

L. E. THORNE.

SCREEN FOR EOPHONES OR SOUND RECEIVING INSTRUMENTS.

No. 588,034.

Patented Aug. 10, 1897.

Fig. 1.

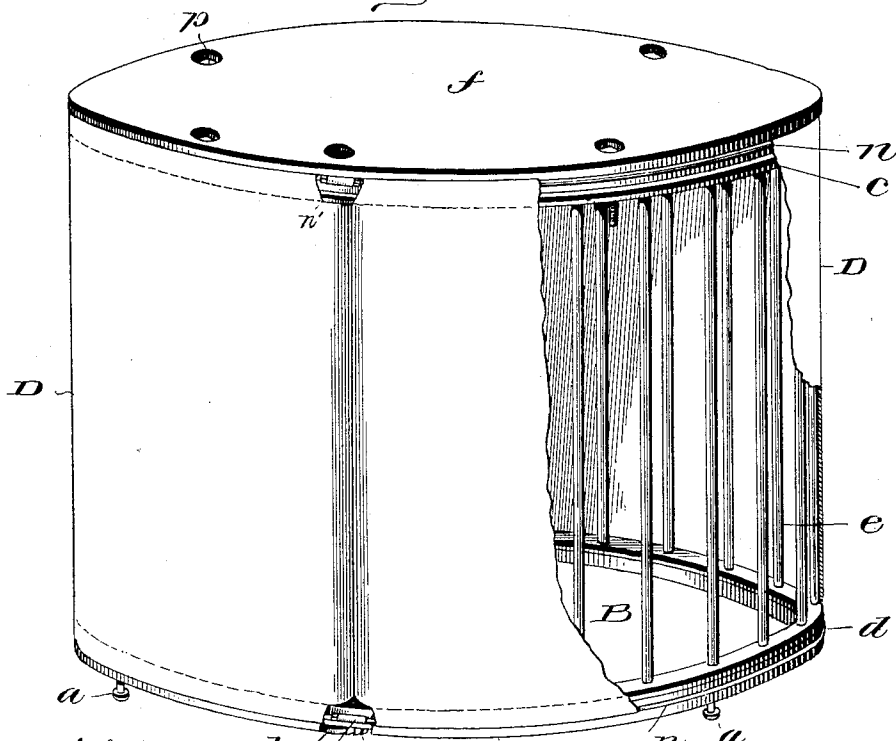


Fig. 2.

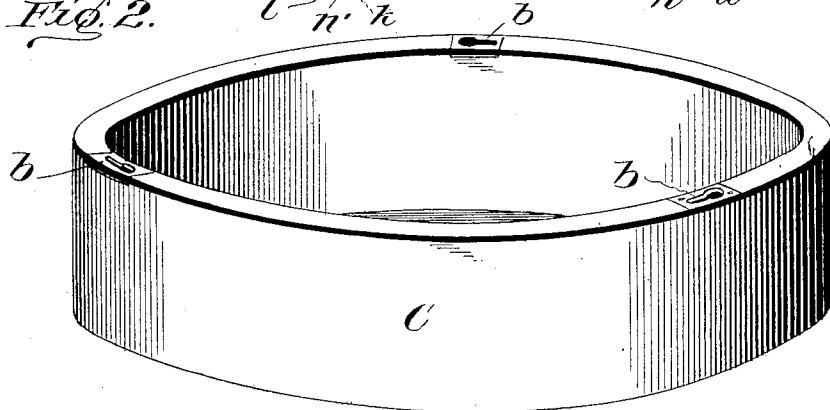
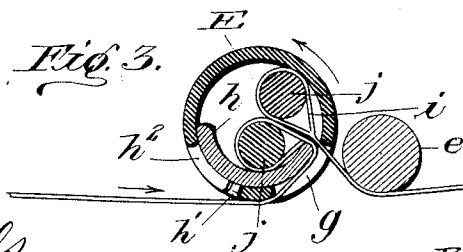


Fig. 3.



