

(No Model.)

J. H. KELLOGG.

ATTACHMENT FOR AUDITORY INSTRUMENTS.

No. 585,525.

Patented June 29, 1897.

Fig. 1.

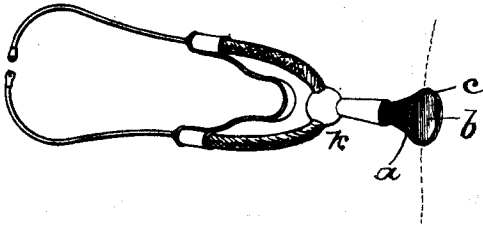


Fig. 2.

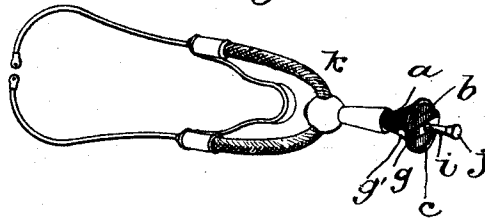


Fig. 3.

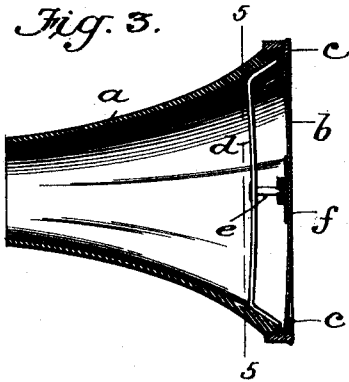


Fig. 4.

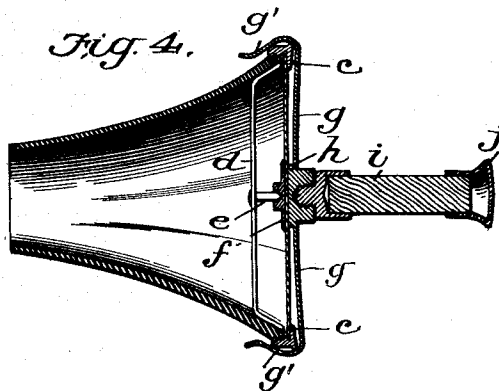


Fig. 5.

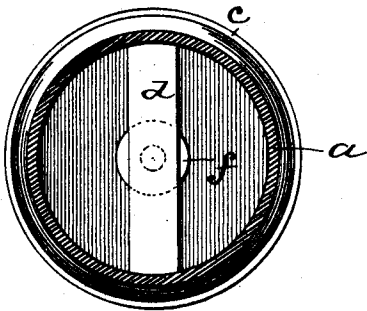
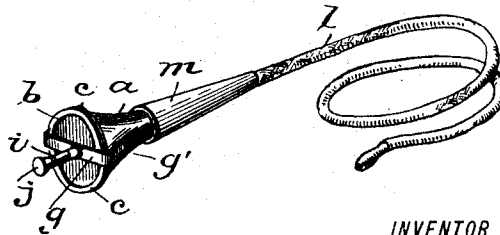


Fig. 6.



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ATTACHMENT FOR AUDITORY INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 585,525, dated June 29, 1897.

Application filed August 15, 1896. Serial No. 602,827. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. KELLOGG, of Battle Creek, in the county of Calhoun and State of Michigan, have invented a new and

Improved Attachment for Auditory Instruments, of which the following is a specification.

It is the object of my invention to provide an improved attachment for auditory instruments for increasing both the volume and delicacy of sound-waves transmitted to the ear. It is adapted for use in connection with or as an attachment of an ordinary stethoscope in chest examinations for localizing the origin of sounds in the lungs, the heart, and blood vessels, and it is also adapted for use of partially-deaf persons as an attachment of an ordinary conversation or ear tube.

The construction, operation, and manner of using the invention are as hereinafter described, and illustrated in accompanying drawings, in which—

Figures 1 and 2 are perspective views of the instrument attached to a stethoscope. Fig. 3 is an enlarged central longitudinal section of the instrument as used without the spring-clamp attachment. Fig. 4 is a similar view of the same with the clamp attachment. Fig. 5 is a cross-section on line 5 5 of Fig. 3. Fig. 6 is a perspective view showing the instrument applied to a conversation-tube.

