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H. H. McINTIRE.

ELECTRIC TIMING DEVICE.

APPLICATION FILED MAR. 29, 1904.

FIG. 1.

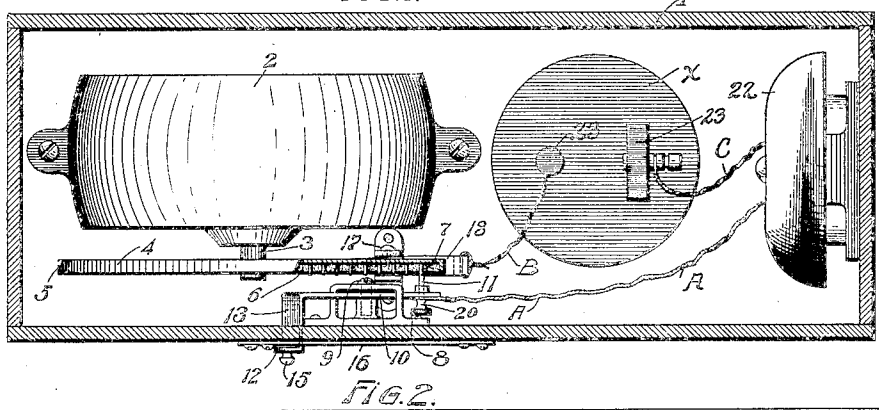
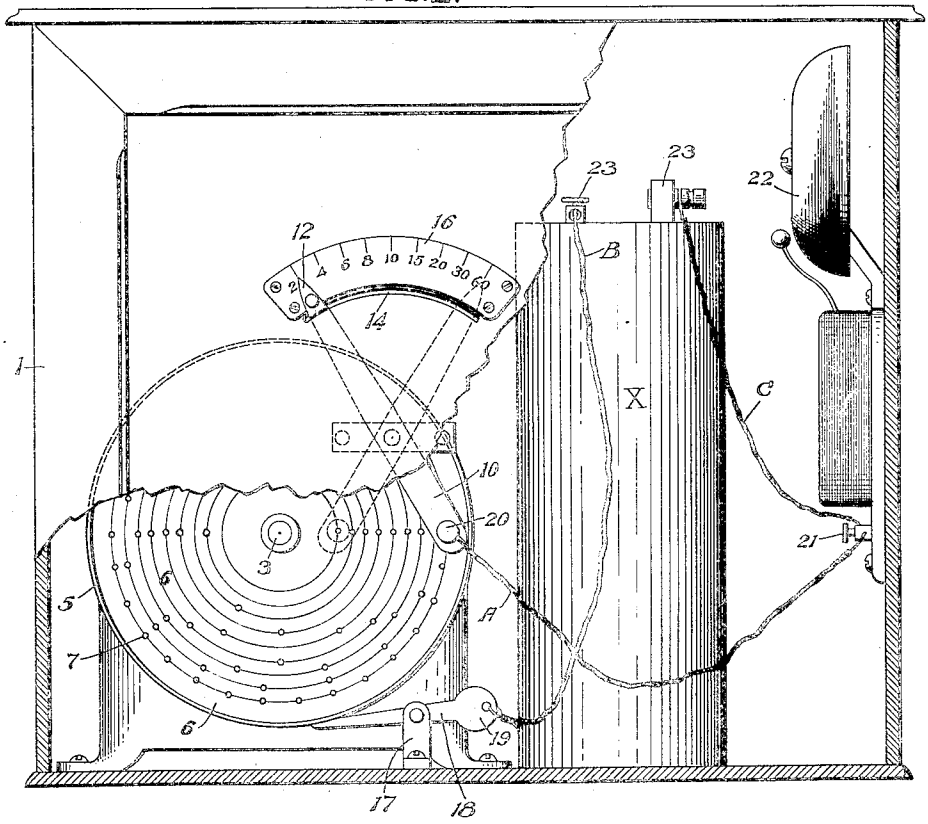


FIG. 2.



Witnesses:
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ELECTRIC TIMING DEVICE.

No. 843,621. Specification of Letters Patent. Patented Feb. 12, 1907.

Application filed March 29, 1904. Serial No. 200 642.

To all whom it may concern:

Be it known that I, HERVEY H. McINTIRE, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Timing Devices; 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.

This invention relates to a timing device, and is more especially adapted for use in connection with photographic-printing machines, and has for its object to provide means for signaling certain units of division of time which may be predetermined, so as to indicate the exact time of exposure for each print.

A further object of the invention is to furnish means for changing the time of signaling or detonation, such changes being indicated and predetermined.

The invention embodies a motor-driven contact member and a combined indicator and switch, which is movable relatively to the contact member to change the period of time of the successive contacts, and an electrical connection between the switch and contact member to operate an electric bell, annunciator, or other means for bringing auricular notice of the contact.

The invention further consists in the construction, combination, and operative aggroupment of parts, all as will be more fully described hereinafter, illustrated in the accompanying drawings, and finally pointed out in the appended claims.

In the drawings, Figure 1 is a plan view of the device with a portion of the motor-driven contact member shown in section and with the side and end walls of the case shown in section. Fig. 2 is a front elevation with the front of the case broken away to expose the operating mechanism of the device.

Making renewed reference to the drawings, 1 designates a case, which incloses the operating mechanism of the timing device. Mounted in the case is motor 2, which is of any suitable type and which is adapted to impart a continuous rotary motion to a shaft 3, there being a suitable means connected with the motor for maintaining a uniform speed of rotation of the shaft.