Witnesses

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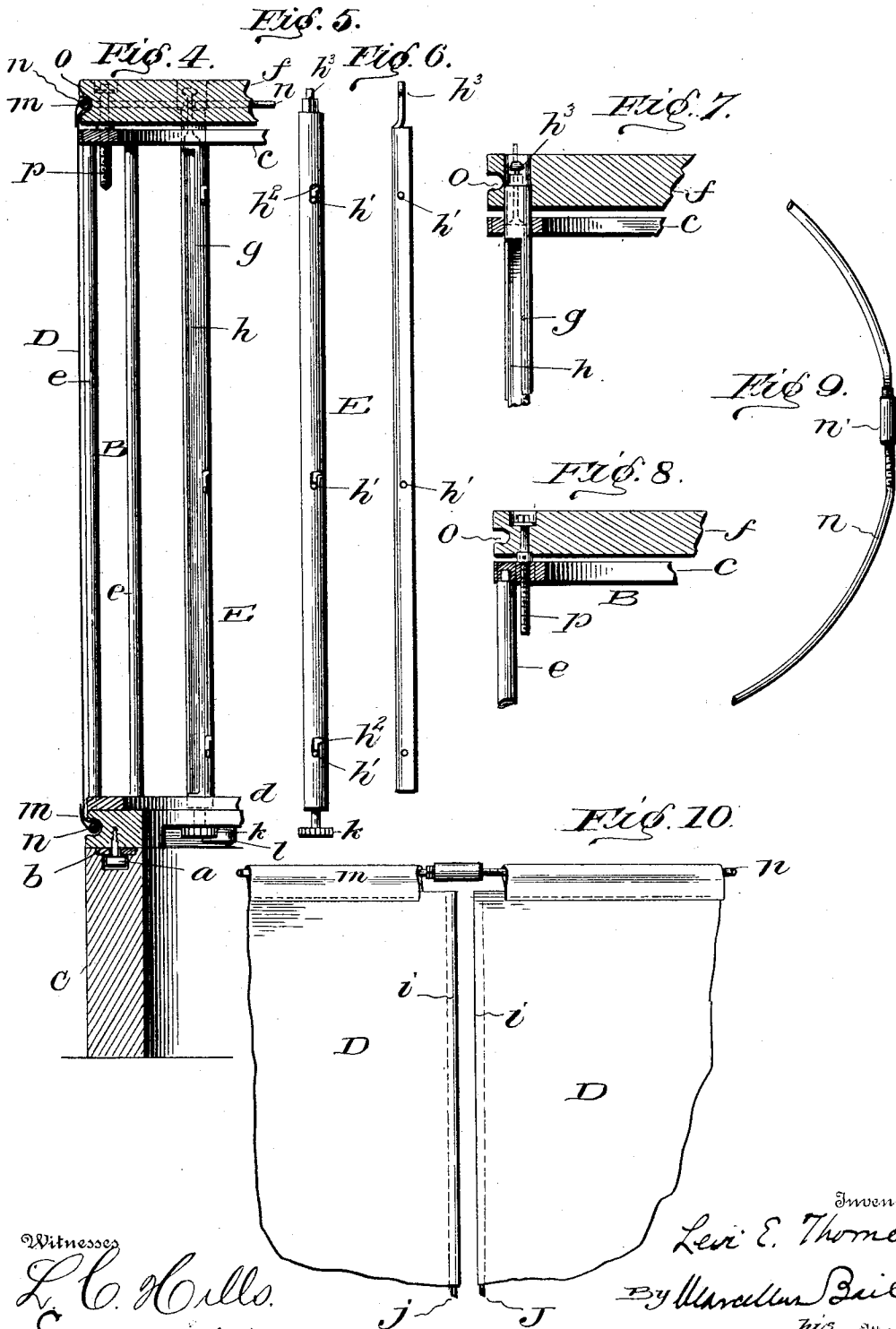
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UNITED STATES PATENT OFFICE.

