

K. F. HACKERT.

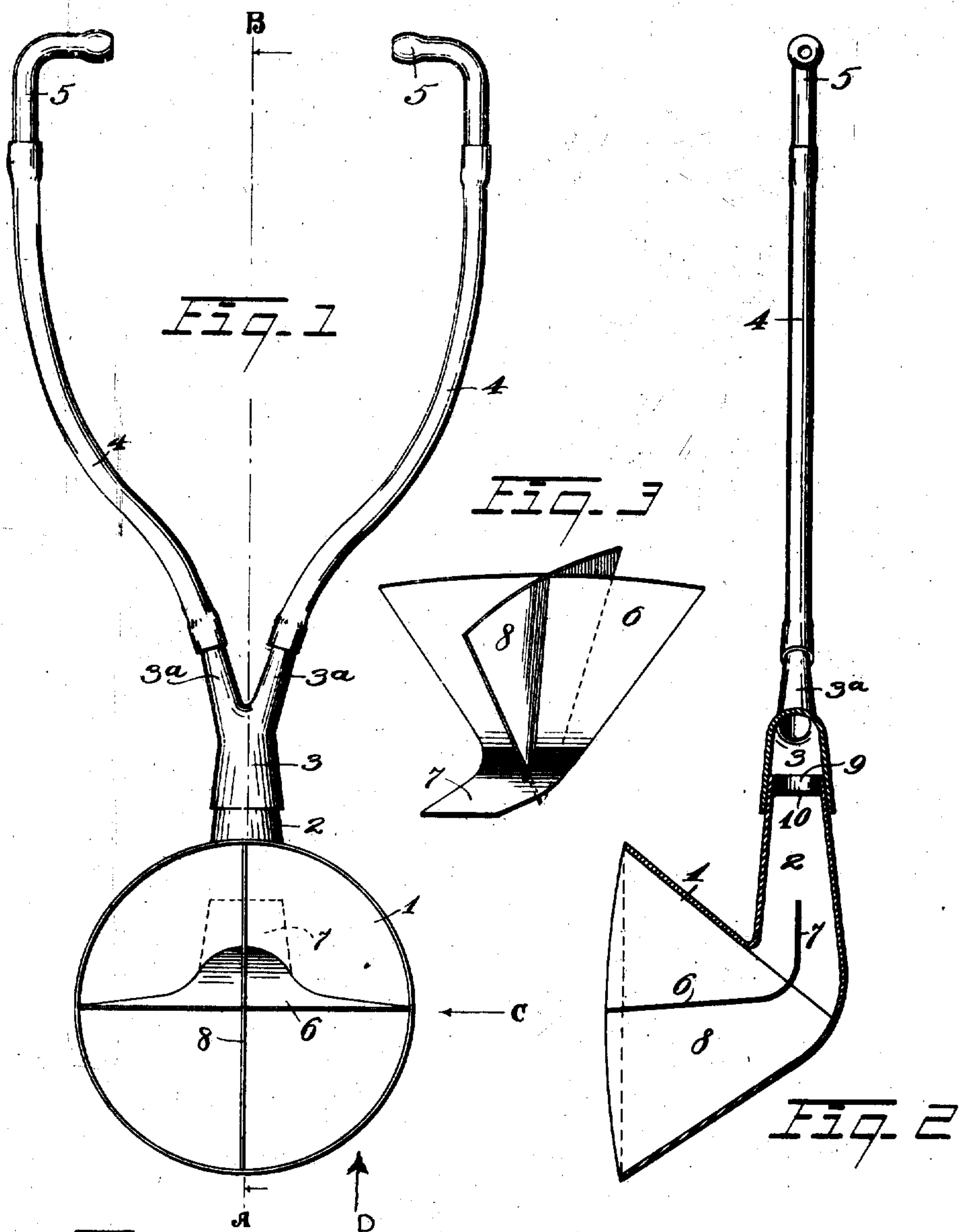
EAR TRUMPET.

APPLICATION FILED DEC. 20, 1907.

