

Aug. 15, 1933.

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1,922,397

SIGNAL HORN

Filed Nov. 12, 1928

2 Sheets-Sheet 1

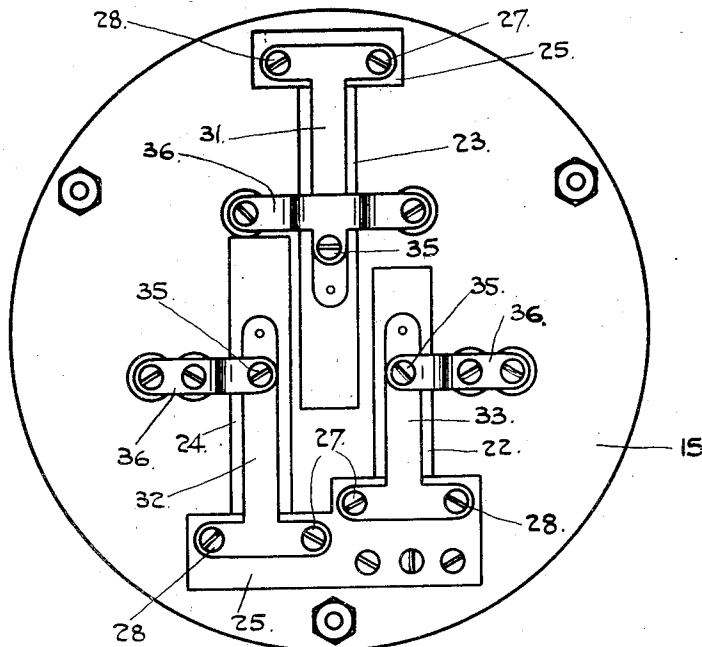


FIG. 1.

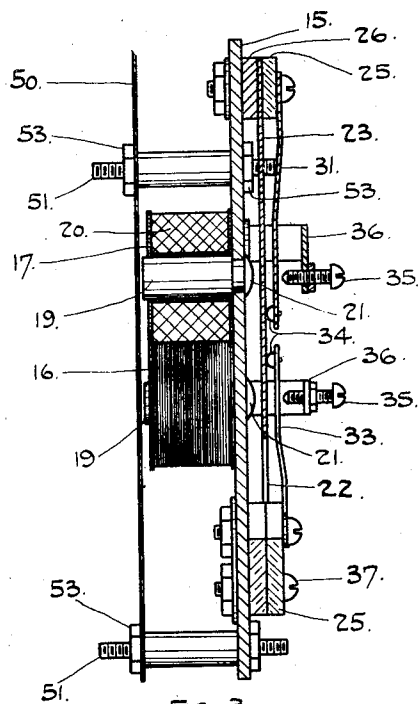


FIG. 3.

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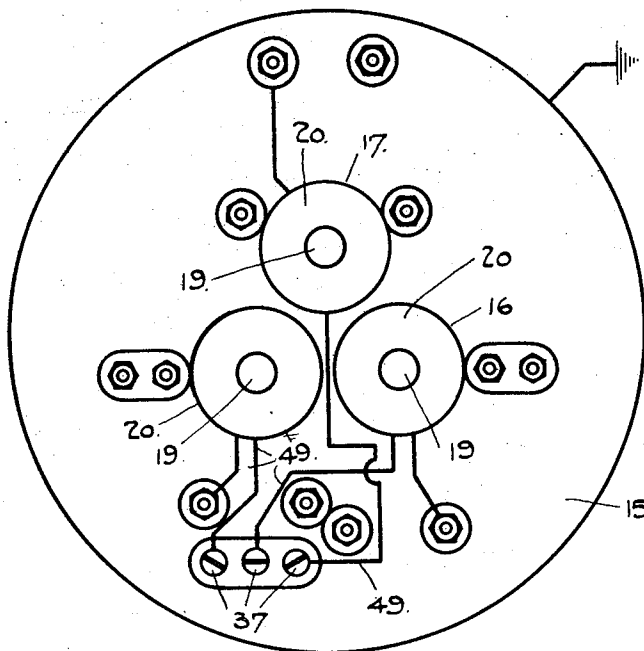


FIG. 2.

