

No. 877,919.

PATENTED FEB. 4, 1908.

F. FINK.  
ELECTRICAL CONTACT DEVICE.  
APPLICATION FILED FEB. 25, 1907.

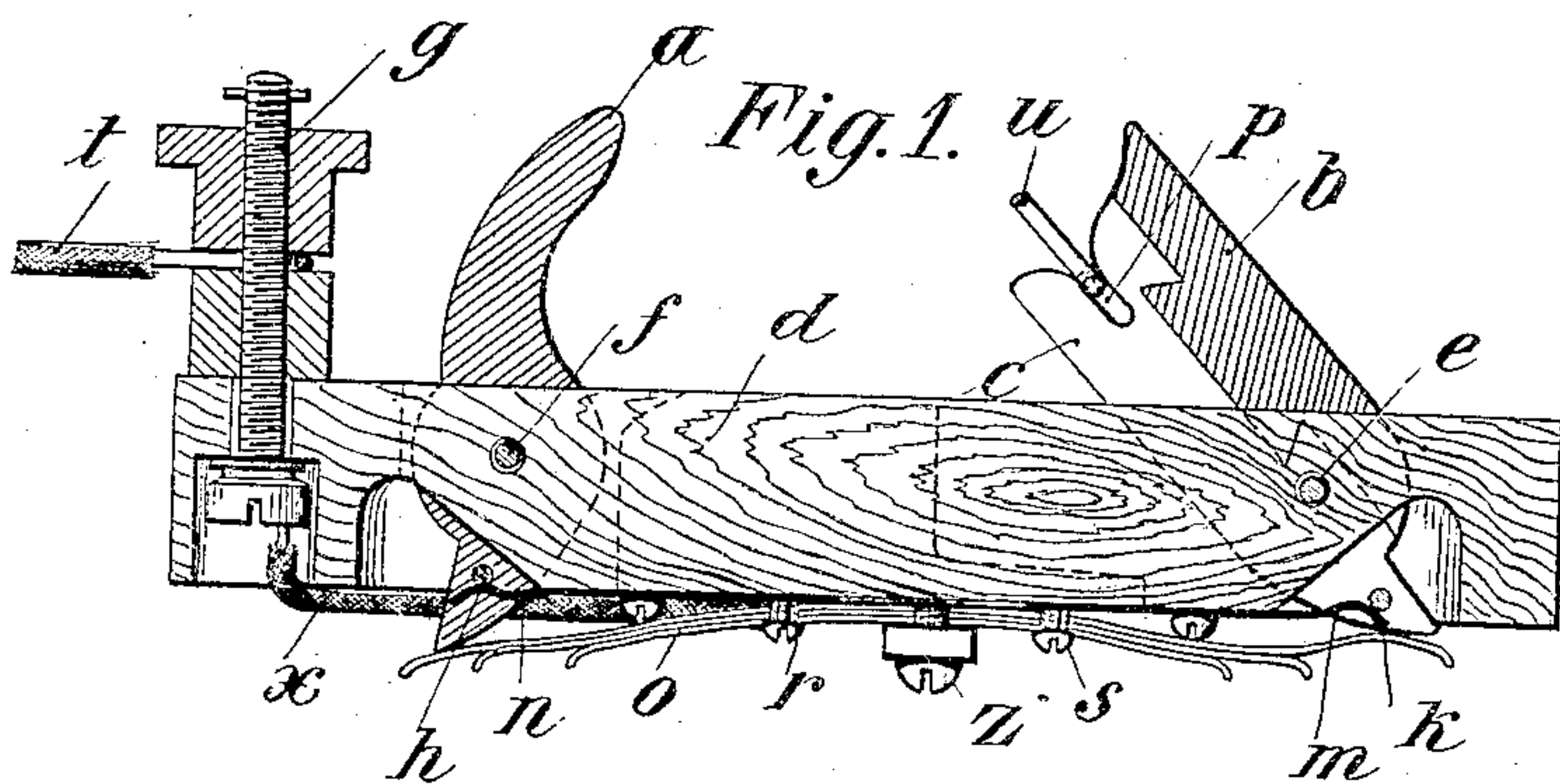


Fig. 2.