LEVI E. THORNE, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE EOPHONE COMPANY, OF NEW YORK, N. Y.

SCREEN FOR EOPHONES OR SOUND-RECEIVING INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 588,034, dated August 10, 1897.

Application filed May 26, 1897. Serial No. 638,287. (No model.)

To all whom it may concern:

Be it known that I, LEVI E. THORNE, a citizen of the United States, and a resident of Brooklyn, Kings county, State of New York, have invented a new and useful Improvement in Screens for Eophones or Sound-Receiving Instruments, of which the following is a specification.

The object of the invention is to protect sound-receiving instruments from the rush of air to which they are frequently exposed, so as to prevent the shrill whistling around the sharp edges of the instruments which is caused by the wind and which interferes materially with the observation. To this end I surround it by a skeleton frame or cage having stretched around it a covering of silk or other material of similar nature which will prevent the passage of the wind into the interior of the cage to a degree sufficient to cause a whistling effect to be produced and at the same time will allow the free transmission of sound.

In the accompanying drawings, Figure 1 is a view of a protecting cage or screen embodying the invention. Fig. 2 is the stationary combing or curb to which it is made fast. Fig. 3 is an enlarged cross-section of the roller for holding the ends of and stretching the silk around the cage. Fig. 4 is a transverse vertical section through a portion of the screen or cage and its supporting-combing. Fig. 5 is an elevation of the stretching-roller. Fig. 6 is an elevation of the shutter contained in said roller. Fig. 7 is a sectional detail showing the manner in which the upper end of the roller is arranged in the top part of the cage. Fig. 8 is a sectional detail illustrative of the means for vertically tightening the silk covering. Fig. 9 is a view of a portion of one of the bands by which the top and bottom edges of the silk covering are held. Fig. 10 is an elevation of the meeting ends of the silk covering, showing the rods which are fitted to those ends and the band which is fitted to the top edge of the silk.

The eophone or sound-receiver is an instrument designed to receive and magnify and intensify sound, thus enabling noises so faint as to be nearly or quite inaudible to the un-

aided ear to be distinguished and heard with ease.

The instrument is one which is designed for use on shipboard and in other places where it is exposed to the wind, which frequently blows with such force as to interfere materially with the efficiency of the instrument. It is to protect the instrument from this objectionable rush of wind that the screen shown in the drawings is designed.

As there shown, it consists of a cylindrical open-work frame or cage B, which is to be closed tight at top and bottom against the wind and has stretched around it a covering, of silk, which shields the instrument within the cage from the force of the wind, but does not interfere with the free transmission of sound.

I prefer to support the cage B upon a cylindrical combing C, which is closed, of course, at the bottom and which does not reach up as high, say, by six inches as the lower edge of the sound-receiver. Upon this combing the cage rests and is secured thereto by any suitable means. In the present instance the two are held together by bolts *a*, the heads of which pass down through the enlarged parts of slots *b* in the top of the combing. By turning the cage so that the heads of bolts *a* will come under the narrow portions of slots *b* the cage will be securely locked to the combing, while at the same time the arrangement is such that the cage can readily be removed from the combing whenever desired.

The cage itself consists of top and bottom rings *c d*, connected by vertical bars *e*. The rings, as well as the bars, may be of any suitable material.

The top of the cage is closed tight by a lid *f*, which rests upon the upper rings *c*.

