. DORION.
ELECTRIC TEMPERATURE INDICATOR.

(Application filed May 31, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

JOHN H. DORION, OF SPRINGFIELD, MASSACHUSETTS.

ELECTRIC TEMPERATURE-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 622,917, dated April 11, 1899.

Application filed May 31, 1898. Serial No. 682,139. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DORION, a subject of the Queen of Great Britain, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Electric Temperature-Indicators, of which the following is a specification.

This invention relates to electric temperature-indicators, and has for its object the construction of a device whereby a temperature only slightly above the normal may be indicated by one alarm-bell and an increase of said slightly-abnormal temperature to a dangerous degree will actuate said device and cause a second alarm-bell to be set in operation. A further object is the construction of means operated at the time the second or high-temperature actuation of said indicating device takes place, whereby water is supplied to a series of sprinklers located near said indicating device.

The invention consists in the construction as set forth in the following specification and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a perspective view of a temperature-indicating device embodying this invention and shown in position on the ceiling of a room. Fig. 2 is a plan view, on a smaller scale than Fig. 1, of the under side of the base of the device, showing the electric wire connections to several posts in said base. Fig. 3 is a plan view, partly in section, of the side of the base opposite to that shown in Fig. 2, showing the position of the parts at the time of actuation of one alarm. Fig. 4 is a view like Fig. 3, showing the position of the parts at the time of actuation of both of the alarms.

Referring to the drawings, A is a base, of wood or other suitable insulating material, to which are secured the various posts supporting the operative parts of the device. These posts are of some metal, as brass, which is a good conductor of electricity. Post 2, having the boss 3 thereon, is located substantially at the center of the base A and has a hole 4 therethrough parallel with and extending axially through said boss 3 and in a direction lengthwise of the base for the reception of a metal rod 5, which fits closely in said hole

and has a sliding movement therein. The post 6 is located near the edge of said base, on the center line thereof, and is provided with a boss 7 similar to the one on the post 2 and located on the side of said post 6 next to said post 2. Each of said bosses 3 and 7 has its ends turned down to a smaller diameter, forming the shoulders 8 thereon near said posts, and a glass tube 8^a, extending between said posts 2 and 6, fits over said turned-down ends of said bosses and serves as a protection against dust, &c., for parts located therein, to be described. A third post 9 is located near said post 2 on the base, and said three posts 2, 6, and 9 form substantially a right angle. The said posts extend through said base A, and their extremities are provided with means for connecting thereto wires running to alarm-bells and having in circuit a suitable battery or other source of electricity for operating said bells upon the proper contacts being made. One wire *a* runs from the post 2 to one pole of an electrically-operated bell 12, and from its other pole a wire *b* runs to the post 6. In the line *a* is the battery 10. This circuit is closed and the bell 12 operated by the establishment of a suitable metallic connection between the posts 2 and 6. A wire *b'* is connected to said wire *a* and runs to one pole of a second electrically-operated alarm-bell 13, and from the opposite pole of this bell a wire *c* runs to the post 9 on the base A. Thus an electric connection established between said post 9 and the post 2 will cause said alarm-bell 13 to be operated, the circuit of which includes the wire *a*, the connection *b'*, the bell 13, and the wire *c*, connected with the post 9. The means for making successive connections between the posts 2 and 9 and 2 and 6, whereby said two alarm-bells are rung, are constructed and arranged as follows: On the end of the metal rod 5 which extends through the post 2 toward the post 6 is a metal head 14. This head has a conical end and is adapted to enter a conically-shaped socket 15 in the end of the boss 7 on the post 6, said head being moved into and held in said socket by a spring 16, located on that part of said rod 5 between the head 14 and the end of the boss 3 on the post 2. The end of the rod 5 extending beyond the side of the post 2 away from the post 6 has pivotally connected therewith at 17 a

cross-bar 18. Opposite each end of said cross-bar two posts 19 and 20 are secured to said base A, and suitable fusible connections 21 and 22 are secured by their opposite ends to the ends of said cross-bar and extend to and are secured to said posts 19 and 20, respectively. Before applying these connections 21 and 22 the cross-bar is drawn toward the posts 19 and 20, breaking the contact between the head 14 and the post 6, and while said bar is in this position the said connections are made, and thus hold the head 14 out of contact with the post 6 and hold the end of the cross-bar 18 out of contact with the post 9. The fusible connection 22 between one end of said bar 18 and the post 20 is so made as to become fused or so softened at a relatively low temperature as to permit the spring 16 to draw that end of the bar 18 which said connection 22 was secured to against the post 9, said bar pivoting at the point at which the other fusible connection 21 is secured thereto. (See Fig. 3.)

