

No. 775,165.

PATENTED NOV. 15, 1904.

L. N. COFFIELD.
SAFETY ALARM.
APPLICATION FILED JUNE 30, 1903.

NO MODEL.

Fig. 10.

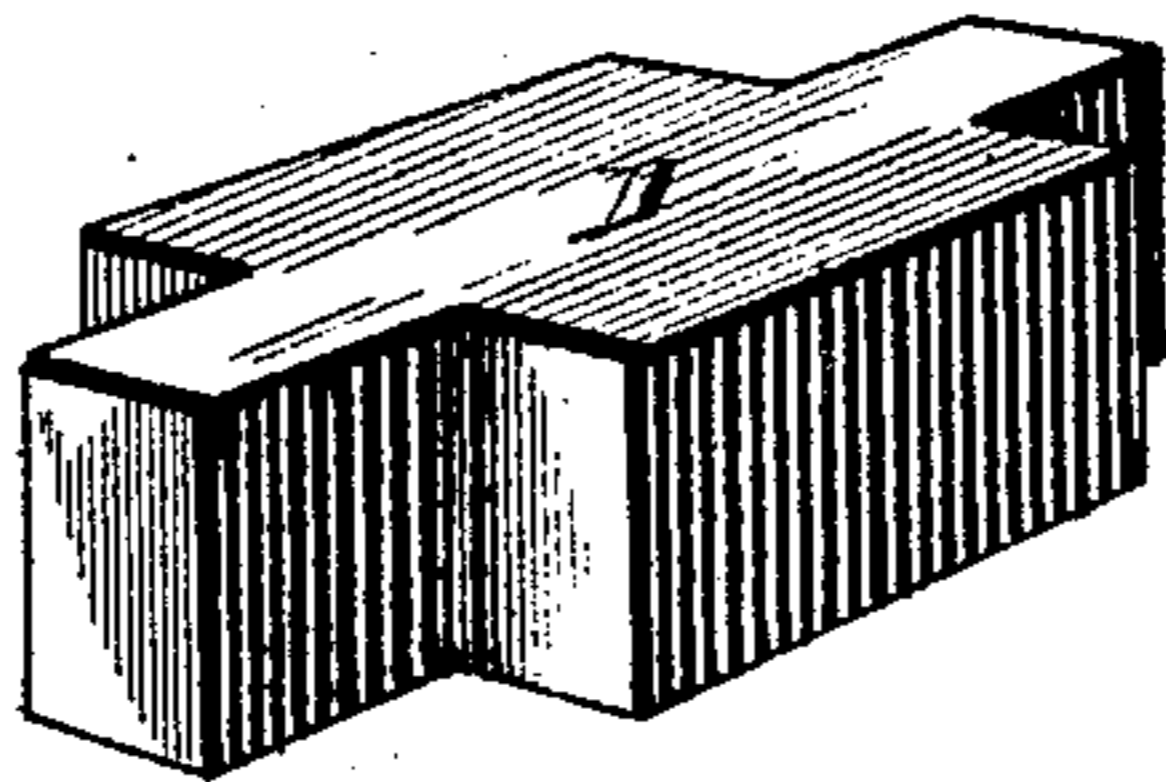


Fig. 4.

