

No. 879,190.

PATENTED FEB. 18. 1908.

J. P. NORTHEY.
SOUND PRODUCING DEVICE.

APPLICATION FILED DEC. 2, 1905.

2 SHEETS—SHEET 1.

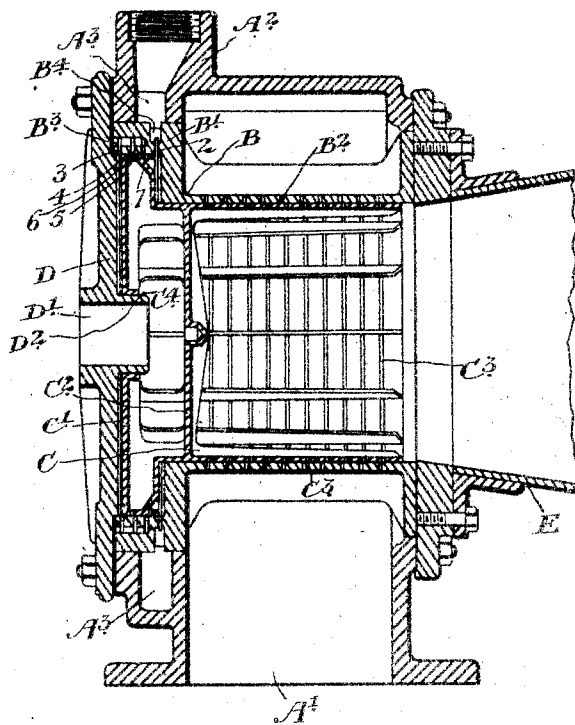


Fig. 1.

WITNESSES.

Wm. Sheppard
J. M. Tucker

INVENTOR.

J. P. Northey

BY *Fred. B. Fetherstonhead*
att'y

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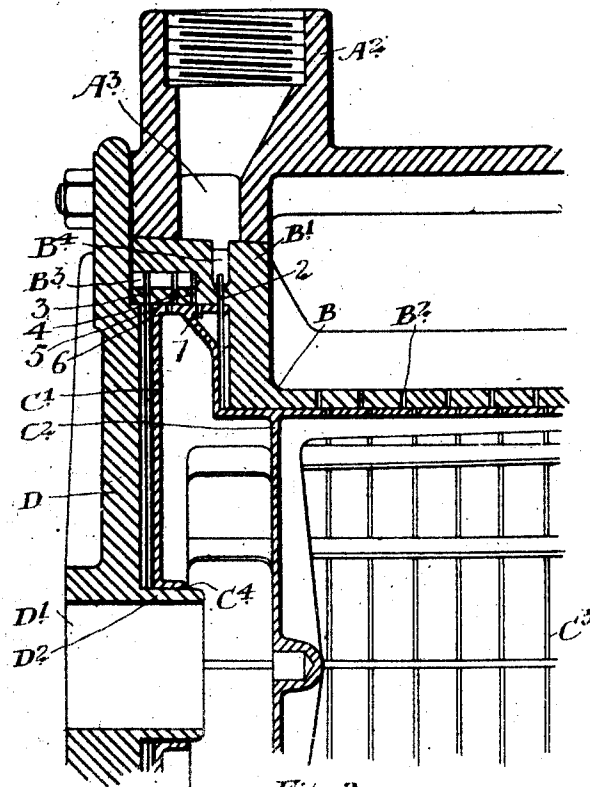


Fig. 2.

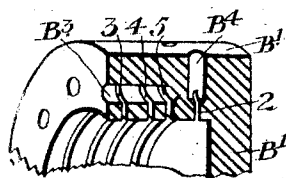


Fig. 3.

WITNESSES.
Edgar Sheppard
J. M. Tambori

INVENTOR.

J. P. Northey

BY Fred. B. Fithustonbaugh
attys.

UNITED STATES PATENT OFFICE.

JOHN PELL NORTHEY, OF TORONTO, ONTARIO, CANADA.

SOUND-PRODUCING DEVICE.

No. 879,190.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed December 2, 1905. Serial No. 290,037.

