

J. FRIEDLANDER.
CIRCUIT CLOSER.
APPLICATION FILED MAR. 20, 1905.

Fig. 5.

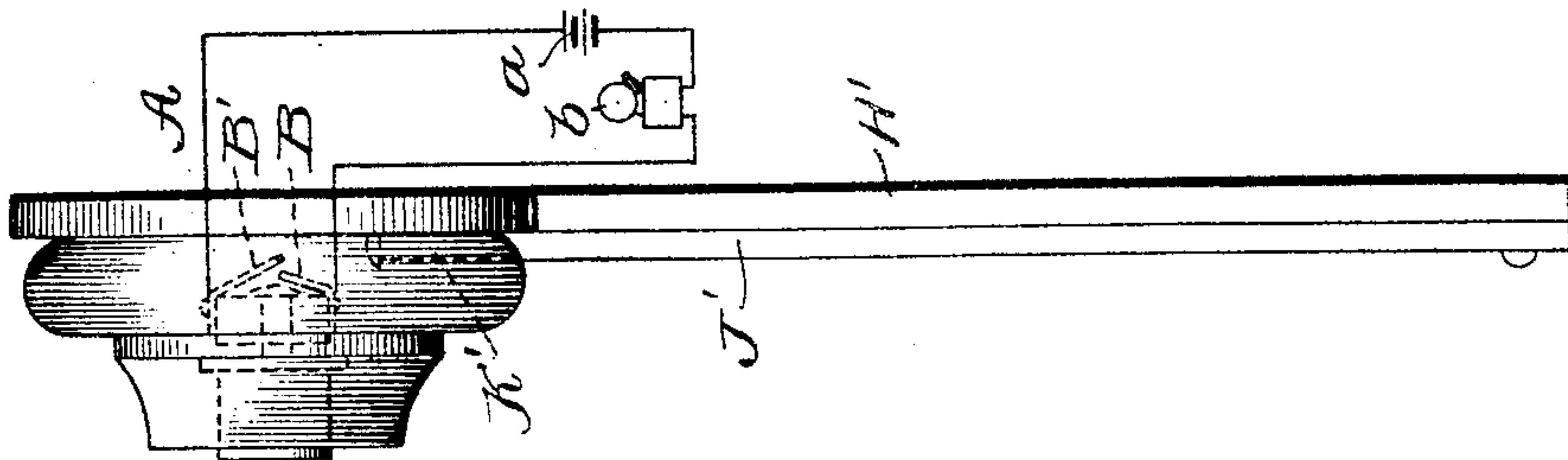


Fig. 4.