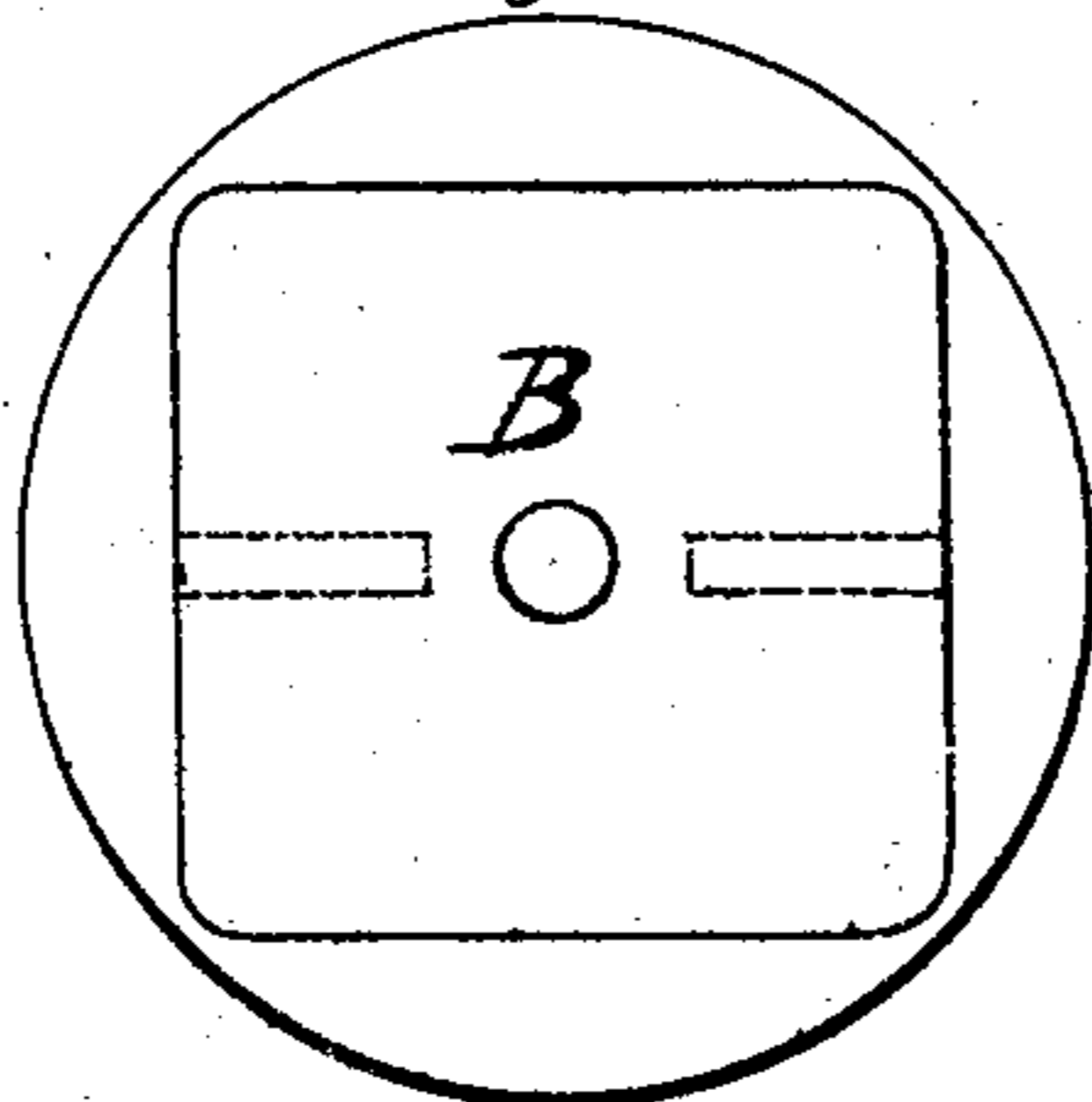


Fig. 5.

