Jan. 5, 1943. A. EHRET ET AL 2,307,203

BELL RINGING MECHANISM

Filed Sept. 14, 1940

Fig. 1.

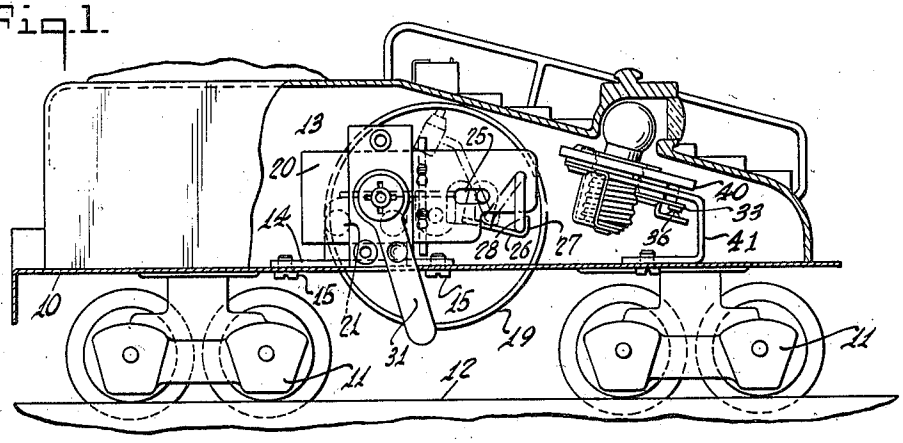


Fig. 2.

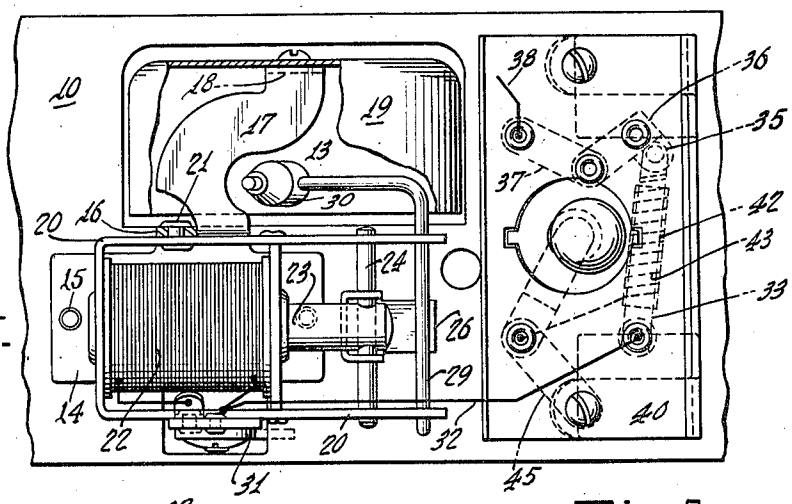


Fig. 5.

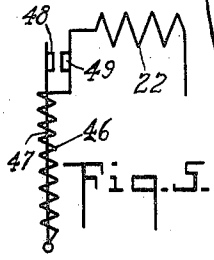


Fig. 4.

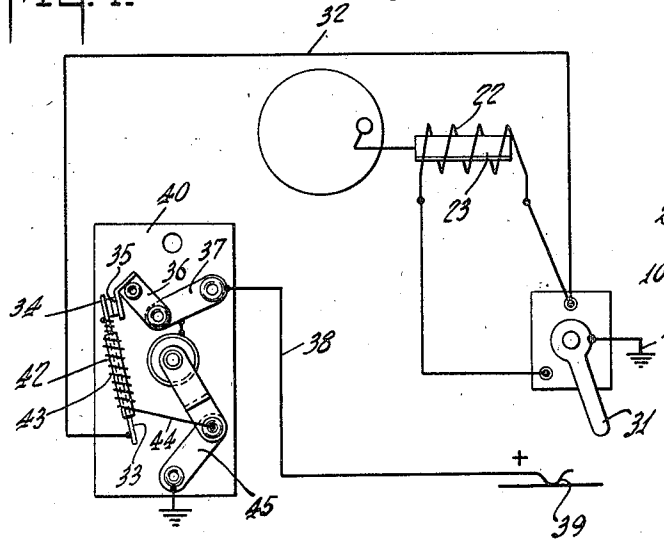
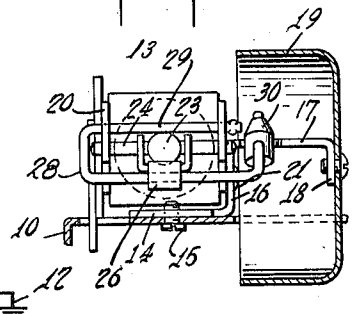


Fig. 3.



