July 4, 1950 A. MEROLA 2,513,579

GAS-OPERATED SOUND SIGNAL

Filed Feb. 26, 1949

Fig-3

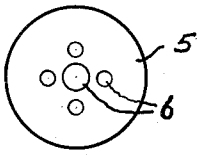


Fig-2

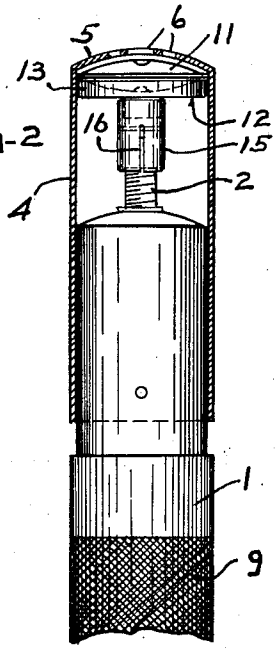


Fig-1

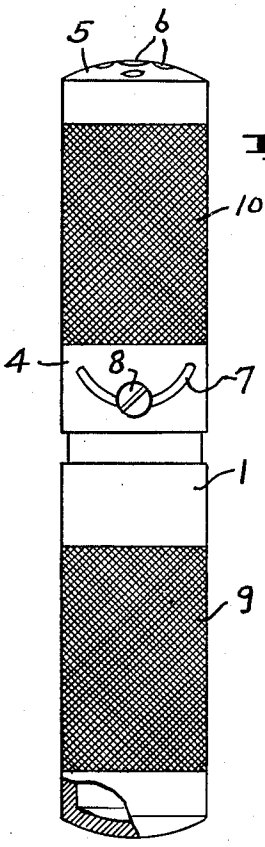


Fig-4

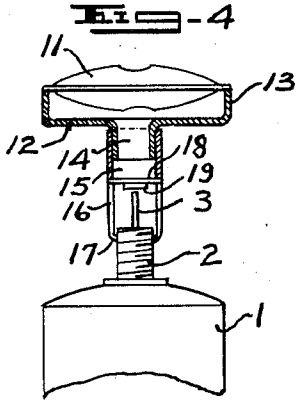
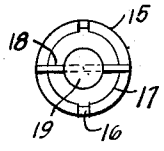


Fig-5



Inventor

ANTHONY MEROLA

By Jack Snyder

Attorney

Patented July 4, 1950 2,513,579

UNITED STATES PATENT OFFICE

2,513,579

GAS-OPERATED SOUND SIGNAL

Anthony Merola, Pittsburgh, Pa.

Application February 26, 1949, Serial No. 78,535

1 Claim. (Cl. 116—137)

1

This invention relates to an improved audible signalling device, and the primary object thereof is to provide a signal of the character described, which is designed and intended for use by a person 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 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 emit a continuous, shrill, piercing tone or sound for a comparatively short period of time, which is gas-operated and cannot be manipulated to suspend the sound action until the operating gas supply is completely exhausted, which can be quickly and conveniently manipulated to set off the sound action, 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.

With the foregoing and other objects in view which will appear as the description proceeds, 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 here unto appended.

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

Figure 1 is a side elevational view of the improved signalling device in the inoperative position and being constructed in accordance with the invention.

Figure 2 is a similar view of the device with the cover tube being in cross section.

Figure 3 is an outer end view of the cover tube.

Figure 4 is an enlarged, cross sectional view of the operating mechanism embodied in the present invention.

Figure 5 is a bottom plan view of the gripping sleeve.

Referring in detail to the drawing, the improved signal comprises a cylindrical container 1, which is designed and intended for receiving and storing a supply of suitably compressed operating fluid, preferably gas. A valve 2, including a valve stem 3, is secured in the upper end of the container. The valve is preferably of the automatically closing type commonly employed in connection with tire tubes, having the exterior surface thereof formed with screw threads, by which the

2

gas supply mechanism may be attached to the valve when forcing gas into the container.

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 includes a top 5, which is provided with a plurality of apertures 6 for the escape of gas and sound in the manner to be described.

An upturned, arcuately-shaped slot 7 is formed in the wall of the cover tube 4 adjacent to the inner end of the latter. A screw 8, engaging in the wall of the container 1 and removable from the latter, extends through the slot 7 and normally prevents the separation of cover tube from the container. The slot is disposed transversely of the cover tube, and when the screw is in the lower central position of the slot, as shown in Figure 1, the container and the cover tube are in the maximum extended positions relatively to each other.

It will be apparent that, when either the container 1 or the cover tube 4 is turned or rotated in either direction to the distance allowed by the slot 7, the container and the cover tube will be retracted or drawn toward each other. Further, if both the container and the cover tube are simultaneously turned in opposed directions with respect to each other, the container and cover tube will shift toward each other. The container and cover tube are provided with knurled portions, respectively indicated at 9 and 10, to facilitate the shifting of said container and cover tube for the purposes to be described.

