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PATENTED AUG. 13, 1907

F. KAMMLER.
SAFETY DEVICE FOR THE IGNITION OF SLOW MATCHES.
APPLICATION FILED MAR. 9, 1907.

Fig. 2.

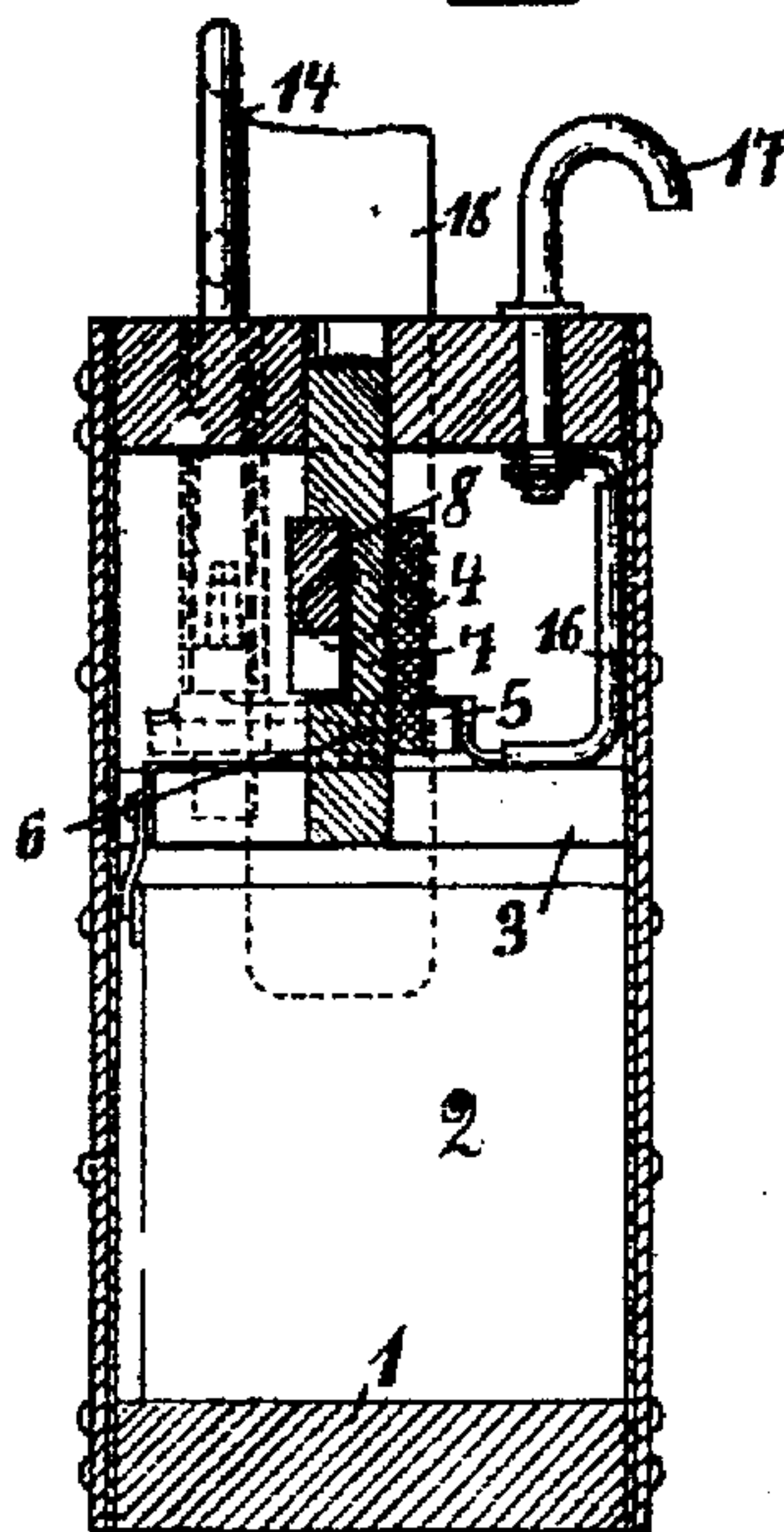


Fig. 1.

