

(No Model.)

H. P. K. PECK.  
ARTIFICIAL EAR DRUM.

No. 351,398.

Patented Oct. 26, 1886.

Fig. 1

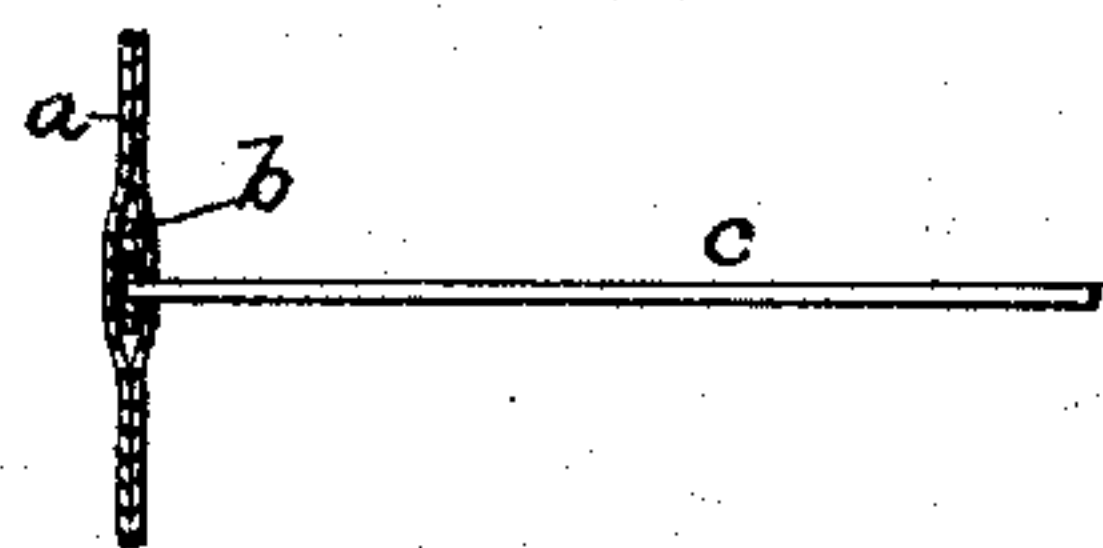


Fig. 2.