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BELL RINGING MECHANISM

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Application September 14, 1940, Serial No. 356,854

1 Claim. (Cl. 177—7)

The present invention relates to bell ringing mechanisms, and is more particularly directed toward electrically controlled mechanism for ringing a bell with measured strokes.

The present invention contemplates an electromagnetically operated bell with controller whereby the bell magnet may be energized at predetermined intervals.

According to the present invention the bell operating magnet is normally in circuit, and the circuit is adapted to be opened and closed intermittently by an electrically heated thermal element.

The accompanying drawing shows, for purposes of illustrating the present invention, two of the many embodiments in which the invention may take form, it being understood that the drawing is illustrative of the invention rather than limiting the same.

In the drawing:

Figure 1 is a side elevational view of a tender for a toy electric locomotive in which the bell and bell ringing mechanism are mounted;

Figure 2 is a top plan view of the chassis of the tender on an enlarged scale;

Figure 3 is an end elevational view of the bell ringing mechanism taken from the right of Figure 2; and

Figures 4 and 5 are wiring diagrams.

As illustrated in the drawing the chassis 10 of the toy vehicle is carried on wheeled trucks 11, 11 adapted to travel on track rails, one of which appears at 12, these rails being considered as grounded.

The bell ringing unit, designated generally at 13, is supported on a base plate 14 secured to the chassis by screws indicated at 15. This base plate, more clearly shown in Figure 3, has an upwardly extending portion 16, a horizontally extending portion 17 and a downwardly bent tip 18 to which is secured a gong 19. A U-shaped subframe 20 is secured to the base by rivets indicated at 21. This subframe supports a magnet coil 22 which receives an armature 23. The other end of the armature is connected to a pin 24 which enters slots 25 in the opposite sides of the subframe, thereby forming a guide for the armature and limiting its movement in each direction.

An upwardly facing, hook-shaped member 26 is carried at the end of the armature. Its free end 27 extends up past a clapper arm 28. This clapper arm is made of a piece of bent wire and has an upper branch 29 extending across the frame 20 and forming a pivot. The other end carries a clapper 30 cooperable with the gong 19. When the magnet is deenergized the clapper is in the lower position and the arm 28 is in the position shown in full lines in Figure 1. When the magnet is energized the armature is drawn to the left swinging the clapper up rapidly, and after the pin 24 reaches the left end of the slot 25 the clapper continues under its momentum and strikes the gong.

As shown in Figure 4 the coil 22 can be grounded through a switch 31. The other end of the coil is connected through a wire 32 with the anchored end of a thermostatic strip 33. The free end 34 of this thermostatic strip forms a movable contact adapted to open and close the circuit with a fixed contact 35, this fixed contact being connected through straps 36 and 37 with the current supply wire 38 cooperable with a collector shoe diagrammatically illustrated at 39. The connections between the wires 32 and 38 are carried on a sheet of insulating material 40 supported from the chassis of the vehicle by bracket 41. The thermostatic element 33 is provided with an asbestos or similar covering 42 about which is wound a heater coil 43, this coil being connected at one end to the thermal element and at the other end to a wire 44 which is grounded through a strip 45.

Assuming that the switch 31 is closed and the vehicle standing on the track the bell will ring once as soon as the track is energized. Current then starts to flow through the heater coil 43 and after a predetermined interval will open the circuit for the coil 22 as well as for the heater coil. This will permit the clapper to drop and permit the thermostat to cool off and again close the circuit for another stroke of the bell.

An alternate circuit arrangement capable of producing measured strokes, but with delay of the first stroke, is shown in Figure 5. Here the solenoid coil 22 is in series with a high resistance heater coil 46 about a thermostat 47 arranged on heating to close contacts 48 and 49 and shunt the coil 46 so that sufficient current will flow through coil 22 to ring the bell.

It is obvious that the invention may be embodied in many forms and constructions within the scope of the claims and we wish it to be understood that the particular forms shown are but a few of the many forms. Various modifications and changes being possible, we do not otherwise limit ourselves in any way with respect thereto.

What is claimed is:

As an article of manufacture, a toy electric railroad vehicle having a chassis mounted on wheeled trucks, a single stroke electromagnetically operated bell, secured to the chassis, a bell controller mounted on the chassis, the bell controller including a normally closed circuit, a thermally responsive circuit interrupter having a heater coil in shunt with the solenoid, and connections whereby the bell and controller are connected into circuit by placing the vehicle on an energized track so that the bell rings immediately and thereafter rings at regular intervals.

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