A. E. BOGGS.

ALARM DEVICE.

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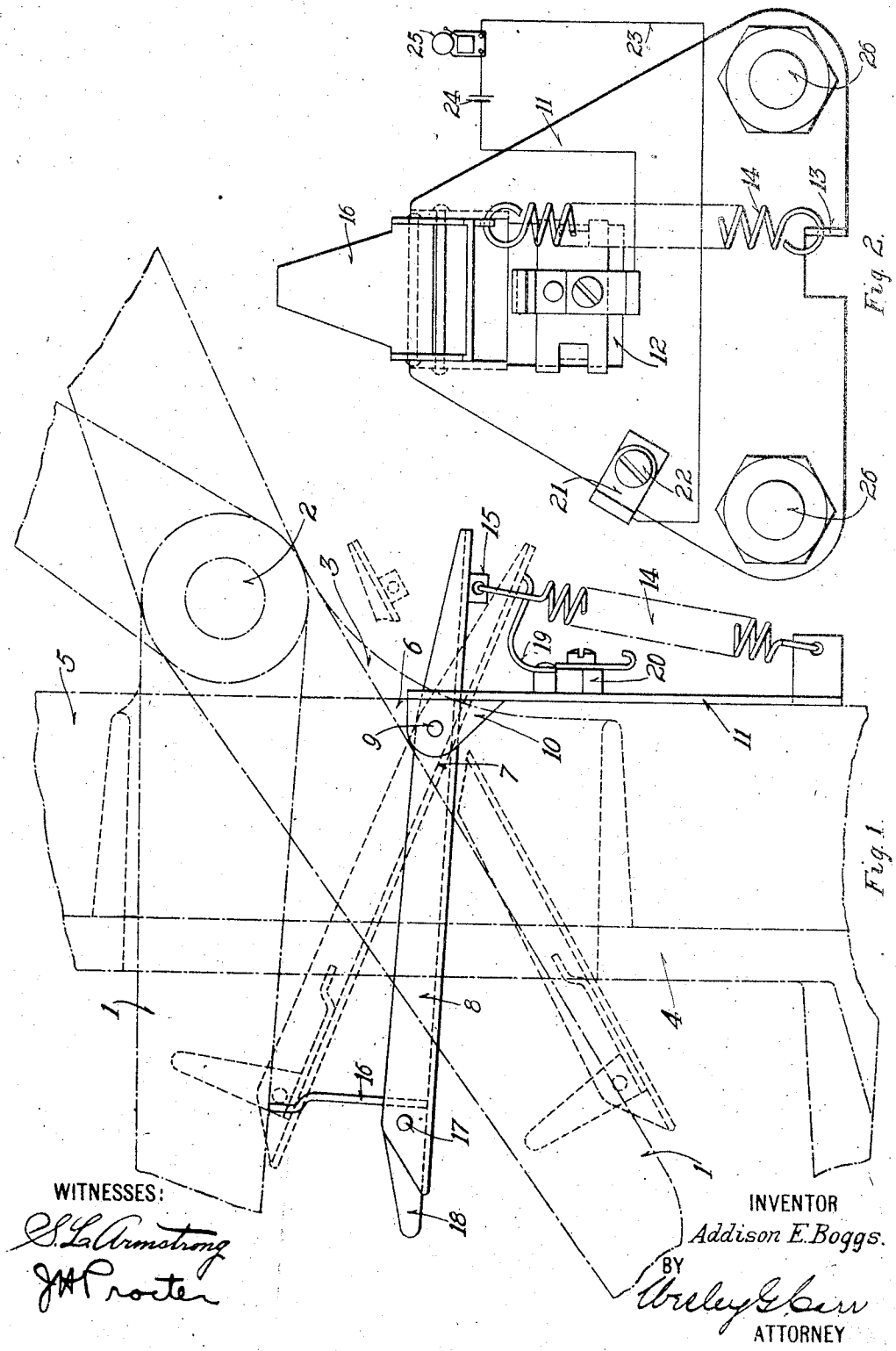


Fig. 2.

Fig. 1.

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ALARM DEVICE.

1,206,296. Specification of Letters Patent. Patented Nov. 28, 1916.

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To all whom it may concern:

Be it known that I, ADDISON E. BOGGS, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Alarm Devices, of which the following is a specification.

My invention relates to alarm devices and particularly to devices that indicate by either an audible or a visible signal, the tripping of a circuit interrupter.

The object of my invention is to provide a compact and easily constructed alarm-controlling device that may be adapted to circuit interrupters of well known construction.

The usual alarm devices for indicating the tripping of a circuit interrupter must necessarily be set when the circuit interrupter is closed in order that it may operate correctly upon the tripping of the interrupter. Since the setting operation is one that may be neglected by operators, I provide a device that is automatically set when the interrupter is closed, irrespective of the position its parts have assumed prior to the closing operation. I further provide means for manually silencing or rendering the alarm inaudible after the interrupter has been tripped.

Figure 1 of the accompanying drawing is a fragmentary view of a circuit interrupter embodying my invention, and Fig. 2 is a rear view of the alarm device shown in Fig. 1.

A bell-crank lever 1 is pivotally mounted upon a pin 2 that is supported by a bracket 3 on the frame work 4. The frame work 4 constitutes a part of a circuit interrupter and is mounted on an insulating panel 5 that has an opening 6 therein in which the bracket 3 is disposed. The bell-crank lever 1 constitutes the main operating lever of the circuit interrupter to which my invention is applied.