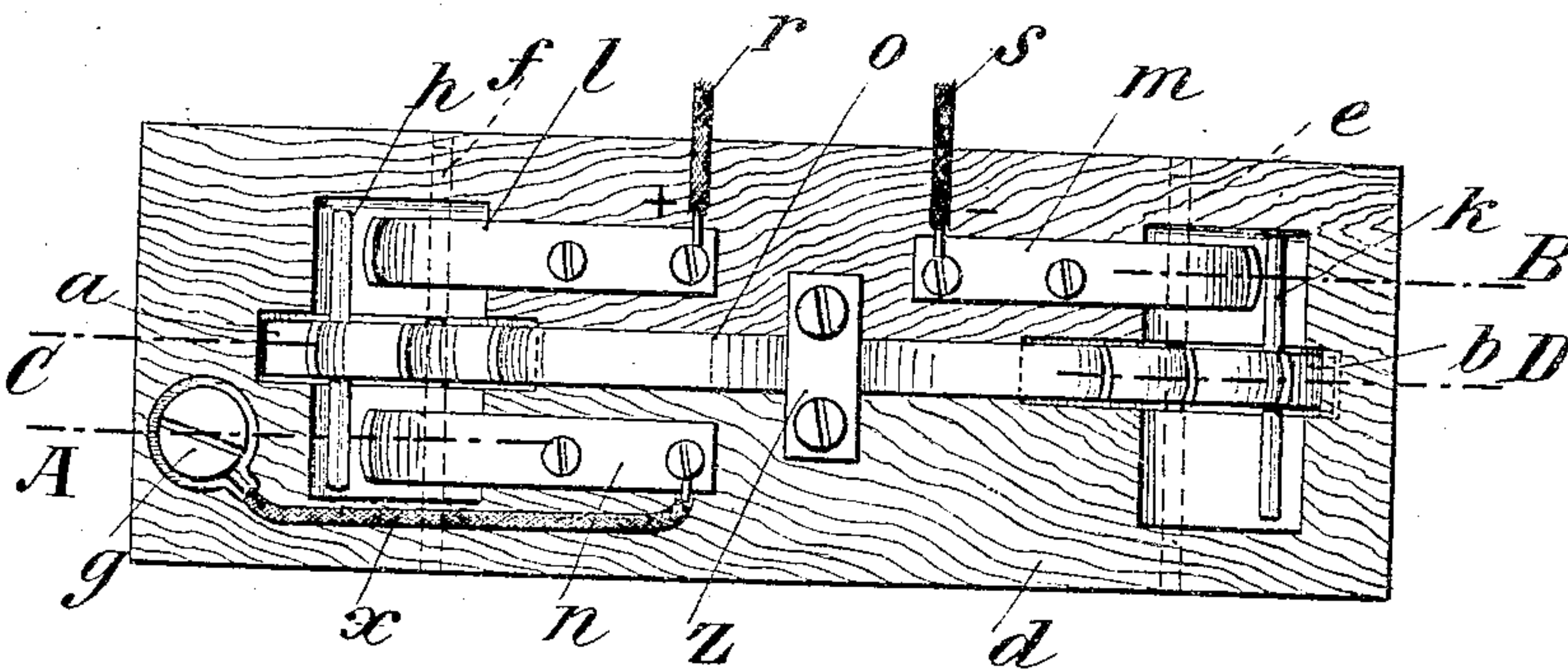
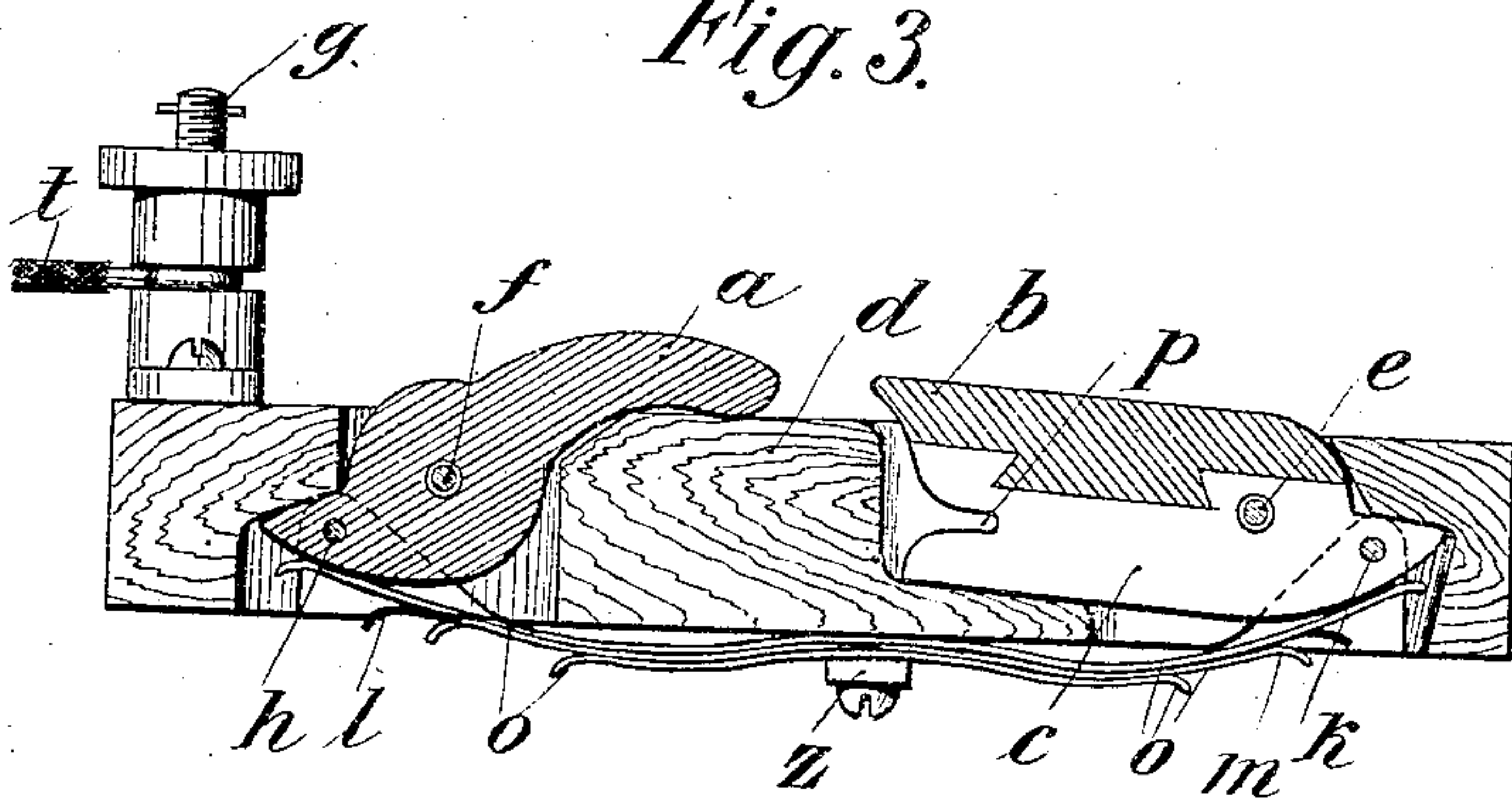


