W. E. STEPHENS.

AUTOMOBILE HORN.

APPLICATION FILED MAY 8, 1911.

1,015,595. Patented Jan. 23, 1912.

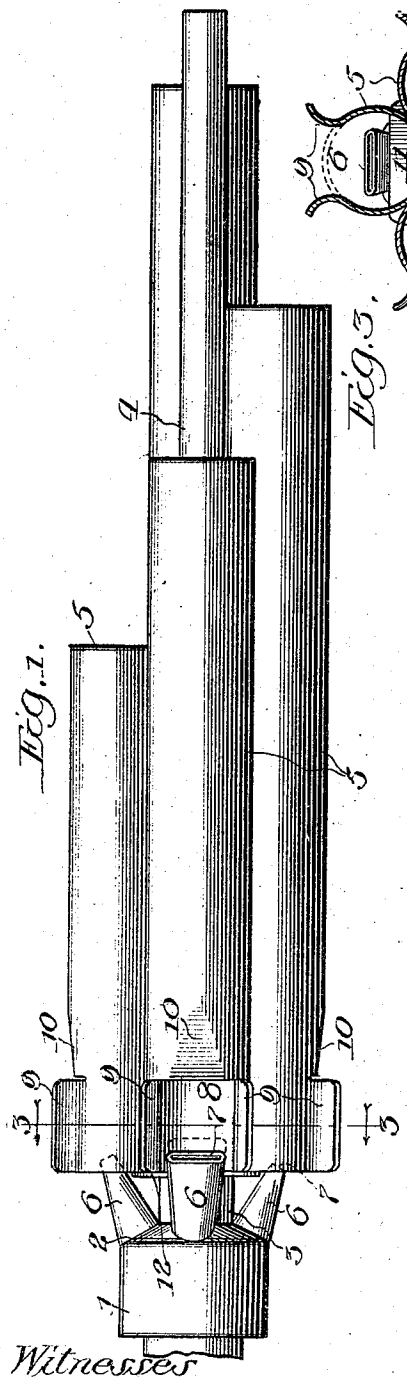

Fig. 1.

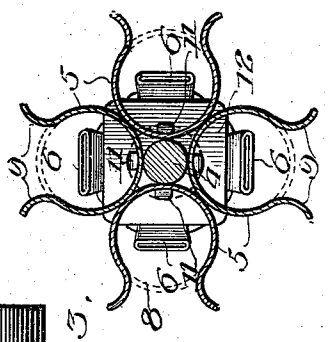

Fig. 3.

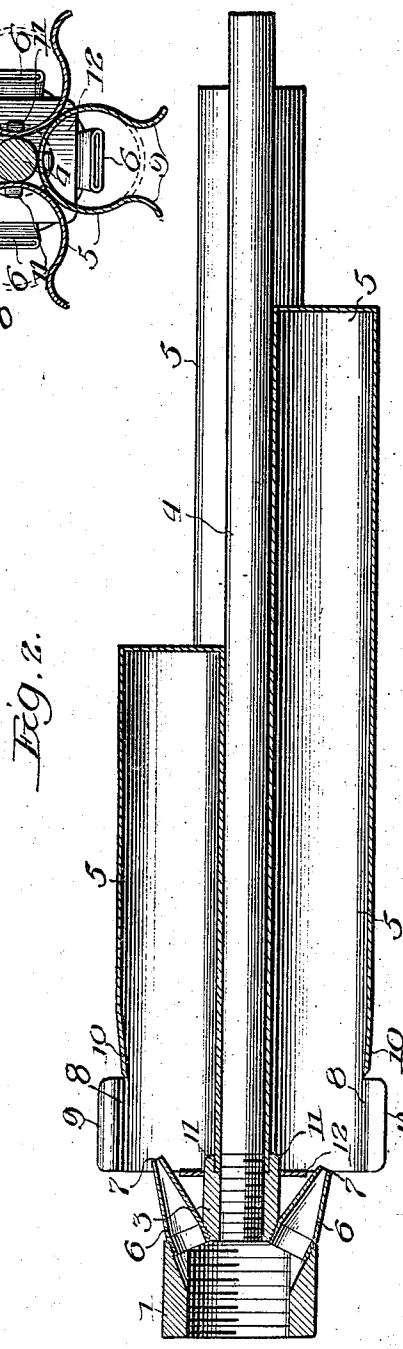

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM EDWARD STEPHENS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO AERMORE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

AUTOMOBILE-HORN.

1,015,595. Specification of Letters Patent. Patented Jan. 23, 1912.

Application filed May 8, 1911. Serial No. 625,758.

To all whom it may concern:

Be it known that I, WILLIAM EDWARD STEPHENS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Automobile-Horns, of which the following is a full, clear, and exact description.

My invention relates to horns or warning signals for automobiles, and the like, adapted to be connected with the exhaust port of the engine or motor so that when the gases expelled therefrom pass across the reeds of said horn a chord will be sounded for the purpose of a warning.

It is the object of my invention to construct a signal horn in such a manner that no matter how high the pressure may be in the exhaust chamber or muffler of the engine the reeds of the horn will not be caused to shriek, but always be of a uniform pitch.