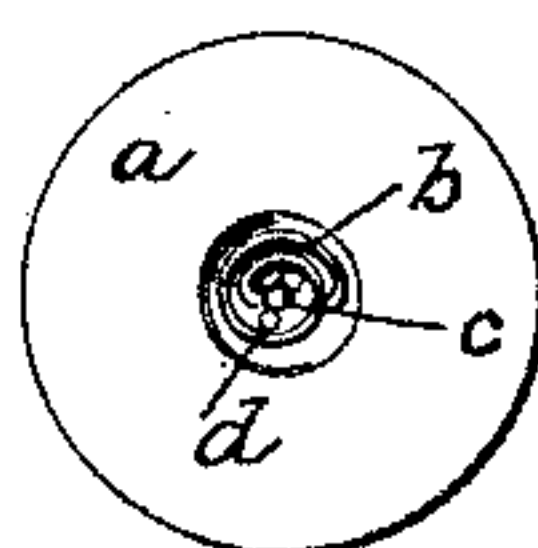


Fig. 3

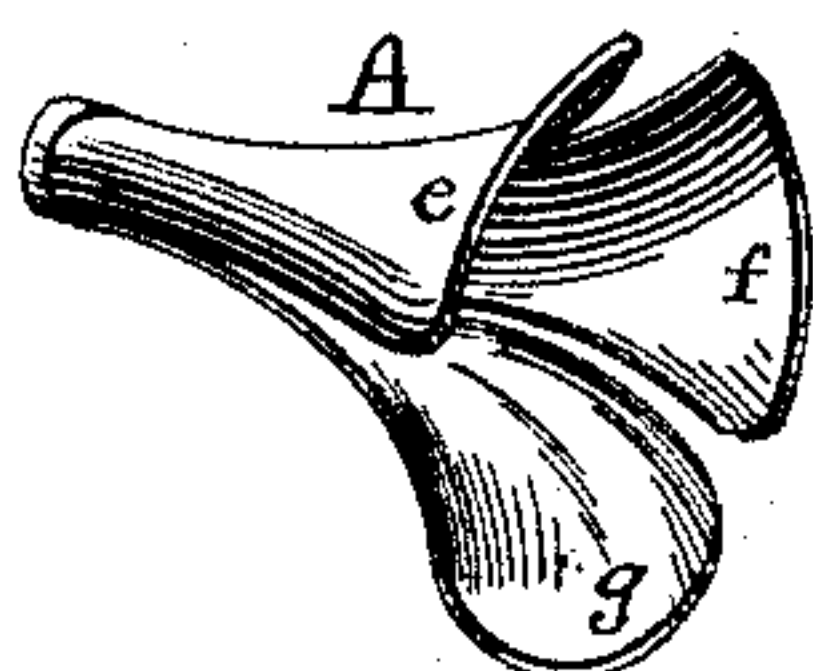


Fig. 4.

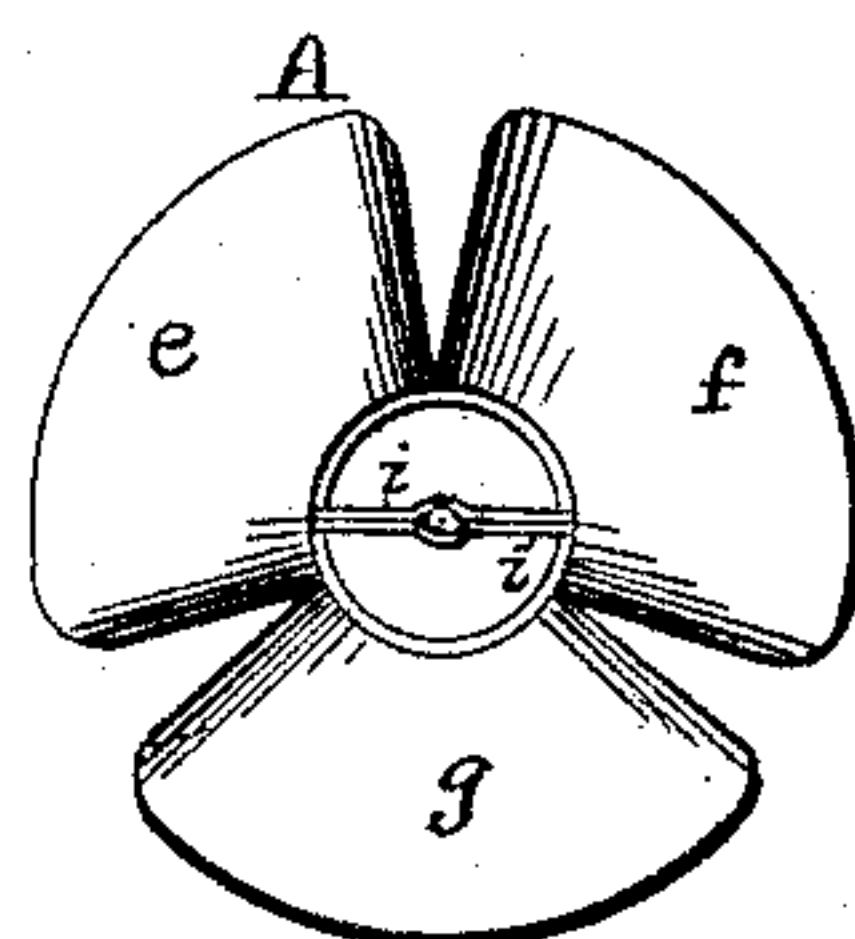


Fig. 5.

Fig. 6.