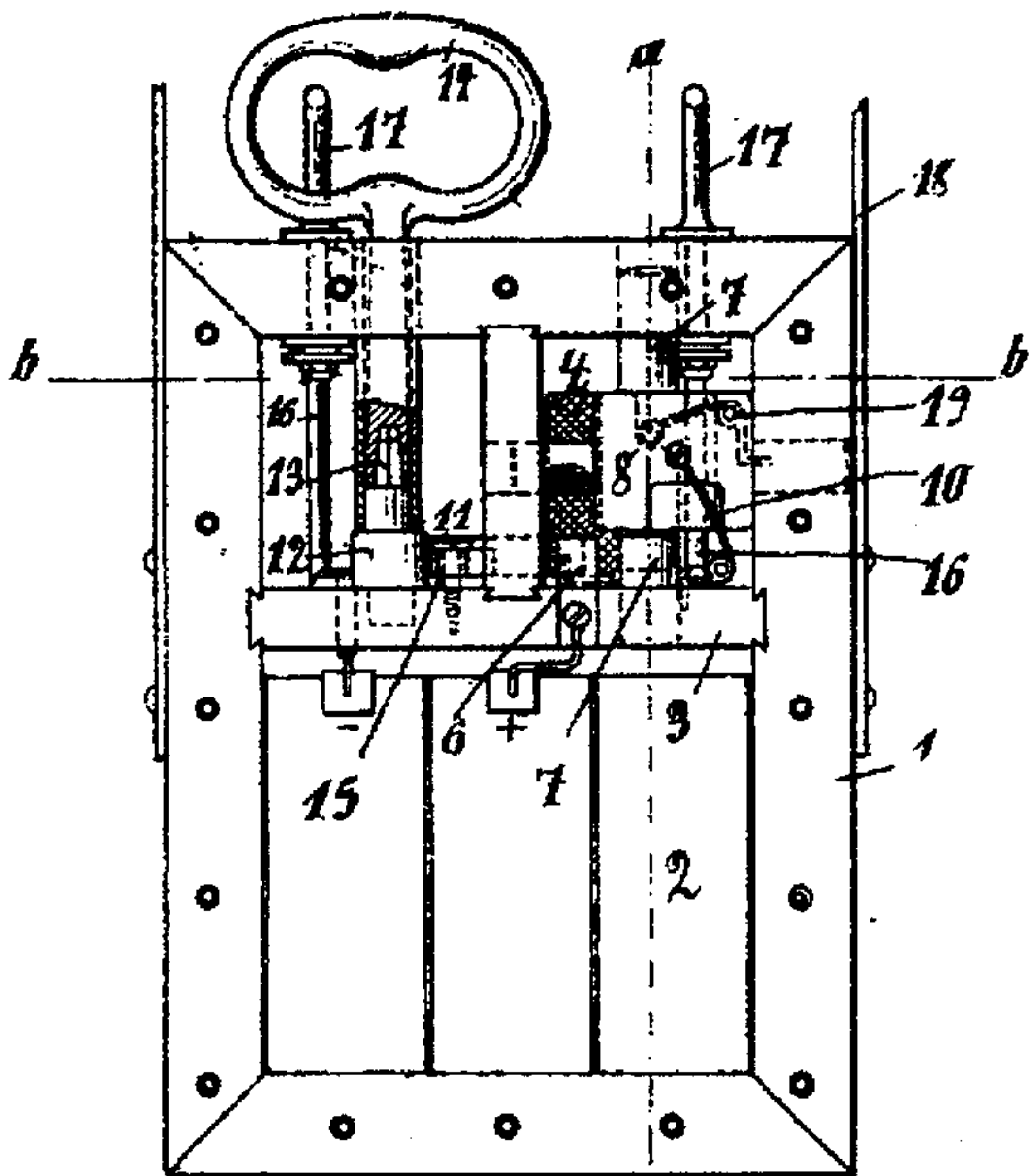


Fig. 3.

