

Jan. 31, 1939.

C. V. GIAIMO

2,145,652

SIGNAL

Original Filed Nov. 26, 1935 2 Sheets-Sheet 1

Fig. 1.

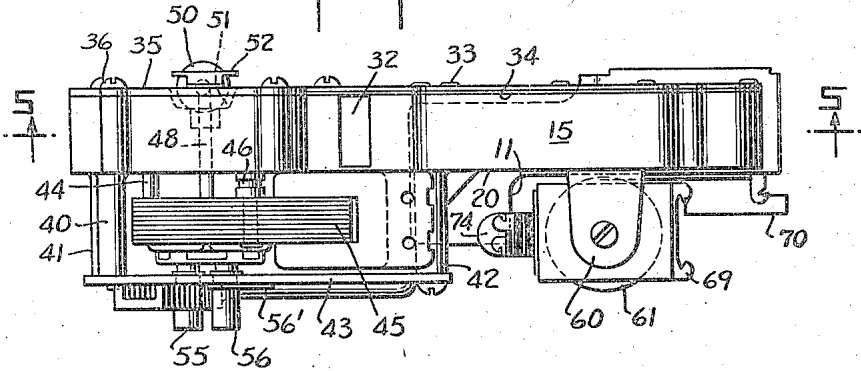


Fig. 2.

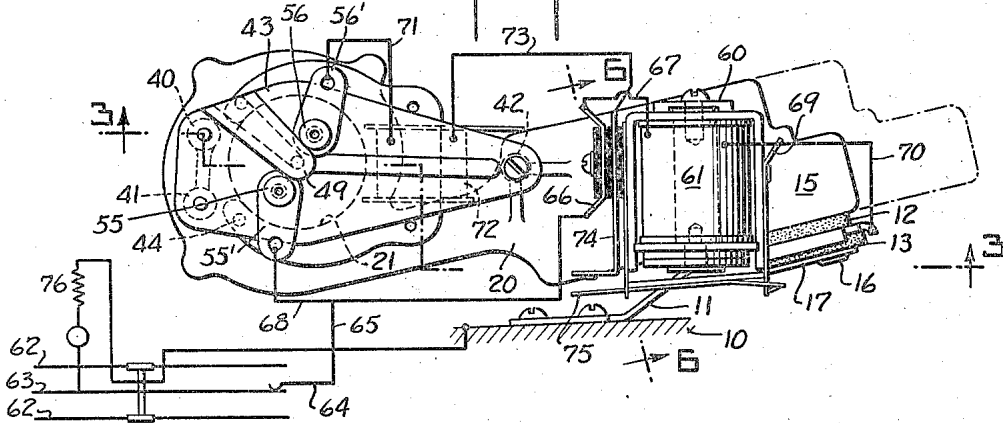
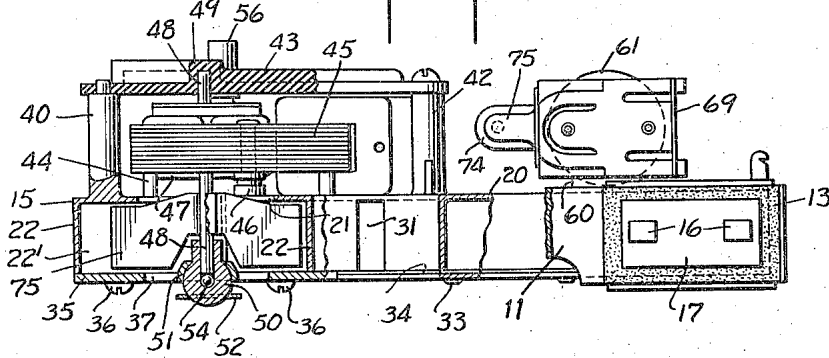


Fig. 3.



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Fig. 4.