Fig. 3.



Witnesses:  
Paul Filler  
Harold Baron

Inventor:  
Friedrich Fink



# UNITED STATES PATENT OFFICE.

FRIEDRICH FINK, OF RECKLINGHAUSEN, GERMANY.

## ELECTRICAL CONTACT DEVICE.

No. 877,919.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed February 25, 1907. Serial No. 359,200

*To all whom it may concern:*

Be it known that I, FRIEDRICH FINK, a subject of the German Emperor, and resident of Recklinghausen, Westphalia, Germany, have invented certain new and useful Improvements in Electrical Contact Devices, of which the following is a specification.

The present invention relates to a contact device for the electric ignition of blasting charges mine cartridges and the like.

It consists essentially of a pair of levers fastened in a wooden block and held in the position of rest by means of a spring. By raising the two levers as hereafter described the electric circuit can be closed, and the charge fired.

The new contact device is characterized by being very safe and sure in use. Owing to its peculiar construction an unintentional accidental firing of the explosive, by knocking, or letting fall the contact device is impossible. Moreover, the electrical contact when made is an exceedingly good one, so that when this contact device is used misfires cannot take place.

In the accompanying drawings: Figure 1 is a vertical section of the new contact device on line A B of Fig. 2, Fig. 2 is a view from below, and Fig. 3 is a vertical section on line C D of Fig. 2.

