

I. E. STUMP.
VALVE AND HORN.
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990,924.

Patented May 2, 1911.

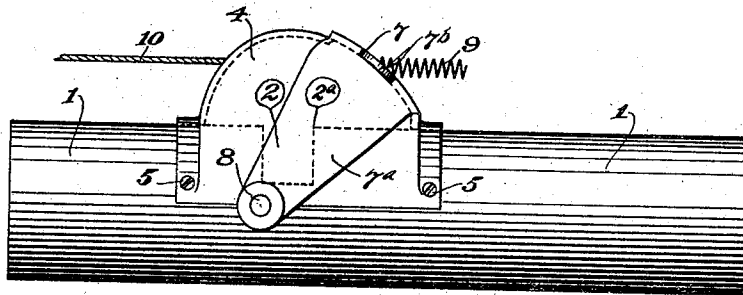


Fig. 1

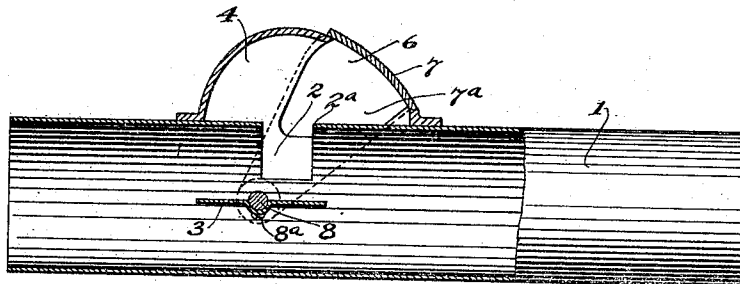


Fig. 2

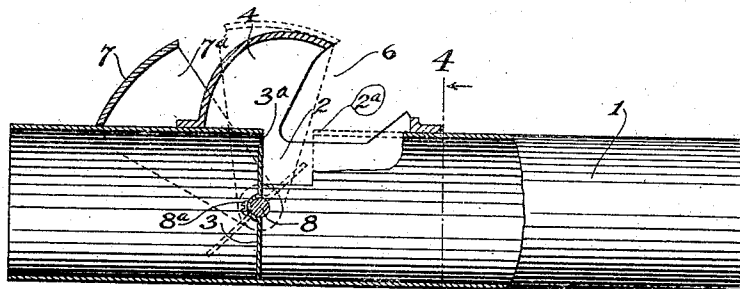


Fig. 3

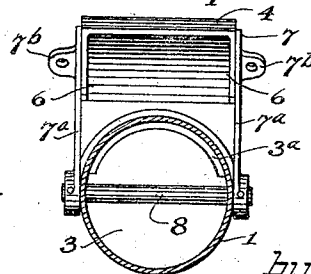


Fig. 4

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UNITED STATES PATENT OFFICE.

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VALVE AND HORN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, IRA E. STUMP, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Valves and Horns, of which the following is a specification.

My invention relates to improvements in valves and horns, and more particularly to a combined "cut-out" valve and signal horn, particularly designed and adapted for use in connection with the exhaust-pipe leading from a hydrocarbon engine to the muffler commonly employed in connection with automobiles, motor boats, and the like.

Under ordinary circumstances when the exhaust is forced directly to the muffler there is considerable back pressure resulting in a certain loss of power by impeding the action of the motor, consequently, what are known as "cut-out" valves are frequently provided whereby the exhaust may be permitted to escape directly through the valve and into the air, instead of through the muffler.

In exhaust valves and horns of this class, there is a tendency of parts and ports to become covered and clogged with carbon in the form of soot by the action of the exhaust gases, and the primary object of this invention is to provide a generally-improved combined "cut-out" valve and signal horn of simple, cheap, and efficient construction, in which the several parts are so disposed, constructed, and arranged as to reduce the above mentioned tendency to a minimum.

A further object of the invention is to provide a valve of this class, capable of receiving the exhaust from hydrocarbon engines and distributing the same either to the muffler or to another point of discharge without producing an undue accumulation of back pressure. This point of discharge may be directly to the atmosphere through the "cut-out" valve, proper, or indirectly thereto through the signal horn or whistle portion thereof.

