

No. 896,586.

PATENTED AUG. 18, 1908.

D. SANDRETTO.
MAKE AND BREAK DEVICE.
APPLICATION FILED JUNE 22, 1908.

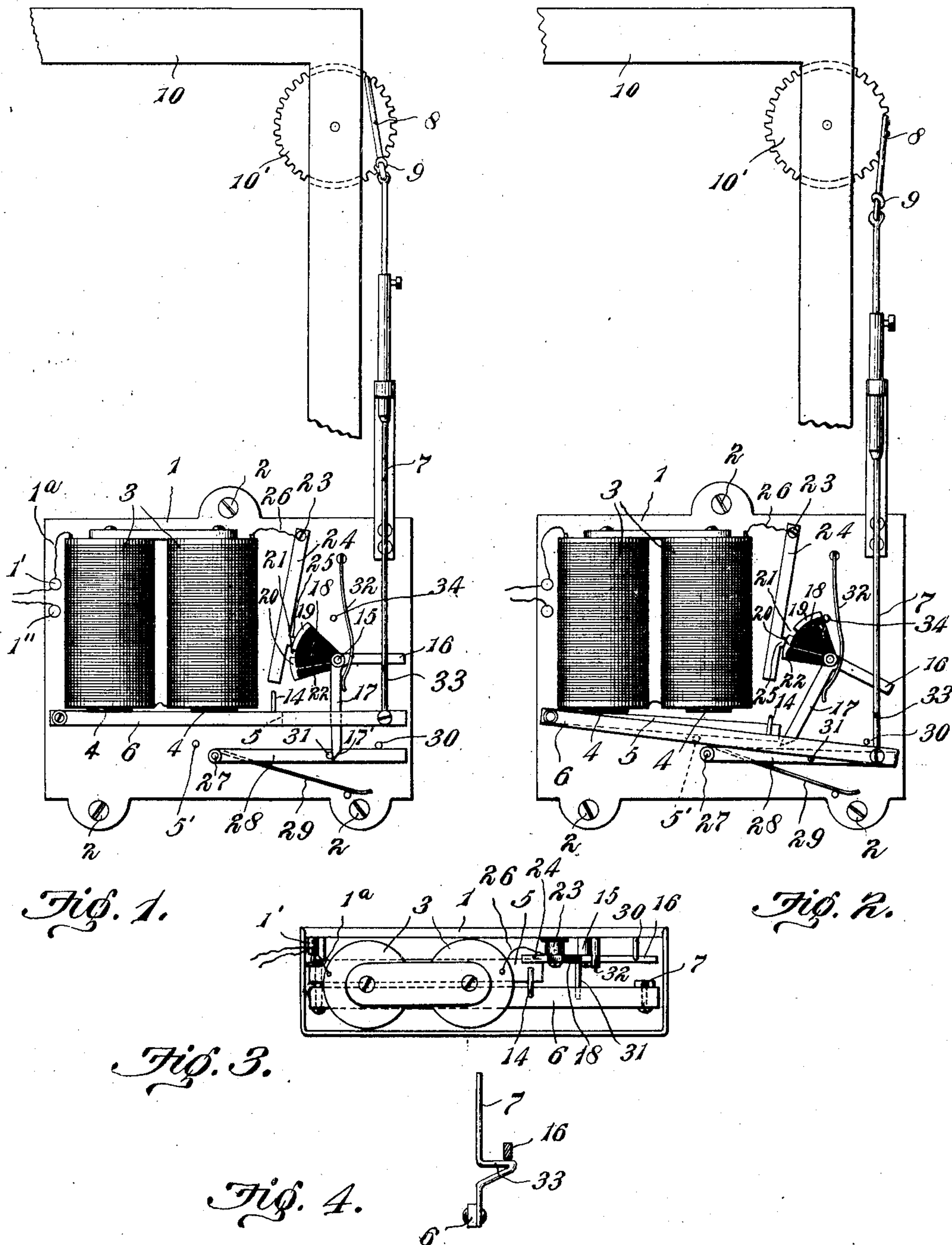


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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MAKE-AND-BREAK DEVICE.

No. 896,586.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed June 22, 1908. Serial No. 439,856.

To all whom it may concern:

Be it known that I, DOMINIC SANDRETTO, a citizen of the United States, and a resident of Ladd, county of Bureau, and State of Illinois, have invented certain new and useful Improvements in Make-and-Break Devices, of which the following is a specification.

My invention relates to a make-and-break device for operating light machinery, such as clocks, by electricity and particularly to improvements in the device shown and described in Patent No. 886,157 granted to me.

The object of my invention is to provide a make and break device for the purpose above stated, which shall be of such improved construction as to obviate the necessity of using expensive materials, and in which the contacts will be automatically kept clean and in perfect working order indefinitely.

Other objects will appear hereinafter.

My invention will be more readily understood by reference to the accompanying drawing forming a part of this specification and in which

Figure 1. is an elevation of a device embodying my invention in its preferred form, Fig. 2. is a similar view with the parts shown in a different position, Fig. 3. is a plan view thereof, and Fig. 4. is a detail.

In the drawings I have illustrated the device as operably connected to a clock mechanism, it being understood that the device is not limited to such use.

Referring to the drawings 1 indicates a plate forming the frame of the device and by which it is secured in place adjacent to the device to be operated, as by the screws 2. Secured to the plate 1 are a pair of electro-magnets 3 beneath the poles 4 of which are pivotally mounted the bars 5 and 6. The bar 6 is somewhat longer than the bar 5, and to its outer end is pivotally connected a vertically disposed rod 7 having a suitable device at its upper end for engaging the mechanism to be operated such for instance, the wheels of a clock. This comprises a loop 8, formed of wire and pivotally connected to the upper end of the rod 7 and held in engagement with a wheel of the clock by a spring 9.

