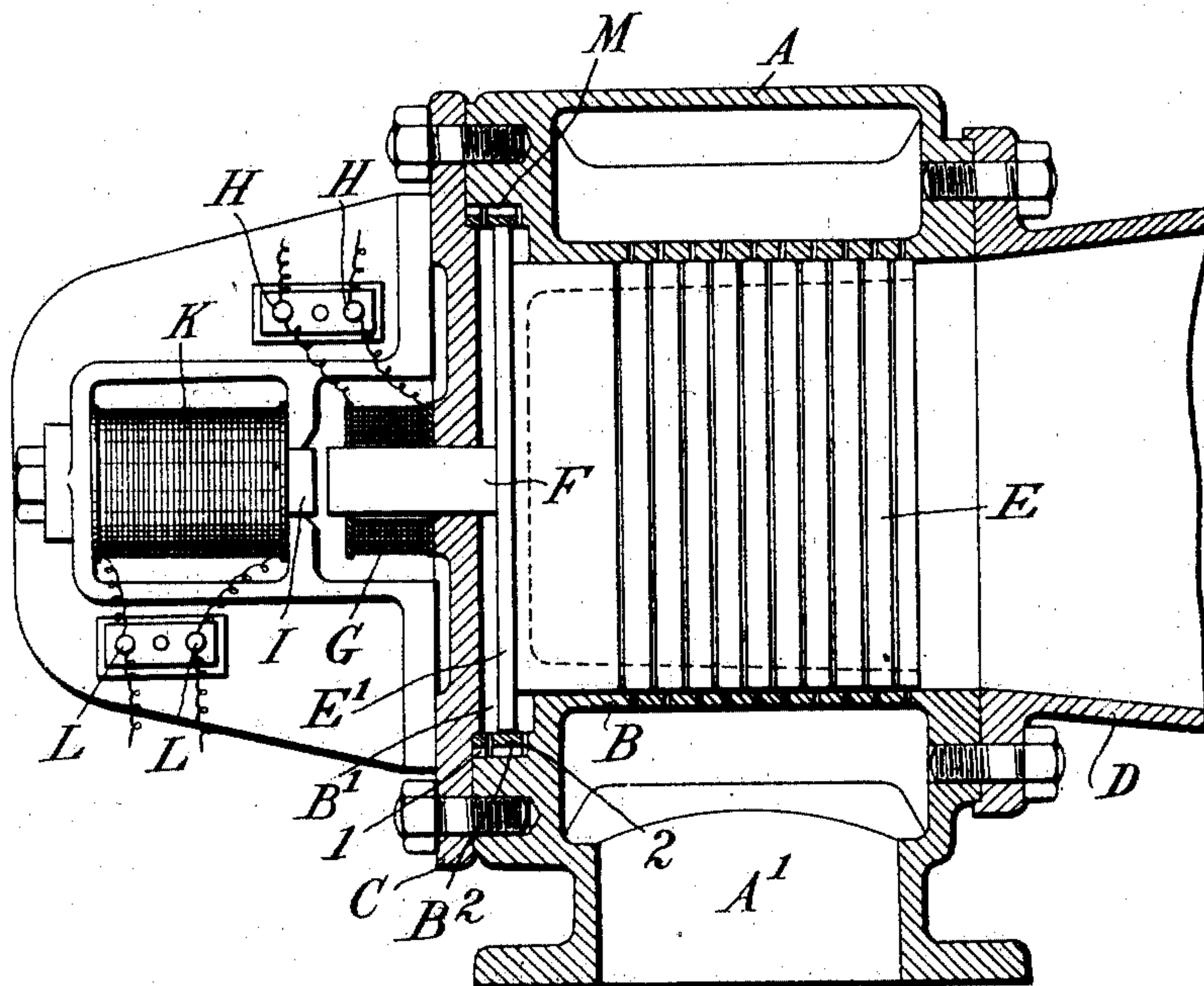


No. 864,909.

PATENTED SEPT. 3, 1907.