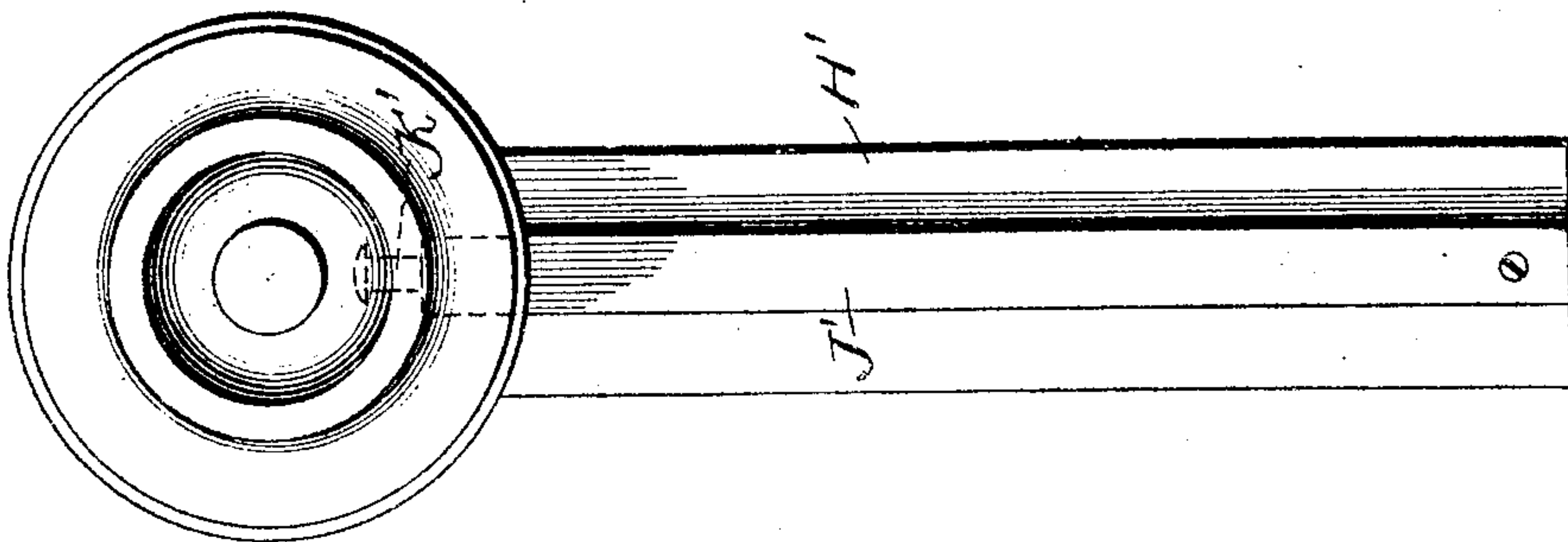


Fig. 2.

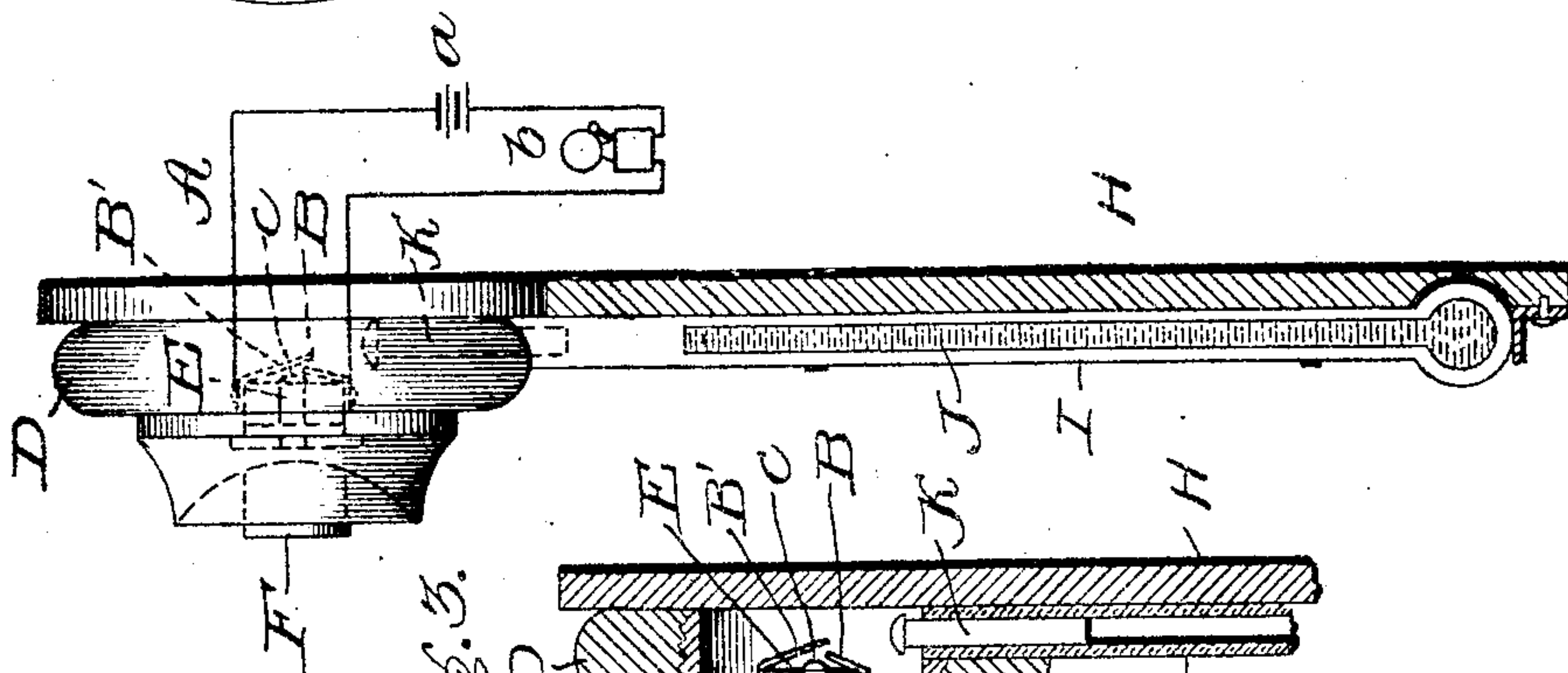


Fig. 3.