The two levers *a* and *b* of insulating material are mounted on the pins *f* and *e* respectively in the block *d*. The block *d* may be made of any non-conducting material suitable for the purpose. The part *c* of the lever *b* in the position of rest lies in the block, and is made of brass or other suitable conducting material; it is provided at the free end with a slot *p* and both levers are pointed on their lower ends. In the block *d* and projecting from the same a brass terminal screw *g* is fixed. On the bottom of the block *d* a multiple layer spring *o* is fastened by means of the plate *z* and screws. This spring presses with its two free extremities against the levers *a* and *b* and keeps them in the position of rest. In the lower parts of the levers *a* and *b* metal pins *h* and *k* are fixed projecting laterally. When the lever *a* is raised the pin *h* presses against two contact springs *l* and *n*, fixed on the bottom of the block *d*. The pin *k*, which is situated in the lower conducting part *c* of the lever *b*, presses, when the lever *b* is raised, with one end on the contact spring *m*. The contact

springs are fastened to the block *d* by means of screws, or in any other suitable manner. The lower end of the terminal screw *g* is connected by means of conducting material *x* with the contact spring *n*. Attached to the two contact springs *l* and *n* respectively are connecting wires *o* and *s* leading to an electric battery which supplies the current for igniting the fulminate.

The new contact device is operated in the following way:—A wire leading from the cartridge or explosive charge is connected to the terminal *g*. With the one hand the lever *b* is now raised whereby the pin *k* makes a connection between the lower metallic part of the lever and the contact spring *m*, which is in connection through the wire *s* with the battery. The second wire *u* leading from the fulminate is then inserted in the slot *p*. With the other hand the contact lever *a* is raised, whereby the pin *h* connects the contact spring *l*, connected with the battery through the wire *r* with the contact spring *n* connected with the terminal *g* through the wire *x*. The electric circuit is hereby closed and the explosive charge ignited. After releasing the levers *a* and *b*, they are brought back into the position of rest by the tension of the spring *o*.

By the use of the new contact device an unintentional or accidental firing of the explosive before the proper time is avoided. This advantage is due to the peculiar construction of the device. The connections *p* and *g* when the instrument is not in use are completely without current, and moreover the connection *p* in the position of rest lies concealed, so that it is impossible for an electric circuit to be set up, before it is required.

For the insertion of the one firing wire into the slot *p* both hands are necessary, so that the one hand *f* does not become free to raise the lever *a* until this connection has been completed. It is therefore impossible for the firing wires to be accidentally brought into contact with the connections. Moreover the method of release is such that one can never be uncertain as to whether the battery current is open or closed. With the ordinary press button contact it sometimes happens that the contact surfaces remain fast together, and if this fact is not observed an intentional firing of the explosive may take place. This drawback is completely avoided by my invention since one can tell



at a glance by the vertical position of the levers if the contact surfaces remain touching.

A further advantage of my new contact device is that the electrical contact is made by the friction of metal surfaces, so that oxidation of the surfaces has less deteriorating effect than with the present press button contacts, since the surfaces in my instrument are kept bright by the rubbing. Missfires are therefore completely avoided by the use of my invention.

What I claim as my invention and desire to secure by Letters Patent is:

1. Electrical contact device, comprising the combination of a slotted block of insulating material, a pair of levers pivoted in the slots in said block, one of said levers consisting of insulating material, the other lever consisting partly of insulating and partly of conducting material having a slot in the conducting part, metal pins in the lower ends of said levers, said metal pins projecting laterally, a multiple layer spring fixed on the bottom of the block, the extremities of said spring pressing on the lower ends of the levers, contact springs on the bottom of said block, two of said contact springs being in connection with a battery, a terminal screw in said block, a connecting wire from said terminal screw to a third contact spring, a connecting wire leading from the terminal screw, and a second connecting wire leading from the conducting part of the one lever,

all substantially as and for the purpose set forth.

2. In an electrical contact device the combination of a slotted block of insulating material, a first lever of insulating material pivoted in the block, a second lever consisting partly of insulating material and partly of conducting material, the conducting part of said second lever being provided with a slot adapted to receive a connecting wire, lateral projections on the lower part of each lever, two contact springs below the projections of the first lever, a terminal screw in the block, a wire from the terminal screw to one of said contact springs, the other contact spring being connected to a battery a third contact spring below the projection on the second lever, said third contact spring being connected to the battery, a multiple layer spring adapted to keep the projections on the levers out of contact with the contact springs, a wire leading from the terminal screw and a wire leading from the slot in the second lever, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name this seventh day of February, 1907, in the presence of two subscribing witnesses.

FRIEDRICH FINK.

Witnesses:

ALFRED POHLMAYER,  
ERNEST BORDRE.