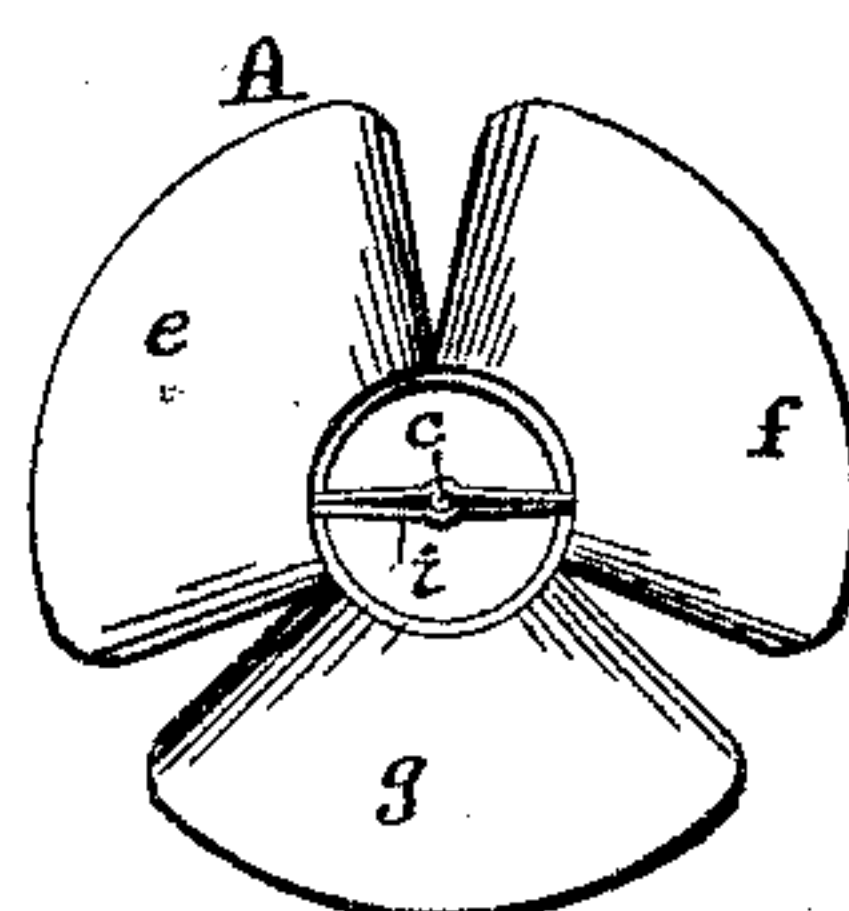