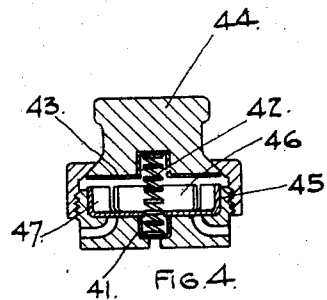


FIG. 4.

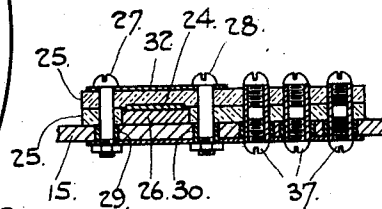


FIG. 5.

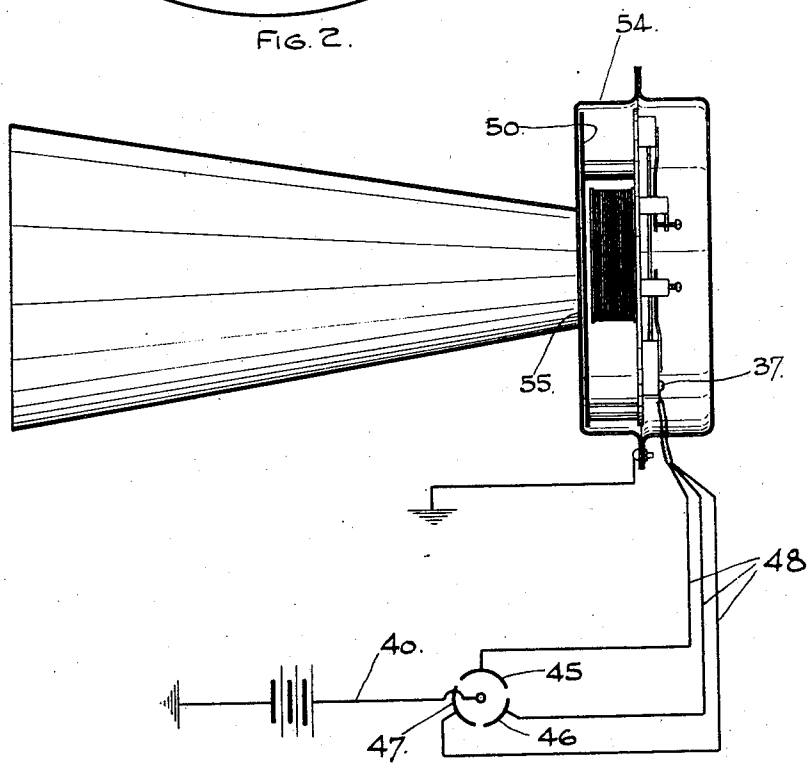


FIG. 6.

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## UNITED STATES PATENT OFFICE

1,922,397

## SIGNAL HORN

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Application November 12, 1928

Serial No. 318,704

## 1 Claim. (Cl. 177-7)

The invention relates to a signal horn, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

5 The invention consists essentially of the novel features of construction pointed out broadly and specifically in the claim for novelty following a description containing an explanation in detail of an acceptable form of the invention.

10 The objects of the invention are to facilitate the passage of motor vehicles and other conveyances in thoroughfares where pedestrians and other obstacles are in the way of the progress of the vehicle, and at the same time produce a sound  
15 that is not discordant or alarming and therefore eliminate the shock that frequently holds the pedestrian or animal spellbound in the path of the vehicle; to construct the apparatus in such a manner that will enable the operator to bring  
20 forth a sound from the horn, in single tones or in chords as may be found desirable, and further in accomplishing this purpose avoid complications in the mechanism and the consequences thereof in regard to failure and repairs; to reduce  
25 the cost of production to the minimum so that horns of a musical type may be universally used, thus materially minimizing the dangers to life and property; and generally to provide a safe, durable and efficient signal horn, saleable at a  
30 reasonable price to the consumer.

In the drawings, Figure 1 is a plan view of the sound producing parts, showing the arrangement of the reeds.

35 Figure 2 is a plan view showing the other side of the same base and the electro-magnets mounted thereon.

Figure 3 is a cross sectional view of the base plate illustrated in Figures 1 and 2.

40 Figure 4 is a sectional detail of the switch and of the switch button mounted thereon.

Figure 5 is a sectional detail of the reed mounting and electric terminals.

