Sept. 22, 1925. 1,554,595

J. B. PERRIN ET AL

SPEAKING TRUMPET OF THE AZIMUTH MEASURING TYPE

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Fig. 1.

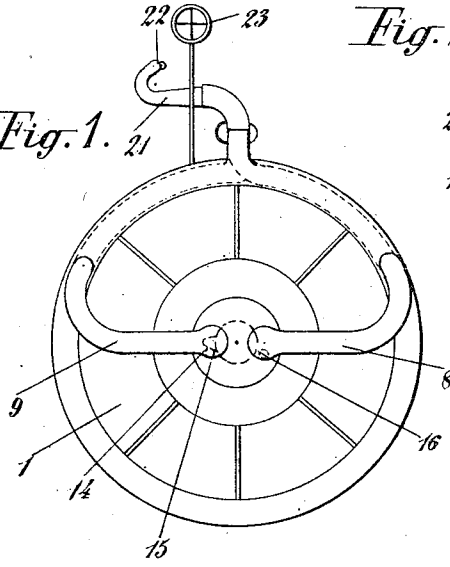


Fig. 2.

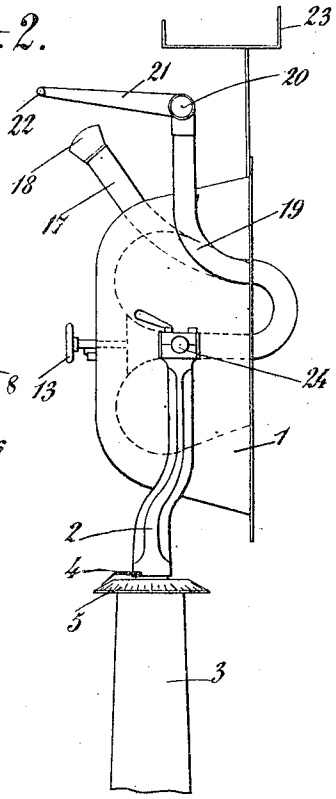


Fig. 3.

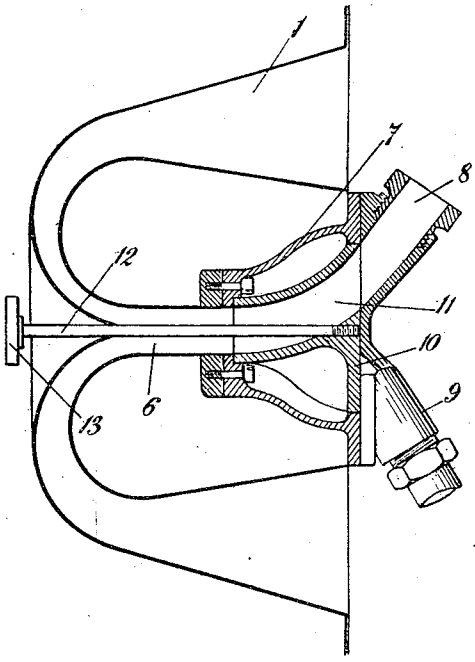
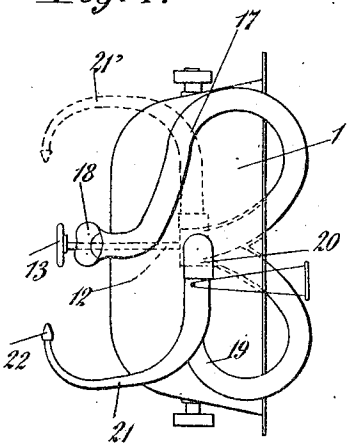


Fig. 4.



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Fig. 5.