In order to indicate when the circuit interrupter has been automatically tripped, I provide an alarm device 7 that comprises a member 8 which is pivotally mounted, at a point 9, on brackets 10 that project from a supporting plate 11. The plate 11 is substantially trapezoidal in shape and has an opening 12 therein that is formed by slitting the plate 11 and bending portions of the same at right angles to constitute the brackets 10. A second bracket 13 is formed by bending a portion of the plate 11, near its lower edge, at right angles to itself. To this second bracket or projection 13, is attached one end of a spring 14, the other end of which is attached to a similarly formed projection 15 on the inner end of the member 8. A member 16 is pivotally mounted at a point 17 near the outer end of the member 8 and is provided with a handle 18 for purposes hereinafter more fully set forth.

The member 8 consists of a flat strip of metal having its edges bent at right angles to constitute substantially a channel member and is adapted to engage, at its inner end a stationary contact terminal 19 that is supported by an insulating member 20 upon the plate 11. A second terminal member 21 is attached to the plate 11 by a screw 22 for the purpose of receiving a conductor. The parts 19 and 21 constitute the terminals of an annunciator circuit 23 comprising a source of electromotive force 24 and a bell or other annunciator device 25. The plate 11 may either be grounded to the frame work 4 of the interrupter or it may be insulated therefrom, according to whether or not a grounded circuit is desired.

When the lever 1 is in its lowest position, it engages the member 8 and causes the disengagement of the same from the contact terminal 19. However, when the member 1 rises, by reason of the tripping of the circuit interrupter, the member 8 will be biased by the spring 14 into such position that the inner end of the member 8 will engage the contact terminal 19, thus completing the circuit 23 to cause the bell 25 to operate. The audible signal, thus given, will cause an attendant to notice the tripping of the circuit interrupter. In order for him to prevent the bell from ringing further, the handle 18 must be turned to cause the member 16 to engage the lever 1 and thus move the member 8 out of engagement with the contact member 19. The position assumed by the member 8, as shown in the full lines in Fig. 1, is that which exists after the interrupter has been tripped and the alarm circuit 23 has been opened.

Upon again closing the interrupter by moving the lever arm 1 downwardly, the relative position of the pivotal points 2, 9 and 17 will cause the member 16 to turn upon its pivotal point 17 when the member 8 is moved downwardly until it assumes a position substantially parallel to the lower portion of the member 8, as shown in the lower

broken-line position in Fig. 1 of the drawings. Thus, the alarm device is automatically reset for further operation when the circuit interrupter is closed.

It will be understood that my invention is particularly adaptable to existing types of circuit interrupters, and it may be applied to such devices without the necessity of changing the design of the interrupter proper by simply attaching the plate 11 to the panel 5 by means of bolts 26 or by any other suitable means.

While I have shown my invention in its preferred form, it is capable of being variously modified, and I desire that only such limitations shall be imposed as are set forth in the appended claims.

I claim as my invention:

1. An alarm device for a circuit interrupter comprising a pivotally mounted arm, a member pivotally mounted on the said arm, a stationary contact member and means for yieldingly holding the said arm in engagement with the stationary contact member and the movable member of the circuit interrupter.

2. An alarm device for a circuit interrupter comprising a stationary contact member, a main pivotally mounted arm, a second arm pivotally mounted on one end of the main arm that is adapted to engage the operating lever arm of the circuit interrupter and means for yieldingly holding the said main pivotally mounted arm in engagement with the stationary contact member and the lever arm of the circuit interrupter.

3. An alarm device for a circuit interrupter comprising a stationary contact member, a main pivotally mounted arm having an auxiliary arm pivotally mounted thereon, and a spring for yieldingly holding the said main arm in engagement with the stationary contact member and the operating lever arm of the circuit interrupter, said auxiliary arm being adapted to engage the operating lever arm of the circuit interrupter under predetermined conditions.

4. An alarm device for a circuit interrupter comprising a stationary contact member, a main pivoted arm having an auxiliary arm pivoted thereon, and a spring for yieldingly holding the main arm in engagement with the stationary contact member and the lever arm of the circuit interrupter, said auxiliary arm being adapted to move the main pivoted arm out of engagement with the stationary contact member when it is moved relatively to the main pivoted arm.

5. A device for indicating the movement of a lever arm, comprising a pivotally mounted arm having a pivotally mounted member thereon, a stationary contact terminal, and a resilient member for effecting the engagement of the contact terminal and the pivotally mounted arm under predetermined conditions and for maintaining the pivotally mounted member in engagement with the operating lever arm.

6. An alarm device for a circuit interrupter comprising a stationary contact member, a pivotally mounted arm, a member pivotally mounted on the said arm and having a handle thereon and means for yieldingly holding the said pivotally mounted arm in engagement with the stationary contact member when the circuit interrupter is in its open position.

7. The combination with a movable member, of a pivoted arm, a member pivoted on the pivoted arm and having a handle thereon, a stationary contact member and means for yieldingly holding the pivoted arm in engagement with the movable member and the stationary contact member, said pivoted member being adapted to effect disengagement of the contact member and the pivoted arm when it is turned.

In testimony whereof, I have hereunto subscribed my name this 30th day of Jan., 1915.

ADDISON E. BOGGS.

Witnesses:
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