A gas-operated sound producing instrument in the form of a whistle 11, of any suitable construction, is mounted in the upper end of the cover tube 4, in close proximity to but slightly spaced from the top 5. The whistle is held in position by a circular holding member 12. The holding member is formed with an up-turned, annular flange 13, which frictionally engages the inner surface of the wall of the cover tube, and which further engages the peripheral edge of the whistle, as clearly shown in Figure 4. The holding member is further formed with a hollow neck 14 which depends from the center thereof.

A cylindrical gripping sleeve 15, constructed of resilient material, has its upper end slidably engaged on the depending neck of the holding member 12. The lower portion of the sleeve is provided with a plurality of longitudinally extending slits 16, which are open at their lower ends. The lower end of the sections of the slitted sleeve are slightly curved inwardly, as indicated at 17, and normally grip the upper end of the control

valve 2 when in the inoperative position, as illustrated in Figures 2 and 4.

A cross bar 18, carrying a small, fixed operating disk 19 on the lower side thereof, has its respective ends securely wedged in the upper ends of a pair of diametrically opposed slits 16 of the sleeve 15. The disk is positioned to engage and depress the valve stem 3 to release the compressed gas from the container 1.

Normally, the container 1 and the cover tube 4 are in the extended positions with the screw 8 being disposed at the center of the arcuate slot 7, and with all operating parts of the device being disposed in the positions clearly shown in Figure 4. When it is desired to operate the device, the container 1 and the cover tube 4 are preferably turned in opposed directions the distance allowed by the slot 7, whereby the container and cover tube are retracted or drawn toward each other in the manner hereinbefore set forth.

Such retraction of the container 1 and cover tube 4 will force the gripping sleeve 15 downwardly on the control valve 2 and cause the disk 19 to engage and depress the valve stem 3 to release the compressed air from the container through the control valve. The released gas is directed through the gripping sleeve 15, through the neck 14, and through the whistle 11 to operate the latter, and is finally exhausted through the apertures 6 in the cover tube top 5.

It will here be noted that, when the sleeve 15 is forced downwardly on the control valve 2, the lower ends 17 of the former will grip the threaded surface of the latter and thereby hold said sleeve in such downward position until manually released from the latter. Such release of the sleeve would first necessitate the separation of the cover tube 4 from the container 1 by the removal of the screw 8. Further, while the sleeve remains in such downward position, the disk 19 remains in the same position to depress the valve stem 3 and thereby cause the escape of the compressed gas from the container 1 until the gas is completely exhausted from the latter. As the gripping sleeve 15 is slidably engaged on the depending neck 14 of the holding member 12, the extension of the container 1 and cover tube 4 with respect to each other will not cause the release or movement of the sleeve from its operating engagement on the control valve in the manner stated.

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 from one-half to a full minute is invariably sufficient to discourage and prevent intruders from attempting any perverse actions. Even if an assailant should get possession of the device from the operator he would be unable to suspend the operation of the device, as the latter will function until all gas is exhausted from the container.

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

The invention aims to provide an emergency device for the protection of the user that will emit a continuous shrill sound which cannot be suspended until the gas is exhausted therefrom unless the device is taken apart, and wherein such separation of the parts would take considerably longer than the effective sound operation of the device.

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 gas-operated signalling device of the class described, comprising the combination of a container for receiving and storing compressed gas and being provided with an automatically closing type of control valve including a valve stem, a cover tube having an apertured top slidably engaged on said container and being provided with an upturned arcuately shaped slot, said slot being disposed in the side wall of said tube adjacent to the inner end of the latter, a screw fixed in said container and being engaged in said slot, a gas-operated sound producing element mounted in said cover tube adjacent to said top, a holding member frictionally engaged in said cover tube for securing said element in position in said cover tube and including a depending neck, a gripping sleeve slidably engaged on said neck and including a resilient slitted lower portion normally engaging the upper end of said valve, a cross-bar carrying a disk mounted in said slitted lower portion of said sleeve, the turning of said cover tube in either direction to the distance permitted by the engagement of said screw in said slot shifting said tube downwardly on said container, the downward movement of said tube on said container forcing said disk downwardly to contact and depress said valve stem to release the gas from said container to operate said member and further forcing said sleeve downwardly on said valve to prevent the suspension of the operation of said member until the gas in said container has been exhausted.

ANTHONY MEROLA.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,150,641	Smith	Aug. 17, 1915
1,340,785	McMullin	May 18, 1920
1,758,840	Kreill	May 13, 1930