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 ALARM WHISTLE MEANS FOR CLOSURE DEVICES.  
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1,428,189.

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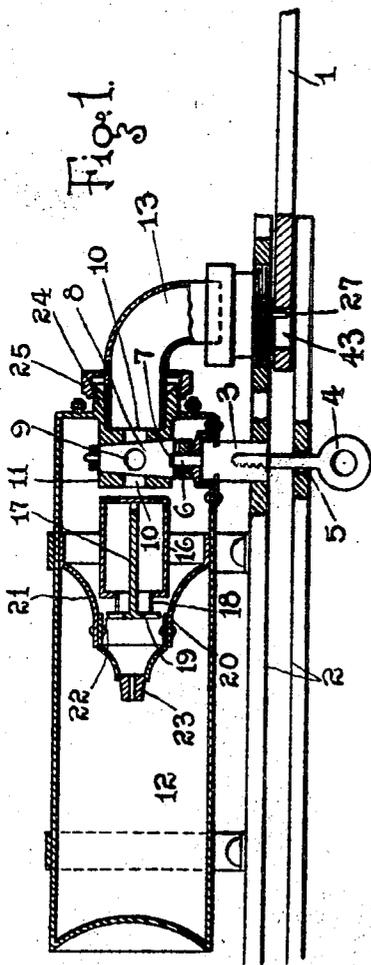


Fig. 1.

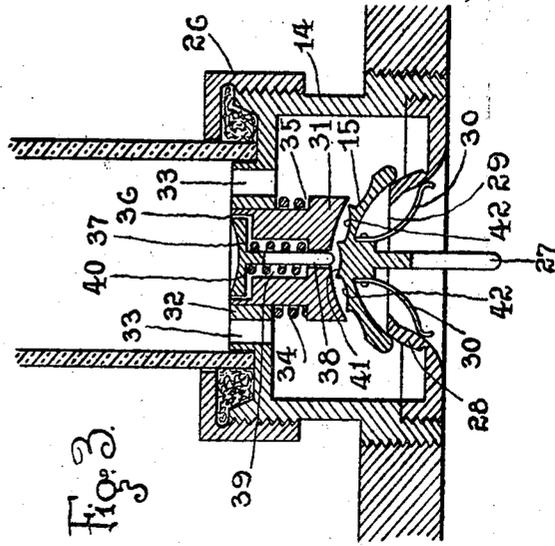


Fig. 2.

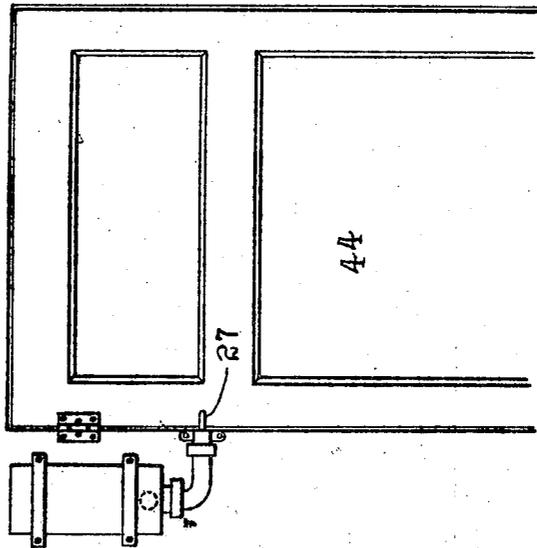


Fig. 3.

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## UNITED STATES PATENT OFFICE.

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## ALARM-WHISTLE MEANS FOR CLOSURE DEVICES.

Application filed March 11, 1922. Serial No. 542,923.

*To all whom it may concern:*

Be it known that I, FRANK C. STINZING, a citizen of the United States, and resident of Long Island City, in the county of Queens and State of New York, have invented certain new and useful Improvements in Alarm-Whistle Means for Closure Devices, of which the following is a clear and exact specification, reference being had to the accompanying drawings, which form a part of this specification.

This application, which is a further exemplification of the invention comprised in my earlier patent application, Serial No. 466,778, filed May 4, 1921, relates to automatic alarms whereby the attempted, unauthorized opening of a closure device, such as a door or window, may be audibly announced, as by the production of a shrill, continuous whistle.

Briefly expressed, the alarm consists of a whistle structure, operable by a charge of compressed air, under the control of a setting valve, that is provided with suitable locking means, to render its operation unavailable by other than authorized persons. The whistle is further controlled by an automatic valve, which is arranged to open by the action of a closure member in opening, thereby causing the whistle to sound, and to continue sounding until the setting valve is closed, or until the supply of compressed air is exhausted.

Other features and advantages of my invention will hereinafter appear.

In the drawing:—

Figure 1 is a horizontal sectional view of my alarm apparatus, shown as applied to a sliding closure member, such for example as a sliding door.

Fig. 2 is a vertical, front view of a swinging closure member, such as a door, with my alarm apparatus applied thereto, and

Fig. 3 is a vertical, sectional view, on an enlarged scale, of a portion of the alarm apparatus.

In the example of Fig. 1 let 1 indicate a slidable door, which may be a car door, house door, or closure member for any purpose, and let 2 indicate a guide, runway, wall or casing along which the closure member may slide in order to uncover or expose the opening which the closure member is intended to guard when closed.

The guide 2 is here shown as hollow, to

receive the closure member, its inner portion being provided with a revoluble lock member 3, that is capable of actuation by a key 4, or other suitable means; the outer portion of the casing having a key-way 5 to permit the introduction of the key.