900,097.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.



Witnesses:

Freeman B. West.

Nathan F. Fretter

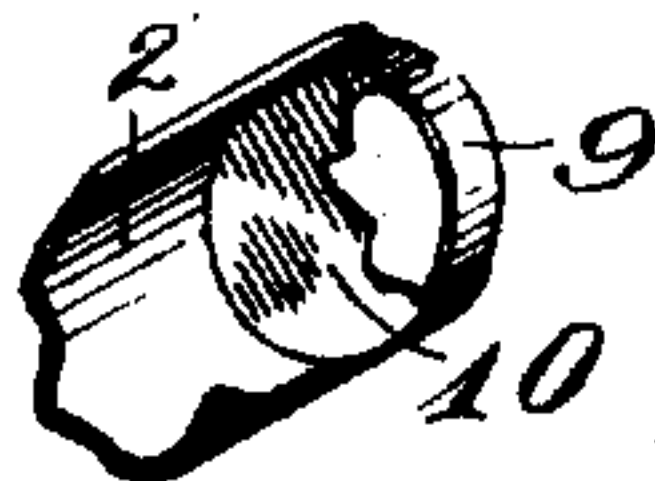


FIG. 4

INVENTOR.

Karl F. Hackert

By Carter, Fouts & Hull.

Attys.

K. F. HACKERT.

EAR TRUMPET.

APPLICATION FILED DEC. 20, 1907.

900,097.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 2.

