M. G. BUNNELL.

WHISTLE.

APPLICATION FILED NOV. 29, 1912.

1,167,147.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

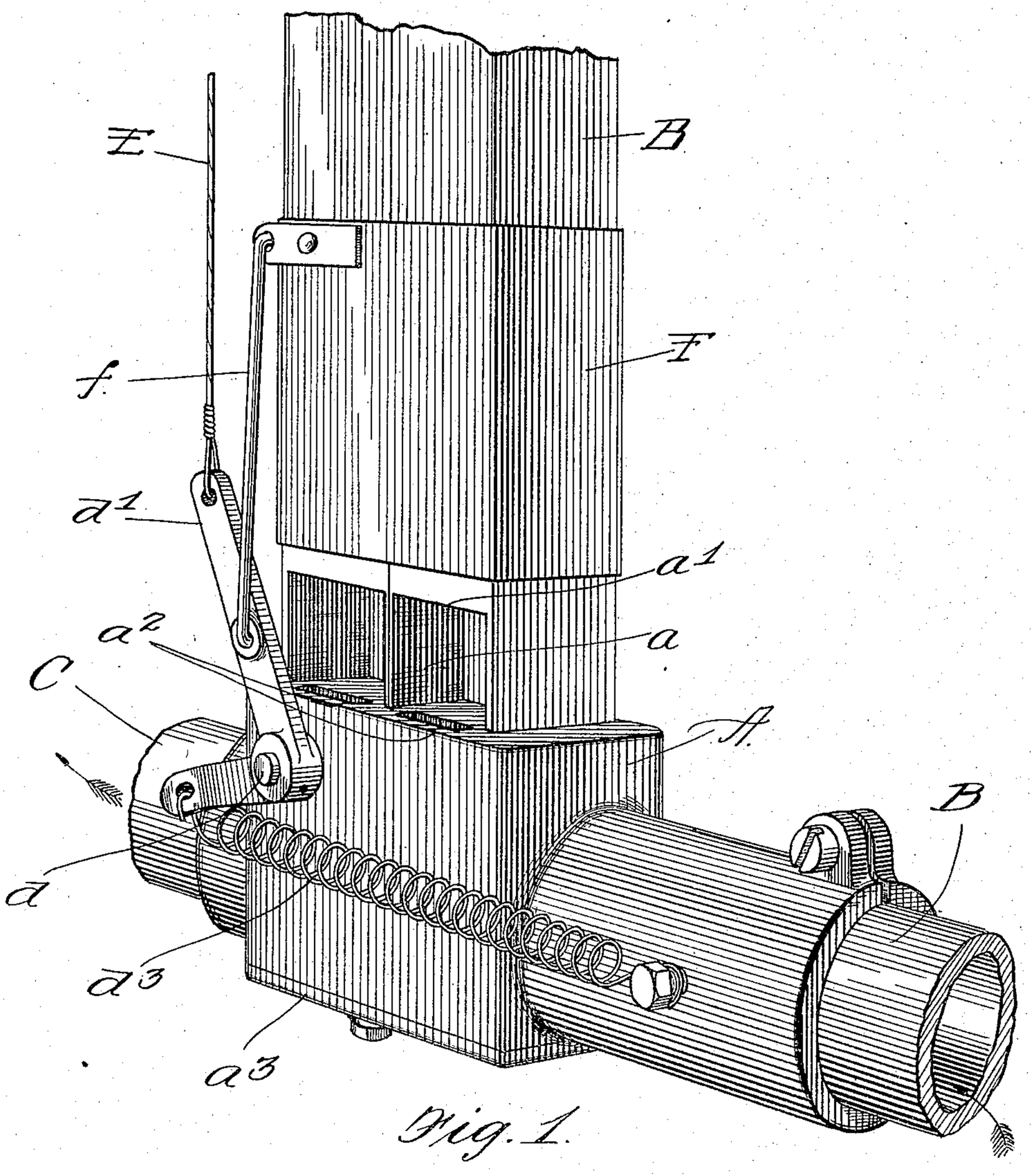

Fig. 1.