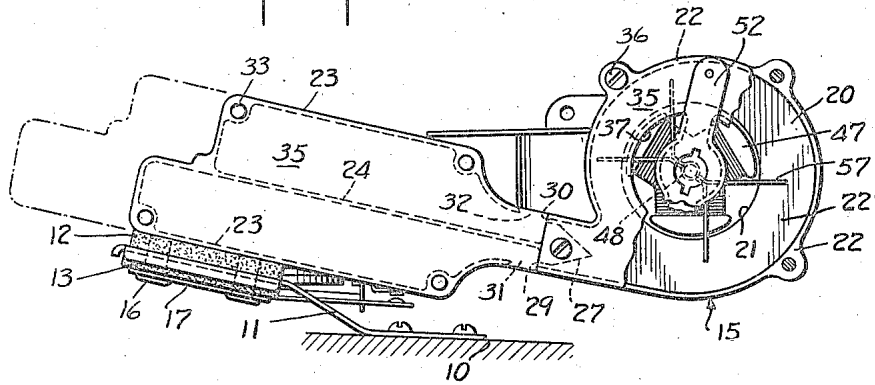


Fig. 5.

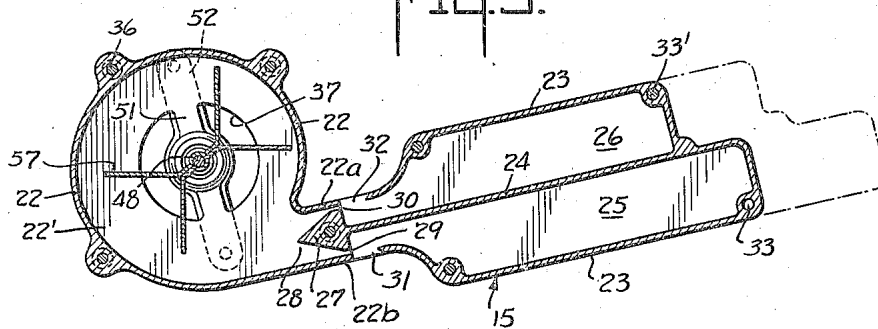


Fig. 6.

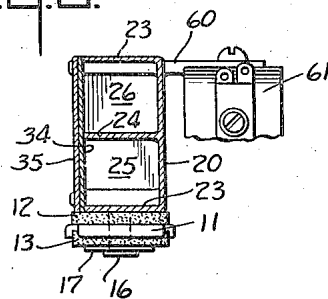
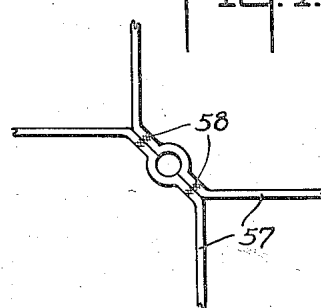


Fig. 7.



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SIGNAL

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Original application November 26, 1935, Serial
No. 51,613. Divided and this application De-
cember 23, 1936, Serial No. 117,326

8 Claims. (Cl. 177—8)

The present invention relates to signals, and more particularly to noise producing signals, for example, whistles, and to the construction of such whistles.

5 Efforts heretofore made to provide toy trains with intermittently operated sound signals such as whistles or bells have generally resulted in devices which are incapable of completely simul-
10 Where a whistle is operated by the propulsion motor of the train, whistle operation is dependent upon train movement and cannot be had when the train is standing still. Where the propulsion motor is reversed, a fan type blower cannot be
15 used and resort has therefore been had to bellows types of device. With propulsion motor operated whistles or whistles controlled from the track there is no opportunity for producing the signal at will. Efforts to operate whistles by bellows
20 have been unsatisfactory, as they are not adapted to produce a sustained signal, or satisfactory volume and tone.

Accordingly, the present invention contem-
25 plates the provision of a whistle or similar signal which may be carried on the locomotive or a car of a toy train and be operated by remote control independent of the operation of the propulsion motor of the train and independent of the move-
30 ment of the train along the track. This signal is one which is adapted for sustained operation as long as desired so that various whistle signals can be given.

The present invention also contemplates a
35 whistle in which all the parts are secured to a single unitary casting which provides a chamber for the blower as well as the resonating chambers and air passages whereby the sounds are produced. This casting may also support all
40 the parts of the motor as well as the relay provided for controlling the operation of the electric motor. In this way, a single preassembled unit is provided, so that the entire whistle structure with associated parts may be assembled and wired
45 together and then inserted in the toy car or locomotive as a unit.

Other and further objects of the invention will appear as the description proceeds.