To all whom it may concern:

Be it known that I, JOHN PELL NORTHEY, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Sound-Producing Devices Suitable for Sirens and Like Instruments, of which the following is the specification.

My invention relates to improvements in sound producing devices suitable for sirens or like fog signaling or position locating devices of the character having a cylinder with sound producing orifices and an annular enlargement and a cover, and also a reciprocating piston having sound producing orifices as shown for example in my Patent #736428 of Aug. 18/03, and the object of the present invention is to provide a simple means for keeping separate the sound producing air from the air which effects the reciprocation of the piston whereby a purer note is produced and further to produce at the end of each stroke of the piston, a cushioning effect to limit the stroke of the piston which objects are attained in the present instance by a particular arrangement of the ports and passages and by providing separate inlets and outlets for the sound producing air and for the impelling air, in a manner clearly set forth hereafter and illustrated in the accompanying drawings in which:—

Figure 1, is a sectional elevation of a sound producing device or engine containing my improvements. Fig. 2, is an enlarged sectional detail. Fig. 3, is a perspective detail showing the form of the annular ports and their communication with the openings or holes in the periphery and face of the enlargement of the cylinder.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is a casing having an entrance A' for the sound producing air and the entrance A² for the impelling air.

B is the cylinder having the annular enlargement B'.

C is a piston having a head C' and D is a cover, which is securely held in the casing and abuts one end thereof and the end or face of the annular enlargement, B' of the cylinder.

E is the resonator, which is suitably secured to the casing. The piston C is provided with a cross wall C² and the usual annular sound producing orifices C³. The cylinder B is also provided with the annular orifices B³, which are designed to coact with

the orifices C³ to produce the sound. The casing A is provided with an annular chamber A³ with which the entrance orifices A² communicate.

B⁴ are a plurality of radial holes extending inwardly from the external periphery of the annular enlargement B'.

B³ are a series of holes formed in the annular enlargement parallel to the axis of the cylinder.

2 is an annular port located in the annular enlargement and communicating with the holes B⁴ and located at a point slightly remote from the end inner face of the annular enlargements B'.

3 is an annular port in the annular enlargement communicating with the holes B³. The annular port 3 is located at a point slightly remote from the cover.

4 and 5 are annular ports in the internal periphery of the annular enlargement B', such ports communicating with the holes B³.

6 and 7 are ports in the piston head, the port 7 being outside of the hollow portion and the port 6 communicating with the interior.

It will be noticed that the cover D is provided with an opening D' surrounded at the interior by an inwardly extending flange D² and it will also be noted that the piston head C' is provided with a flanged opening C⁴, which encircles the flange D² and has an easy fit thereon.

The impelling air passes through the holes B⁴ annular ports 2 into the interior of the cylinder, thereby driving the piston towards the cover, thence through the ports 7 and 5 and holes B³ to the annular port 3 to a point next the cover where the force of the air causes the piston to pass away from the cover. As the piston passes away from the cover the port 6 of the piston comes opposite the port 4 and consequently the exhaust passes out into the interior of the head of the piston and through the opening D'. It will thus be seen that the exhaust air is separated and diverted in my improvement away from the sound producing air, which is an important desideratum, the object being to obtain a pure note which will travel a much greater distance than would be the case with a note produced by air with which the exhaust of the impelling air was permitted to mix, since in the latter case experiments show that the air waves would be disturbed on account of the exhaust opening at a dif-

ferent part of the stroke to the speaking ports, and so producing an impure note. It will also be seen that the ports 2 and 3 being situated at a point slightly remote from the inner end face of the enlargement of the cylinder and the inner face of the cover respectively form a cushion to limit the stroke of the piston.

What I claim as my invention is:

- 10 A sound producing device for sirens and like instruments comprising a cylinder with sound producing orifices and an annular enlargement, a cover for the cylinder, and a re-

ciprocating piston having sound producing orifices, said cylinder and piston having cooperating ports for admitting and exhausting the air which effects the reciprocation of the piston, and means for separating said ports from the orifices which admit the air that produces the sound whereby the latter is unaffected in its quality, substantially as described.

JOHN PELL NORTHEY.

Witnesses:-

B. BOYD,

E. McEACHEN.