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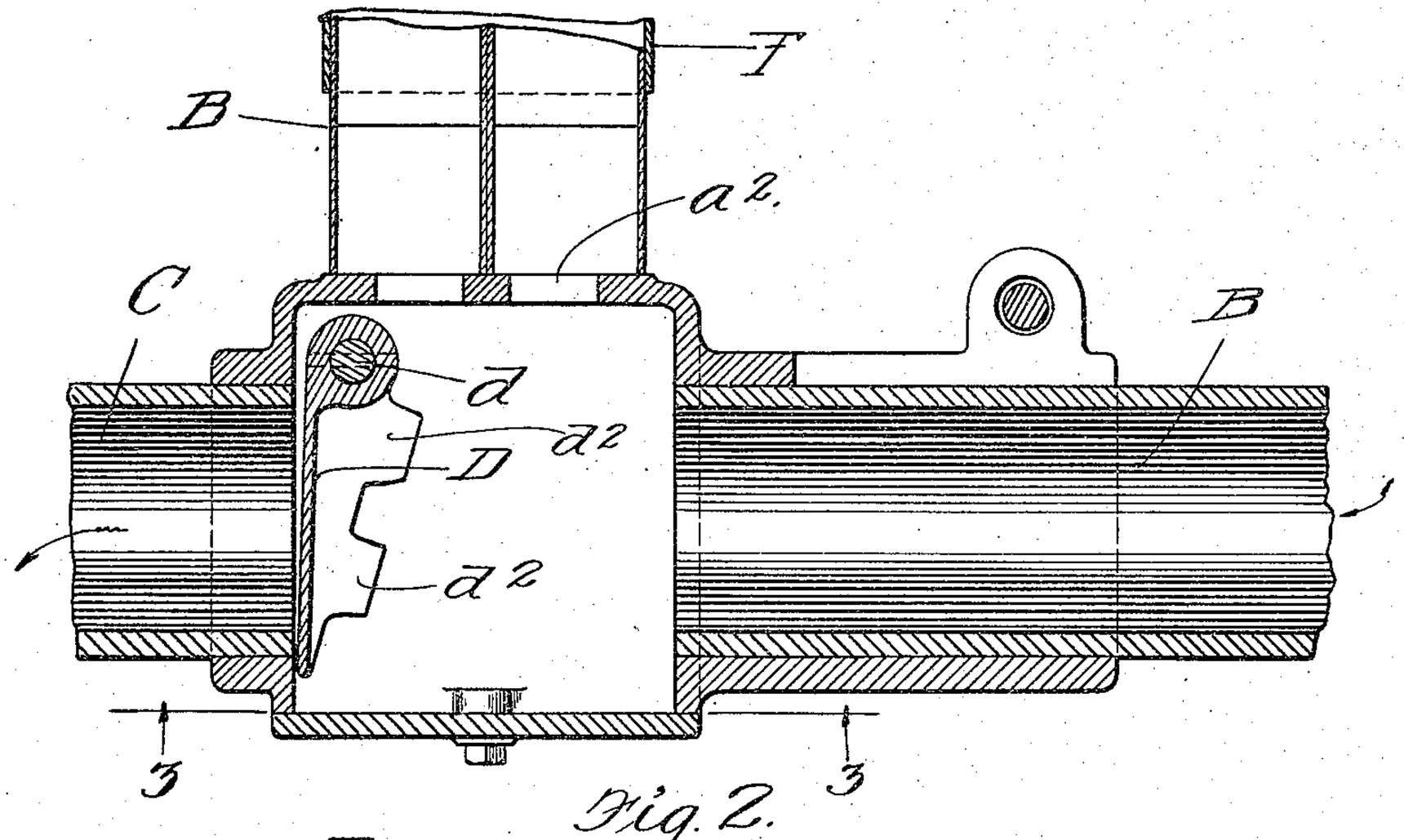

Fig. 2.

