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COMBINED EXHAUST PIPE EXTENSION AND WHISTLE

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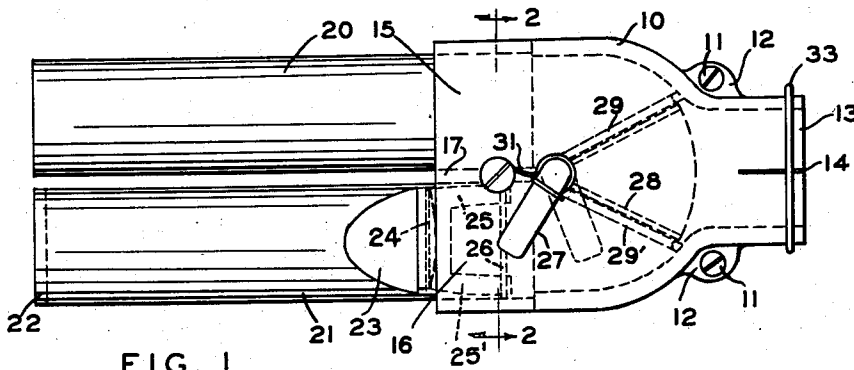


FIG. 1

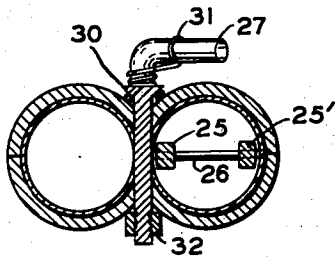


FIG. 2

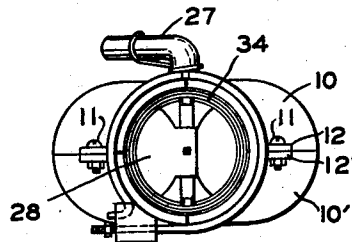


FIG. 3

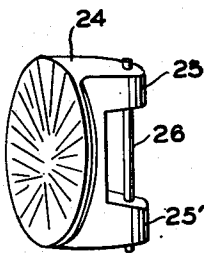


FIG. 4

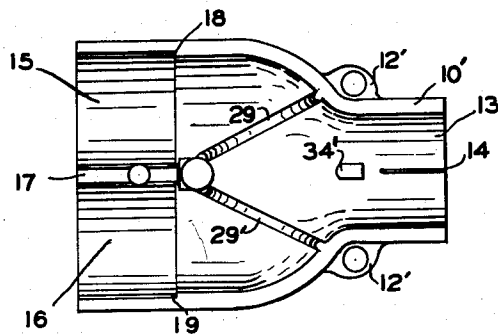


FIG. 5

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COMBINED EXHAUST PIPE EXTENSION
AND WHISTLE

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6 Claims. (Cl. 116-138)

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This invention relates to an exhaust extension and whistle and more particularly to an exhaust pipe attachment having a regular exhaust integrally combined with a whistle which is selectively operable from a remote point.

It is well known that the exhaust gases from the exhaust of an internal combustion engine may be directed through an orifice to produce a whistle effect or other sound very noticeable to the human ear. This principle is often applied in modifying the exhaust pipes of automobiles with a rather complex and unsatisfactory addition of pipes, valves, and control mechanism so that the operator of the automobile may actuate the whistle when desired.

In modifying the basic structure of the automobile exhaust pipe and sound muffler, leaky connections are created or improper changes in pressure are effected so that the modification interferes with the engine performance and permits noxious and toxic gases to be emitted in the vicinity of the passenger compartment. Sometimes the extensive, complex and usually inadequate control mechanism fails to work and even at times becomes entangled in the other control mechanisms of the automobile. Further, the prior art devices are objectionable from many standpoints, particularly with regard to expensive fabrication and assembly, and since the successful marketing of a device of this nature depends upon a low retail sale price, the production cost must be reduced to a minimum.

One of the objects of my invention is to provide a combined exhaust extension and whistle which may be readily applied to the terminal end of an exhaust pipe without altering the basic exhaust structure.

A further object of my invention is to provide a unitary exhaust extension and whistle having a common inlet for the passage of exhaust gases.

Another object of my invention is to provide a combined exhaust extension and whistle arranged and constructed to assure proper passage and expulsion of the exhaust gases.

Another object of my invention is to provide a combined exhaust extension and whistle having an accurate control which normally prevents the exhaust gases from sounding the whistle.

Also, an object of my invention is to provide a combined exhaust extension and whistle in which a particular arrangement of an exhaust gas baffle produces an effective whistle.

A further object of my invention resides in the particular construction whereby the fabrication and assembly of the component parts may be readily effected.

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A further object of my invention resides in the particular construction whereby the extension pipes may be readily replaced when damaged or lost.

Another object of my invention is to provide a combined exhaust extension and whistle which simulates an appearance of power and is symmetrically attractive to the eye.

Other and further objects and advantages of my invention will be apparent from the following description taken in conjunction with the accompanying drawings in which like characters of reference designate corresponding parts throughout the several views, and wherein:

Fig. 1 is a top plan view of a particular embodiment of my invention.

