(No Model.)

# G. J. WAINWRIGHT.

## COMBINED OPERA GLASS AND PHONE.

No. 574,124. Patented Dec. 29, 1896.

Fig. 1.

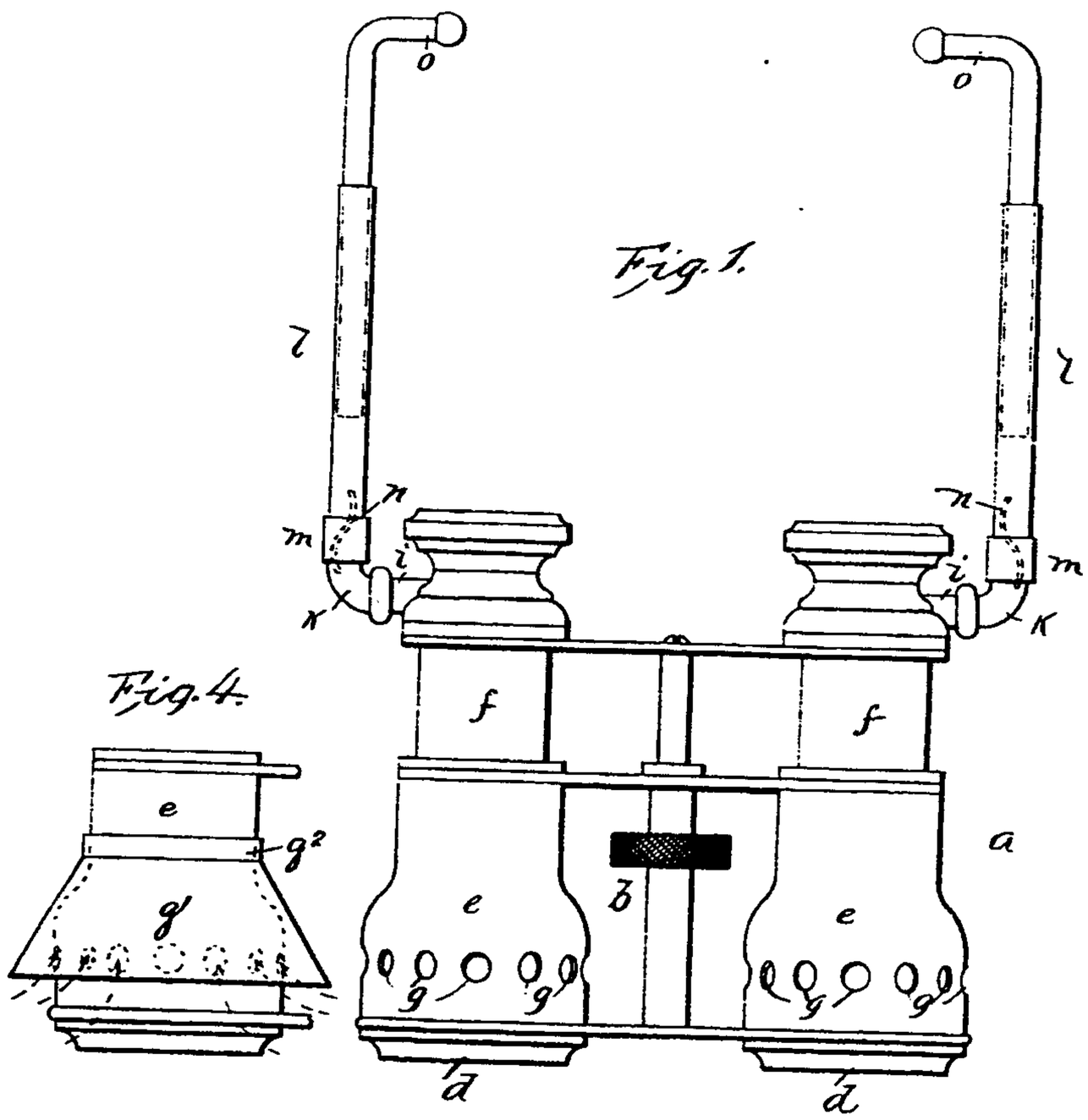



Fig. 4.




Fig. 2.