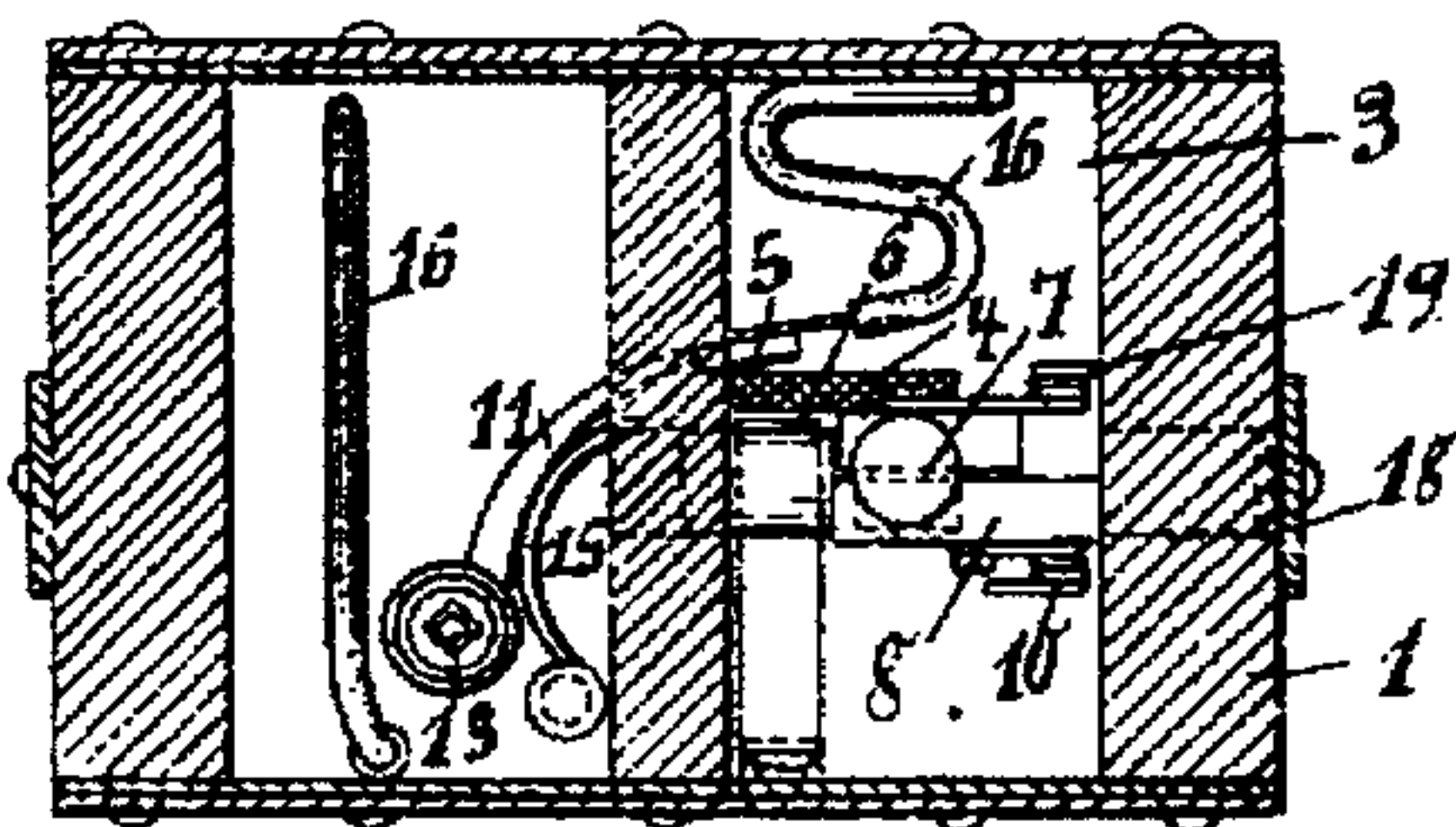