Fig. 2 is a cross-sectional view taken along the line 2-2 of Fig. 1.

Fig. 3 is a front end view of the embodiment of Fig. 1.

Fig. 4 is a perspective view of a detail.

Fig. 5 is a plan view of a detail.

In the particular embodiment chosen for illustration, the substantially hollow body is formed of two castings 10 and 10' being held together by bolts 11 passed through adjacent flanges 12 and 12' which extend from the respective contiguous portions of each casting. The hollow castings 10 and 10' join to form a cylindrical inlet opening 13 which is split near its terminal end portion at 14, and parallel cylindrical outlet openings 15 and 16 which communicate with the inlet opening 13 and are separated by a web 17 extending into the central portion of the hollow castings. Internal annular shoulders 18 and 19 are respectively provided within each of these outlet openings to form abutments whereby the outlet openings form sockets in the body. An open, hollow exhaust extension tube 20 is inserted within the socket portion of outlet opening 15 with its terminal end abutting the shoulder 18 which limits the extent of insertion of the tube 20; similarly, a corresponding hollow whistle tube 21 is inserted in the socket portion of outlet opening 16 and is closed at its free end by a cap 22 fixed therein. Adjacent the socketed portion of whistle tube 21 and somewhat centrally thereof, arcuate portions are removed from the bottom and top of this tube at numeral 23. Installed within the portion of whistle tube 21 which extends into outlet 16 is a baffle 24 which is circular and substantially concaved on its base portion, with a diameter slightly less than the inside diameter of the whistle tube 21. The back portion of the baffle 24 forms a spherical sector with a pair of parallel dependent arms 25

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and 25' extended therefrom substantially perpendicular to the base portion. Aligned apertures are provided in the free ends of these dependent arms and carry a pivot pin 26. The pivot pin 26 is approximately equal in length to the outside diameter of the whistle tube; this is readily seen in Fig. 4. In assembling the baffle in the whistle tube 21, the pivot pin 26 is passed through opposed apertures on the whistle tube, adjacent the abutted end thereof and through the aligned apertures of the arms 25 and 25', to allow the baffle to be suspended transversely toward the closed end of the whistle tube 21. Therefore, when the whistle tube 21 is inserted within the outlet opening 16, the pivot pin 26 is held in place by the abutting interior walls of the outlet opening 16. The baffle, thus installed, will allow its base portion to be suspended substantially adjacent the arcuate opening at numeral 23.

A substantially L-shaped control shaft 27 is journaled for rotation substantially centrally of the hollow body on the same plane with and adjacent the inner end of web 17. A circular flapper valve 28 of sufficient size to selectively seal either outlet openings 15 or 16 is fixed to shaft 27 so that, when outlet opening 15 is closed, outlet opening 16 is open and vice-versa.

Within the hollow body and on castings 10 and 10', annular sectors 29 and 29' radiate from points adjacent shaft 27 to the innermost sections of inlet opening 13 to provide a valve seat for flapper valve 28.

A drill of sufficient diameter to protrude on both sides of web 17 is passed vertically through this web so that a portion of the adjacent walls of tubes 20 and 21 are removed in the process. The drill is then replaced by screw 30 of proper size to retain tubes 20 and 21. A torsion spring 31 is positioned on shaft 27 and is retained in place on casting 10 by the head of screw 30. This spring 26 normally retains flapper valve 28 in a position closing outlet opening 16 and permitting the outlet opening 15 to remain open for conducting the gases through the exhaust tube 20. Retaining nut 32 locks screw 30 in place thus securely holding the surrounding parts together.

In the operation of the present embodiment, the inlet opening 13 is fitted over the terminal end of an exhaust tail pipe and is held in place by adjustable clamp 33 circumscribing the casting 10 and 10' adjacent inlet opening 13. Concentric sleeves 34 may be provided to reduce the diameter of inlet opening 13 to conform with the diameter of the tail pipe inserted. A plurality of stop tabs 34' extending from the inside of castings 10 and 10' may also be provided at a proper distance within the inlet opening to insure that the tail pipe does not obstruct the operation of flapper valve 28.

A control cable (not shown), enclosed in a flexible housing may be attached at an external leverage point on shaft 27, and extended to a point in the vicinity of the operator. The combined exhaust extension and whistle is now in place and ready for use. Under ordinary operation of the automobile, the exhaust gases passing out of the tail pipe, are conducted through the inlet opening 13 to the outlet opening 15 and out the exhaust extension tube 20.

When it is desired to sound the whistle, the remote control is actuated by the operator who pulls control shaft 27 thus throwing flapper valve 28 against valve seat annular sector 29 and

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thereby shunts the exhaust gases into outlet opening 16. Now, the exhaust gases are directed around and through the restricted passage between the outer periphery of baffle 24 and the inside adjacent walls of whistle tube 21. The action of the gases tends to float the baffle and allow these gases to move freely over all segments of the outer periphery of the baffle. The turbulent gases then pass out of the arcuate openings at 23 on whistle tube 21 causing a constant whistling sound of great intensity and very audible to the human ear.