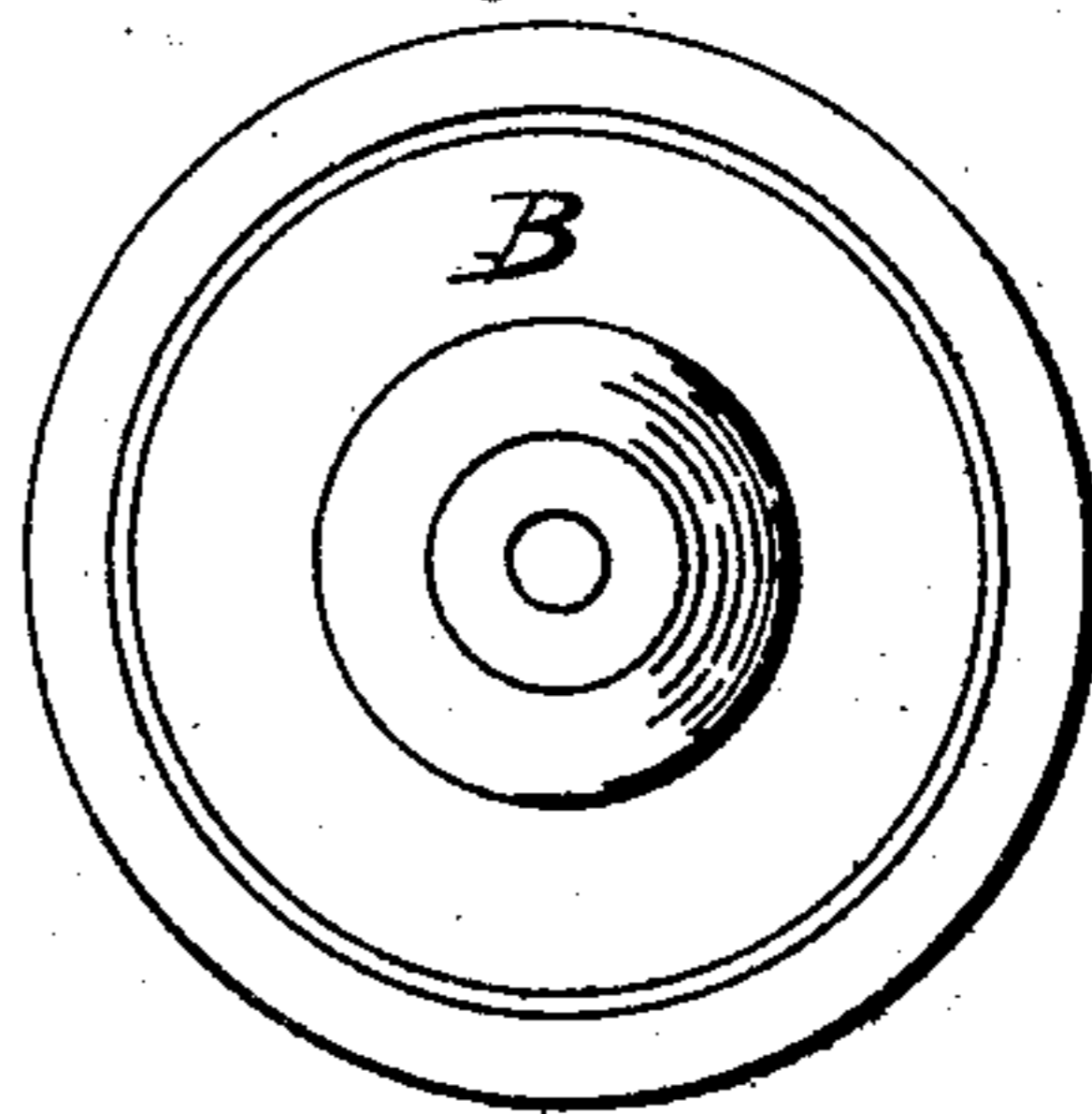


Fig. 9.