J. P. NORTHEY.
SOUND PRODUCING DEVICE.
APPLICATION FILED JULY 9, 1906.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN PELL NORTHEY, OF TORONTO, ONTARIO, CANADA.

SOUND-PRODUCING DEVICE.

No. 864,909.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed July 9, 1906. Serial No. 325,480.

To all whom it may concern:

Be it known that I, JOHN PELL NORTHEY, a subject of His Majesty the King of Great Britain, and a resident of Toronto, Canada, but temporarily of London, England, have invented a certain new and useful Improvement in Sound-Producing Devices, of which the following is a specification.

My invention relates to improvements in sirens or like fog signaling or position locating sound devices of the character having a reciprocating sound producing device such as a cylinder with air or like orifices and a reciprocating cushioned piston having a head working in an enlargement of the cylinder and having air or like orifices as shown for example in the specification to my United States Patent No. 736,428, dated 18th August 1903, and the object of same is to provide improved means for reciprocating said piston.

According to the present invention such piston is reciprocated by electrical driving means without the intervention of a crank, the means being preferably that shown in the accompanying drawing which is a sectional elevation of a sound producing device, showing same, the object being to enable the instrument to be used in places where steam and electric power is available but where there is no air compressing plant whereby the steam can be used for the sound producing part in place of the air usually employed, if desired.

In this drawing, A is the casing having an entrance A' for the sound producing steam, B is the cylinder with its annular orifices and having an enlargement B', C is the cylinder cover D the resonator E is the piston with its annular orifices adapted to correspond at intervals with those of the cylinder to allow of the passage of air in the well known manner, and E' is the enlarged part or head of the piston which works in the enlargement B' of the cylinder.

The head E' of the piston carries or has formed there-with a part or rod F forming a permanent magnet which in this case is effected by making the part as a core of a magnet coil G through which passes on its way between suitable terminals H. H. a direct electric current so that such core will become a magnet of fixed polarity. In line with this magnet F is a second but fixed core or magnet I of a coil K, through which passes an alternating electric current passing between the terminals L. L.

The enlargement B' of the cylinder B has a lining B²

having annular or interrupted orifices 1, 2 all round, and behind said lining is a space M for free air which in conjunction with a space in such enlargement and above and below such orifices respectively, as hereinafter referred to, forms a species of dash pot cushioning device which provides the necessary limitation for the travel of the piston in either direction, and also materially assists or maintains its reciprocating action the arrangement and position of such orifices determining the maximum cushioning effect and hence the travel of the piston, which experiments have proved to be of importance in connection with the positioning of its orifices with respect to those of the cylinder.

In operation the alternating current in magnet K causes corresponding reversals of polarity which will give through the attraction and repulsion of the magnet F the same number of strokes synchronously to the piston E the movement of which is cushioned by free air compressed by its head E' between the fixed and movable heads of the enlarged cylinder B', the ports 1, 2 for this purpose being located in the lining B² at a short distance from each head or end, so that the requisite space for cushioning may be obtained between said head E' and the heads of the cylinder at either end after such head E' has passed the ports 1, 2 respectively.

The cushioning device is described only by way of example as any other suitable form may be employed which will give the same effect, that is to say will act as a cushioning stop and also assist the return stroke of the piston.

What I claim and desire to secure by Letters Patent is:

A sound producing device comprising a casing having an inlet for a fluid supply, a cylinder inside same and having annular orifices and an outlet, a cover for one end of such cylinder, a piston having orifices corresponding to those of the cylinder, and an enlarged head, a cushioning device for the head of such piston, a rod carried by the piston and passing through the cylinder cover, a direct current coil around said rod adapted to convert it into a permanent magnet, a core in line with the permanent magnet, and a coil around same which when energized by an alternating current will cause the permanent magnet and piston to reciprocate.

In testimony whereof I have herein set my hand in the presence of two subscribing witnesses.

JOHN PELL NORTHEY.

Witnesses:

ALLEN PARRY JONES,
ERIC FRANK CLIFF.