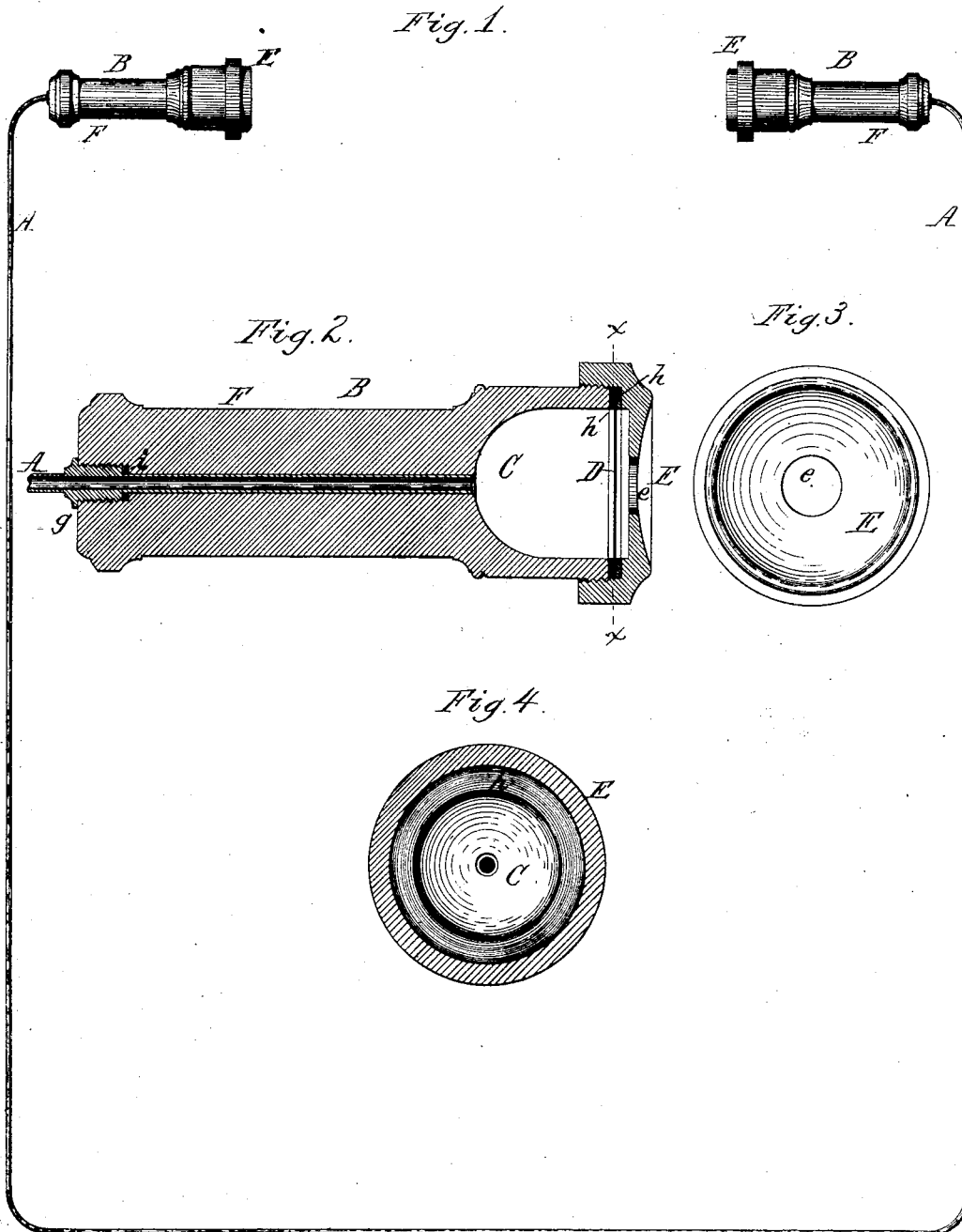


C. L. POND.

APPARATUS FOR TRANSMITTING SOUND.

No. 266,515.

Patented Oct. 24, 1882.



Chas. J. Buckheit
Edw. J. Brady
Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES L. POND, OF BUFFALO, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO EDWARD WILHELM AND JOHN J. BONNER, BOTH OF SAME PLACE, AND JAMES H. ROGERS, OF WASHINGTON, DISTRICT OF COLUMBIA.

APPARATUS FOR TRANSMITTING SOUND.