The accompanying drawings show, for pur-
50 poses of illustrating the present invention, one of the many embodiments in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

55 In the drawings—

Figure 1 is a top plan view of a whistle unit embodying the present invention;

Figure 2 is a side elevational view of the same taken from the side carrying the motor, relay
5 and a wiring diagram;

Figure 3 is a section taken on the broken line 3—3 of Figure 2;

Figure 4 is an elevational view taken on the side opposite that of Figure 2, parts being broken
10 away to show interior construction;

Figure 5 is a longitudinal sectional view on the line 5—5 of Figure 1;

Figure 6 is a transverse sectional view on the line 6—6 of Figure 2; and

Figure 7 is a fragmentary view of a detail. 15

In the form shown in the drawings, the sound producing structure is designed to be secured to a fixed support 10, such as the base or floor of a toy car, and for this purpose is provided with a supporting foot 11 mounted between soft rub-
20 ber pads 12 and 13. These pads are secured to a body casting 15 by lugs 16 integral therewith and a plate 17.

The body casting 15 may conveniently be made as a die casting. It has a continuous flat front
25 wall 20 apertured as indicated at 21 and at one end has rearwardly extending walls 22 of involute shape adapted to form a chamber 22' for a blower. The other end of the casting has rear-
30 wardly extending peripheral walls 23 and a rearwardly extending dividing wall 24 adapted to form resonating chambers 25 and 26. The wall 24 is connected to a wedge-shaped air deflector 27 slightly narrower than the throat 28 formed
35 by the ends 22a and 22b of the wall of the blower casing. These parts provide constricted air pas-
sages 29 and 30. The side walls of the casting are cut away as indicated at 31 and 32 to provide for the escape of the air passing through
40 these air passages and lips for initiating the sound waves. The casting is provided with holes 33 adapted to receive barbed rivets 33'. These rivets pass through openings in a gasket 34 and a cover plate 35 and secure the cover plate and
45 gasket in place. In this way resonating chambers are formed with no possibility of leakage of air.

The blower chamber 22' is provided with a cover 35 secured in place by screws 36 tapped into the die casting. This cover member has an
50 opening 37 to admit air, and may, if desired, be integral with the cover for the resonating chamber.

The casting 20 is provided with three forwardly extending posts 40, 41 and 42 which support an 55

insulating plate 43. The casting 20 also has a number of alignment lugs 44 to hold the motor field structure 45 in position. This field structure is secured to the casting by studs 46 riveted to the casting. The motor armature 47 is mounted on a shaft 48 having one end carried in a bearing 49 in the insulating plate 43, and the other end carried in a bearing 50. The bearing 50 is supported in a bridging piece 51 forming part of the blower chamber cover 35, and is held in place by a strap 52 secured to the rear face of the cover plate 35. This bearing carries a ball 54 to take the thrust produced by the brushes and brush springs which are carried in brush boxes 55 and 56 secured to the insulating member 43 and provided with wiring straps 55' and 56'.

The impeller blades on the motor shaft are indicated at 57. These blades may conveniently be made up of two pieces of bent sheet metal shaped as indicated in Figures 4 and 7 and welded together as shown at 58.

The casting 21 is provided with a forwardly extending relay supporting lug 60. This lug supports a relay 61 preferably designed to be continuously energized by the alternating current in the track circuit, but not actuatable thereby, and also so designed that, when a small direct current potential is superposed on the alternating current of the track circuit, the relay functions.

A suitable wiring diagram is diagrammatically shown in Figure 2. The wheel bearing rails of a typical toy electric railroad track are indicated at 62. The vehicle carried apparatus is grounded to these rails as usual through the trucks 62'. The third rail 63 is connected through a current collector 64 and wire 65 both carried by the toy car, with a terminal plate 66 on the relay. The terminal plate is connected to the coil 61 by a wire indicated at 67 and to the brush box lead 55' by a wire indicated at 68. The other end of the coil is connected by a plate 69, which is grounded through a wire 70 connected to the support 11. The other brush box lead 56' is connected by a wire 71 with the field winding 72, and the other end of this field winding is connected by a wire 73 with an insulated relay contact 74. The relay carries a movable contact 75 grounded to the frame so as to complete the circuit of the blower motor when the relay 61 is energized with energy which will cause the relay to function. It will be noted that the circuit just described is entirely independent of the circuit of the propulsion motor indicated at 76. The usual reversing mechanism for this motor is omitted.