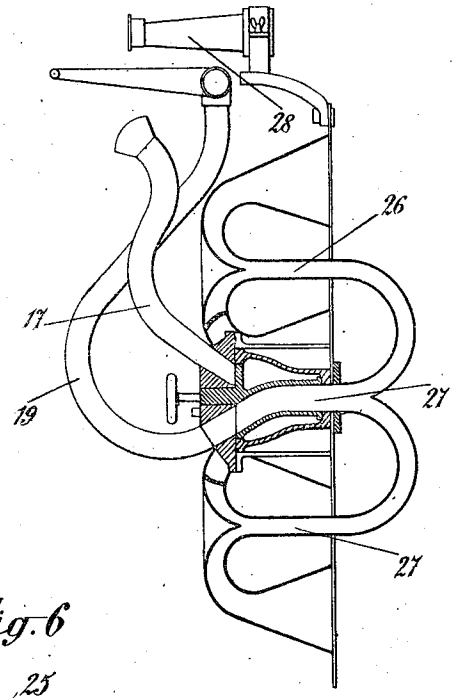
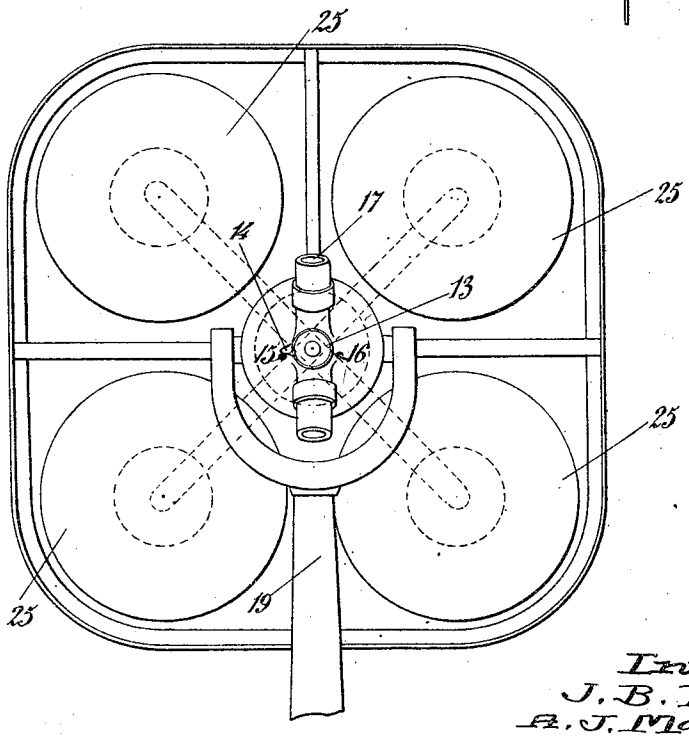


Fig. 6



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Fig. 7.

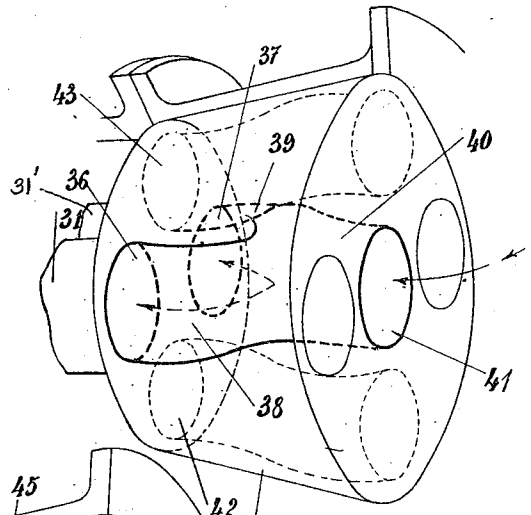


Fig. 8.

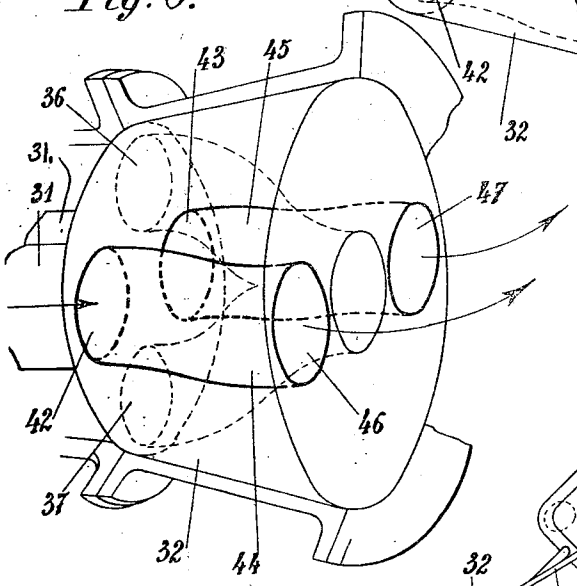
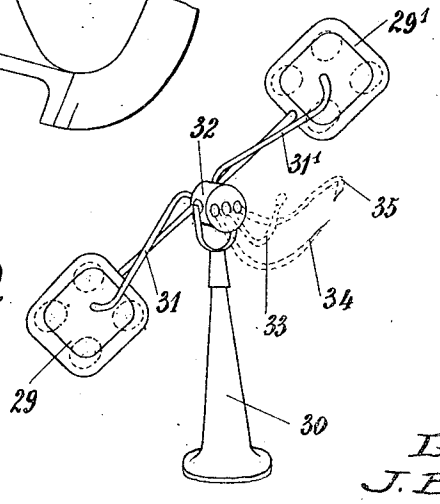