Fig. 5

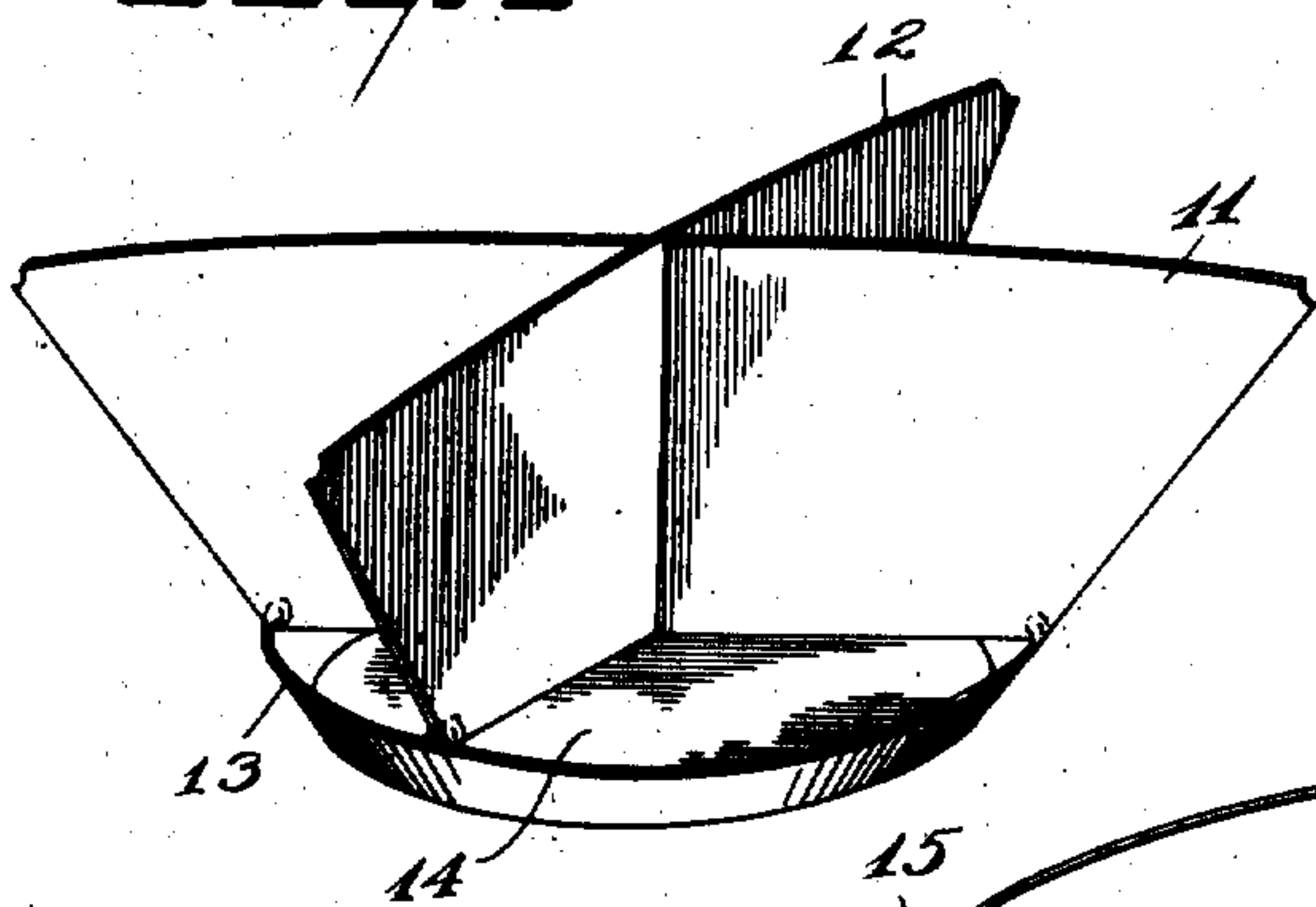


Fig. 7