This application is a division of my application Serial No. 51,613, filed November 26, 1935.

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

What is claimed is:

1. A whistle comprising a casting recessed from a substantially flat face to provide elongated resonating chambers and a generally cylindrical blower chamber, and having constricted air passages between the blower chamber and each resonating chamber and an air outlet for each resonating chamber adjacent the air passage leading thereto, chamber cover means disposed

over said face of the casting, and a rotary blower in the cylindrical blower chamber.

2. In a whistle, a cast body having a front wall apertured near one end, rearwardly-extending walls at the apertured end to form a generally cylindrical blower housing, an air deflector at the outlet end of said blower housing disposed to form a constricted air passage, and rearwardly-extending resonance chamber walls extending from said deflector nearly to one end of the blower housing wall to form a vent, cover means for the rear edges of all said walls to provide a blower chamber and a resonating chamber, and a rotary blower in the cylindrical blower chamber, the cover means for the blower chamber and the said wall each being apertured to provide air inlets.

3. In a whistle, a cast body having a front wall, rearwardly-extending peripheral walls at one end, shaped to form a generally cylindrical blower housing, rearwardly-extending peripheral walls at the other end separated from the ends of the blower housing walls, a rearwardly-extending throat spaced from the ends of the blower housing walls to provide air passages, a dividing wall extending from the throat to the said other end of the casting, and cover means over the rear edges of all said walls to provide a blower chamber and two resonating chambers.

4. In a sound-producing device, a rotating fan, a chambered body member having a front wall and rearwardly-extending walls, and cover means secured to the body member to form, in cooperation with the rearwardly-extending walls thereof, a plurality of resonating chambers and a fan-receiving chamber, the latter being provided with an air inlet and with constricted air outlet passages, the resonating chambers having co-operative lipped openings adjacent the outlet passages to initiate sound vibrations whose pitch depends upon the dimensions of the resonating chambers.

5. In a sound-producing device, a rotating fan, a chambered body member having a front wall, and rearwardly-extending peripheral walls and a rearwardly-extending partition wall, and cover means secured to the body member to form, in cooperation with the rearwardly-extending walls thereof, two resonating chambers separated by the partition wall and a fan-receiving chamber, the latter being provided with an air inlet and two constricted air outlet passages separated by the partition wall, the resonating chambers having co-operative lipped openings adjacent the outlet passages to initiate sound vibrations whose pitch depends upon the dimensions of the resonating chambers.

6. A whistle comprising a cast body member having a front wall, peripheral walls extending rearwardly from the edges of the front wall, rear cover means fitted to the peripheral walls and spaced from the front wall, a fan rotatably supported between the cover means and the front wall, there being air inlet openings adjacent the fan axis and air outlet openings in the peripheral walls, a portion of said peripheral walls forming a fan chamber with a constricted outlet, and a partition wall which divides the outlet into two passages disposed in advance of the outlet in the peripheral walls and forms two non-communicating resonating chambers.

7. A whistle comprising a cast body member having a front wall and rearwardly-extending integral peripheral and partition walls disposed to form a fan chamber, two resonating chambers and two throats leading from the fan chamber

to the resonating chambers, there being lipped openings in the peripheral walls beyond each of the throats, chamber cover means, and a fan rotatably mounted in the fan chamber.

5 8. In a whistle, a cast body having a front wall apertured near one end, rearwardly-extending walls at the apertured end to form a generally cylindrical blower housing, an air deflector at the outlet end of said blower housing disposed to
10 form a constricted air passage, and rearwardly-extending resonance chamber walls extending from said deflector nearly to one end of the blower

housing wall to form a vent, cover means for the rear edges of all said walls to provide a blower chamber and a resonating chamber, a rotary blower in the cylindrical blower chamber, the cover means for the blower chamber and the
5 said wall each being apertured to provide air inlets, and an electric motor having its field structure and brush rigging secured to lugs formed on the front wall of the casting and having its
10 rotor drivingly connected to the rotary blower.

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