This invention relates to a structurally and functionally improved casing capable of use in numerous different associations but primarily intended to be employed in connection with vehicles such as velocipedes and bicycles and when so employed furnishes an ideal horn structure. It is an object of the invention to provide a unit of this character which will be of extremely simple and rugged construction and capable of being manufactured largely by automatic machines and processes so that a relatively inexpensive device is produced and which will function efficiently over long periods of time with freedom from all difficulties.

A further object is that of providing a horn and housing of extremely pleasing appearance, the parts of which when assembled will protect the interior mechanism against the entrance of moisture or other foreign matter in quantities such that in improper operation of the unit would result.

An additional object is that of furnishing a horn which may readily be applied to or removed from an existing vehicle and which will preferably be self-contained aside from the fact that when it is necessary to replace batteries or to adjust the parts this may readily be accomplished by an inexperienced operator with a expenditure of minimum effort and time.

With these and other objects in mind, reference is had to the attached sheet of drawings illustrating practical embodiments of the invention and in which:

Fig. 1 is a front view of the housing and horn;
Fig. 2 is a sectional side view thereof taken along the line 2—2 and in the direction of the arrows as indicated in Fig. 1;
Fig. 3 is a transverse sectional view taken along the line 3—3 and in the direction of the arrows as indicated in Fig. 2;
Fig. 4 is a perspective view of the horn unit which is associated with the housing;
Fig. 5 is an enlarged fragmentary sectional view taken along the line 5—5 and in the direction of the arrows as indicated in Fig. 4;
Fig. 6 is a view similar to Fig. 3 but showing a slightly modified form of construction;
Fig. 7 shows a still further form of construction which may be employed in the housing; and
Fig. 8 is a transverse sectional view taken along the line 8—8 and in the direction of the arrows as indicated in Fig. 7.

Referring primarily to Figs. 1 and 2, the numerals 10 indicates a clamp or other suitable element by means of which the housing may be mounted and which clamp is conveniently secured by a nut and bolt structure 11 to the lower portion of the main or rear housing. The body of the latter may conveniently be formed of a pair of sections 12 and 13 secured together for example by a lock seam 14. The forward end of the rear housing is closed by a front housing 15 which may conveniently be cup-shaped and the face of which may be perforated or formed with arcuate slots 16.

This front housing mounts the horn unit as will hereinafter be brought out and is detachably secured to the rear housing to form in conjunction therewith a complete unit. This connection of the parts may conveniently embrace an inwardly struck portion or tongue 17 forming a part of housing 15 and extending through a slot formed in the lower section 12 of the housing to provide what might be termed a hinge element. At a diametrically opposite point housing 15 may be formed with a perforation through which a spring-pressed pin 18 extends, this being carried by the upper section 13 of the rear housing or shell. It will consequently be obvious that with little or no effort an operator may couple front housing 15 to the rear housing or detach the same therefrom but that when the parts are connected there will be virtually no danger of an accidental detachment occurring.

The unit being primarily designed to be self-contained, the rear housing embraces dry cells 19 which may be of the usual type including a central electrode extending from one end, the side walls being covered by insulation, and exposed base portions providing the second electrode. As illustrated in Fig. 2, the base of the innermost cell 19 may be engaged by contact member 20 in the form of a spring, riveted, or otherwise secured to the housing and thus in electrical connection with the same. A tubular structure may receive the cells 19 and this structure as shown, especially in Fig. 3, may include a sleeve 21 which if desired is longitudinally split or slotted, and which is secured by support welding, or otherwise, to the inner face of section 12.

While considering this feature it will be wise to depart from a study of Figs. 1–5 and to note that as shown in Fig. 6 the tubular member corresponding to member 21 may be formed of a pair of sections 22, which in conjunction with a curved base portion 23, forming a part of the lower rear housing section 24, may furnish a desired chamber to receive the cells or their equivalent. In this member it will be observed that a slot is also provided to permit of ready expansion of the side walls.

Also in Figs. 7 and 8 it will be noted that a tubular member 25 is disposed within the housing 25, but in this form of structure the member is generally spaced from the inner face of the housing and is un-slotted. The housing being tapered, the rear portion of the tube may be of a diameter such that it wedges into the same and the forward end of the tube may carry an ex-
tension 26, through which a fastening element such as a screw 27 carried by the housing, may project to secure the parts in assembled relation to each other. This form of device is it is of course apparent that should it be necessary to remove the dry cells and should they tend to jam within the tube 25, the latter may readily be removed as a unit by simply loosening screw 21, or its equivalent, and thereafter forcing the cells from within the tube.