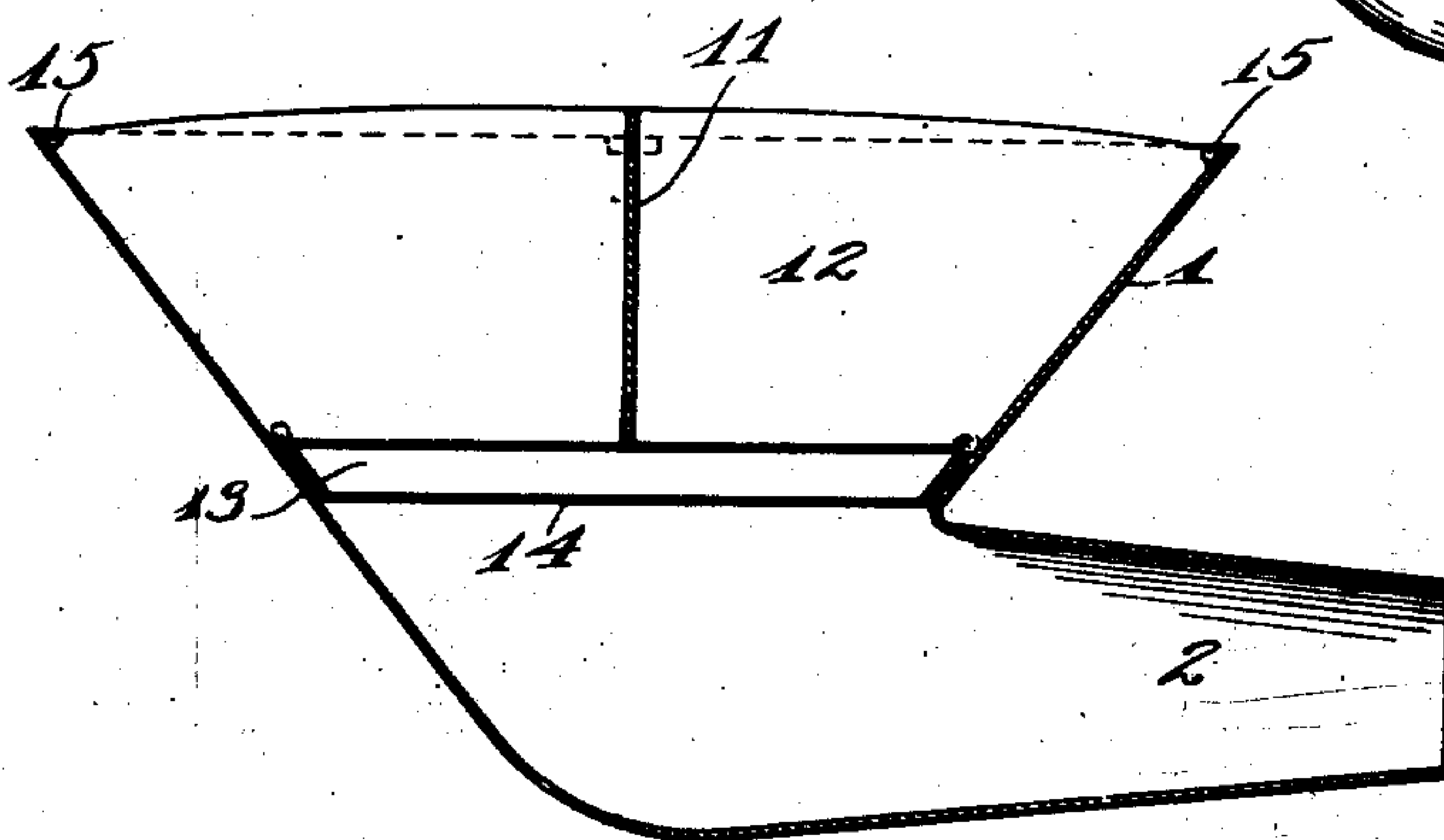
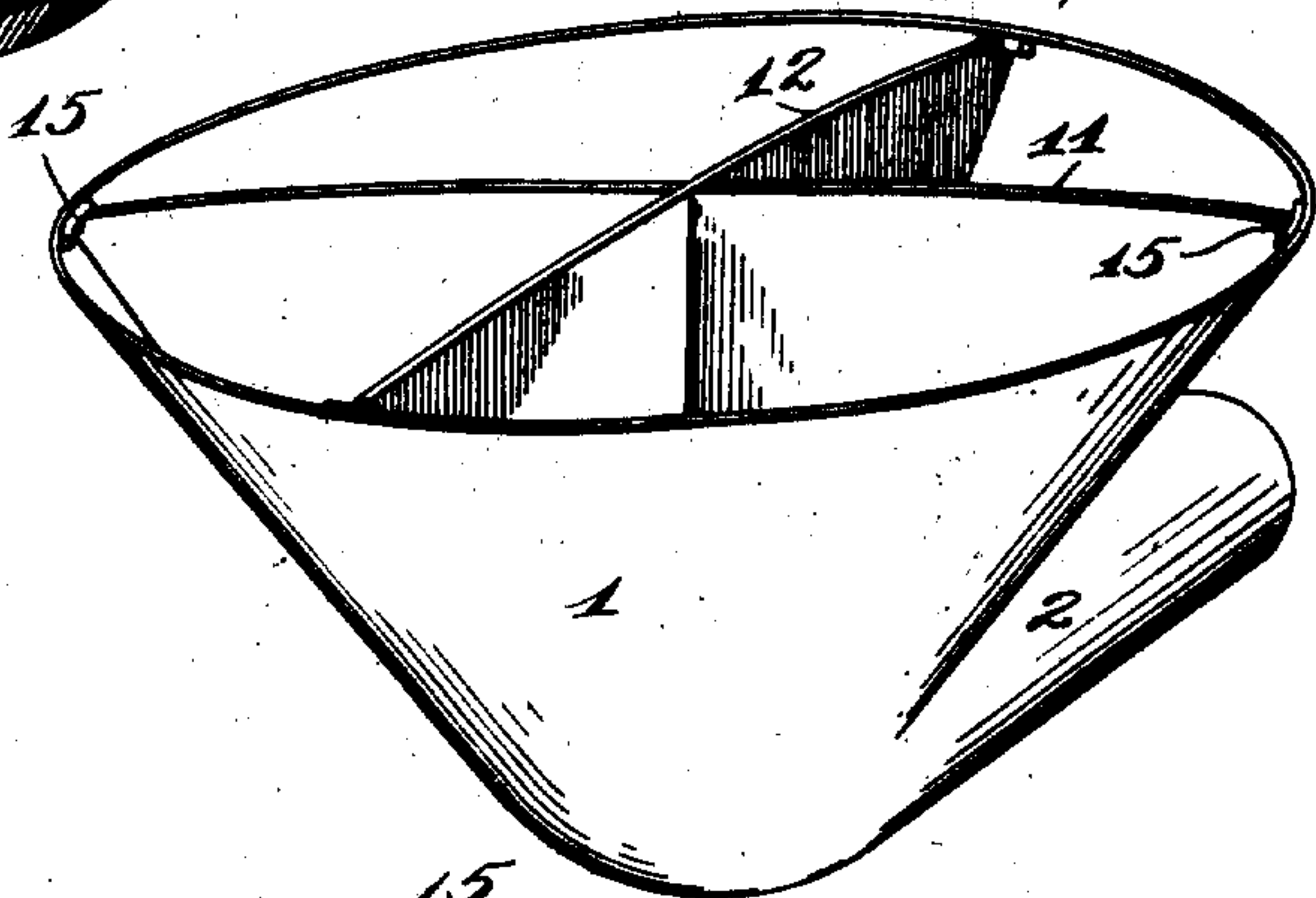