As shown best in Figs. 3 and 4, the body *a* of the instrument is bell-shaped and made of hard rubber, wood, metal, or some other suitable material, preferably such as has a resonant or sound-conducting quality. A thin diaphragm *b* closes the larger end of the bell and is composed of celluloid, hard rubber, wood, metal, or any other duly elastic material. The diaphragm is secured by a metallic ring *c*, having a circular lip or flange that is threaded interiorly and screws on the edge of the mouth of bell *a*, as shown.

Within the bell *a*, in close proximity to the diaphragm *b*, a spring *d* is arranged transversely, its bent ends resting against the sides of the bell adjacent to the flanged ring *c*, as shown. A short post *e* is attached to the center of the spring *d* and its conical free end fits loosely in the socket of a disk *f*, that presses upon the diaphragm *b*. The

purpose of this device is to hold the diaphragm slightly stretched and tense and to give it a slight central projection or bulge, which insures its perfect or close contact with the surface to which the instrument may be applied when used in connection with a stethoscope.

I employ a removable attachment of the above-described instrument, which consists, Fig. 4, of a spring-clamp *g*, having a disk *h* on its inner side, and a post *j*, attached to the center of the spring exteriorly and having its distal end provided with a metal disk or tip *j*.

The clamp is formed of a plate-spring *g*, having its ends *g'* bent or recurved to adapt them to fit over and grip the larger end of the bell *a*. The disk *h* bears against the center of the diaphragm *b* at a point directly opposite the inner disk *f*, Fig. 4.

The post *i* fits in a socket which has a screw attachment to the clamp *g g'*, and the outer disk or tip *j* is also in the nature of a socket that fits tightly on the pencil end.

When the instrument is used in connection with an ordinary stethoscope *k*, as shown in Fig. 1, the smaller or conical end of the bell *a* is inserted into the mouth of the stethoscope, the latter in such case serving practically as a tubular continuation or extension of the bell and assisting very materially in the conduction of sound-waves from the diaphragm *b*. In practical use the latter is pressed upon the surface of the body where it is desired to examine for disease.

It is to be understood that the clamp attachment is supplemental and is used with the stethoscope, especially in examination of the heart, the chest, and blood vessels, and is also used by partially-deaf persons for hearing musical instruments, in which case the distal end *j* of the post *i* is, if possible, placed in direct contact with some part of the instrument being played, the vibrations of the latter being thus transferred to the diaphragm and thereby to the ear of the auditor.

When used with a conversation or ear tube *l*, Fig. 6, the bell *a* is inserted in the conical mouthpiece *m*.

In view of the leading function of the instrument it is commonly designated as a "stethophone."

What I claim is—

1. The improved auditory instrument, composed of a tubular body, a thin diaphragm, held stretched across the mouth of the same, a spring, having a pin that bears upon the
5 inner side of the diaphragm and holds it bulged and tense, a removable spring-clamp, attached to the tubular body exteriorly and having a central disk that bears upon the outer side of the diaphragm, a post, project-
10 ing from the center of the spring-clamp, and a disk or tip attached to the free end of the post, substantially as shown and described.

2. In an auditory instrument, the combination, with the bell shape or tapered body,
15 provided with a diaphragm having a disk *f* applied to its inner side, of the detachable plate-spring *d*, whose ends bear upon the

sides of the aforesaid body, said spring having a central pin which seats at its outer end on the disk *f*, as shown and described, for
20 the purpose specified.

3. The combination, with the tubular body and a diaphragm applied to its mouth, of a removable attachment composed of a clamp
25 formed of a spring whose ends are recurved to adapt them to tightly clasp the edges of the mouth and bearing at its center on the diaphragm, and a post projecting from the center of the spring, as shown and described.

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Witnesses:

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