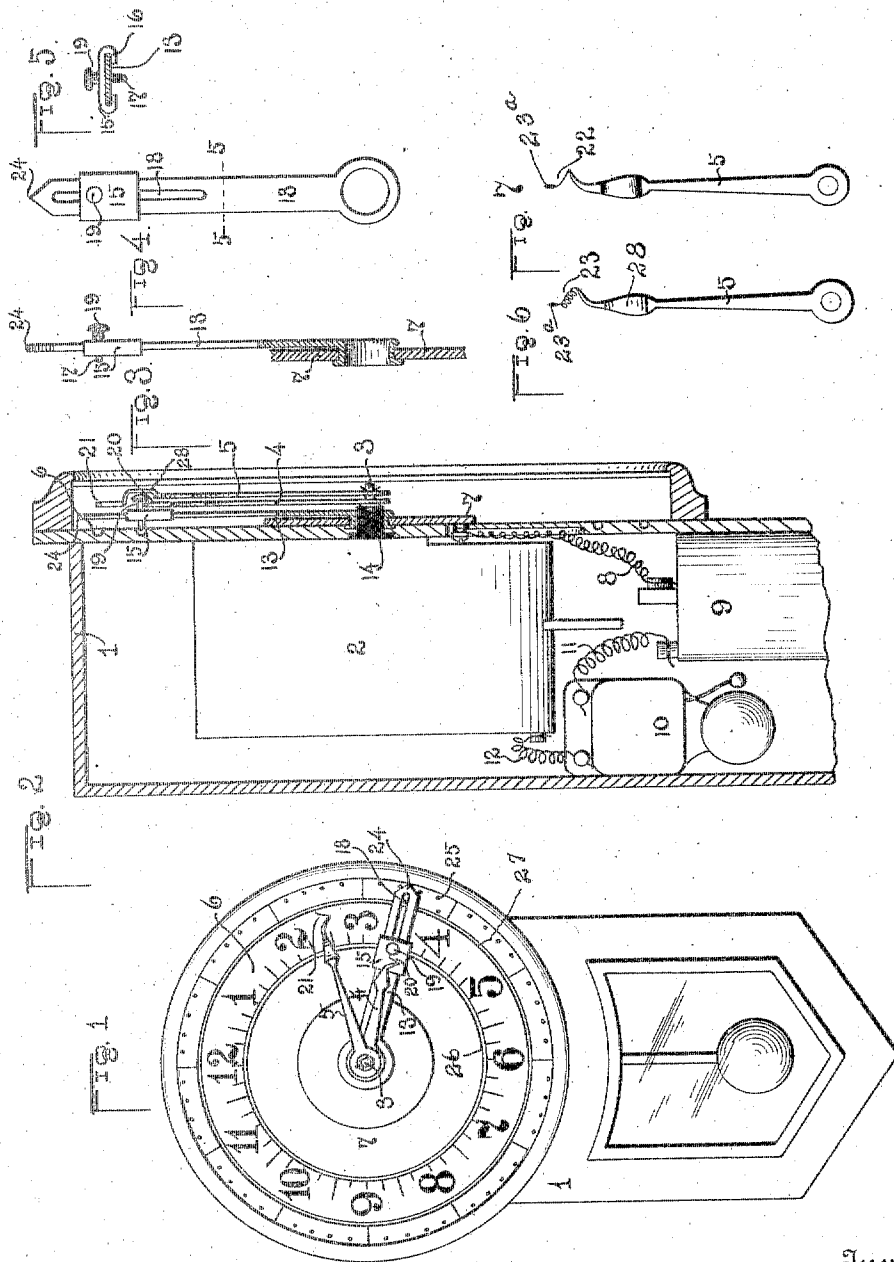


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UNITED STATES PATENT OFFICE.

HUGH MACDONALD, OF ANN ARBOR, MICHIGAN.

SIGNALING MECHANISM.