It is also an object of my invention to arrange the parts in as economical a manner as possible and to construct the same so simply that the carbonized particles of combustion which are expelled from the engine will not clog the reeds or discharge nozzles or interfere with the proper operation of the device.

This I accomplish by the means and in the manner hereinafter fully described and as more particularly pointed out in the claims, reference being had to the accompanying drawings forming a part hereof, wherein:

Figure 1 is a longitudinal side elevation of my improved horn or signal. Fig. 2 is a vertical longitudinal section of the same taken through its axial core and showing the relative arrangement of the various parts. Fig. 3 is a transverse vertical section thereof taken on line 3—3, Fig. 1.

Referring to the drawings, 1 is a suitable cast-metal coupler or head that is preferably cylindrical or cup-shaped and screw-threaded interiorly. The closed end of this coupler is preferably reduced in diameter so as to form a shoulder 2 and has a central or axial stub 3 that extends beyond the same. This coupler is adapted to be screwed onto or otherwise secured to the end of the muffler or other exhaust port of an automobile engine, as shown in Fig. 1. A plurality of nozzles 6, 6, (preferably four in number) are tapped into this shoulder and project beyond the same a suitable distance. These nozzles are cylindrical in shape at their inner ends and screw-threaded while their outer ends are flattened to provide wide discharge orifices 7, 7, that project into the open end of the respective tubes forming the horn. The stub 3 is bored out and screw-threaded upon its interior and an elongated rod 4 is tapped therein and secured in position. This rod forms the core or axis around which a plurality of cylindrical-shaped fluid pressure tubes 5, 5, of various pitches are secured. These tubes are soldered or otherwise secured to the rod and to each other and are closed at their outer ends, their inner ends being adjacent the coupler 1. Said tubes are of different lengths in order to obtain varying high and low pitches representing certain notes of the chromatic scale, and the nozzles 6 projecting therein are of various lengths being longer or shorter according to the tube into which they respectively project, the longer nozzle registering with the short high pitch tube. Adjacent the nozzles, the side-walls of these tubes are preferably cut away to form openings 8, and this is done by cutting a T-shaped slit in the end edge of said tube and bending the wings 9, 9, formed thereby backward upon the tube, as shown. The cylindrical portion of the tube just beyond its wings is preferably flattened so as to present a straight edge 10 against which the exhaust gases from the muffler will impinge as they pass out of the discharge orifice 7 of the nozzles and said nozzles are so arranged that said exhaust will strike exactly at the straight edge 10, and sound a note of a different pitch in each tube. In order to more securely mount the tubes in position, small studs 11, 11 are formed on the edge of the stub 3 and in arranging the tubes the segment thereof nearest to the core 4 is placed so as to engage one of said studs 11. A plate or washer 12 of suitable dimensions and having openings through which these studs pass is seated between the end edge of the tube and the face of the stub 3, as shown, and insures the proper relation between the parts, as well as regulates to a certain extent the tone of each tube.

By the arrangement above described, while the tubes are closed on their outer ends their inner ends are open and free and it has

been found that, no matter how high may be the pressure of the exhaust, the tone of each will be uniform and will not shriek and the chord sounded, while pleasant to the ear will be sufficiently violent to alarm and warn pedestrians and others of the approach of the vehicle.

While I have described and shown a particular arrangement and number of parts it of course is obvious that the same may be varied according to the needs of particular cases, and all such modifications are to be understood as contemplated within the scope of my claims.

What I claim as new is:—

1. A horn comprising a suitable coupling, the outer end of which is reduced in diameter and forms a shoulder, a plurality of studs on the end of said reduced portion, a plurality of cylindrical fluid pressure tubes arranged around a central core having open ends the edges of which engage said studs, cut-away portions in the ends of said tubes adjacent said coupling, and a plurality of nozzles tapped through the shoulder in said coupling tangential to the axis thereof and intersecting the edges of said cut-away portions.

2. A horn comprising a suitable coupling, the outer end of which is reduced in diameter and forms a shoulder, a plurality of studs on the end of said reduced portion, a plurality of cylindrical fluid pressure tubes arranged around a central core having open ends the edges of which engage said studs, cut-away portions in the ends of said tubes adjacent said coupling, and a plurality of nozzles having flattened discharge orifices tapped through the shoulder in said coupling tangential to the axis thereof and intersecting the edges of said cut-away portions.

3. A horn comprising a suitable coupling, the outer end of which is reduced in diameter and forms a shoulder, a central core tapped into said reduced portion, a plurality of cylindrical fluid pressure tubes arranged around said core having open ends adjacent said coupling and cut-away portions therein, and a plurality of nozzles tapped through said shoulder tangential to the axis of said coupling and intersecting the edges of said cut-away portions.

4. A horn comprising a suitable coupling, the outer end of which is reduced in diameter and forms a shoulder, a plurality of studs on the end of said reduced portion, a central core tapped into said reduced portion, a plurality of cylindrical fluid pressure tubes arranged around said core having open ends adjacent said coupling that engage said studs and have cut-away portions in their ends, and a plurality of nozzles tapped through said shoulder tangential to the axis of said coupling and intersecting the edges of said cut-away portions.

In witness whereof I have hereunto set my hand this 16th day of March 1911.

WILLIAM EDWARD STEPHENS.

Witnesses:
E. K. LUNDY,
THOMAS J. HARPER.