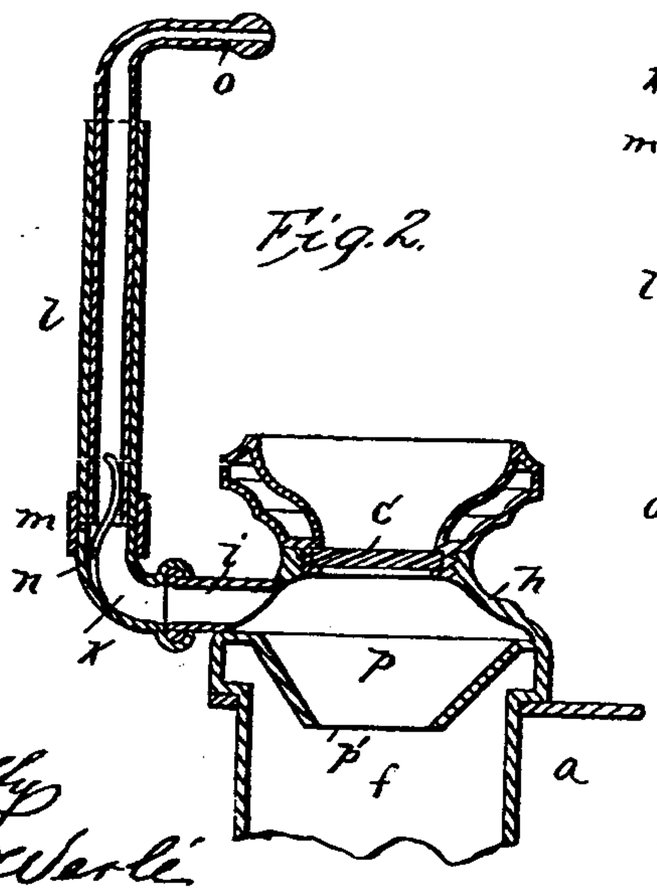
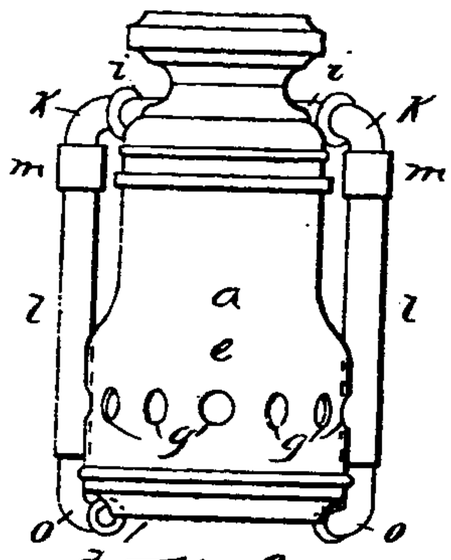



Fig. 3.

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# UNITED STATES PATENT OFFICE.

GEORGE J. WAINWRIGHT, OF NEW YORK, N. Y., ASSIGNOR TO WALTER JAMES WAINWRIGHT, OF SAME PLACE.

## COMBINED OPERA GLASS AND PHONE.

SPECIFICATION forming part of Letters Patent No. 574,124, dated December 29, 1896.

Application filed December 16, 1895. Serial No. 572,268. (No model.) Patented in France February 7, 1896 No. 253,777.

*To all whom it may concern:*

Be it known that I, GEORGE J. WAINWRIGHT, of New York, in the county and State of New York, have invented certain new and useful Improvements in a Combined Opera Glass and Phone, (for which I have obtained Letters Patent in France, No. 253,777, dated February 7, 1896;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in opera-glass attachments.

The object of the invention is to provide a combined opera-glass and sound-collector so constructed that persons occupying rear seats in places of amusement and those whose hearing is defective can easily see and hear what is going on upon the stage, no matter how great the distance between the stage and the rear part of the house, and for other purposes.

The invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a side elevation of my complete device. Fig. 2 is a vertical section of a portion of the opera-glass and sound-collecting tube. Fig. 3 is an edge view of the several parts folded together for purposes of packing. Fig. 4 is a side elevation of the lower portion of an opera-glass, showing a flaring funnel-shaped sound-collecting chamber.

In the accompanying drawings, *a* is the usual opera, field, or marine glass, made, as usual, in telescopic sections and provided with the ordinary adjusting means *b* and upper and lower lenses *c d*.

*e* represents the lower portion or pockets of the opera-glass in which the telescopic sections *f f* move, and these lower sections are provided at a point above the bottom lenses *d* with a series of sound-wave openings *g*, preferably arranged in circular series, as shown. If desired, a funnel-shaped sound-collector *g'*, provided with a collar $g^2$, as shown in Fig. 4, can be loosely fitted on the lower portion *e* of the opera-glass above the sound-wave openings *g g*, so as to deflect the incoming sound-waves into the openings *g g*.

The top lenses *c* rest on or are screwed, as usual, upon the caps or seats *h*. Extending through the sides of these caps below the upper lenses are tubes *i*, the open ends of which open into the hollow barrels *f*. These tubes extend outwardly from the caps, as shown. Elbows *k* are connected to and are arranged so as to be freely turnable within said tubes *i*.