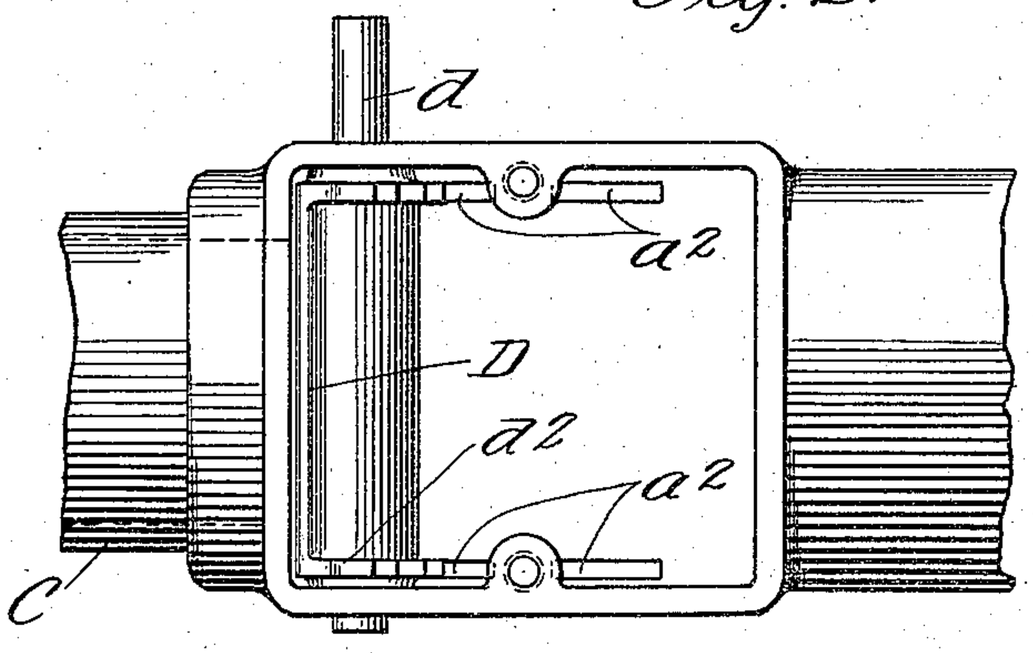

Fig. 3.

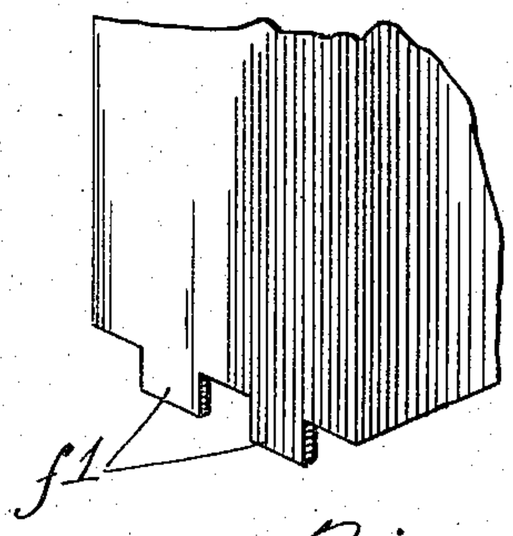

Fig. 5.

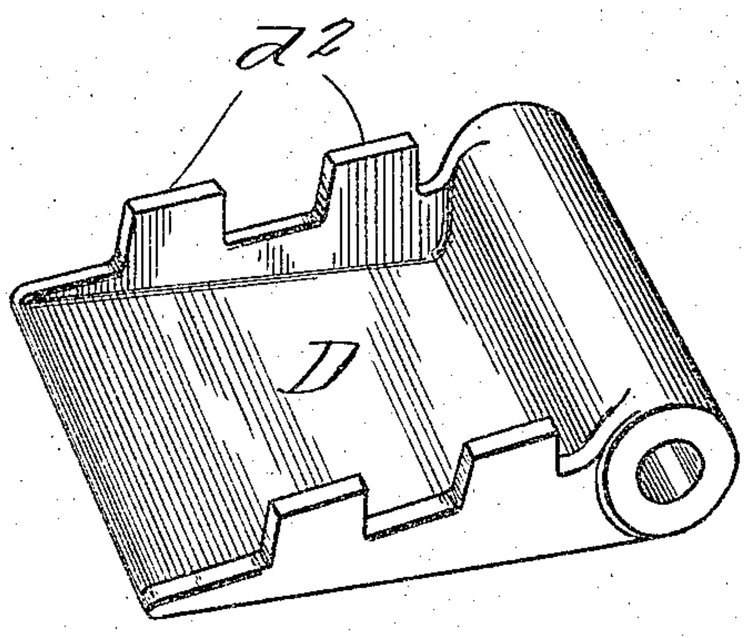

Fig. 4.