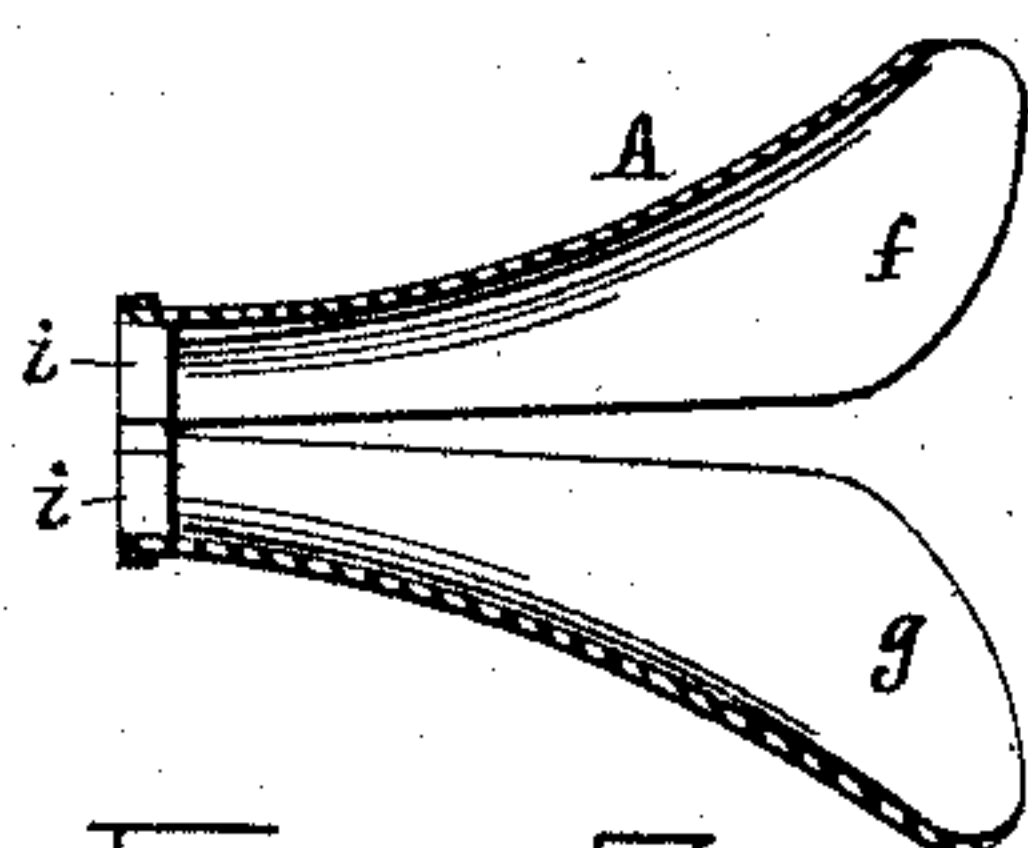
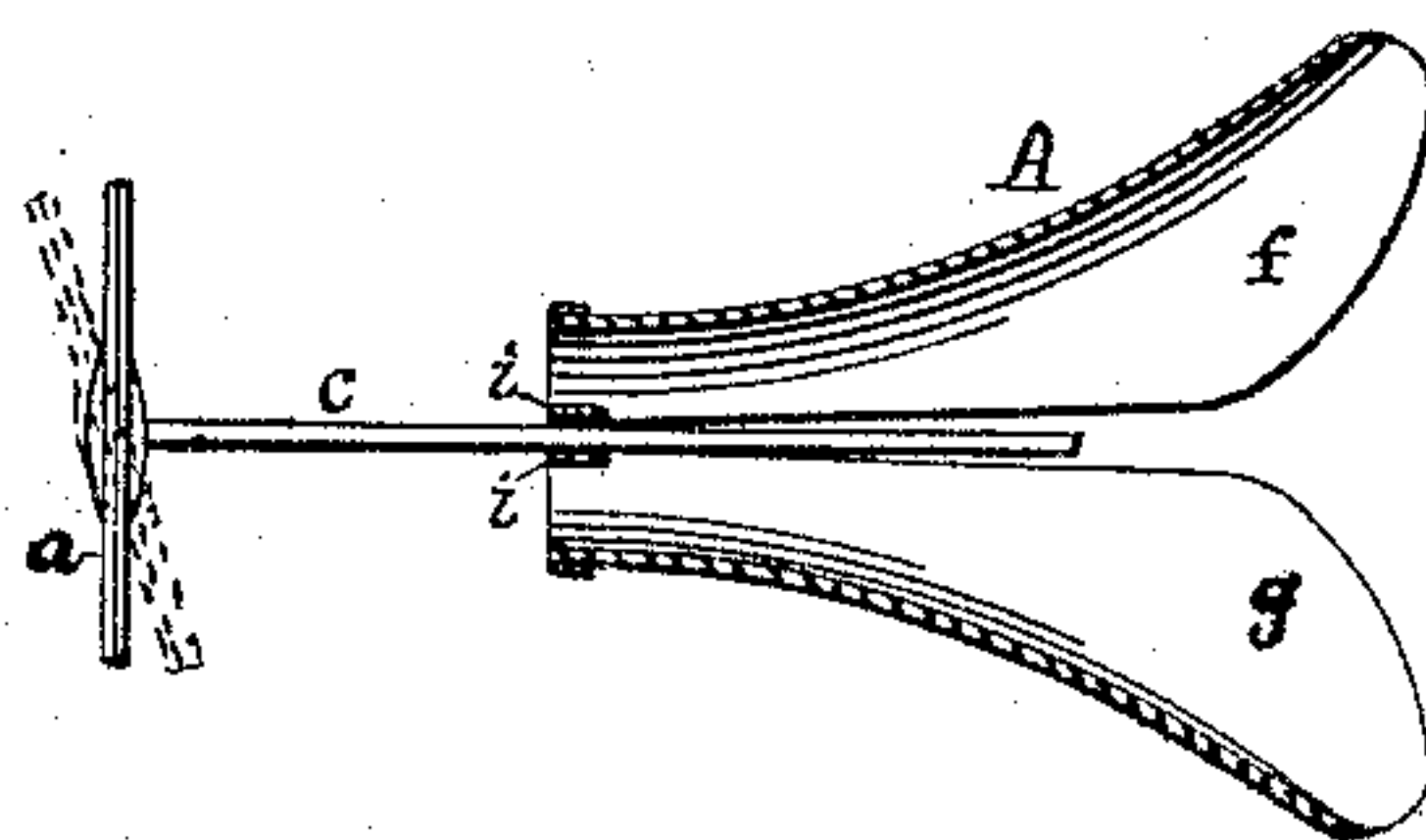