With the above mentioned and other objects in view, the invention consists in the novel construction, arrangement, and combination of parts, hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings, forming a part of this specification, Figure 1, is a side ele-

vation of the improved "cut-out" valve and signal horn, the parts being shown in position to conduct the exhaust gases directly to the muffler. Fig. 2, a similar view partly in longitudinal section for the purpose of clearer illustration of the parts. Fig. 3, a similar view showing the relative position and arrangement of the parts when used as a signal horn. Fig. 4, a cross sectional view taken from line 4-4 of Fig. 3.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved valve and horn comprises an exhaust-pipe or pipe body 1, adapted to lead to a muffler in the usual manner when the exhaust is from a hydrocarbon engine. The exhaust-pipe or pipe body is provided at one side with a segmental whistle-slot 2, for utilizing the operating fluid or exhaust gases in sounding the horn, as well as providing means for discharging directly into the atmosphere through the "cut-out" valve as hereinafter described.

As a means for diverting the operating fluid to the whistle-slot for sounding the horn in a well known and understood manner, as well as diverting the same from the muffler, a valve-disk 3, is rotatably mounted in the exhaust-pipe or pipe body in close proximity to the whistle-slot, said valve-disk being adapted to be moved to an open position for permitting the exhaust gases to pass directly to the muffler as indicated in Fig. 2, of the drawings, or to be moved to a transverse or fluid diverting position as indicated in Fig. 3, of the drawings, whereby the operating fluid may be directed against the lip or edge 2^a of the whistle-slot for sounding the horn in a well known manner. The rotary valve disk is preferably provided with a peripheral recess or cut away portion 3^a, for providing an inlet slot or passageway for the operating fluid to the lip portion of the whistle-slot. As a means for entirely closing the whistle-slot whereby the exhaust gases may be conducted directly to the muffler, a valve body or hood 4, is mounted upon the exhaust-pipe or pipe body above the whistle-slot, in the present instance, by means of screws 5, said valve-body or hood being recessed at its sides and front portion to provide a cut-out port opening 6, for the escape of exhaust gases as the latter pass out through the whistle-slot as hereinafter described. As a means for opening and clos-

ing said cut-out port opening, as well as for moving the valve-disk 3, to and from a fluid diverting position, a "cut-out" valve 7, is connected to the valve-disk, said connection consisting, in the present instance, of an axle or bearing-shaft 8, mounted in and extending transversely through the pipe body, the valve-disk being secured thereto in a suitable manner as by means of a screw 8^a, and the ends of the bearing-shaft supporting the sides or arms 7^a, of the "cut-out" valve whereby the latter is adapted to be oscillated or moved to and fro, thus moving the valve-disk to any desired position.

It will be observed that the disposition and arrangement of the "cut-out" valve 7, relative to the valve-disk 3, is such that the latter will be moved to and from a fluid diverting position when said "cut-out" valve is moved to its open and closed position, respectively, as indicated in the drawings. The "cut-out" valve 7, is provided with perforated ears or lugs 7^b, whereby a coil spring 9, and connecting cord 10, may be connected, said coil spring being adapted to normally hold the "cut-out" valve in a closed position as indicated in Fig. 1, of the drawings, and said connecting cord communicating with a foot lever (not shown) or other suitable means for moving the "cut-out" valve against the resistance of the coil spring 9.

When it is desired to move the parts for use as a "cut-out" valve, the valve 7, is moved to the intermediate position indicated by dotted lines in Fig. 3, of the drawings, it being observed that if the valve 7, is moved to its extreme open position, the valve-disk 3, will be moved to its transverse or whistle sounding position as indicated in full lines in Figs. 3, and 4, of the drawings.

From the foregoing description, taken in connection with the accompanying drawings,

the operation and advantages of my invention will be readily understood.

Having thus described an embodiment of my invention, what I claim and desire to secure by Letters Patent is,—

1. In a valve and horn, a pipe body provided with a whistle-slot, a valve-disk rotatably mounted in said pipe body, means for moving said valve-disk to various positions, and means for closing said whistle-slot when said valve-disk has been moved to a nondiverting position.

2. In a valve and horn, a pipe body provided with a whistle slot, a rotatably mounted valve-disk provided with a peripheral recess adapted to form a fluid inlet slot to the lip of said whistle-slot when said valve-disk is moved to a transverse fluid diverting position, means for closing said whistle slot when said valve-disk is moved to a nondiverting position and means for moving said valve-disk to diverting and nondiverting positions within said pipe body.

3. A valve and horn, comprising a pipe body provided with a whistle-slot, a rotary valve-disk mounted in said pipe body and adapted to divert the operating fluid to said whistle-slot, a hood mounted above said whistle-slot and provided with a port opening, and a cut-out valve cooperating with said hood normally closing said port opening and connected to and adapted to move said valve-disk to its whistle sounding position when said cut-out valve is moved to its extreme open position.

In testimony whereof I have affixed my signature, in presence of two witnesses.

IRA E. STUMP.

Witnesses:

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