*l l* are tubes formed in telescopic sections and preferably composed of thin metal, the lower ends of which are connected in any suitable manner to the elbows *k*. A rubber gasket *m* surrounds the tubes *l* and elbow *k*, thus affording a flexible connection at that point.

*n* is a curved spring fastened in the elbow *k*, its upper end bearing against the tube *l*, and tending to force said tube inwardly and holding the same and the earpiece *o* in the ear of the operator.

In the upper portion of the barrels, directly below the lenses *c*, is located a sound gathering or retaining chamber *p*. This chamber *p* is preferably formed with its mouth or receiving-opening *p'* smaller than the body for the purpose of retaining the sound-waves after they have been gathered and allowing them to escape to the ear through the tube connections. The lenses *c* form the diaphragms, so that the sound-waves after entering the openings or perforations *g* pass up through the hollow barrels, then through the opening in the sound-gathering chamber *p*. The sound-waves then come in contact with the lenses *c*, forming the diaphragms, when they are again deflected against said sound-collecting chamber and immediately enter the tube and are conveyed to the ears of the operator.

The operation of my device is as follows: Supposing a person to have a back seat in a place of amusement or elsewhere and he desires to not only hear what is going on upon the stage, but also to obtain a good view, the glass is placed to the eyes and the ear-tubes inserted in the ears of the operator. The

sound-waves on entering the openings *g* pass up through the hollow barrels, which form the receiving instrument, and through the opening in the sound-collecting chamber *p*. They then come in contact with the lenses *c*, which in this instance adapt themselves as diaphragms. After coming in contact with such diaphragms the sound-waves are deflected against the walls of the sound gathering or receiving chamber *p*, the same thereby forming the transmitter, as such waves after striking said walls will enter the tubes communicating with the hollow barrels and will convey the sound to the ears of the person using the device. While the sound-waves are reaching and operating on the ear the eyes are focused on the object to be seen. Thus the eyes and ears are acting in unity for the accomplishment of the same object—viz., to see and hear at the same time. By enlargement of the sphere of both by means of mechanical contrivances the unpleasant inability to hear and see well is greatly diminished, if not altogether avoided.

It is very evident that this invention is applicable to field, marine, and other glasses, and other places than opera-houses, the lecture-room, or the church, among which may be mentioned the navigating of crooked rivers, sea voyages, and in the field, where seeing and hearing in long distances are most important.

It is well known to many people who use opera and other glasses that the concentration of the sight on any object also intensifies the hearing; that there is a combined action from sympathy or other cause between the optic nerve and the diaphragm of the ear by which the sound-wave is made more distinct, the sight clearer, and the hearing less difficult; but to my knowledge no mechanical means have ever been employed to bring these two senses into unity of action for both hearing and seeing at the same time. I therefore do not limit myself to the exact device shown and described, but wish to claim, broadly, the method of intensifying or enlarging the sight and hearing by means of uniting them together for joint action in producing the result specified.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The herein-described opera or marine glass having the sound-receiving chamber comprising a series of openings in the lower part of the barrel, a sound-collector in the upper portion of the same, the lens above said sound-collector forming a diaphragm, and an ear-tube extending outwardly from the upper portion of said barrel for the purpose set forth.

2. An opera or marine glass having the lens in the lower portion of the barrel, the sound-receiving openings above said lower lens, a sound-collecting chamber in the upper portion of the same, the lens above said sound-collector forming a diaphragm, and an ear-tube extending outwardly from the upper portion of the barrel below the upper lens or diaphragm and adjustably secured to and communicating with said barrel as set forth.

3. The combination with an opera-glass having the usual lens in its bottom, the sound-receiving openings above the same, a sound-collecting chamber in the upper portion of the barrel below the top lens, the said upper lens serving as a diaphragm, and an ear-tube communicating with the upper portion of said barrel at a point below the top lens thereof and adapted to enter the ears of the operator, as set forth.

4. The herein-described opera glass and phone having two or more lenses, the upper lens acting as a deflector, the interposed diaphragm between said lenses, the sound receiving and conveying chambers, and an ear-tube connection, for the purpose set forth.

5. The herein-described opera or like glass having the sound-receiving chamber in its lower part, the conveying-chamber in its upper portion, the upper lens acting as a deflector, a tube connected to the conveying-chamber formed in telescopic sections, and a spring arranged within said tube for the purpose set forth.

6. An opera or like glass having the sound-receiving chamber in its lower section, a sound-conveyer in its upper portion, the upper lens acting as a deflector, the ear-tube attachment, the latter being constructed in telescopical sections and adapted to fold to the length of the glass, as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE J. WAINWRIGHT.

Witnesses:
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C. M. WERLE.