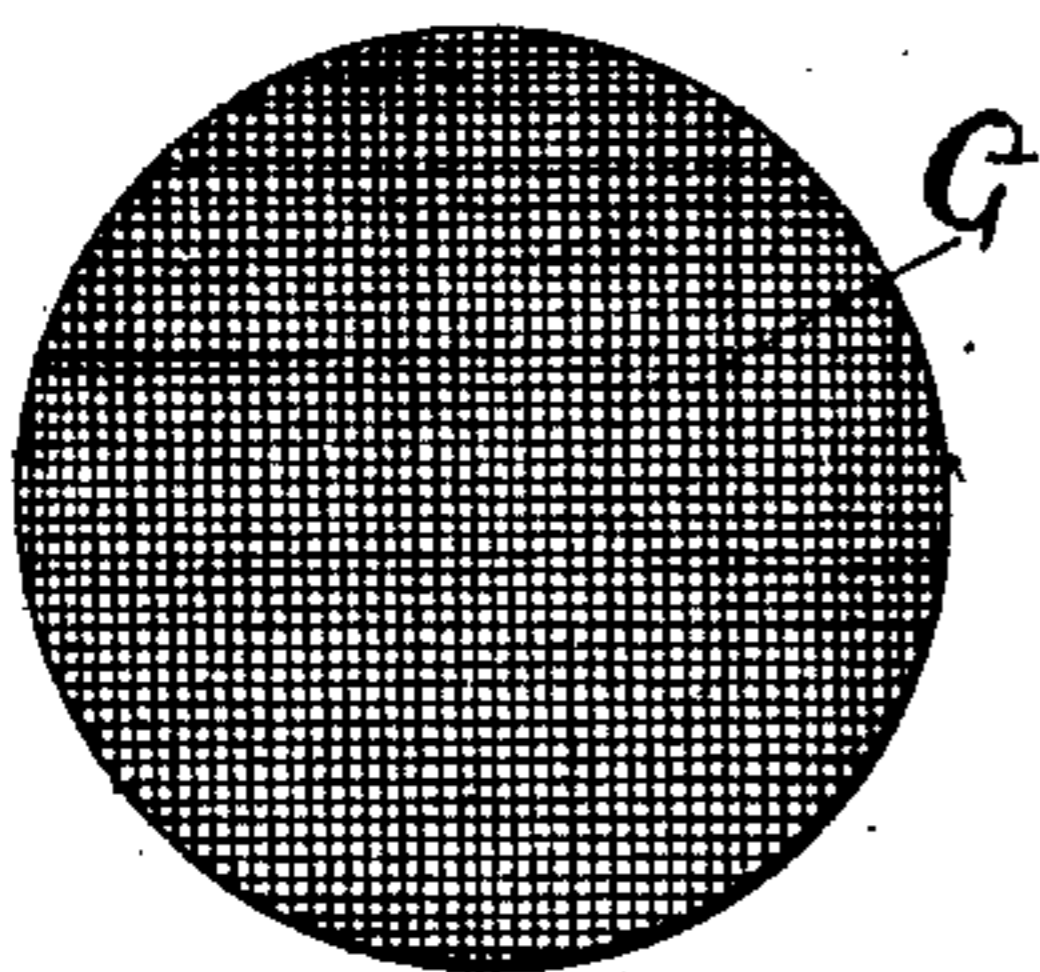


Fig. 2.