This lock member 3 has a squared shank 6 that engages a squared recess 7 in a conoidal valve 8, which is provided with a port 9 and controls aligned orifices 10 in the valve seating member 11, that comprise communicating means between a compressed air cylinder 12 and a duct 13, (which latter may be of glass or other frangible material).

The duct 13 is in communication with a valve chamber 14, which has a valve 15 that is capable of automatic operation.

When the valve 8 is open, it will be appreciated that if valve 15 also be opened, a flow of air under pressure will escape from cylinder 12. This pressure flow is utilized by me to actuate a whistle that is located in the cylinder in advance of the valve seating member 11. As an example of whistle structure which may be employed I have shown a hollow cylinder 16, containing a diaphragm or reed 17, and having a neck portion 18 that is covered by a disk 19, said disk being of smaller diameter than said cylinder, and lying within the throat portion 20 of a conoidal member 21, that fits within the cylinder 12 in the manner of a partition. A slight clearance 22 is left between the peripheral edge of disk 19 and the wall of portion 20, causing air to flow in an annular stream through said clearance, for impingement against the peripheral edge of cylinder 16, and resulting in the production of a shrill whistling sound.

To prevent tampering with the cylinder 12 it is made of great strength and is capable of containing air compressed to a large number of atmospheres. Therefore the relief means, in whose path the whistle is located, may be regulated by pressure reduction means, such as that indicated at 23, whereby the compressed air supply may be conserved, and the serviceability of a cylinder charge prolonged.

The duct 13, here shown as an elbow tube, fits into a socket portion 24 forming part of valve seating member 11, and a tight union therefor is effected by means of a stuffing box in the form of a cap 25.

Also, the opposite end of the tube 13

is entered into tight union with valve chamber 14 by means of a stuffing box 26, of similar character.

The valve 15, which is of concavo-convex form, has a stem 27 whereby it is to be operated in a manner to be hereinafter described. Said valve, at its concave side, co-acts with an annular seat 28, being intended to oscillate thereon, to open and close the passage 29 that extends through the seat. Springs 30 extend between the valve and the surface of seat 28, to normally centre the valve in its closed position. The convex surface of valve 15 works against the concaved surface of a cylindrical member 31, which is slidably fitted in a central opening in the rear wall 32 of valve casing 14, said wall having air ports 33; a spring 34 lying between wall 32 and a shoulder 35 on block 31, to urge the latter against valve 15, thus affording the requisite pressure to hold the valve normally against its seat.

The block 31 is recessed at 36, to receive a disk 37, which has a stem 38 that extends through an axial orifice provided therefor in the block; a concentric enlargement 39 of the orifice in the block serving to contain a spring 40 that normally urges the disk 37 away from its seat against the block and thereby holds the end of stem 38 out of contact with valve 15.

But when pressure is applied to disk 37, which occurs when valve 8 is opened to admit air from compressor 12 to duct 13, then the disk 37 is thereby forced against its seat in block 31 and its stem is caused to protrude beyond the concaved face of the block, to engage valve 15.

The valve 15 is provided on its convex surface with a central concavity 41 for the reception of stem 38 when that is extended by air pressure against disk 37, overcoming the opposite pressure of spring 39. This concavity 41 is succeeded, at opposite sides, by depressions 42, so that the valve, in oscillating, rides against stem 38, which is pressed back until it can return into a succeeding depression 42. Since the dividing wall between concavity 41 and a succeeding depression 42 has a steep angle at its side adjacent the depression 42, it thereby constitutes a stop which engages the stem 38, to prevent the return of the valve to its closed position while the valve 8 remains open. The stem 27 of valve 15 is arranged to extend into the path of a sliding closure member, such as that indicated at 1, here shown as having a slot 43, whose right hand end surface is adapted, in the example represented, to engage the stem 27, and in the sliding movement of the closure member to the left, in opening, to thereby shift valve 15 to the open position. When valve 15 is opened, with valve 8 also open,

the effect is to permit the whistle to sound and to continue sounding until either the supply of compressed air is exhausted or valve 8 has been closed.

The valve 15 cannot be closed while pressure is upon disk 37 for the reason already given that stem 38 is caught by the wall between concavity 41 and the depression 42 into which said stem has passed, and therefore the act of again closing the closure member will not affect the continued sounding of the whistle.

It will be apparent, therefore, that while the valve 8 remains closed the closure member may be opened or closed without causing the whistle to operate, but when the valve 8 has been opened, then the alarm is set in readiness for actuation by the opening of the closure member.

The valve 15 must be re-set by hand after the alarm has been operated.

In the example of my invention shown in Fig. 2, where it is rendered applicable to a hinged or swinging closure member 4, 4, the alarm mechanism is of the same general character, and the valve stem 27 is indicated as lying against the inner surface of the closure member, at its rear edge, to be actuated by said closure member in swinging open.

Variations within the spirit and scope of my invention are equally comprehended by the foregoing disclosure.

I claim:—

1. An alarm for indicating the unauthorized opening of a closure member, comprising a compressed air supply, a control therefor, a whistle, pressure release means located in the path of movement of the closure member, in opening, to be operated thereby, and means for preventing the closing of the pressure release means while the control is open.

2. The combination with a closure member, of a whistle, air pressure means for sounding the whistle, actuating means for the sounding means operable by the closure means in opening, and means to prevent the sounding means from being rendered inactive while the supply of air pressure remains unexhausted.

3. The combination, with a closure member, of a whistle, fluid pressure means for sounding the whistle, an oscillable valve having a stem extended in the path of the closure member, in opening, to actuate the valve for pressure release, and spring-return means subject to the influence of the sounding pressure to lock the valve in its pressure releasing position.

Signed at the borough of Manhattan, in the city, county and State of New York, this 7th day of March, 1922.

FRANK C. STINZING.