D is a covering, of silk or other close-woven material, which will oppose the forcible entrance of air to the interior of the cage without, however, interfering with the free transmission of sound. This covering is of a width to extend from the top to the bottom of the cage and is long enough to extend around the cage. Its meeting ends are suitably held, and means are provided for stretching it taut around the bars *e* of the cage. I prefer to

employ for this purpose a hollow stretching roll or drum E, suitably mounted at its ends in the top and bottom rings of the cage, so that it may be capable of rotation. It has in it a longitudinal slot or opening *g*, and it contains a shutter *h*, which can be moved to open or close the slot, as desired. This shutter is held in place by studs *h'*, which pass through angle-slots *h²* in the stretching-roll and have heads which overlap the edges of the slots, so as to hold the shutter up against the inner face of the roll. On the upper end of the shutter is a stem *h³*, which projects up through the upper end of the roll and is formed as a handle, which can be taken hold of to manipulate the shutter. In the meeting ends of the silk cover are formed pockets *i* for reception of rods *j*. These rods are put in their pockets, and then they, with their pockets, are introduced into the roll E through the open slot *g*, after which the shutter *h* is manipulated so as to close the slot. The parts will then be in the position shown in Fig. 3, with the ends of the silk cover firmly held in the stretching-roll. When the silk is thus held, it can be readily stretched by rotating the roll E, which will have the effect of drawing the silk cover tightly around the cage, the surplus silk being wound upon the roll. To hold the roll against unwinding movement, it is provided at its lower end with a ratchet *k*, engaged by a spring-pawl *l*, Fig. 4, attached to the lower ring of the cage.

The stretching-roll is operated through the lid *f*, a suitable opening being formed therein for that purpose, in which opening the upper end of the roll fits snugly, so as to prevent entrance of air. The top of the roll is squared and is to be engaged by a suitable winch or wrench, by which the roll can be turned.

It is necessary that the silk cover should be held not only at its ends, but at its top and bottom edges. To this end it is provided at each edge with a pocket *m*, of twill or stout material, and in the bottom ring of the cage, as well as in the lid *f* at top, is formed an annular peripheral groove *o*. A metal band *n* is passed through each pocket and is designed to fit into one of the grooves *o*. These bands are drawn tight by turnbuckles *n'*, with which they are provided, thus clamping the edges of the cover tightly into the grooves *o*, as indicated in Fig. 4. In light weather draw-strings may be used instead of the bands.

It is requisite that the cover should be stretched not only lengthwise, but in the direction of its width. For the latter purpose the part of the cage to which the upper edge of the cover is secured—in this instance the lid *f*—is made movable to and from the lower ring, to which the bottom edge of the cover is

made fast. To this end I swivel in the lid screws *p*, which screw down into and through the upper ring *c*. The heads of these screws, for the purposes of manipulating them, can be got at from the top of the lid, as indicated in Fig. 8. By turning these screws in the proper direction the lid *f* can be lifted away from the ring *c*, thus stretching the cover in the direction of its width.

The combing as well as the cage above are independent of the sound-receiving instrument which they surround and are sufficiently removed from the latter not to interfere with its movement. There are no projections on either the combing or the cage to catch the wind.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A screen for eophones or sound-receiving instruments, adapted to be placed around and surround the instrument, closed at top and bottom and having an open-work periphery around which is stretched a covering of silk or other like material to prevent the wind from striking the instrument, without interfering with the free transmission of sound, substantially as set forth.

2. A screen for eophones or sound-receiving instruments adapted to be placed around and surround the instrument, closed at the top and bottom and having an open-work periphery around which is placed a covering of silk or like material to prevent the wind from striking the instrument without interfering with the free transmission of sound, and provided with means for stretching the silk both lengthwise and crosswise upon and around it, substantially as hereinbefore set forth.

3. In a screen for eophones or sound-receiving instruments a cage adapted to be placed around and surround the instrument, closed at top and having an open-work periphery around which is stretched a covering of silk or other like material to prevent the wind from striking the instrument without interfering with the free transmission of sound, in combination with a supporting-combing closed at the bottom, on which combing the cage rests and to which it is detachably connected so as to permit it to be removed bodily from over and around the instrument whenever desired, substantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 25th day of May, 1897.

LEVI E. THORNE.

Witnesses:

C. L. MALCOLM,
J. H. BELL.