45 Figure 6 is a longitudinal sectional view of the horn, showing the sound producing means mounted thereon and the electrical connections thereto.

Like numerals of reference indicate corresponding parts in the various figures.

50 Referring to the drawings, the base, indicated by the numeral 15 is preferably of brass, though it may be of other non-magnetic metal. On the one side of the base, the electro-magnets 16, 17 and 18 are mounted and the cores 19 within the coils 20 of these magnets extend through the base 15, and are splayed over said base forming the  
55 magnet heads 21.

The electro-magnets 16, 17 and 18 are preferably in a three corner arrangement, though they may be set in the base as desired, and further there may be any lesser or greater number of magnets in the sound producing means as desired.

60 The reeds 22, 23 and 24 are mounted between the conducting blocks 25 and insulating strips 26 which are fixedly secured in each instance by the screws 27 and 28 extending through the insulated bushings 29, and 30. These reeds 22, 23 and  
65 24 extend outwardly from their mountings over and beyond the core heads of the magnets 16, 17 and 18 respectively, and form spring armatures attracted by the magnetized cores 19.

70 The contact arms 31, 32 and 33 are secured on the insulating strips 26 by the same screws 27 and 28 above the reeds 22, 23 and 24 respectively, and extend over said reeds and heads 21 and beyond the said heads to a lesser extent than the said  
75 reeds and carry on their inner sides the contact points 34 normally in engagement with the reeds beyond the core heads 21.

80 The adjustment screws 35 are mounted respectively in the brackets 36 above the contact arms 31, 32 and 33, and normally are in mechanical engagement with said contact arms for adjustment purposes.

85 The coils of the electro-magnets, the contact arms and consequently the reeds are all included in an electrical circuit energized at will by an electrical battery and immediately that this circuit is energized and vibration begins, that is to say, the reed in each instance is drawn to the  
90 core of an electro-magnet and vibrates back and forth between the magnet core and its contact arm, consequently this reed is interruptedly connected through to the diaphragm which is at the other end of the magnet core, which provides the necessary fluctuations in the current to sound  
95 the horn and as the several reeds are of different lengths and adjustable in regard to their vibratory movements, the sounds emitted will be governed accordingly.

100 The wiring 40 extends to the common contact 41 of the operating switch and this common contact is connected through the spring 42 to the contact 43 on the button 44.

105 The switch contacts 45, 46, and 47 are respectively connected to the three reeds 22, 23 and 24 by the wires 48, through the arms 31, 32 and 33, consequently the operation of the reeds may be separate or together.

The wiring 49 continues from the terminals 37 to the coils 20 respectively and from said coils to the make and break arms, thus completing a  
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circuit in which the reeds become the trembling armatures in the make and break movement on the energization of the electric circuits.

The effect of this vibration is carried through the cores 19, which are placed in proximity to the diaphragm 50 secured on the posts 51 and spaced from the cores 19 by the spools secured to said posts by the nuts 53.

The base 15 is secured in the casing 54 with its diaphragm and electro-magnetical attachments and this casing is fastened to the small end of the horn 55 from which the sound is emitted.

In the operation of this invention the operator presses the button to bring one, two or more notes into the sound produced as may be desirable, and in doing this, one or more of the switch contacts is brought into engagement with the button contact, and this through its common connection with the battery energizes the electric circuit, including the make and break arm or arms, and one or more reeds as well as the coils of the magnets.

The consequence of this is that the reeds, where they are sounded together, operate as independ-

ent vibrators held independently at the ends and yet coact with the armatures as circuit interrupters, which insures vibration and this vibration is communicated through the cores 19 to the diaphragm, which vibrates in unison and causes the emission of the musical tones emanating from the reeds.

It is obvious that these tones can be chosen by the selection of the reeds as to length and other properties and further that the depth of the tone may be affected by the arrangement of the parts in respect to one another.

What I claim is:

In a signal horn, a plurality of electro-magnets mounted on a supporting plate with their poles projecting therethrough, a single diaphragm mounted near one pole of each of said magnets, interrupter mechanism for the circuit of each of the magnets mounted on the supporting plate and actuated by the magnet whose circuit it controls, said interrupter mechanism being tuned to different frequencies so that each of the electro-magnets will actuate the diaphragm at a different frequency.

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