982,839.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HUGH MACDONALD, a citizen of the United States, residing at Ann Arbor, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Signaling Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in signaling devices for clocks and is more particularly an improvement over that form of signaling device shown in my application for Patent #455343, filed September 22, 1908 and allowed December 11, 1909 and my object is to provide means for electrically energizing the works of a clock and a metallic disk, whereby when the hands engage parts of the disk an alarm will be sounded.

A further object is to provide a swinging arm in connection with the disk, whereby the contact point for the hands may be adjusted to any suitable position.

A further object is to provide an adjustable contact point, whereby a contact may be made between either the hour or minute hand of the clock.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings which are made a part of this application, Figure 1 is a front elevation of a clock showing my improved signaling device applied thereto. Fig. 2 is a vertical central sectional view through the frame of the clock and the dial thereof. Fig. 3 is a detail sectional view through the arm and disk on the dial of the clock. Fig. 4 is an elevation of said arm. Fig. 5 is a sectional view of Fig. 4 on line 5-5. Figs. 6 and 7 are elevations of the hands of the clock showing the different forms of contact fingers thereon.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the frame of the clock which may be constructed in the usual or any preferred manner and 2 indicates the works of the clock, which may be likewise constructed in any preferred manner.

The usual form of stem 3 is attached to the works and on said stem are mounted the

hour and minute hands 4 and 5 respectively, said hands traveling in the usual manner over a dial 6 on which are indicated the hours and minutes.

Attached to the dial 6 is a metallic disk 7 to which is secured one end of a wire 8, the opposite end of said wire being attached to a battery 9 and by means of which the disk is electrically energized.

Between the battery and works of the clock is located an alarm 10, in this instance comprising a bell, one pole of the bell being attached to the battery by a wire 11 and the opposite pole of the bell to the works through a wire 12, thereby electrically energizing the alarm through the works of the clock and the disk when the circuit is closed. Pivotaly attached to the disk 7 is an arm 13, the pivotal end of which is insulated from the hands 4 and 5 and the stem upon which they are mounted by the usual or any preferred form of insulation 14, thereby completely insulating the disk from the works of the clock.

Slidably mounted upon the arm 13 is a plate 15, the edges of said plate being curved downwardly and inwardly to form channels 16, which channels engage the edges of the arm 13 and form guides for the plate 15. The plate 15 is longitudinally movable of the arm 13 and is limited in its movement by extending a stem 17 downwardly from the plate 15 and through an elongated slot 18 in the arm. The object in moving the plate longitudinally of the arm is to position the contact point 19 carried by said plate into the path of either the hour or minute hand, said contact point being so arranged that the minute hand will move freely over the top of the stem without coming in contact therewith.

The ends of the hands 4 and 5 are preferably bent toward the direction of travel and to the ends of said hands are secured fingers 20 and 21, respectively, which are adapted to engage the contact point 19 and close the circuit between the disk and works of the clock and thereby sounding the alarm. In view of the fact that the points of the hands 4 and 5 are bent at an angle to the longitudinal plane of the hand portions the contact fingers are extended laterally to bring the free ends of said fingers in alignment with the longitudinal centers of the hands. And as the contact fingers are preferably constructed of spring wire the later-

ally extending portions 22 thereof will add to the tension of the fingers while, at the same time, said fingers will be very sensitive.

In Fig. 6 of the drawing, I have shown a slightly modified form of contact finger, in that a portion of the laterally extending section thereof is made spiral, as shown at 23. And in addition to the spiral portion of the fingers the ends of said fingers may be provided with balls, or knobs, 23^a, as shown in Figs. 6 and 7.

The free end 24 of the arm 13 is preferably more or less pointed and is adapted to cooperate with graduations or points 25 adjacent the edge of the dial of the clock, whereby the arm may be positioned without unnecessary trouble at any particular hour or fraction thereof.

