

No. 707,909.

Patented Aug. 26, 1902.

N. C. DURAND.
SOUND MODIFIER.

(Application filed June 14, 1902.)

(No Model.)

Fig. 1.

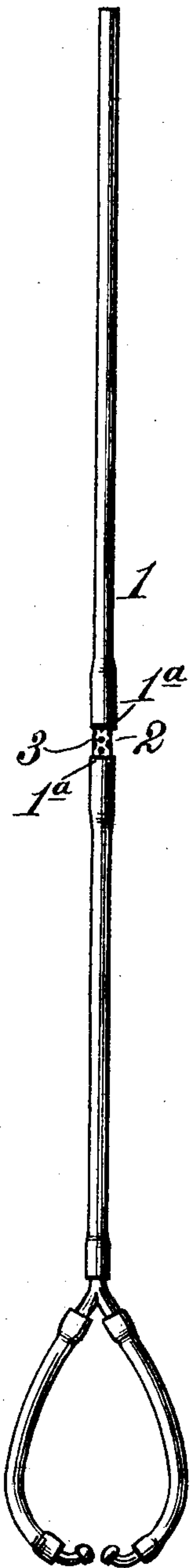


Fig. 2.

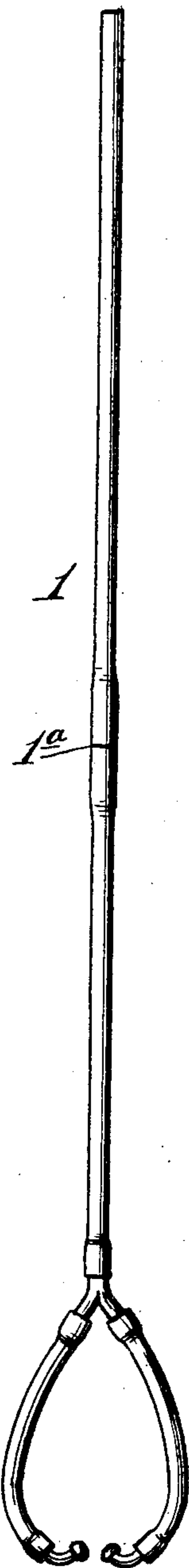


Fig. 3.

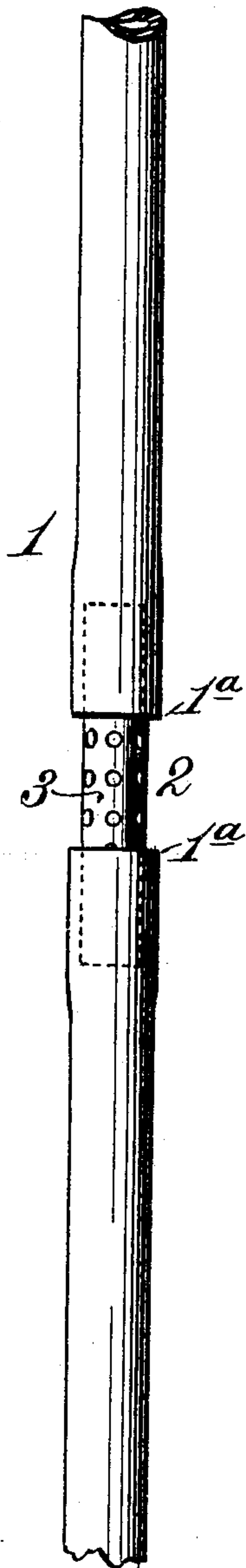
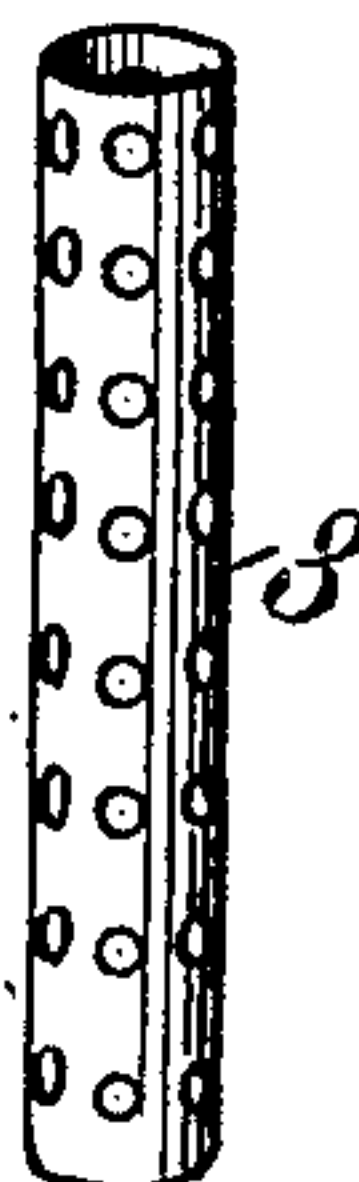


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

NELSON C. DURAND, OF SCRANTON, PENNSYLVANIA, ASSIGNOR TO INTERNATIONAL TEXT BOOK COMPANY, OF SCRANTON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SOUND-MODIFIER.