Fig. 9.



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UNITED STATES PATENT OFFICE.

JEAN BAPTISTE PERRIN AND ANDRÉ JULES MARCELIN, OF PARIS, FRANCE.

SPEAKING TRUMPET OF THE AZIMUTH-MEASURING TYPE.

Application filed February 1, 1924. Serial No. 690,037.

To all whom it may concern:

Be it known that we, JEAN BAPTISTE PERRIN, a citizen of the French Republic, residing at 106, Bd. Kellermann, Paris, France, and ANDRÉ JULES MARCELIN, a citizen of the French Republic, residing at 6, rue des Wallons, Paris, France, have invented certain new and useful Improvements in Speaking Trumpets of the Azimuth-Measuring Type, of which the following is a specification.

Our invention relates to an acoustic apparatus of the double acting type which can be used as a speaking trumpet or a receiver and is intended chiefly for the transmission of orders or an exchange of verbal communications on board vessels. The apparatus, which unlike the known speaking trumpets is mounted upon a supporting base, can be rotated according to azimuth, so that when used as a speaking trumpet it can be directed towards the persons which are to be communicated with, while on the other hand the apparatus will serve for the location of sounds, for instance signals transmitted from a lighthouse, another vessel or from like sources, during foggy weather.

Our said apparatus essentially comprises a sound amplifying device consisting of one or more elements according to the desired range, and whereof the chambers are caused to terminate at a suitable switching device. Two tubes proceeding from the latter device are respectively connected with a speaking trumpet mouthpiece and with an ear-piece. The said switching device consists essentially of a revoluble drum connecting the amplifying device with either of the said pipes. The whole apparatus can be rotated on a vertical axis for azimuth orientation, and it is provided with a needle co-operating with a graduated scale.

In the appended drawings, Figs. 1 to 4 show by way of example an apparatus having a single ear-piece, in accordance with our invention.

Fig. 1 is a front elevation and Fig. 2 a side elevation. Fig. 3 is a sectional view showing the revoluble switching device. Fig. 4 is a top plan view.

Figs. 5 and 6 refer to an apparatus with a single ear-piece but having a greater range than the preceding. Fig. 5 is an elevational view partly in section, and Fig. 6 is a rear view.

Figs. 7, 8 and 9 relate to an apparatus with double ear piece, based on the same principles. Figs. 7 and 8 show the switching device in both positions. Fig. 9 is a diagrammatic general view of the apparatus.

In the apparatus shown in Figs. 1 to 4, the sound amplifying device 1 is a trumpet consisting of a single element of a sound amplifier of any desired type. The device is mounted upon a bracket 2 which is revoluble on a vertical axle carried by a support 3. Upon the lower part of said bracket is fixed a pointer 4 movable along the circular azimuth scale 5 borne by the support 3.

The collecting element 6 of the amplifying device has an enlarged portion 7 communicating with the conduits 8 and 9. Within the said enlarged portion is revoluble a drum 10 having therein the conduit 11 whereby the element 6 can be connected with the conduit 8 or the conduit 9; the said drum is controlled by the rod 12 ending in a knob 13 within reach of the operator, the knob being preferably provided with an arm 14 co-operating with the stop-pieces 15, 16 according to the communication to be effected.