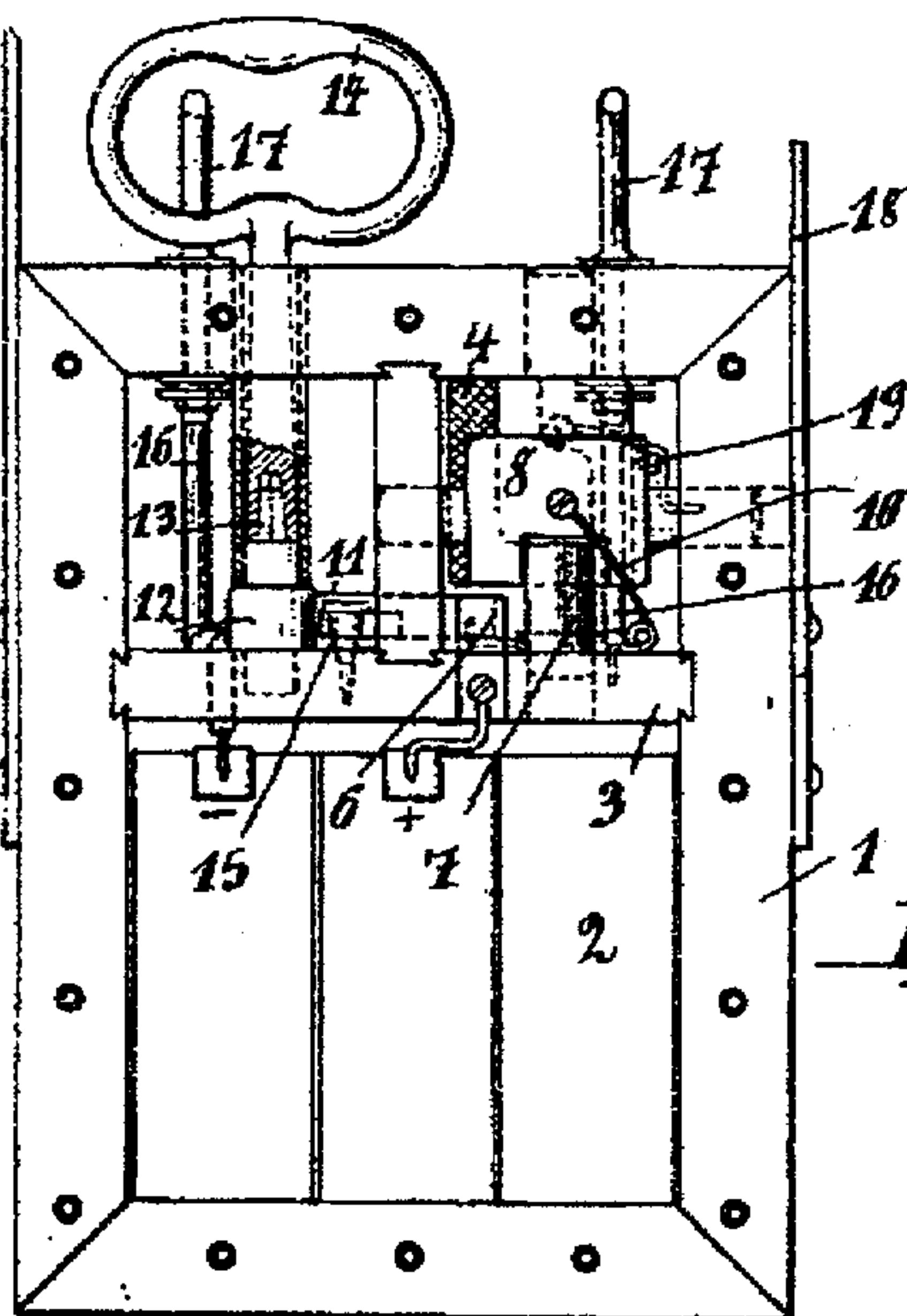