Rigidly secured upon the end of the shaft 3, and preferably by an insulated connection, is a contact member 4, which consists of the circular disk having a flanged rim 5. This contact member or disk is preferably disposed vertically within its case. Upon the outer face and inclosed by the annular flange 5 is an insulator pad or block 6. Secured to the disk and projecting from the front face thereof through the insulating pad or block are a plurality of contact-pins 7, which are arranged in annular rows therearound, and the pins of each row are speacd at equal distances apart; but each row contains a different number of pins, so that the distance between the pins of each succeeding row increases from the periphery toward the center of the disk and the number of pins in each row decreases.

Secured to the front of the case on the inside thereof is a bracket 8, in which is pivoted, as by a pin 9, a combined switch and indicator 10, which consists of an arm, the lower end of which carries a contact-pin 11, which projects toward the disk and in the path of the contact-pin 7 carried thereby, and this portion of the arm constitutes a switch to make or break an electric current between the arm and the disk. That portion of the arm which projects above its fulcrum is formed into a pointer or indicator 12, which is offset, as at 13. The offset portion extends through a slot 14 in the front of the case and is provided with a knob 15 to facilitate the manipulation thereof. Since the arm has a fixed pivot, the ends thereof will oscillate, and for this purpose the slot 14 is curved to conform to the arc described by the offset portion of the arm.

Above the slot on the outside of the case is a scale 16, on which are characters which indicate the time that will elapse between each contact, so that by setting the indicator at a point on the scale the number of units or division of time elapsing between the contacts of the pins of any particular row with the contact-pin 11 on the outer end of the arm may be predetermined, the characters being spaced apart the proper distance, so that when the pointer is moved opposite any character the contact-pin will likewise be moved into alinement with the row of pins having the required spaces therebetween to register the proper interval of time on the indicator.

Pivoted between two ears 17 in the bottom of the case is a contact-lever 18, the outer end of which is weighted, as at 19, to hold the inner end thereof into engagement with the periphery or flanged rim of the disk.

The contact-pin 11 in the end of the switch-arm 10 is provided with a thumb-nut 20, which may serve as a binding-post for an electric conductor A, which is connected with another binding-post 21 of an electric bell 22 in the usual manner. Secured to the contact-lever 18 is an electric conductor B, which is connected to one of the electrodes 23 of a battery jar or cell X, the other electrode of the battery being connected with binding-post 21 by a conductor C, so that when contact-pin 11, carried by the switch, is engaged with the contact-pins 7 of the disk the circuit will be closed and the bell will ring to indicate that the contact was made. Instead of the bell shown in the drawings any suitable annunciator or signaling device may be employed, since the sole object of the same is to bring auricular notice that the contact has been made.

Assuming that the motor 2 drives the contact member or disk 4 at such a speed as to give it one rotation every minute and the indicator 12 is set on the scale opposite the numeral 2 at one end thereof, the switch end of the arm, with its contact-pin 11, will be in the path of the outer row of pins, and assuming that this outer row contains thirty pins which are spaced apart equal distances the contact will occur every two seconds, and therefore the bell will be rung thirty times during the one revolution of the disk. Obviously the indicator may be moved to change and predetermine the period of time between each contact and annunciation, and in Fig. 2 the combined indicator and switch is shown in dotted lines as being set to annunciate once in every rotation of the disk or once every minute. In this respect it will be noted that the combined switch and indicator is fixed with relation to any particular row of pins carried by the contact member 4, but movable relatively to the latter to change the time between the contacts and the annunciation thereof. In this way the operator may set the indicator at the lowest point on the scale, watch the printing of a picture, and count the number of sounds of the bell, and when he has determined the time necessary for the exposure he may set the indicator to that point at which only one annunciation is necessary to notify him of the exposure.

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

1. In a device of the class described, the combination of a rotary disk having rows of contact-pins arranged therearound, a pivoted member having one end arranged to engage the contact-pins and constituting one terminal of an electric circuit and its other end formed into a pointer, a contact member permanently held in contact with the periphery of the disk and constituting the other terminal of the circuit, and an alarm included in the circuit, substantially as specified.

2. Means for signaling or measuring certain units or divisions of time of a predetermined period embodying a continuously-driven member having contact-pins spaced apart at equal distance thereon, a switch movable relatively to the contact-points of the continuously-driven member and adapted to engage therewith, an indicator on one end of the switch to adjust the latter and vary the period of contact between the switch and the contact-pins of the continuously-driven member, a scale, over which the indicator moves, having characters to indicate the number of units of time that elapse between the contacts, a contact member constantly held engaged with the disk, an annunciator, and an electric connection for the switch, the annunciator and the last-mentioned contact member.

3. Means for signaling or measuring certain units or divisions of time of a predetermined period embodying a continuously-driven disk having contact-pins projecting from the face thereof and also having an insulating pad or block through which the pins project, a pivoted arm having a contact-pin in its lower end to constitute a switch and its upper end formed into an indicator and constituting a means for adjusting the switch with relation to the contact-pins on the disk, a scale, over which the indicator moves, having characters to indicate the number of units of time that elapse between the contacts, a weighted contact-lever constantly engaged with the disk, an annunciator, and electrical connections for the switch, the annunciator and the weighted contact-lever, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

HERVEY H. McINTIRE.

Witnesses:
GEORGE OLTSCH,
HUGO OLTSCH.