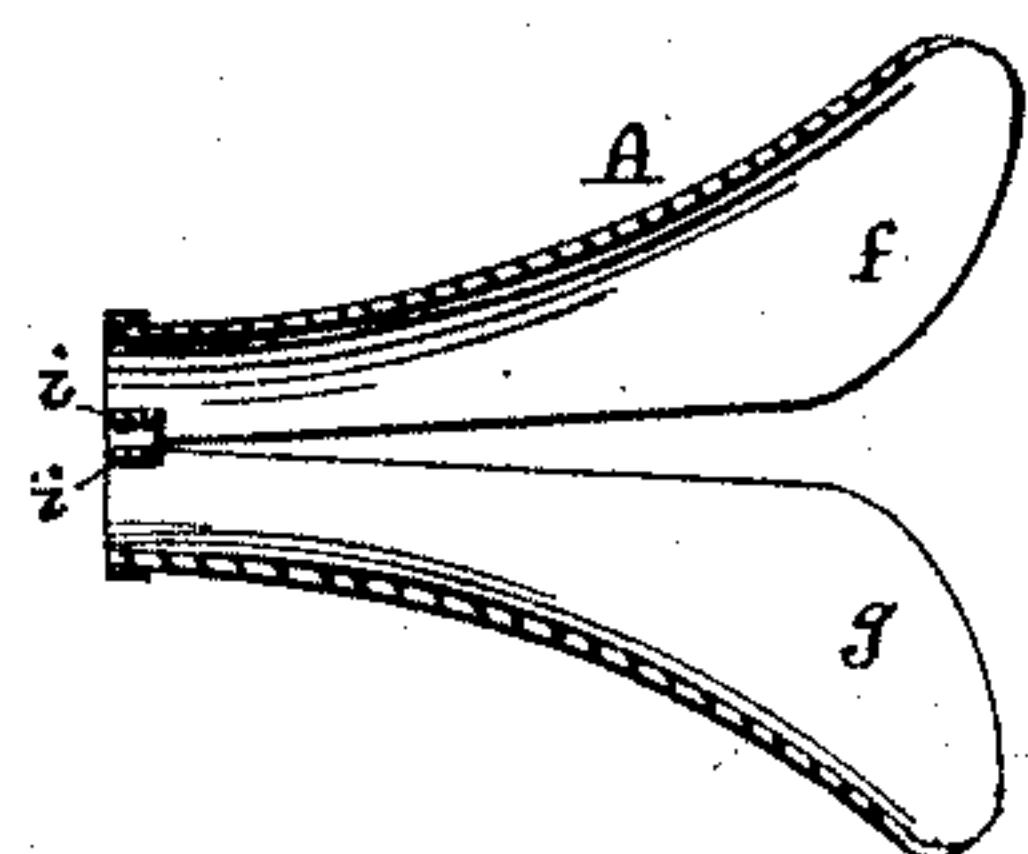