10 indicates the frame of a clock or other mechanism and 10' the wheel. In order to properly adjust the loop 8 to the wheel 10' after the device is secured in position, the rod 7 is made adjustable in length as fully described in the aforementioned patent.

1' and 1'' are binding posts by which the

device is connected to a battery (not shown). For convenience the battery may be arranged within the clock case, two small dry cells being sufficient. The post 1' is connected by a wire 1^a to the magnet and by the other post the opposite pole of the battery is connected to the frame 1 on the device. When the magnet is deenergized the bars 5 and 6 drop by gravity. The bar 5 drops quickly and its movement is limited by a pin or stop 5'. The bar 6 drops slowly and as it drops, it turns the wheel, 10' causing the clock to run. It is obvious that the downward movement of the bar 6, to operate the clock must be limited, hence, I provide means for quickly raising it as soon as it reaches a certain predetermined position in its downward travel. To this end I provide means for energizing the magnet, 3, at the proper time to raise the bars, 5 and 6, the energizing and deenergizing of the magnet being governed by the movements of the bar, 6. When said bar reaches its lower limit of movement, it causes the circuit to the magnet to be closed. It is then immediately drawn up and as it reaches its upper limit of movement it causes the circuit to be broken. The bar 5 merely assists in raising the bar, 6 the latter being of greater weight and passing further from the poles of the magnet, is not so readily raised as the lighter one. When the magnet is energized the bar 5 is quickly raised and in rising, it engages a pin or arm, 14 on the bar, 6 thus assisting in raising the bar, 6, and bringing it further into the magnetic field. The bar 5 may be omitted if the movement of the bar 6 does not carry it too far out of the field of the magnet.

The means for making and breaking the circuit through the magnet will now be described. Pivotally mounted on a stud 15 extending from the frame 1, is a bell crank lever comprising the horizontal arm 16 and the vertical or depending arm 17. This is electrically connected with the frame, not being insulated therefrom. Fixed to the bell-crank lever and movable therewith is a segment 18 formed of insulating material and fixed to the periphery thereof are a pair of segments or strips of German silver 19 and 20, separated by a small gap 21. The strips 19 and 20 are in circumferential alignment with each other and the strip 19 is insulated from the post 15 whereas the strip 20 is electrically connected therewith by a conductor

22. 23 indicates a binding post insulated from the frame 1 and upon which is mounted a brush 24 having the contact point 25 of German silver which engages the contact plates 19 and 20. When the bell-crank lever is in one position the contact 25 engages the plate 19 and the circuit through the magnet is broken, and when in another position it engages the plate 20 establishing the circuit and energizing the magnet. The contact 25 is connected to the magnet by the wire 26 extending from the magnet to the post 23. Pivotaly mounted as at 27 upon the plate 1 and beneath the plane of the bar 6 is a lever 28 which is normally held in raised position by a spring 29, its upward movement being limited by a stop 30.

Extending laterally from the lever 28 is a pin 31 which extends beyond the lower end 17' of the arm 17 and into the path of the bar 6. When the lever 28 is in raised position, as shown in Fig. 1, the end of the arm 17 rests against the pin 31 which holds the contact 25 in engagement with the segmental plate or strip 19. As the bar 6 reaches its lower limit of movement it engages the pin 31, depressing the lever 28 against the tension of the spring 29. This moves the pin 31 beyond the lower end of the arm 17, permitting the lever and the segment 18 to swing upon its pivot 15, a spring 32 serving to throw the lever as shown in Fig. 2 bringing the plate 20 into engagement with the contact 25. This closes the circuit and energizes the magnet 3. As soon as the magnet is energized the bar 5 is quickly raised until it engages the arm 14 at which time it is further into the magnetic field than the bar 6 and assists in raising the latter into the field. As the bar 6 and rod 7 rise and approach the upward limit of their movement a shoulder 33 formed in the rod 7 engages the arm 16 and restores the bell-crank lever and the segment 18 to normal position breaking the circuit and deenergizing the magnet. As soon as the bell-crank lever is thrown back, the lever 23 rises and locks it in normal position until the bar 6 again descends.

34 indicates a stop for limiting the movement of the segment when released and 5' a stop for limiting the drop of the bar 5.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a device of a class described, the mechanism to be driven in combination with a bar pivotaly mounted adjacent thereto and adapted to operate said mechanism by gravity, an electro-magnet arranged above said bar and adapted when energized to raise the same, a segment pivotaly mounted adjacent to said bar and adapted to be operated by the same when it reaches its limit of downward movement to close the circuit to said magnet and to be operated by the upward movement of said bar to break the circuit to the magnet, substantially as described.

2. In a device of a class described, the mechanism to be driven in combination with a bar pivotaly mounted adjacent thereto and adapted to operate said mechanism by gravity an electro-magnet arranged above said bar and adapted when energized to raise the same, a bell-crank lever pivoted adjacent to said bar and having a segment of insulating material rigidly fixed thereto, a pair of contacts upon the periphery of said segment one of which is arranged in the circuit of the magnet and the other insulated therefrom, a contact arranged adjacent to said segment and normally engaging the insulated contact thereon, a second lever pivotaly mounted beneath said bar and having a pin adapted to engage one arm of said bell-crank lever to hold the segment in normal position, said pin extending into the path of said bar and adapted to be disengaged from the bell-crank lever by the downward movement of said bar, a spring for throwing bell-crank lever when released to close the circuit to said magnet and means for returning said lever and segment to normal position by the upward movement of said bar, substantially as described.

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

DOMINIC SANDRETTO.

Witnesses:

DAMENICO GALLO,
PETER GRIVETTO.