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UNITED STATES PATENT OFFICE.

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WHISTLE.

1,167,147. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed November 29, 1912. Serial No. 733,953.

To all whom it may concern:

Be it known that I, MORTON G. BUNNELL, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Whistles, of which the following is a specification.

My invention relates to whistles, or other alarm devices, adapted more particularly for use on automobiles. For example, my invention is useful in connection with whistles, or so-called automobile horns, which are operated by the engine exhaust. In devices of this kind the whistle or other alarm must be cut off from the exhaust when it is not in use. Furthermore, and with a device of this kind, it is often necessary to clean the openings or passages thereof, owing to the tendency toward the formation of accumulations therein. For example, the said passages may become filled with dust or dirt, or with the soot or other products of combustion from the engine, and in such case the whistle or other alarm will not operate.

Generally stated, the object of my invention is to provide an improved construction and arrangement for a whistle or alarm of this kind, in which the fluid pressure is supplied by the exhaust from an internal combustion engine, and in which means are provided for automatically cleaning the openings or passages thereof, as well as controlling the exhaust to produce the desired result.

Special objects are to provide a whistle or alarm of this kind in which the fluid pressure passages are cleaned by projections or lugs on a valve or other member which controls the escape of the exhaust into the atmosphere; to provide, in a structure of this kind, a sliding sleeve for covering the openings through which the exhaust passes when the alarm is sounded; to provide an internal valve for controlling the exhaust, whereby the fluid pressure is directed either directly into the atmosphere, or indirectly through the whistle or other alarm device; and to provide certain details and features of construction and combinations tending to increase the general efficiency and serviceability of a whistle or other alarm device of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings: Figure 1 is a perspective of an automobile chime whistle embodying the principles of my invention. Fig. 2 is a longitudinal section of said chime whistle. Fig. 3 is a section on line 3—3 in Fig. 2. Fig. 4 is a perspective of the interior valve which is provided with lugs or projections for entering the fluid pressure passages to keep the latter clean. Fig. 5 is a perspective of a portion of the sleeve which slides upon the whistle tubes, and which covers the whistle openings when the same are not in use, showing a modification of my invention.

As thus illustrated, it will be seen that my invention comprises a rectangular hollow body A having the square or rectangular whistle tubes *b* suitably mounted on one side thereof, and the said tubes being provided with whistle openings *a* having edges a^1 against which the fluid pressure impinges to produce the sound. For this purpose the side wall of the body A is provided with slots a^2 which direct the fluid pressure against the said edges a^1 in the manner of an ordinary whistle. The other side of the body A is provided with a removable plate a^3, and the ends of said body are provided with inlet and outlet pipes B and C, whereby the exhaust from the engine passes entirely through the said body A when the whistle is not in use. To control the exhaust, an internal valve D is provided within the body A, being pivoted at *d* whereby said valve is adapted to either open or close the outlet C, being operated by a crank arm d^1, secured to the pivot or axis thereof. In order to keep the passages a^2 clean and clear from dirt or other accumulations, the valve D is provided with lugs d^2, four in number, in this case, which enter the passages a^2 when the valve is opened. A spring d^3 is connected to control the valve D, and tends normally to hold the

said valve open, whereby the passages a^2 are normally closed by the lugs d^2 on the said valve. When it is desired to close the valve D to blow the whistle, as shown in Fig. 2, the string or cord E is pulled. When the said cord is released, the spring d^3 then restores the valve to normal position.

