

Aug. 9, 1938.

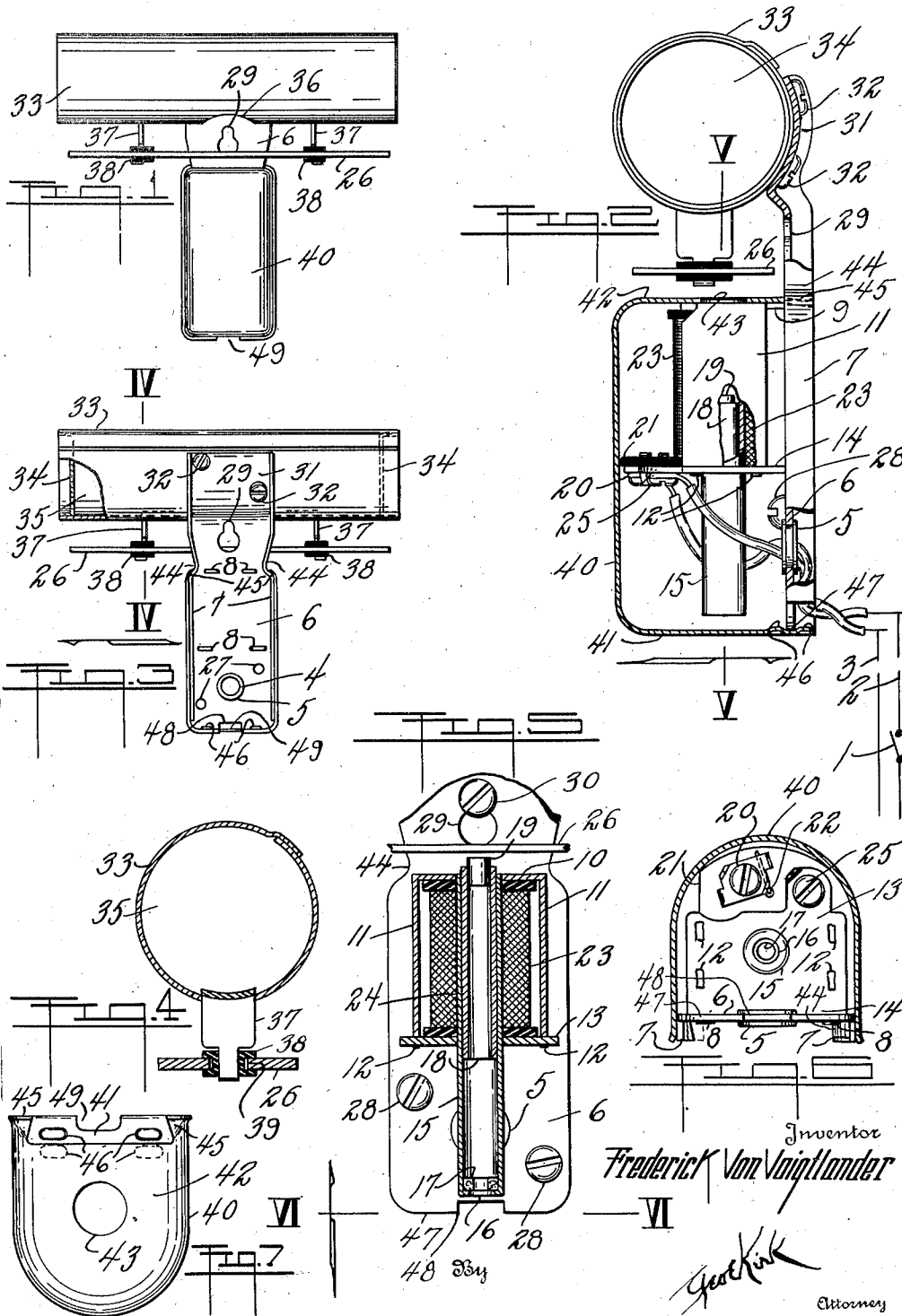
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CHIME SIGNAL