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANZ KAMMLER, OF GELSENKIRCHEN, GERMANY.

SAFETY DEVICE FOR THE IGNITION OF SLOW MATCHES.

No. 862,974.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed March 9, 1907. Serial No. 361,520½.

To all whom it may concern:

Be it known that I, FRANZ KAMMLER, a subject of the German Emperor, and a resident of Gelsenkirchen, Germany, have invented certain new and useful Improvements in Safety Devices for the Ignition of Slow Matches, of which the following is a specification.

This invention relates to a safety device for the ignition of slow-matches and their explosives, which is particularly adapted for use in mines or pits on account of its perfect safety of manipulation.

The safety device is shown on the accompanying drawing in which

Figure 1 is a front view of the same, the front wall being taken off to show the parts in inoperative position; while Figs. 2 and 3 are sections on the lines *a-a* and *b-b* of Fig. 1 respectively. Fig. 4 is a similar view to Fig. 1, showing the parts in operative position.

The apparatus comprises a closed casing 1 which at its lower part incloses the electric battery 2. In the upper part of the casing and separated from the battery by a partition 3, the safety device is situated. The latter essentially comprises a non-conducting plate 4 which in normal position lies between the two contact members 5 and 6. The plate 4 is connected with a slide-piece 7 which is guided in the partition 3 and in the top wall of the casing 1. In this position between the contact members 5 and 6, the plate 4 is held by means of a notched bar 8 which is guided in the partition 9 and in the side wall of the casing. The bar 8 is kept in the locking position by the influence of a spring 10.

Of the contact members 5 and 6, one, 5, is movable and disposed at the end of a strap 11 of which the movable center-pin 12 carries a square head 13 over which fits a detachable key 14. The fixed contact member 6 is in connection with one of the leads of the electric battery. Both contact members are kept apart by a spring 15. The movable contact member 5 is in connection with the other lead of the electric battery as well as with the fastening hooks 17 for the outer wires leading to the slow-match.

The carrying-belt 18 is so fixed to the side walls of the casing that it hides the outer guiding pin of the bar 8 forming a pressure knob, so that the latter can only be operated by persons versed with the construction of the apparatus.

In the safety-position of the apparatus as shown on

the drawing, the key 14 can be turned without a contact closing being effected.

When it is desired to effect a closing of the electric circuit, the hidden pressure-knob of the bar 8 is pressed inwards whereby the slide-piece is allowed to jump up into the notch of the bar 8 under the influence of a spring 19 provided for this purpose, thus causing also the non-conducting plate 4 to go up whereby the contact members are liberated and contact can be effected by simply turning the key 14. When taking off the latter, the contact members are brought asunder by the action of spring 15 while it is only necessary to press down the pressure-knob forming the outer guide-pin of the plate 4, in order to cause the bar 8 to lock under the influence of spring 10 the plate 4 into its non-conducting position between the contact members and thus to set the apparatus again ready for use.

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

A safety device for the ignition of slow-matches, comprising in combination a closed casing (1), a belt (18) attached to, and designed to carry the latter, an electric battery (2) situated in the lower part of said casing, a partition (3) situated above said battery, a fixed contact member (6) connected with one lead of said battery, a movable contact member (5) centered on said partition (3) and having its movable center-pin square-headed and connected with the other lead of said battery, a detachable key (14) designed to fit the square head of said center-pin of said movable contact member (5), a spring (15) adapted to keep said contact members apart from each other, a slide-piece (7) adapted to be guided in said partition (3) and in the top wall of said casing (1), a non-conducting plate (4) connected to said slide-piece (7) and adapted to lie in normal position between said contact members and having its upper guide formed as a pressure-knob, a notched bar (8) designed to lock said plate (4) in its non-conducting position, a pressure-knob on said bar disposed so as to be hidden by said carrying-belt (18), a spring (10) adapted to keep said bar in its locking position, a spring (19) adapted to press said plate (4) out of its locking position upon the latter being freed from said bar (4) with the aid of the hidden pressure-knob of the latter, and fastening hooks (17) designed to connect the apparatus to the slow-match by being connected with said movable contact member (5), substantially as described and shown.

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

FRANZ KAMMLER.

Witnesses:

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