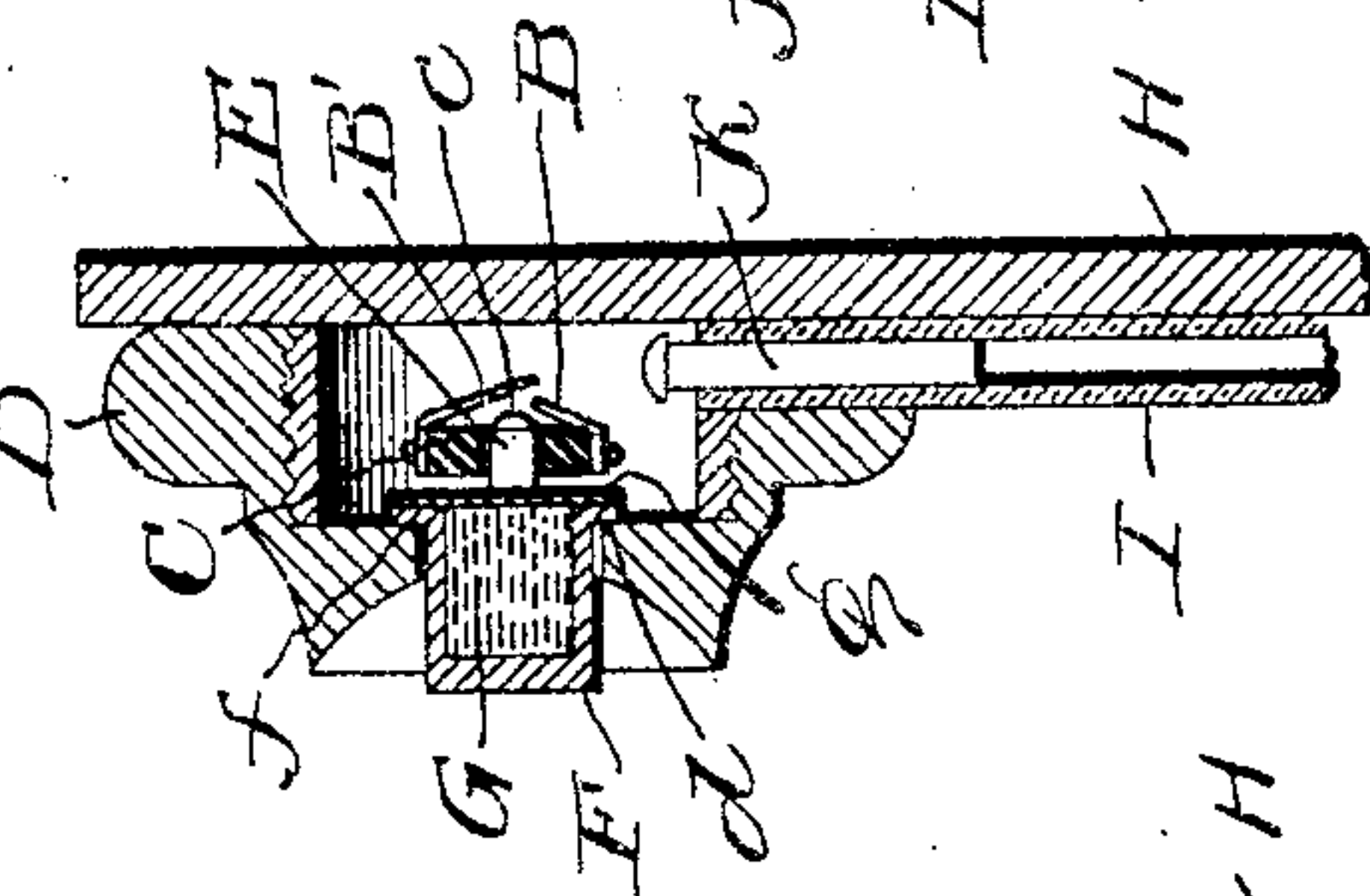
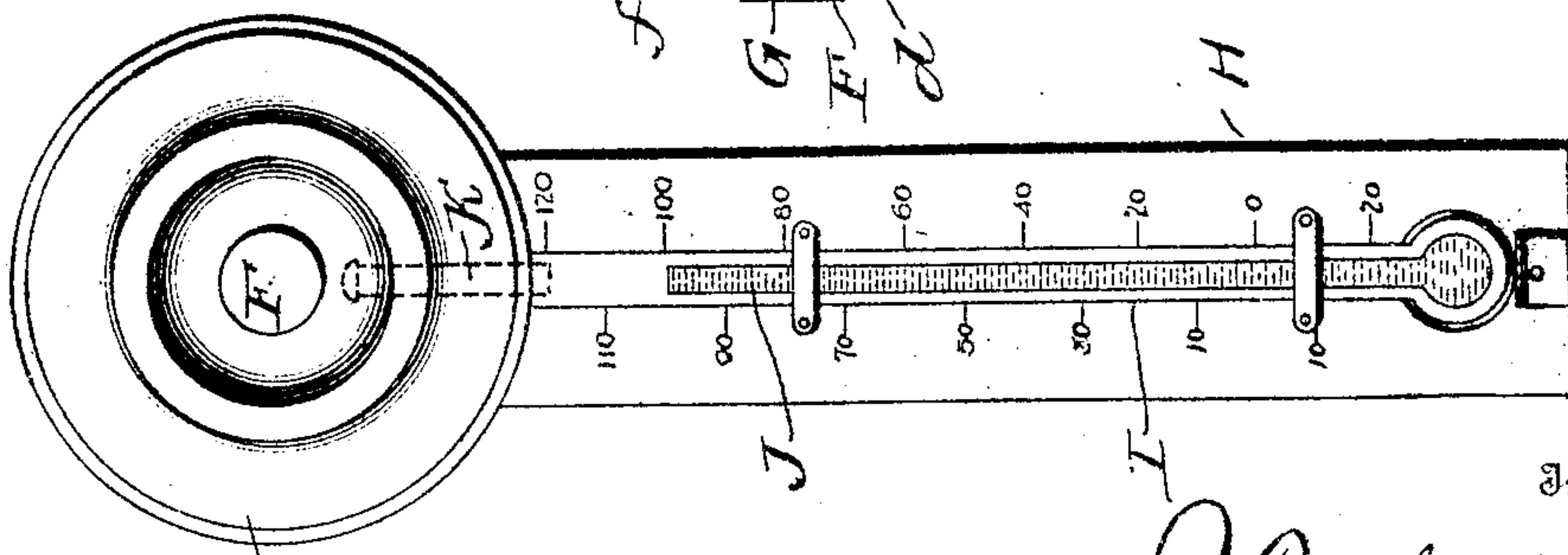


Fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

JAKE FRIEDLANDER, OF FARGO, NORTH DAKOTA.

CIRCUIT-CLOSER.

No. 797,679.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed March 20, 1905. Serial No. 251,060.

To all whom it may concern:

Be it known that I, JAKE FRIEDLANDER, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented new and useful Improvements in Circuit-Closers, of which the following is a specification.

My invention pertains to thermal circuit-closers, more particularly thermal circuit-closers of the fluid type; and it consists in the simple and reliable combination device hereinafter described, and particularly pointed out in the claims appended.

In the accompanying drawings, forming part of this specification, Figure 1 is a front view of the combined device constituting the preferred embodiment of my invention. Fig. 2 is a view, partly in side elevation and partly in vertical section, of the same. Fig. 3 is an enlarged detail section illustrating one of the circuit-closing pins of the device in a position to make electrical connection between the terminals of an electric circuit. Figs. 4 and 5 are views, similar to Figs. 1 and 2, respectively, of a modification hereinafter referred to in detail.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 3 thereof, A is an electric circuit containing a source of electric energy *a* and an electric bell or other annunciator *b*, and B B' are the terminals of the said circuit. The said terminals are connected to a supporting-block C, of insulating material, and are relatively arranged, as shown in Fig. 2—*i. e.*, the free end of the terminal B is disposed below and slightly within the free end of the terminal B', so as to permit the vertically-movable circuit-closing pin of my improvements to slide up and press the terminal B laterally precedent to engaging the terminal B' and making electrical connection between the two terminals.