The above-described contact of the bar 18 and the post 9 completes an electric circuit which comprises said post, said bar 18, the rod 5, the post 2, the wire *a*, the battery 10, the wire *b'*, the bell 13, and the wire *c*, running back to said post 9.

Should the temperature increase beyond the point at which the rupture or elongation of the fusible connection 22 took place to such a point as to cause the fusion or elongation of the fusible connection 21, the spring 16 will act to impart further motion of said bar 18 toward the post 2 through the connection of said bar with the rod 5. This action of the spring 16 will cause the head 14 on the end of said rod 5 to seat itself in the cavity 15 in the end of the boss on the post 6. (See Fig. 4.) This last-named contact completes a circuit formed by and comprising said post 6, the wire *b* running to one pole of the alarm-bell 12 and a wire *a* running from the opposite pole of said bell to the battery 10 and from the opposite pole of said battery to the post 2, the circuit being completed from said post to the post 6 through the rod 5, carrying the head 14. The closing of this last-named circuit causes the alarm-bell 12 to ring, and both bells will continue ringing until the contact between the posts 9 and 2 and 2 and 6 is broken.

The composition of the fusible connection 21 is of such a nature that the amount of heat required to cause its elongation or rupture is considerably greater than that required for producing a like effect on the connection 22. Said connection 21 may therefore be adapted to indicate merely a dangerously-high temperature or actual combustion, while the connection 22, having a much lower fusing or melting point, may be adapted to indicate only a somewhat abnormal degree of temperature.

If desired, the fusion of the connection 21, if it is designed to indicate actual combustion,

may be employed to set in motion means for admitting water to a pipe on which suitable sprinklers are applied and whereby the immediate vicinity of the heat-indicator may be flooded. These devices are shown in Fig. 1 and consist of a weight 23, suspended by a suitable metallic cord 24 from said fusible connection 21, the other end of said cord being attached to the arm of a plug-valve 25, which will be operated by the fall of said weight to open said valve and admit water to a pipe 26, on which are located suitable sprinklers 27.

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

1. A temperature-indicating device comprising suitable metal posts forming the terminals of two electric circuits each of which includes a source of electricity and an electric alarm-bell; a movable metallic connection for closing said circuits, means for effecting the contact of said metallic connection with said posts, and two connections having different fusing-points for normally holding said metallic connection out of contact with said post, whereby one of said circuits will be closed in advance of the other, substantially as described.

2. A temperature-indicating device comprising suitable metal posts forming the terminals of two electric circuits each of which includes a source of electricity and an electric alarm-bell; a movable metallic connection for closing said circuits, means for effecting the contact of said metallic connection with said posts, and two connections having different fusing-points for normally holding said metallic connection out of contact with said posts, whereby one of said circuits will be closed in advance of the other, combined with a sprinkler-operating device, set in motion by the closing of the last of said circuits, substantially as described.

3. A temperature-indicating device comprising three metal posts forming the termini of two electric circuits, each of which comprises a source of electricity and an electric alarm-bell, one of said posts being the terminus of one pole of each of said circuits, a movable metallic connection for closing said circuits, means for effecting the contact of said metallic connection with said posts, and two connections having different fusing-points for normally holding said metallic connection out of contact with said posts, whereby one of said circuits will be closed in advance of the other, substantially as described.

4. A temperature-indicating device comprising the posts 2, 6, and 9, two electric alarm-bell circuits normally open and whose termini are in said posts, said post 2 being the terminus for one pole of each of said circuits, means for closing the circuit through said posts 2 and 6, consisting of the spring-actuated rod having a conical end supported in said post 2, and a conical cavity in said post

6; means for closing said circuit between post 2 and post 9, consisting of a bar 18 pivotally connected to said rod 5, combined with two fusible connections for normally holding said
5 bar and said rod out of contact respectively with said posts 9 and 2, which connections are fusible at different temperatures, and a

protective tube extending between said posts 6 and 2, and inclosing the contact-points between said posts, substantially as described.

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