Fig. 6

Witnesses:

Brennan B. West.  
Nathan F. Fretter

Inventor.

Karl F. Hackert

By Bates, Fouts & Hull,  
Attys



# UNITED STATES PATENT OFFICE.

KARL F. HACKERT, OF EAST CLEVELAND, OHIO.

## EAR-TRUMPET.

No. 900,097.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed December 20, 1907. Serial No. 407,269.

*To all whom it may concern:*

Be it known that I, KARL F. HACKERT, a citizen of the United States, residing at East Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Ear-Trumpets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 This invention relates to speaking trumpets and more especially refers to improvements for concentrating the sound waves which the sound receiver of the speaking tube intercepts, more efficiently collecting them and transmitting them through the tubes and ear pieces to the ear of the listener.

Reference should be had to the accompanying drawings which form a part of the specification.

20 Figure 1 is a front view of the speaking tube; Fig. 2 is a section of the same along the line A—B; Fig. 3 is a perspective of the partitions used in the sound receiver, and Fig. 4 is a fragmentary view showing the diaphragm and thimble for holding the same in the tube of the sound receiver; Fig. 5 is a perspective view of a modified arrangement of the partitions and diaphragm; Fig. 6 is a section through the trumpet, the modified form of partitions in place; Fig. 7 is a perspective view of the trumpet.

30 The device consists of a sound receiver having a bell or flaring portion at 1 which, by means of the tubular portion 2, is connected to a member 3. The portion 2 is tapering in form, as is likewise the lower part of the member 3, the member 2 being adapted to project into part of the member 3 and be held therein in the desired position by frictional contact. The member 3 is hollow and it is bifurcated so as to form two diverging pipes 3<sup>a</sup>—3<sup>a</sup> which are connected to tubes 4, these terminating in the usual ear members 5.

45 The sound receiver has within it, one or more partitions, the drawings showing two, although one, three, four, or more might be used if desired. However, experience has shown that two partitions are most desirable, as they give greater efficiency than a single partition, and a trumpet made with this number of partitions is more economical in manufacture than is one made with

a greater number of partitions, and it is, moreover, equally efficient. These partitions are of triangular form, with the exception of the partition 6, which is in the form of a triangle with a widened apex, which widened portion, represented at 7, is bent to approximately a right angle with the plane of the rest of the partition.

55 In assembling the various partition members for use, they are so arranged that the base portion of each partition is bisected by the other partitions. Any convenient means may be employed for holding the partitions in their fixed relation. As shown, the member 6 is slit near the center and the other partition member 8 is inserted through this slit. These partitions, when assembled, are inserted in the flaring portion of the sound receiver, in such a manner that the member 6 is in a plane at right angles to the plane of the line A—B, the part 7 of the member 6 being seated within the tubular portion 2, and occupying a position such as to approximately divide the tubular portion into two equal parts. If three partitions were used, they would be placed in planes of 60 degrees to each other, but when only two are used, as is shown in the drawing, they are placed at right angles to each other, and thus should divide the flaring portion 1 of the sound receiver into four approximately equal parts.