In order to keep dust and dirt from entering the whistle openings a, a sleeve F is arranged to slide upon the whistle tubes, said sleeve being connected by a rod f with the arm d^1 to which the said cord is attached. In this way the spring d^3 serves also to keep the sleeve F normally over the whistle openings a, whereby the said openings are protected against clogging while the whistle is not in use. When the string E is pulled, as previously described, the sleeve F is moved away from the body A, thus uncovering the openings a, and as the valve D is closed at this time, the exhaust is forced to escape through the passages a^2, with the result that the whistle is operated.

If desired, the sleeve F can be provided with lugs f^1, as shown in Fig. 5, for entering the passages a^2 for the purpose described. In other words, the said passages can be kept clean by lugs or projections on the sleeve F, in the manner shown in Fig. 5, instead of by lugs or projections on the sleeve D, in the manner previously explained. In any event, though, it will be seen that means are provided for entering the fluid pressure passages to keep the same clean, and that said means are preferably located upon an element which serves like a valve for controlling the exhaust.

From the foregoing, it will be seen that I provide a whistle or other alarm device which is operated by the exhaust from an internal combustion engine, and which is provided with means for keeping the fluid pressure passages clean and in condition to produce a full and clear sound when the said whistle or device is operated. Prior to my invention, as previously explained, whistles or other devices operated by the exhaust from an internal combustion engine were liable to clog and become inoperative. With my improved construction, however, this is not possible, or at least the possibility thereof is greatly reduced, inasmuch as means are provided for keeping the passages clear and clean.

I do not limit myself to the exact construction shown and described.

What I claim as my invention is:

1. A whistle comprising a hollow structure having an edge, a slot for directing fluid pressure against said edge, and means movable in and out of said slot to keep it clean, having motion longitudinally of said slot while entering and leaving the same.

2. A whistle comprising a hollow structure having an edge, a slot for directing fluid pressure against said edge, means movable in and out of said slot to keep it clean, having motion longitudinally of said slot while entering and leaving the same, and an internal combustion engine exhaust for supplying the fluid pressure.

3. A whistle comprising a hollow structure having an edge, a slot for directing fluid pressure against said edge, means movable in and out of said slot to keep it clean, and a shield for covering said edge when the said means is occupying said slot, operatively connected with said means.

4. A whistle comprising a hollow structure having an edge, a slot for directing fluid pressure against said edge, means movable in and out of said slot to keep it clean, an internal combustion engine exhaust for supplying the fluid pressure, and a shield for covering said edge when the said means is occupying said slot, operatively connected with said means.

5. A whistle comprising a hollow structure having a plurality of compartments, an edge for each compartment, slots for directing fluid pressure against said edges, means movable in and out of said slots to keep them clean, and a spring for normally keeping said means in said slots, said means having an axis extending at right-angles to said slots.

6. A whistle comprising a hollow structure having a plurality of compartments, an edge for each compartment, slots for directing fluid pressure against said edges, means movable in and out of said slots to keep them clean, an internal combustion engine exhaust for supplying the fluid pressure, and a spring for normally keeping said means in said slots, said means having an axis extending at right-angles to said slots.

7. A whistle comprising a hollow structure having a plurality of compartments, an edge for each compartment, slots for directing fluid pressure against said edges, means movable in and out of said slots to keep them clean, and an internal combustion engine exhaust for supplying the fluid pressure, said structure including a hollow body which incloses said means, and which conducts the fluid pressure to said slots, together with a pivoted plate in said body, said means consisting of lugs disposed on one surface of said plate along the side edges thereof, the plate surface between the two rows of lugs being imperforate to control the fluid pressure.

8. A whistle comprising a hollow structure having an edge, a slot for directing the fluid pressure against said edge, means movable in and out of said slot to keep it clean having motion also longitudinally of the

slot, an outlet, and a valve for controlling said outlet, having said means connected therewith, said means entering said slot when the said valve is opened.

9. A whistle comprising a hollow structure having an edge, a slot for directing fluid pressure against said edge, means movable in and out of said slot to keep it clean having motion also longitudinally of the slot, an internal combustion engine exhaust for supplying the fluid pressure, an outlet, and a valve for controlling said outlet, having said means connected therewith, said means entering said slot when the said valve is opened.