My invention is very desirable from a standpoint of fabrication and assembly. The respective portions of web 17, annular sectors 29 and 29', shoulders 18 and 19, stop tabs 34, and flanges 12 and 12' may be cast integrally with castings 10 and 10'. Tubes 20 and 21 may be cut in equal lengths from the same tubular stock. Holes may be easily drilled, the arcuate openings cut and cap 22 installed with very little effort. The castings 10 and 10' may then be placed together with shaft 27 and flapper valve 28 installed on casting 10; and tubes 20 and 21 installed and the assembly retained in position by bolts 11. Then the final step is to pass a drill through the assembly to provide a hole for screw 30 and install the screw with spring 31 and nut 32. When bolts 11 and screw 30 are tightened, the assembly is completed and ready for installation on an automobile. The screws and bolts are so situated that all parts are securely fixed in their proper places.

All of the assembly operations may be effected in a minimum of time without the necessity of any special tools and without exercising any skill or tedious concentration. My invention may be produced on an assembly line utilizing only a few low cost materials and may be assembled by unskilled labor, which is a large factor in present day production cost. Therefore, the production cost of my invention is at a minimum and the ultimate retail price will be well within the financial limits of prospective buyers.

The tubes 20 and 21 may be fabricated from a rust resistant material and may be plated with a chrome plating, or other similar metal, so as to present an attractive appearance at the rear of the exhaust pipe. The exhaust extension tube 20, when in position on an automobile, causes the exhaust gases to be discharged a slight distance away from the rear of the automobile body and thereby prevents the smoky discoloration usually formed on the car body by the regular exhaust pipe; and the double tubes give a simulating appearance of power which is greatly desired by many drivers.

It will be obvious to those skilled in the art that many modifications and changes may be made in the embodiment shown and described without departing from the scope of my invention as defined in the appended claims.

I claim:

1. In a whistle comprising a hollow tubular member having a closed end and being provided with an aperture intermediate its ends, a baffle positioned within said member and arranged in cooperative relation with said aperture to form a whistle, said baffle being pivotally mounted for self-centering action within said member by the passage of gas around said baffle.

2. In a whistle, a hollow tubular member, said member having a closed end, a valve operably arranged to control the admission of gas into the

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other end of said member, said member being provided with an aperture intermediate its ends, and a baffle positioned within said member and arranged in cooperative relation with said aperture to form a whistle, said baffle being pivotally mounted for self-centering action within said member by the passage of gas on all sides of said baffle when said valve is operated to admit the flow of gas into said member.

3. In a whistle, a hollow tubular member, said member having a closed end, a valve operably arranged to control the admission of gas into the other end of said member, said member being provided with an aperture intermediate its ends, a pivot pin fixed in said member nearer said other end of said member, and a baffle positioned within said member and arranged in cooperative relation with said aperture to form a whistle, said baffle being pivotally mounted upon said pin for self-centering action within said member by the passage of gas on all sides of said baffle when said valve is operated to admit the flow of gas into said member.

4. In a device of the class described, a hollow body portion having an inlet opening for connecting said body to an exhaust pipe, said hollow body portion also having outlet passages in communication with said inlet opening, a valve selectively operable to control the passage of gas from said inlet opening into said outlet passages, hollow tubular members positioned respectively in said outlet passages, one of said hollow tubular members being open at both ends, the other of said hollow tubular members being closed at its outer end and being provided with an aperture intermediate its ends, and a baffle positioned within said last mentioned hollow tubular member in cooperative relation with said aperture to form a whistle, said baffle being pivotally mounted for self-centering action within said hollow tubular member in which it is mounted.

5. In a device of the class described, a hollow body portion having an inlet opening for connecting said body to an exhaust pipe, said hollow body portion also having a pair of parallel outlet passages in communication with said inlet opening, a swingably mounted valve selectively operable to control the passage of gas from said

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inlet openings into said outlet passages, hollow tubular members positioned respectively in said outlet passages, shoulders in said hollow body portion and against which the inner ends of said hollow tubular members abut, one of said hollow tubular members being open at both ends, the other of said hollow tubular members being closed at its outer end and being provided with an aperture intermediate its ends, a transverse pin through the forward end position of said last mentioned hollow tubular member, and a baffle pivotally mounted on said pin for self-centering action within said last mentioned hollow tubular member in cooperative relation with said aperture to form a whistle.

6. In a device of the class described, a hollow body portion having an inlet opening for connecting said body to an exhaust pipe, said hollow body portion also having a pair of parallel outlet passages in communication with said inlet opening, a valve selectively operable to control the passage of gas from said inlet opening into said outlet passages, hollow tubular members positioned respectively in said outlet passages, one of said hollow tubular members being open at both ends, the other of said hollow tubular members being closed at its outer end and being provided with an arcuate aperture intermediate its ends, said aperture having one side transversely straight, a pivot pin passing through the other of said hollow tubular members, a baffle defining a spherical sector positioned within said last mentioned hollow tubular member, arms extending from said baffle and pivotally and slidably journaled on said pin to position a part of said baffle adjacent said aperture for self-centering action within said last mentioned hollow tubular member, said baffle and said aperture cooperating together to form a whistle.

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