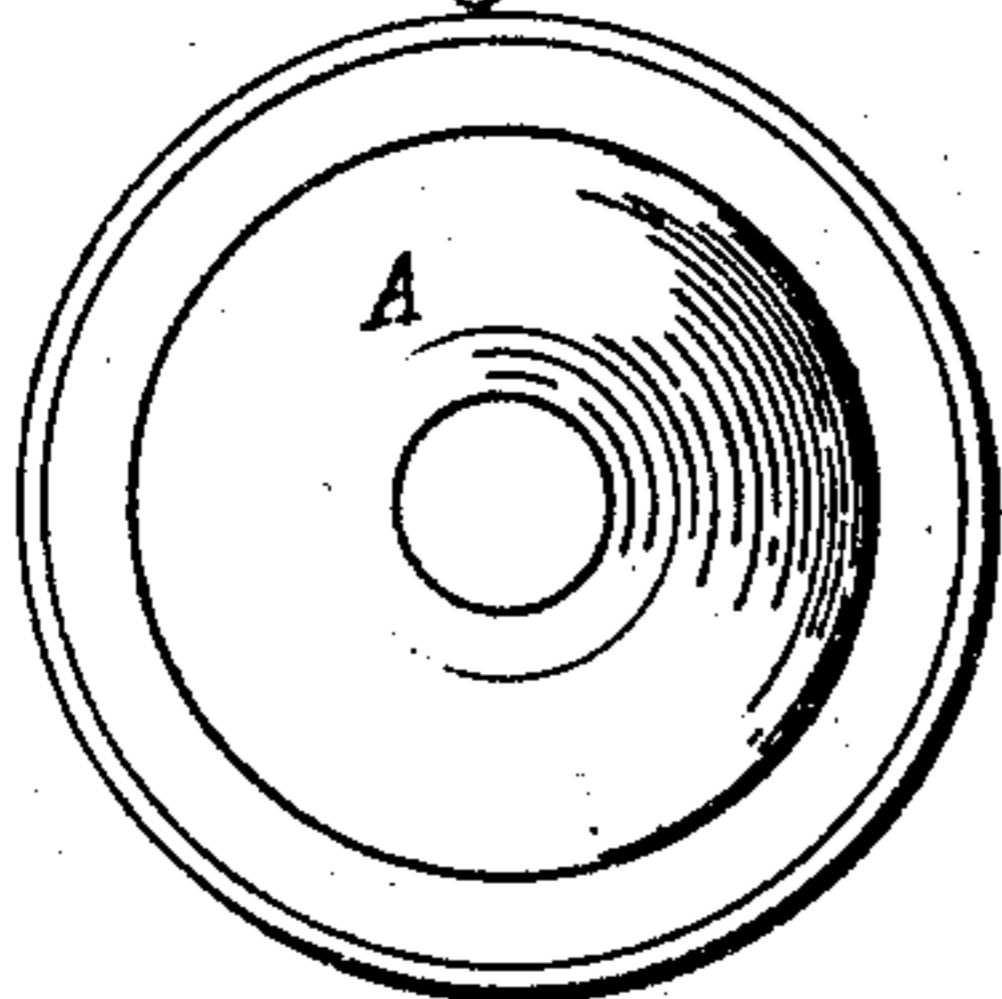


Fig. 1.

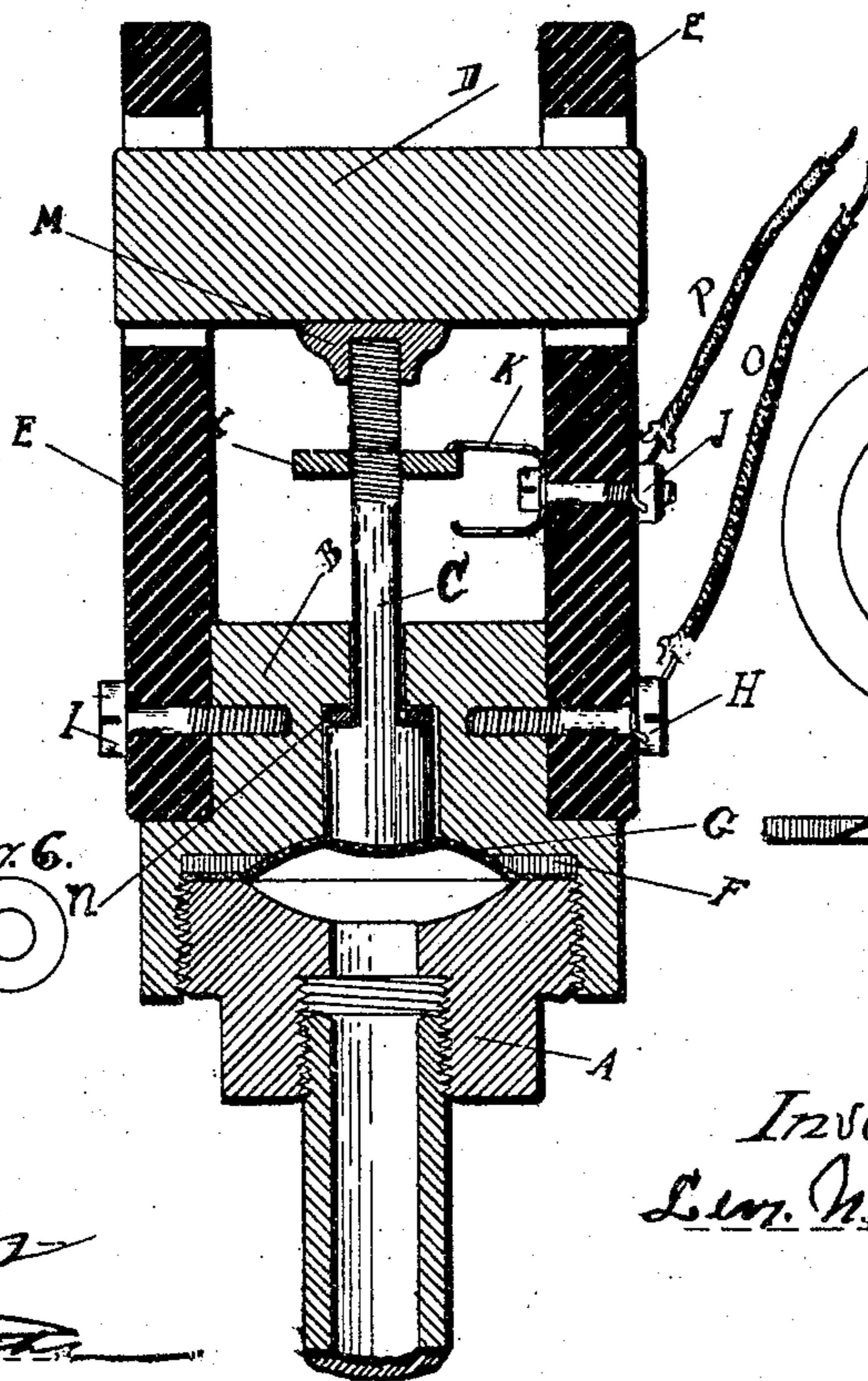


Fig. 7.