D is a casing containing the block C and fixed with respect to the same. E is a circuit-closing pin movable rectilinearly through the block C and having a rounded head *c* at its inner end arranged to make electrical connection between the terminals B and B', and F is a push-button connected to and movable with the pin E and arranged in the casing D and having a shoulder *d* bearing against a complementary shoulder or abutment *f* of the said casing. The push-button F is preferably hollow, and its inner end *g*, to which the pin E is connected, is in the form of a light metal plate, as shown. In the hollow push-button is arranged

a fluid G, which is expansible by heat, and from this it follows that when the temperature in the apartment in which the push-button is located reaches an unduly high point—120° Fahrenheit, for instance—the plate *g* will be forced toward the terminals B B' and will move the pin E into engagement with the said terminals, with the result that the circuit A will be closed and a fire-alarm sounded. It will also be observed that the circuit A will be closed when the button F is moved inwardly by finger-pressure applied thereto, this in order to call an attendant or signal to a party at a point remote from the apartment in which the button is located.

H is a body to which the casing D is connected and which is designed to be connected to an apartment-wall or other suitable support.

I is a transparent tube supported on the body H.

J is mercury or any other suitable expansible fluid arranged in the tube I, and K is a circuit-closing pin arranged in the upper portion of the tube I and on the mercury or expansible fluid J and having a rounded head at its upper end. The body H is provided on its face with numbered graduations, as shown in Fig. 1, and from this it follows that the said body, the tube I, and the expansible fluid J contained in the said tube are adapted to serve the purpose of an ordinary thermometer. It will also be observed that in the event of the temperature in the apartment where the thermometer is placed reaching an unduly high point the pin K will be moved up into engagement with the terminals B B' and will thereby close the circuit A and sound a fire-alarm.

It will be readily gathered from the foregoing that the combined device shown in Figs. 1 to 3 is adapted to serve the three-fold functions of a thermometer, a call-bell, and a thermal circuit-closer, also that the device is simple and inexpensive in construction and is to be relied upon in an emergency, inasmuch as it embodies no delicate parts, such as are likely to get out of order in use.

The modification shown in Figs. 4 and 5 is similar to that shown in Figs. 1 to 3 with the exception that the tube I and the expansible fluid J are dispensed with, and the pin K' is connected to or formed integral with an expansible body J', connected to the body H'. In the event of the temperature in an apartment in which the modified device is located

becoming unduly high the body J' will obviously expand and carry the pin K' into engagement with the terminals B B', and thereby close the circuit A and sound a fire-alarm.

It will be readily appreciated from the foregoing that the modified device of Figs. 4 and 5 is possessed of all of the advantages ascribed to the embodiment shown in Figs. 1 to 3 with the exceptions that it is not adapted to serve the purpose of a thermometer and is perhaps not as sensitive as the device in which the contact-pin is moved by the expansion of mercury or other fluid.

I have entered into a detailed description of the construction and relative arrangement of the parts included in the present and preferred embodiments of my invention in order to impart a definite understanding of the said embodiments. I do not desire, however, to be understood as confining myself to the said specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

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

1. In a circuit-closer, the combination of circuit-terminals, circuit-closing pins normally arranged adjacent to the terminals and adapted when moved to make electrical connection between the same, a push-button for moving one pin, and thermal means for moving the other pin.

2. In a circuit-closer, the combination of circuit-terminals, circuit-closing pins normally arranged adjacent to the terminals and adapted when moved to make electrical con-

nection between the same, thermal means for moving one pin, a hollow push-button having a plate connected to the other pin, and fluid adapted to be expanded by heat contained in the hollow push-button.

3. A combination device comprising electric circuit-terminals, circuit-closing pins normally arranged adjacent to the terminals and adapted when moved to make electrical connection between the same, a push-button for moving one pin, and a thermometer having a tube receiving the other pin and also having expansible fluid in the tube at the opposite side of the pin with reference to the circuit-terminals.

4. A combination device comprising a casing, electric circuit-terminals contained in the casing, circuit-closing pins arranged in the casing adjacent to the terminals and adapted when moved to make electrical connection between the said terminals, a hollow push-button having a shoulder arranged to bring up against a shoulder in the casing and also having a plate connected to one of the circuit-closing pins, fluid contained in the hollow push-button and adapted to be expanded by heat, and a thermometer having a tube receiving the other pin and also having expansible fluid in the tube at the opposite side of the pin with reference to the circuit-terminals.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAKE FRIEDLANDER.

Witnesses:

GEO. H. HOLLISTER,
I. SCHNEEBERGER.