60 At the end of the tubular portion 2 is placed a diaphragm 10 held in place by a thimble 9 cooperating with the walls of the tubular portion 2. The diaphragm may be made of any suitable flexible material.

65 In Figs. 5 and 6 is shown a modification of my trumpet. As in the embodiment of my invention previously shown and explained, there may be one or more partitions, but two are preferred. In this case the partitions 11 and 12 do not extend into the throat of the trumpet, but only part way into the flaring portion of the trumpet. Each partition is in the form of a trapezoid, and when assembled they are inserted in the tube in the same manner and in the same relation to each other as in the form of my invention previously described. At the bottom of the flaring portion is seated a conical ring 13 engaging the walls of the flaring portion and a diaphragm is stretched across at the lower edges. As in the previous case, the diaphragm 14 is made of any suitable



flexible material. This ring-shaped member may be held in position by any suitable means, but preferably it is fastened to the partition members themselves so as to be removable with them.

Suitable means for holding the partitions in the trumpet are provided, one form of such means being shown at 15 in Figs. 6 and 7.

The operation is as follows: The sound vibrations coming from the direction of the arrow D or in the opposite direction thereto, strike upon either side of the partition 6 and are deflected along the same into the tubular portion 2 and against diaphragm 10. Likewise sound vibrations approaching from the direction of the arrow C or in the opposite direction strike against the partition 8 and by cooperation with the partition 6 are carried along into the tubular portion 2 and against the diaphragm 10.

From the foregoing description it will be seen that sound vibrations coming from any direction will impinge against and be deflected by at least one partition, and be conducted to the ear of the person using the instrument.

The function of the diaphragm 10 is to so modify the sound vibrations as to make a clearer impression upon the ear of the listener.

In the modified form of my invention the sound vibrations will impinge against and be deflected by the partitions as previously described. The vibrations will next be directed against the diaphragm and then conducted to the ear of the hearer.

I claim:

1. A sound receiver, comprising a flaring portion and a tubular portion at right angles thereto, a partition therein, the lower portion being curved to convey the sound vibrations into the tubular portion.

2. A sound receiver formed with a flaring portion and a tubular portion at right angles thereto, a partition member extending through the flaring portion and into the tubular portion.

3. A sound receiver formed with a flaring portion and a tubular portion, a plurality of intersecting partition members in said

sound receiver, one of said partitions extending into said tubular portion.

4. In a sound receiver, a partition of triangular form having its apex broadened and bent at approximately right angles to the plane of the partition.

5. A sound receiver formed with a flaring portion and a tubular portion at right angles thereto, a partition member extending through the flaring portion and into the tubular portion, and an imperforate diaphragm placed beyond the said partition.

6. In a speaking trumpet, a flaring portion, a partition therein, and a diaphragm carried by said partition.

7. In a speaking trumpet, a flaring portion, a plurality of partitions therein, and a diaphragm mounted upon said partitions and below the same.

8. A sound receiver formed with a flaring portion and a tubular portion, a plurality of partitions in said sound receiver, one of said partitions extending beyond the others and into the said tubular portion.

9. A sound receiver formed with a flaring portion, a tubular portion, a plurality of partitions in said sound receiver, one of said partitions extending beyond the others and into the said tubular portion, and a diaphragm in said tubular portion.

10. The combination of a sound receiver and a tube, a plurality of partitions in said receiver, one of said partitions extending beyond the others with its lower portion formed to convey sound vibrations into the tube.

11. A sound receiver formed with a flaring portion, a tubular portion at right angles thereto, a partition member having its lower portion bent at approximately right angles to the plane of the partition, the lower portion of the partition being held within the tubular portion.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

KARL F. HACKERT.

Witnesses:

S. E. FOUTS,  
BRENNAN B. WEST.