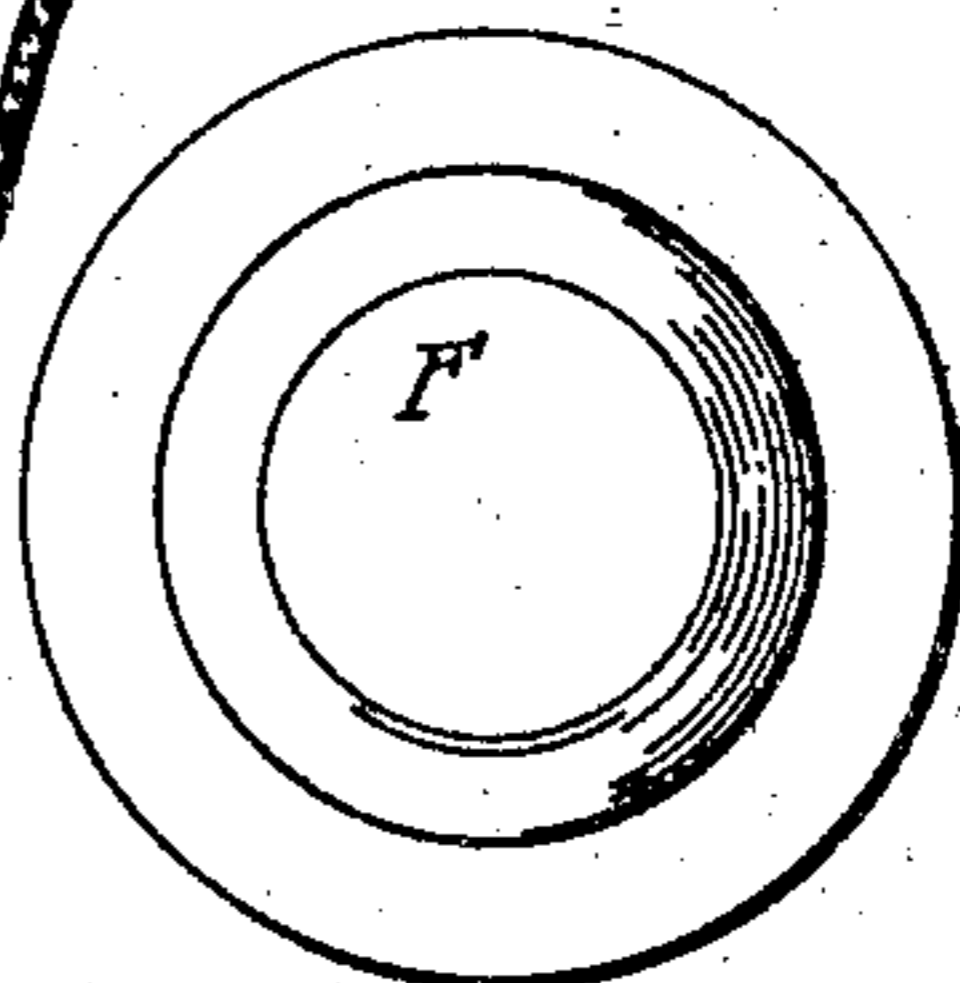


Fig. 8.



Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

LEVI N. COFFIELD, OF CLARKSBURG, WEST VIRGINIA.

SAFETY-ALARM.

SPECIFICATION forming part of Letters Patent No. 775,165, dated November 15, 1904.

Application filed June 30, 1903. Serial No. 163,709. (No model.)

To all whom it may concern:

Be it known that I, LEVI N. COFFIELD, a citizen of the United States, residing at Clarksburg, in the county of Harrison and State of West Virginia, have invented a new and useful Safety-Alarm for the Use of Operators and Consumers of Gases, of which the following is a specification.