Fig. 7.

Fig. 8.



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# UNITED STATES PATENT OFFICE.

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## ARTIFICIAL EAR-DRUM.

SPECIFICATION forming part of Letters Patent No. 351,398, dated October 26, 1886.

Application filed November 20, 1885. Serial No. 183,450. (No model.)

*To all whom it may concern:*

Be it known that I, HOMER P. K. PECK, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful  
5 Appliance for the Relief of Deafness, of which the following specification is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 Figure 1 is a central axial section of the artificial ear-drum, the stem being in side view. Fig. 2 is an inside view of the artificial ear-drum without an inner elastic disk; Fig. 3, a  
15 perspective view of the elastic or expandible ear-tube and ear-drum holder; Fig. 4, an inner end view of the same; Fig. 5, a longitudinal central section of the same, cutting between spring clamp-bars which hold the stem of the  
20 artificial ear-drum; Fig. 6, an inner end view of the ear-tube represented as holding the stem of the artificial ear-drum; Fig. 7, a longitudinal section cutting across the center of the clamp-bars; Fig. 8, a similar section of the ear-tube, showing also a side view of the arti-  
25 ficial ear-drum inserted in proper position in the ear-tube.

In the drawings, *a* denotes the elastic disk or artificial tympanum, secured by cement or otherwise to the skeleton collar *b*, attached to  
30 the end of stem *c*.

*d* denotes the air-vent through the collar *b* and disk *a*.

The expandible tube and stem holder *A* may be made in two, three, or more sections, *e f g*,  
35 secured at their inner ends by a thin band or otherwise, and arranged to curve outwardly by, and being formed of spring metal, silver being preferable, will cause outward pressure, when inserted in the outer ear, and press the  
40 rear portion of the cartilage of the ear backward and open the auditory passage. Across the inner end of this expandible tube two thin flat bars, *i i*, made of elastic metal and secured  
45 side by side, each having a small semicircular curve at the middle, which together form an aperture smaller than the diameter of the stem *c* of the artificial ear-drum, and through which the latter will be forced and held ad-  
justable, as in a spring-clamp.

50 My present invention is an improvement on the artificial ear-drum described in my patent

dated December 14, 1880, numbered 235,566, in which the metal collar is described as cushioned over by a soft flexible disk, serving as a membrana tympani, and provided with an  
55 air passage or vent by which air could be admitted behind the artificial tympanum.

One feature of my invention consists in providing artificial ear-drums with proper and effectual means for holding them in position  
60 other than the elastic disks themselves, and to make the degree of pressure upon the natural ear-drum independent of the size and thickness of the elastic disks, which, when used to retain themselves in place, were necessarily  
65 larger than the auditory passage of the human ear to retain them in proper relation to the membrana tympani. The large elastic disks in some instances, particularly when the auditory passages were small, become obstructive  
70 of their efficiency, and were uncomfortable to the person wearing them. The present improvements obviate these objections, because the holder of the stem *i i* will retain the artificial ear-drum in proper position, even when  
75 smaller in diameter than the natural ear-drum, and will permit its adjustment and afford the means of the most careful, delicate pressure upon the natural ear-drum.

Another important feature of this inven-  
80 tion consists in forming the collar upon which the elastic disk is secured of fine spring-wire, whereby the entire face of the elastic disk becomes flexible and capable of self-adjustment upon the natural ear-drum or any portion  
85 thereof not absent or destroyed. This new feature also obviates the objections to the bulky and rigid central portion of the artificial ear-drum disk, which in some cases causes discomfort to the wearer. It therefore becomes  
90 apparent that the combination of the artificial ear-drum stem with a holder in which the stem may be adjusted and retained enables the user to employ a drum not only with a small disk, but of the most delicate and suitable material,  
95 as its retention in place in the ear will not depend on its size and thickness, which were necessary, as heretofore made, in order to cause it to retain its position and perform the function of an artificial ear-drum, as above men-  
100 tioned.

The holder, which serves as a clamp to hold



the artificial ear-drum in any position to which it can be adjusted, also performs another office tributary to the object sought—namely, the opening of the outer portion of the auditory passage or meatus, and pressing the rear portion of the cartilage outward, which alone will quicken the sense of hearing. This pressure will be analogous to the manipulation of the auricle practiced by many people who have become dull of hearing, and which assists the auditory organs.

The perforated elastic disk *a* affords complete means of ventilation between the coils of the skeleton wire collar, the use of which obviates the necessity of drilling holes through a solid metal collar, as heretofore used.

Having described my invention, I claim—

1. The flexible skeleton collar *b*, or its equivalent, attached to the stem *c*, in combination with the perforated elastic disk or artificial membrane *a*, substantially as and for the purpose specified.

2. The expansible sectional tube *A*, provided with flexible holding-bars *i i*, in combination with the stem of an artificial ear-drum, substantially as specified.

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Witnesses:

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