SPECIFICATION forming part of Letters Patent No. 266,515, dated October 24, 1882.

Application filed March 31, 1879.

To all whom it may concern:

Be it known that I, CHARLES L. POND, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Apparatus for Transmitting Sound, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an apparatus for transmitting sound through tubes or hollow passages to a greater or less distance, so as to render the sound audible at the terminus of the tube or hollow passage.

The object of this invention is the construction of an apparatus of this character which shall render the sound audible at a greater distance than that to which it is conveyed by an ordinary speaking-tube, and in which smaller tubes may be used.

My invention consists to that end principally of a hollow sound conveyer, passage, or tube provided with elastic or flexible diaphragms, which transmit the sound to or from the air or other fluid contained in the tube.

In the accompanying drawings, Figure 1 is an elevation of my improved apparatus. Fig. 2 is a sectional elevation, on an enlarged scale, of one of the mouth-pieces. Fig. 3 is a front view thereof, and Fig. 4 is a cross-section in line *x x*, Fig. 2.

Like letters of reference designate like parts in the several figures.

A represents a hollow sound conveyer, passage, or tube, made preferably of metal and of any suitable size, an inside diameter of from one-eighth to one-quarter of an inch being sufficient for ordinary purposes.

B is the sound receiver or deliverer, consisting of an enlarged chamber, C, which communicates with the tube A, and D is a flexible diaphragm stretched over the outer end of the chamber C. The diaphragm D is preferably made of mica; but it may be made of thin sheet metal or any other suitable material.

E represents a screw-cap by which the diaphragm D is secured to the chamber C. The cap E is provided with a central opening, *e*,

by which the sound is thrown upon the central portion of the diaphragm D.

F is a cylindrical shank, formed with the chamber C, for securing the same to the end of the tube A. The latter is provided with an enlargement or sleeve, *g*, soldered or otherwise firmly secured to the tube A, and provided with an external screw-thread. The shank F is constructed with an axial bore communicating with the chamber C and receiving the end of the tube A. The outer end of the bore of the shank F is enlarged and provided with an internal screw-thread, engaging with the screw-thread on the sleeve *g*, whereby the receiver B is firmly secured to the tube A.

h h are two rubber washers or rings arranged on both sides of the diaphragm D between the latter and the cap E and the end of the chamber C, respectively, and *i* is a rubber washer or packing placed between the end of the sleeve *g* and the shank F for tightly closing the passage through which the sound is conveyed. As shown in Fig. 1, a sound receiver or deliverer, B, is arranged at each end of the tube A. Upon speaking against the diaphragm at one end of the tube the sound is transmitted by the diaphragm to the air or other fluid contained in the sound-passage, and the sound is conveyed through this fluid to the diaphragm at the other end of the tube, where it is audible by holding the ear against or near the diaphragm. When three or more receivers B are connected with the same tube A the vibrations imparted to one of the diaphragms will be transmitted to and rendered audible by all the other diaphragms connected with the same tube.

In buildings which are provided with pipes through which illuminating-gas is conducted the receivers and deliverers B may be screwed directly to the gas-fixtures in a convenient location, or short branches may be laid from the gas-pipes to the receivers B, arranged in a convenient place, when the sound will be transmitted through the gas from one diaphragm to the other. If the receiver B is so used, the packings *h h* and *i* will form gas-tight joints,

so that the use of the apparatus will not be interfered with by the presence of the gas in the pipes.

5 A suitable alarm-whistle may be arranged with each receiver B, so that attention may be called to the apparatus by the person desiring to speak through it by blowing into the pipe in the same manner as in an ordinary speaking-tube.

10 If preferred, an insulated wire may be laid in the tube A and an electric alarm-bell be arranged with each receiver B for calling attention to the apparatus.

I claim as my invention—

15 1. An apparatus for transmitting sound, composed of a hollow conveyer, passage, or tube, A, and two or more diaphragms, D, adapted to transmit sound to and from the air or other fluid contained in the hollow conveyer.

2. The combination, with the tube A, provided with screw-sleeve *g*, of the receiver B, composed of the chamber C, diaphragm D, cap E, packings *h h*, and threaded shank F, substantially as set forth.

3. The combination of a tube for the transmission of impulses from sound-waves, diaphragms for transmitting the impulses from the sound-waves through the tube and reproducing said sound-waves at one end of the tube, and mouth-pieces adjacent to the diaphragms, substantially as set forth.

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Witnesses:

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