May 29, 1951 A. MEROLA 2,554,789

EMERGENCY SIGNALING DEVICE

Filed March 17, 1949

Fig. 3

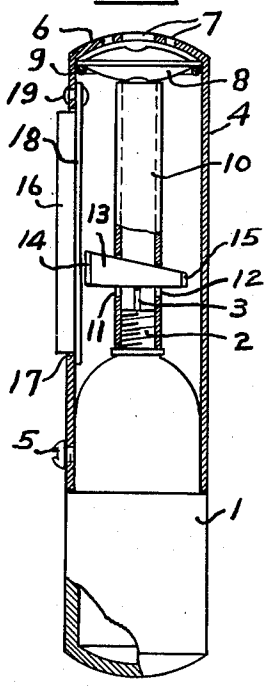


Fig. 2

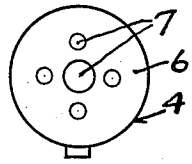


Fig. 1

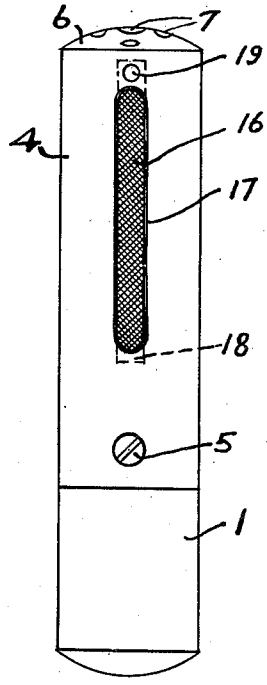


Fig. 4

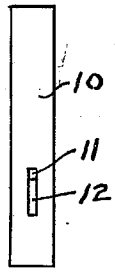


Fig. 6

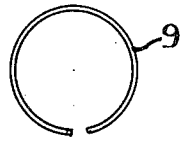
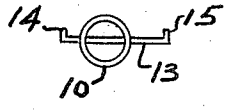


Fig. 5



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2,554,789

EMERGENCY SIGNALING DEVICE

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1 Claim. (Cl. 116—65)

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This invention relates to a signalling device somewhat of the type disclosed in my Patent Number 2,513,579, bearing filing date the 26th day of February, 1949.

The primary object of this invention is to provide a signalling device of the character described, which is designed and intended for use in an emergency for putting to flight and for discouraging a prowler or intruder from carrying out his nefarious intent, and thus protect the user from possible bodily harm, robbery, and the like.

Further objects and advantages of the invention are to provide a device of the class stated, which will function to produce and emit a continuous, shrill, piercing tone or sound for a comparatively short period of time, which is gas operated and which cannot be manipulated to suspend the sound action until the operating gas supply is completely exhausted, which may be conveniently manipulated to set off the sound action by simply gripping the device in the hand, which is simple in its construction and arrangement, durable and efficient in its use, compact, positive in its action, and comparatively economical in its manufacture.

To the accomplishment of these and such other objects as may hereinafter appear, the invention resides in the novel construction, combination, and arrangement of parts herein specifically described and illustrated in the accompanying drawing, but it is to be understood that changes in the form, proportions, and details of construction may be resorted to that come within the scope of the claim hereunto appended.

In the drawing wherein like numerals of reference designate corresponding parts throughout the several views:

Figure 1 is a side elevational view of a signalling device constructed in accordance with the invention.

Figure 2 is an outer end view of the device.

Figure 3 is a similar view of the device with parts thereof being shown in cross section.

Figure 4 is a side elevational view of the directing tube.

Figure 5 is an end view of the directing tube with the actuating wedge positioned in the latter in the operative position.

Figure 6 is a plan view of the clamping ring embodied in the invention.

Referring in detail to the drawing, the improved signalling device comprises a cylindrical container 1, which is designed and intended for receiving and storing a supply of suitably compressed operating gas, namely, air, carbon dioxide, and the like. A valve 2, including a valve stem 3, is secured in the upper end of the container. The valve is preferably of the automatically self-closing type commonly employed in connection with tire tubes, having the exterior surface thereof formed with screw threads, by which latter the fluid supply mechanism may be attached when forcing the gas into the container.

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A cover tube 4, is frictionally engaged on the upper portion of the container 1 whereby said upper portion is telescopically slidable in the cover tube. The cover tube may be secured in position on the container by a set screw 5 threadedly engaged in the former and engaging said container. The cover tube includes a top 6, which is provided with a plurality of apertures 7 for the escape of the gas and sound during the operation of the device in the manner to be described.

A gas operated sound producing instrument in the form of a whistle 8 is mounted in the upper end of the cover tube 4, in close proximity to but slightly spaced from the top 6. The whistle may be of any suitable construction, and is secured in position in the cover tube by means of a resilient, open ring 9, or in any other suitable manner.

A cylindrical directing sleeve 10, disposed vertically extends from the whistle 8 to the valve 2, and has its lower end threadedly engaged on the latter, whereby said sleeve is fixed in longitudinal alignment with respect to the container 1. The directing sleeve is provided with a pair of diametrically opposed slots, respectively indicated at 11 and 12. The slots are of unequal lengths with the lower end walls thereof being in horizontal alignment, and are disposed adjacent to the lower attached end of the directing sleeve.