Filed Nov. 21, 1936

2 Sheets-Sheet 1



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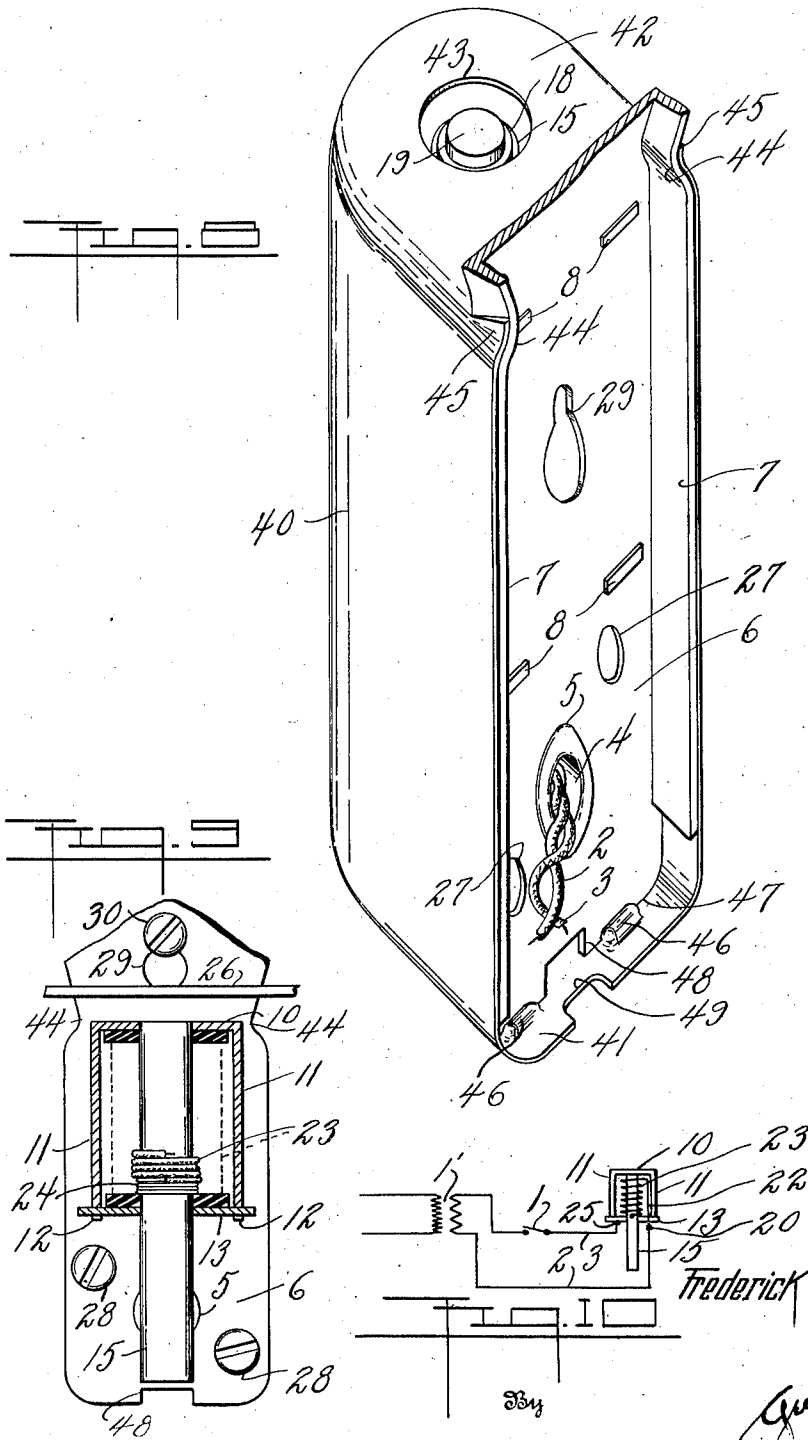
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CHIME SIGNAL

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2 Claims. (Cl. 177-7)

This invention relates to tone resonance, especially in electrically actuated units.

This invention has utility in features of construction, assembly, and operation in producing chime-like response.

Referring to the drawings:

Fig. 1 is a front view of an embodiment of the invention as a signal or alarm, say for household and office uses in connection with signals or calling devices as for a door or other circuit;

Fig. 2 is a view from the right of Fig. 1, parts being broken away;

Fig. 3 is a view from the rear of Fig. 1, parts being broken away;

Fig. 4 is a section on the line IV—IV, Fig. 3;

Fig. 5 is a section on the line V—V, Fig. 2;

Fig. 6 is a view on the line VI—VI, Fig. 5, looking in the direction of the arrow, showing the cover in section;

Fig. 7 is a view in end elevation of the cover;

Fig. 8 is a perspective view of the base with the resonator and chime bar broken away and showing the mounting of the cover on such base;

Fig. 9 is a view similar to Fig. 5, but with the device de-energized so the plunger is within the tube and parts of the coil are broken away and enlarged to show the ground connection for the wraps of the coil; and

Fig. 10 is a wiring diagram of the electric connections.

Push button or switch 1 may connect supply line 2 for circuit with supply line 3. These current supply lines may pass through port 4 in eyelet 5 of base 6. The base 6 is herein shown as having side flanges 7 in a main bracket frame. In this base 6 openings are provided. Through these openings ears 8 extend from leg 9 of U-shaped magnetic frame. This frame has end piece 10 and pair of parallel legs 11. These legs 11 terminate in lugs 12 extending or anchored with plate 13. The plate 13 is provided with legs 14. The terminal 8 of the legs 14 protrude through the base 6. The legs 14 thereby completing the anchoring of this magnetic-circuit-providing frame 10, 11, 13, with the bracket. The parallel portions 10, 13, have aligned openings. In these aligned openings is fixedly mounted non-magnetic or brass tube 15. This tube 15 extends past the eyelet 4. The tube 15 is there returned to provide port 16. Against this port 16 rests perforate felt cushion 17. This cushion 17 is a stop for magnetic or steel tube plunger 18 in this brass sleeve 15.