The object of this invention is to provide an improved, simple, and highly efficient device for automatically giving warning in the event of any excess pressure in a gas-main, as well as when the pressure falls below that which it is desired to maintain.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of an alarm constructed in accordance with my invention. Figs. 2 and 3 are opposite face views of the coupling-nut. Fig. 4 is a top plan view of the piston-cylinder. Fig. 5 is a bottom plan view thereof. Fig. 6 is an end view of the piston. Fig. 7 is a face view of the diaphragm-holding ring. Fig. 8 is a cross-sectional view thereof. Fig. 9 is a view of the diaphragm. Fig. 10 is a view of the counterbalancing-weight.

Referring to the drawings, A designates a coupling-nut through which a branch of a gas-pressure pipe or main is connected to the lower end of a piston-cylinder B. Within a central bore in this cylinder works a piston C, the rod whereof is extended outwardly through the top of the cylinder, the escape of gas under abnormal pressure beyond the piston being prevented by the packing-ring *n*. The piston at its lower end engages a diaphragm G, held within the enlarged chamber of cylinder B, such diaphragm being retained in place between nut A and a metallic packing-ring F.

E E designate two upright bars or posts permanently secured to opposite sides of the squared portion of cylinder B by screws H I. Working in slots in the upper ends of these bars E are the tenons of a weight D, which rests upon a nut M, adjustable on the end of the piston-rod. Also on this piston-rod is an

adjustable contact-piece L, which normally is about midway between the upper and lower opposite parallel branches of a circuit-closer K, secured to one of the insulating-bars E by a screw J. This latter bar is preferably of insulating material. To this screw is secured an electric wire P, the other wire, O, of the circuit being secured to screw H, so that the circuit when contact-piece L engages circuit-closer K will be completed through the piston-cylinder and piston.

The weight D under normal pressure rests on the bottoms of the slots in the bars E, contact-piece L being then held midway between the points of circuit-closer K. Overpressure beneath the diaphragm lifts the weight by forcing the piston upwardly. In the event of too great pressure, as well as when the pressure falls below the minimum for which the device is adapted, the circuit is closed through the contact-piece L, engaging one or the other of the branches of the closer K, and thereby give the necessary warning by the ringing of a bell or other signal (not shown) included in the circuit. It is readily ascertainable at a glance at the device which of the two abnormal conditions is present, thereby enabling proper steps to be immediately taken to restore the proper pressure in the main.

It will be noted that the parts of which my device is constructed are extremely simple and that the cost of manufacture is not very great. It will also be seen that I employ in a single device means for giving the necessary signal both when the pressure is in excess or less than that required in the gas-main.

I claim as my invention—

1. An alarm of the character described, comprising a piston-chamber, a piston, an insulated upright, a circuit-closer mounted thereon, and having opposite parallel branches, a contact-piece carried by the piston-rod, and designed to close the circuit by contact with either of said branches according as the pressure is in excess or less than normal.

2. An alarm of the character described, comprising a piston-chamber, a piston, upright bars secured to opposite sides of said cylinder, a weight guided by said bars and en-

gaged by the rod of said piston, a contact-piece adjustable on said rod, an electric circuit, and a circuit-closer mounted on one of said bars and having opposite parallel branches
5 between which said contact-piece is movable, as set forth.

3. In an alarm of the character described, comprising a piston-chamber, a piston having a threaded rod, an insulated upright secured
10 to said cylinder, a pressure-counterbalance acting on said piston, a contact-piece working on the thread of said rod, a circuit, and a circuit-closer mounted on said bar and having opposite parallel branches between which said
15 contact-piece is located, as set forth.

4. An alarm of the character described, comprising a piston-chamber, a diaphragm therein, a coupling-nut fitted in said chamber, a

piston having its rod extended through said chamber and threaded on its outer end, up- 20
right bars secured to opposite sides of said cylinder, a circuit, a circuit-closer having upper and lower opposite parallel branches, a contact-piece adjustable on said piston-rod
25 designed to engage either of said branches for closing the circuit, and a weight bearing on said piston-rod and guided by said upright bars, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two sub- 30
scribing witnesses.

LEVI N. COFFIELD.

Witnesses:

HENRY P. FULLER,
ROBERT SHACKELFORD.