An actuating wedge 13 extends transversely edgewise through the slots 11 and 12 in the directing sleeve 10, and is frictionally shiftable in said slots. The lower edge of the wedge is in constant engagement with the upper free end of the valve stem 3 even when said wedge is in the inoperative position, as clearly illustrated in Figure 3. The lower edge of the wedge is straight while the upper edge thereof is disposed at an angle from the horizontal. Each end of the wedge is formed with an angularly disposed flange, respectively indicated at 14 and 15, to prevent the disengagement of the wedge from the slots in the directing sleeve.

A push bar 16, of considerable length and preferably formed with a knurled outer surface, extends longitudinally in a correspondingly dis-

posed slot 17 provided therefor in the side wall of the cover tube 4. The push bar is carried by and fixed on a flat spring 18, which latter has its upper end fixed against the inner surface of the cover tube by means of a rivet 19, or in any other suitable manner.

The normal action of the spring 18 tends to forcibly project the push bar 16 outwardly beyond the peripheral surface of the cover tube 4, but such action and projection is limited by the extension of the lower end of the spring below the lower end of the slot 17, as shown in Figure 3.

When the device is in the inoperative position, as shown in Figure 3, the actuating wedge 13 is in the retracted position in the slots 11 and 12, with the wider end thereof being disposed in close proximity to the push bar 16, and with the angularly disposed upper edge of the wedge being in contact with the end walls of respective slots 11 and 12 of the directing sleeve 10.

To operate the improved signalling device, the entire structure is simply gripped firmly within the hand of the operator, whereby the push bar 16 is depressed forcing the actuating wedge 13 in the forward direction in the slots 11 and 12, as shown in Figure 5, a distance limited by the abutment of the narrow end of the wedge against the side wall of the cover tube 4. During such forward travel of the wedge the latter will depress the valve stem 3 and open the control valve 2 thereby releasing the compressed gas from the container 1. The released gas will rush through the directing sleeve 10 and through the whistle 8 to operate the latter, and is finally exhausted through the apertures 7 in the cover tube top 6.

It will here be noted that, when the actuating wedge 13 has been shifted to the operative position in the slots 11 and 12 in the manner stated, said wedge will remain in such operative position until the wedge is manually retracted in the slots 11 and 12. The manual retraction of the wedge necessitates the removal of the cover tube 4 from the container 1 to provide access to said wedge.

The important features of the invention reside in the provision of the novel means for operating the device by one hand simply gripping said device, and in the novel means for preventing the suspension or cessation of the sound action until the compressed gas is completely exhausted from the container 1.

It is, of course, obvious that, due to the small capacity of the container 1 only sufficient gas may be compressed in said container to provide for the operation of the device for a comparatively short period of time. However, a continuous blast of shrill piercing sound for a period of one-half to a full minute is invariably sufficient to discourage and prevent intruders from attempting any perverse actions. Even if the assailant should get possession of the device from the operator, he would be unable to suspend the operation of the device until all compressed gas is expelled from the container.

The signalling device may be constructed in any suitable sizes to adapt same for being carried in the hand or in a hand bag, or in an automobile, or for being conveniently stored at a readily accessible place in the home.

It will be understood that, instead of using a

control valve 2 as shown and described, the embodied operating mechanism may be readily adapted for piercing the seal of a sealed compressed gas container to cause the release of the gas from the latter.

The invention aims to provide an emergency device for the protection of the user that will produce a continuous shrill sound which cannot be suspended until the gas is exhausted, or unless the device is taken apart, and wherein such separation of parts would take considerably longer than the effective sound operation of the device, and which may be quickly and conveniently operated by the use of one hand only.

From the foregoing description taken in connection with the accompanying drawing, the construction and method of operation of the invention will be readily apparent to those skilled in the art to which the invention appertains, and it will be understood that variations in the contour of the device and in the mechanical movements of the latter may be resorted to without departing from the spirit or sacrificing any advantages of the invention as defined in the appended claim.

What I claim is:

A signalling device of the class described, comprising the combination of a container for receiving and storing compressed gas and including a top provided with apertures, a control valve including a valve stem mounted in the upper end of said container, a cover tube removably engaged on said container and enclosing said valve, a set screw extending through said tube and engaging said container for securing said tube to said container, a sound producing member mounted in said tube adjacent to said top, a gas directing sleeve having the lower end thereof threadedly engaged on said valve, the upper end of said sleeve disposed against said member, said sleeve provided with a pair of diametrically opposed longitudinally extending slots in the side wall thereof, a flat transversely disposed actuating wedge shiftably extended through said pair of slots, the lower edge of said wedge seated on the upper free end of said stem and the upper edge thereof seated against the upper end walls of said pair of slots, the side wall of said tube provided with a longitudinally extending slot, a flat spring having the upper end thereof secured against the inner surface of the side wall of said tube and normally covering said tube slot, and a push bar mounted in said tube slot and fixed to and supported by said spring, the outer portion of said bar normally projecting beyond the outer surface of said tube by the action of said spring, said bar when depressed operable for shifting said wedge downwardly in said pair of slots to force said stem to the opening position in said valve.

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REFERENCES CITED

The following references are of record in the file of this patent:

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