10. A whistle comprising a hollow structure having an edge, a fluid pressure pipe connected with said structure, a passage for directing the fluid pressure against said edge, an outlet, an inlet, a valve for controlling said outlet, inclosed by said structure, and a movable plate affording access to said valve and passage without disturbing said pipe connection or said valve, and means entirely independent of said plate to support said valve and edge in operative position.

11. A whistle comprising a hollow structure having an edge, a fluid pressure pipe connected with said structure, a passage for directing the fluid pressure against said edge, an outlet, an inlet, a valve for controlling said outlet, inclosed by said structure, means for cleaning said passage, operated by the opening of said valve, and a removable plate affording access to said valve and passage without disturbing said pipe connection or said valve, and means entirely independent of said plate to support said valve and edge in operative position.

12. A whistle comprising a hollow structure having an edge, a passage for directing the fluid pressure against said edge, an outlet, an inlet, a valve for controlling said outlet, inclosed by said structure, an outer sliding shield on said whistle, and external connections whereby said shield automatically slides over said edge when the valve is moved away from said outlet, and whereby said edge is automatically covered when said valve is closed.

13. A whistle comprising a hollow structure having an edge, a slot for directing fluid pressure against said edge, an outlet, an inlet, a valve controlling said outlet, and means on one side of said valve for entering said slot when the outlet is opened, having motion longitudinally of the slot while entering or leaving the same.

14. A whistle comprising a hollow structure having an edge, a passage for directing fluid pressure against said edge, an outlet, an inlet, a valve controlling said outlet, means on said valve for entering said passage when the outlet is opened, and a sliding shield for covering said edge when the valve is moved away from said outlet.

15. A whistle comprising a hollow structure having an edge, a passage for directing fluid pressure against said edge, an outlet, an inlet, a valve controlling said outlet, means on said valve for entering said passage when the outlet is opened, a sliding shield for covering said edge when the valve is in position to open said outlet, and a crank for operating said valve and means and shield.

16. A whistle comprising a hollow structure having an edge, a passage for directing fluid pressure against said edge, an outlet, an inlet, a valve controlling said outlet, means in said valve for entering said passage when the outlet is opened, a sliding shield for covering said edge when the valve is in position to open said outlet, a crank for operating said valve and means and shield, and a spring for holding said crank in the position necessary for opening said outlet.

17. A whistle comprising a hollow body having inlet and outlet openings disposed at opposite sides thereof, a whistle secured to another side of said body, extending transversely of the direction of said inlet and outlet openings, a removable plate opposite said whistle, a shaft extending through the other two sides of said body, a valve on said shaft, adapted to contract said outlet, and means on one end of said shaft for operating said valve, said valve and shaft being entirely out of line with said openings when said valve is in normal position to insure unobstructed passage from one opening to the other.

18. A whistle comprising a hollow body having inlet and outlet openings disposed at opposite sides thereof, a whistle secured to another side of said body, extending transversely of the direction of said inlet and outlet openings, a removable plate opposite said whistle, a shaft extending through the other two sides of said body, a valve on said shaft, adapted to contract said outlet, and means on one end of said shaft for operating said valve, said body having slots for said whistle, and said valve having means for cleaning said slots, said valve and shaft being entirely out of line with said openings when said valve is in normal position to insure unobstructed passage from one opening to the other.

19. A whistle comprising a hollow body having inlet and outlet openings disposed at opposite sides thereof, a whistle secured to another side of said body, extending transversely of the direction of said inlet and outlet openings, a removable plate opposite said whistle, a shaft extending through the other two sides of said body, a valve on

said shaft, adapted to contract said outlet, and means on one end of said shaft for operating said valve, said valve consisting of a rectangular plate provided with lugs along the side edges thereof, and said body having whistle slots adapted to receive said lugs.

Signed by me at Chicago, Ill., this 20th day of November, 1912.

MORTON G. BUNNELL.

Witnesses:
H. KNUDSON,
G. E. GRANSTROM.