The conduit 8 is connected with a rigid pipe 17 ending in the acoustic trumpet 18; the conduit 9 is connected with a pipe 19 having a ball-joint 20 to which is pivoted a second pipe 21 ending in the ear-piece 22. In this manner the operator can remain stationary while the apparatus is rotated, and is enabled to find in a ready manner the direction of the maximum intensity of sound from a source whose azimuth he is engaged in determining.

Further, the height of the said ear-piece can be adjusted in accordance with the observer's body; the said piece can be inserted in the right or the left ear, and the pipe 21 may occupy the position shown in full lines in Fig. 4, or the position 21′ shown in dotted lines. The tube carrying the ear-piece can be folded back after use. At the upper part of the amplifying device are disposed the sighting means 23 by which the apparatus can be directed towards the person with whom communication is to be made.

It may be advantageous to allow the amplifying device to oscillate through a cer-

tain number of degrees in the horizontal direction so as to be directed according to positive or negative sites, and in this event it is movable on the horizontal axis 24.

In the form of construction shown in Figs. 5 and 6, the sound amplifying device consists of four round elements 25 whereof the conduits 26 end in a main central collecting chamber 27. The apparatus is thus more powerful than the preceding. In this case the conduits 17 and 19 terminate in the rear of the apparatus whereas in apparatus shown on Figs. 1 to 4 corresponding conduits terminated at the front thereof. In the present device the sighting means consist of a field glass 28.

Figs. 7, 8 and 9 show an apparatus on the same principle for use with both ears, and it comprises two receivers 29, 29^1 movable on the vertical axis 30 and connected by the pipes 31, 31^1 with the switching device 32 which effects communication with the speaking trumpet 33 or with the two ear-pieces 34, 35. To this end the said switching device comprises on the one hand two diametrically opposite apertures 36, 37 extended by two conduits 38, 39 which come together in a single conduit 40, terminating on the other face of the switch in an aperture 41. With the switching device in the position shown in Fig. 7, the apertures 36, 37 coincide respectively with the inlets of the pipes 31, 31^1, and the aperture 41 coincides with the speaking trumpet 33. The apparatus now operates as an acoustic transmitter. The switching device further comprises two diametrically opposite apertures 42, 43, located on a diameter perpendicular to that upon which the apertures 36, 37 are situated; the apertures are extended respectively by a conduit 44, 45 ending in an aperture 46, 47. With the switching device in the position shown in Fig. 8, the apertures 42, 43 coincide respectively with the inlets of the pipes 31, 31^1, and the apertures 46, 47 with the pipes leading to the ear-pieces 34, 35. The apparatus now operates as a receiver. The switching device is moved through a quarter of a revolution from one position to the other.

The said apparatus is chiefly applicable for use upon vessels for the transmission of orders from the captain's bridge to the crew, but it is obviously not limited to this use.

What we claim is:

1. A speaking trumpet adapted for use as a receiver comprising a sound-amplifying device, a support, a revoluble bracket pivoting on same and bearing the sound-amplifying device, an enlarged central collecting element in the sound-amplifying device, a revoluble drum in the collecting element, a rod controlling the rotation of the said drum, a double series of seats at one end of the drum, a conduit system in the drum communicating with either one of these series of seats and at the opposite end of the said drum with the collecting element, an acoustic trumpet and ear pieces communicating respectively with the corresponding series of seats.

2. A speaking trumpet adapted for use as a receiver comprising a sound-amplifying device, a support, a revoluble bracket pivoting on same and bearing the sound-amplifying device, a pointer adapted to the bracket, an azimuth scale borne by the support and cooperating with the pointer, an enlarged central collecting element in the sound-amplifying device, a revoluble drum in the collecting element, a rod controlling the rotation of the said drum, a double series of seats at one end of the drum, a curved conduit system in the drum communicating with either one of these series of seats and at the opposite end of the said drum with the collecting element, an acoustic trumpet and ear pieces communicating respectively with the corresponding series of seats, a ball joint whereon each ear-piece is mounted, and sighting means revoluble together with the sound-amplifying device.

In witness whereof they have hereunto set their hands.

JEAN BAPTISTE PERRIN.
ANDRÉ JULES MARCELIN.