This sleeve tube plunger 18 has a portion remote from stop 17. This portion of the plunger carries non-metallic striker or rawhide tip 19.

The line 2 extends to terminal 20. The terminal 20 is on insulator plate 21. The insulator plate 21 is adjacent the magnetic plate 13. From the plate 13 extends wire 22 to the outer side of coil 23. This coil 23 is wound on the tube or sleeve 15. The inner end of this coil 23 has a few bare portions. These portions provide wraps 24. These wraps 24 are directly against the tube 15 of brass as the ground to the brass. This ground completes connection through the plate 13 with terminal 25 connected to the line 3. The ground accordingly connects in for a circuit on closing the switch 1. Such circuit is effective for energizing this solenoid having the winding 23. There is thus a tendency to pull the solenoid plunger 18 from its drop position. This pull carries it back to solenoid held position. As shown in Fig. 5 the momentum tends to make this throw past said position for the plunger to strike chime bar or member 26. At this impacting the plunger 18 drops back to the position shown in Fig. 5. This occurs if the switch 1 be held closed. If the switch 1 be re-opened, the plunger 18 drops back to the position shown in Fig. 2. At this position in Fig. 2 the plunger is against the cushion 17 about opening 16, with no dashpot resistance thereto.

The bracket base 6 adjacent the eyelet 5 has ports 27. Mounting screws 28 may be located in these ports 27. This base 6, remote from these screws 28, has key-hole shaped port 29. This port 29 may be hooked over screw 30. This brings the device into mounting position. The bracket has extension forming curved seat 31. Screws 32 assemble cylinder 33 at this seat 31. The cylinder 33 has closed ends 34. The cylinder 33 thus provides resonant chamber 35. This chamber 35 has port 36. This port 36 is open toward the chime member 26 opposite from the impact region by the plunger 18, 19. From this cylinder 33 are depending arms 37. These arms 37 have rubber grommets 38 in the assembly through openings 39 of the chime member 26. These rubber grommets prevent the mounting from damping the vibrations of the chime bar. By mounting the chime bar in front of port 36 the chamber 35 acts as a resonant amplifier for the vibrations of the chime bar. This device may be operated on the usual door bell circuits either with a low voltage battery, dry cells, or a transformer 1'.

In this general set-up, the coil 23 is found readily adaptable hereunder when its resistance is 3.4 ohms. The resonator or chime sound is given at each closure of the switch 1 and has a pleasant, organ type of note according to the pitch desired.

It is of carrying quality and pleasant to the ear as well as distinctive in its tone.

The coil and magnetic circuit of the solenoid are readily housed by a small sheet metal cover 40, in its arched-over U-shaped form having closed end section 41 and parallel opposite end section 42, with port 43 therethrough clear of the path of travel for the plunger 18 in its impacting the chime member 26.

10 The U-shaped portion 40 extends along the sides 7. These sides 7 have narrowing portion 44 (Fig. 3) adjacent the port 20. The cover side walls 40 extend parallel to the flanges 7. They terminate in hooked portions 45 as spring portions engaging 15 down these narrowed portions 44. Remote therefrom, the end 41 has bosses 46. These bosses 46 may ride over the edges 47 of the base 6 between the side walls 7. As so operating they thus snap into position on opposite sides of the cut-out 48 20 in such base 6. Between these bosses 46 there is cut-out 49 in the wall 41. Accordingly, a screw driver or tool may be inserted in this cut-out between the bosses 46 and ride in to the base 6 through the port 43. The screw driver may thus 25 operate as a pry to snap this cover loose. This snapping of the cover loose permits assembly of the electrical connection at the terminals 20, 25. This device in its normal operation has no cir-

cuit connection or circuit breaking means therewith. The whole matter of terminal or circuit combination is controlled at the switch 1. The resonant chamber cylinder 33 is of thin gage metal. The chime member 26 may be selected 5 as to gage and metal to determine the tone thereof as well as desirable attributes for mounting, permitting the desired frequencies for tone values and pitch.

What is claimed and it is desired to secure by 10 United States Letters Patent is:

1. For an article of manufacture, a resonating tube and a base in T-shaped assembly therewith, a solenoid mounted longitudinally of the base, a chime bar supported by the resonator between the 15 resonator and the solenoid, and a plunger to be actuated by the solenoid for striking the chime bar.

2. An electric chime device comprising a base, a coil and plunger mounted on said base, said base 20 being narrowed toward one end to provide a pair of seats, and a cover for the coil and plunger, said cover having a pair of ears adapted to snugly fit at said seats, said cover remote from the ears having a lug adapted to snap engage with the base re- 25 mote from the ears to mount the cover assembled with the base.

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