In operation should it be desired to sound the alarm or signal at any particular hour or fraction of an hour, the arm 13 is swung to the proper position, in the present instance 3.30 o'clock and the plate moved inwardly until the stem 17 is in registration with a circular channel 26 on the dial, thus bringing the contact point 19 into the path of the finger 20 and it will be readily seen that when the hour hand has moved the contact finger thereon into engagement with the contact point, the alarm 10 will be energized and the signal made. If on the other hand it is desired to make the signal so many minutes apart or every hour, the plate 15 is moved outwardly on the arm until the stem 17 is in engagement with the circular channel 27, also formed on the dial, thus positioning the contact point thereon in the path of the finger 21 and if the signal is to be made every hour, the arm 13 is swung to the numeral 12 and if the alarm is to be made at any fraction of the hour, the arm 13 is positioned accordingly. The arm 13, is preferably made of spring metal so that it can be moved upwardly a sufficient distance to free the stem 17 from the channels 26 or 27, and will immediately lower the stem into either of said channels when upward pressure is released therefrom.

To permit the hand 5 to move freely over the contact point 19, said hand is provided with an upstanding portion 28, as best shown in Fig. 2 of the drawing, said upstanding portion being of sufficient height to permit said hand to freely move over said contact point.

It will thus be seen that I have provided a very cheap and economical form of signaling mechanism and one that can be readily applied to any clock. It will likewise be seen that the signal can be operated at any hour or every hour or any fraction of an hour and in view of the simplicity of the device it can be attached to the clock at a very nominal expense. It will further be seen that when the signaling mechanism is

not to be used the contact point may be moved entirely beyond the path of the hands, thereby permitting the hands to move around the dial without causing an alarm.

What I claim is:

1. In a signaling device, the combination with a disk and the hands of a clock and means to energize said disk and hands, of a movable arm connected to said disk and insulated from said hands, a plate adjustably mounted on said arm and a contact point carried by said plate adapted to be brought into engagement with either of said hands, whereby the circuit between the hands and disk will be closed and an alarm sounded.

2. In a signaling device, the combination with a disk, a signal, and energizing medium, an hour and minute hand connected to said energizing medium, of an arm pivoted to said disk and insulated from said hands, contact fingers carried by said hands, a plate adjustably mounted on said arm and a contact point carried by said plate adapted to be moved into the path of the finger of either the hour or minute hand, whereby when either of the fingers engage said contact point the circuit will be closed and the alarm operated to give a signal.

3. In a signaling device, the combination with a metallic disk, an hour and minute hand, an alarm and means to electrically energize the disk, alarm and hands, of an arm pivotally attached to said disk and insulated from said hands, a plate slidably mounted on said arm, means to limit the movement of said plate, a contact point on said plate and contact fingers at the ends of said hands adapted to engage said contact point and close the circuit when said contact point is moved into the path of the fingers on either of said hands.

4. In a signaling device, the combination with an energizing medium of an arm having a contact point thereon, means to adjust said contact point and to retain the same in its adjusted position, a pair of hands having their free ends extended at an angle to the trend of said hands and contact fingers having laterally extending portions adapted to bring the contact ends thereof in alignment with the longitudinal axis of the hands.

5. In a signaling device, the combination with a dial of a clock having circular channels, a pair of hands and contact fingers at the ends of said hands, of an arm movable over said dial, a movable contact point carried by said arm, a stem extending through said arm and adapted to be entered in said channels to hold the contact point in proper alignment, and means to energize said hands and arms, whereby a circuit will be formed when the contact fingers of either hand engages the contact point.

6. In a signaling device, the combination

with a dial of a clock, hands therefor and contact fingers carried by the free ends of said hands; of a movable arm, means to energize said hands and arm, a movable contact point on said arm, and means cooperating with said dial to retain said contact point in proper alinement, for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HUGH MACDONALD.

Witnesses:

C. E. BARTHELL,
THOMAS BIDDLE.