In the form of constructions so far described, it will be understood that a housing is furnished which is ideally suited for use in connection with a horn, but it will likewise be understood that the housing might be employed in connection with various other elements.

Now returning to a consideration of the structure particularly shown in Figs. 1-5, it will be noted that immediately in advance of the face portion of front housing 15 and within the same, a plate 28 may be disposed. This plate is formed with a central aperture 29 and is of a diameter such that indentations 30 struck into the side walls of front housing 15 extend to the rear of the plate and maintain it against movement. Plate 28 has its outer edges formed with a plurality of integral tongue portions 30’ to extend around and engage the outwardly extending edge of a horn shell 31 as well as a diaphragm 32 of a horn. Contained within the shell is an electromagnet and interruptor mechanism 33 and this shell may have its inner circular end indented or bashed inwardly at 34. The unit is secured to the horn shell 31 by for example a nut portion 35 outwardly to prevent relative movements of the parts, and a bolt 36 extends through this nut. A bushing 37 of insulating material may surround bolt 36 and maintain an assembly of contact and insulating strips in proper position.

One of these strips includes a resilient portion 38 engageable with the central electrode of the outermost cell unit 19, and having an opening through which bolt 36 may pass without coming into contact with portion 38. A strip of insulating material 39 may be disposed in contact with portion 38 and lie within the crotch of the same, this strip having a perforation 40 of just sufficient diameter to permit a passage of the shank of bolt 35. Beyond the portion 38 the strip is continued as indicated at 41 and upon the opposite face of this strip from that to which insulating strip 39 is applied, a second strip of insulation 42 may be applied. This strip preferably has extensions or legs 43 extending to each side of strip portion 41 so that movement of the insulating strip is prevented. Strip 41 continues outwardly and lies parallel to the face of horn shell 31 and in spaced relation with respect thereto. The inner end of this metallic strip terminates in an upwardly and angularly extending portion 44 which underlies the base of an actuating button 45 made of insulating material and extending through an opening in front housing 15. A strip 46 lies in proximity to strip 41 and has one of its ends connected to lead 47 extending from unit 33, it being noted that strip 46 is insulated from horn shell 31 by a strip 48 and extends to a point underlying the angularly offset end portion 44 of strip 41. The latter, incident to its inherent resilience is normally spaced out of electrical contact with strip 46, but may be forced into such contact by depressing button 45.

In operation it will be understood that the housing may be conveniently mounted upon a supporting structure in any number of desired manners. Prior thereto or at that time, a suitable number of cells are disposed within the holder. These cells are properly supported against all probability of movement and damage with respect to the housing. The front housing 15 with the assembly applied thereto is now connected to and closes the front end of the rear housing. Under these circumstances the cells will be engaged at their opposite ends by the spring 20 and the resilient portion 39. If an operator now presses button or actuator 45, spring portion 44 will be forced into engagement with strip 45. The electrical circuit will be completed through cells 19, strips 41 and 46, lead 47, unit 33, front housing 15, the rear housing portion, and spring 20 or its equivalent. Incident to the provision of plate 28 the shorting of diaphragm 32 will be amplified and concentrated.

Thus, among others the several objects of the invention as specifically aforesaid are achieved. It will be obvious that numerous changes in construction and rearrangement of the parts may be resorted to without departing from the spirit of the invention as defined by the claims.

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

1. A horn including a housing, a diaphragm within said housing, an electric coil cooperating with said diaphragm to vibrate the latter, a horn shell enclosing said coil, one end of said coil being in electric contact with said shell and housing, a contact strip electrically connected to the electrically opposite end of said coil, said strip positioned on the horn shell and insulated therefrom, a spring strip located adjacent said contact strip and normally out of engagement therewith, means for detachably securing said spring strip to said shell and insulated therefrom, means whereby said housing may be detachably coupled to a cell containing housing, one end of said spring strip being provided with a yielding portion for engagement with the electrode of a cell, and means for causing the other end of said strip to be moved into engagement with said first named contact strip.

2. A horn including a housing, a diaphragm within said housing, an electric coil cooperating with said diaphragm to vibrate the latter, a horn shell enclosing said coil, one end of said coil being in electric contact with said shell and housing, a contact strip electrically connected to the electrically opposite end of said coil, said strip positioned on the horn shell and insulated therefrom, a spring strip located adjacent said contact strip and normally out of engagement therewith, means for detachably securing said spring strip to said shell and insulated therefrom, means whereby said housing may be detachably coupled to a cell containing housing, one end of said spring strip being provided with a yielding portion for engagement with the electrode of a cell, an actuating member projecting through said housing and insulated therefrom and overlying the other end of said strip whereby upon actuation said two strips can be brought into electrical contact.

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