SPECIFICATION forming part of Letters Patent No. 707,909, dated August 26, 1902.

Application filed June 14, 1902. Serial No. 111,678. (No model.)

To all whom it may concern:

Be it known that I, NELSON C. DURAND, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented new and useful Improvements in Sound-Modifiers, of which the following is a specification.

My invention relates to sound-modifiers, and has for its object to provide a new and useful and economical device for modifying sound in its transmission to the ear, which is particularly useful in connection with the sound-conveying tubes of phonographs, but may be found useful in other relations.

In the practical use of phonographs the sound delivered to the ear of the hearer is often harsh and not clearly distinguishable, especially in the transmission of recorded speech. This is caused, I believe, to some extent by the fact that the sound of the running instrument is, together with the recorded sound-waves, passed into the sound-conveyer or hearing-tube. This harshness and confusion of sound is perhaps more pronounced where the sound-records of the phonograph are deep or loud, as where they are prepared in such manner that they may be used at one time in connection with a horn, the sound being delivered into the open air to be heard by a number of listeners, and at another time in connection with a hearing-tube where the sound is confined and conveyed through a sound-conveyer or hearing-tube to an individual listener, who places the sound-deliverer element of the tube to his ear. Where the sound is transmitted through a hearing-tube to the ear of the listener, the harshness of the sound delivered and its confused and not clearly-distinguishable quality is more especially observed in the transmission of speech from the record, where it is desirable that each word shall be transmitted clearly and distinctly to the listener.

By my invention the objections stated are obviated, and as ancillary my sound-modifier is capable of being regulated or adjusted, as will be described, to permit the escape of a greater or less volume of sound, as may be necessary to meet the varying characteristics of hearing of different individuals.

To the end stated my invention consists of a sound-modifier, as hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, to which reference is made in the following description, and in which—

Figure 1 of the drawings illustrates in perspective a sound-conveyer tube such as ordinarily used in connection with phonographs and commonly known as a "hearing-tube," provided with a sound-escape according to my invention. Fig. 2 is a similar view showing the sound-conveyer adjusted to close the sound-escape. Fig. 3 shows the same conveyer adjusted to permit the escape of sound and illustrating the regulable character of the sound-escape. Fig. 4 is a detached view of the sound-modifier proper.

In the said drawings the reference-numeral 1 indicates a sound-conveyer tube of a phonographic instrument commonly termed a "hearing-tube." A sound-escape 2, which I term a "sound-modifier," that admits of the escape of a portion of the volume of sound-waves passing through the hearing-tube, is interposed in a sound-conveyer at a point between the sound-receiving and sound-delivering parts of said conveyer. The remaining volume of sound passes to the ear of the listener in a modified or modulated form and is delivered to the ear of the listener in a very clear and distinct way.

The sound-conveyer consists of a perforated tube 3, over which fit meeting ends 1^a of a divided hearing-tube 1, the ends 1^a of which are capable of being brought together to meet and close the sound-escape or put the sound-modifier out of operation, as in Fig. 2, as may be desirable when the greatest amount of sound is to be conveyed. The ends 1^a of the conveyer are capable also of being moved away from each other on the perforated tube to expose a greater or less surface thereof, whereby the sound-escape or modifier may be regulated to permit the escape of a greater or less volume of sound-waves to meet the varying characteristics of the hearing sense of individual listeners.

My improved sound-conveyer is of such a

character, as will be apparent, that it can be readily applied to existing sound-conveyer tubes by merely severing the latter and interposing the perforated tube and is of a very
5 simple and economical nature.

Having thus described my invention, what I claim is—

1. The combination of a divided sound-conveyer, and a perforated tube interposed
10 therein.

2. In combination with a divided sound-

conveyer, a perforated tube interposed therein, said conveyer being adjustable on said tube to regulate the escape of sound from the conveyer.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

NELSON C. DURAND.

Witnesses:

CLAUDE U. KRAUSE,
DAVID COUTE.