

M. D. PORTER.  
COLLAPSIBLE ACOUSTIC HORN.

(Application filed July 31, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

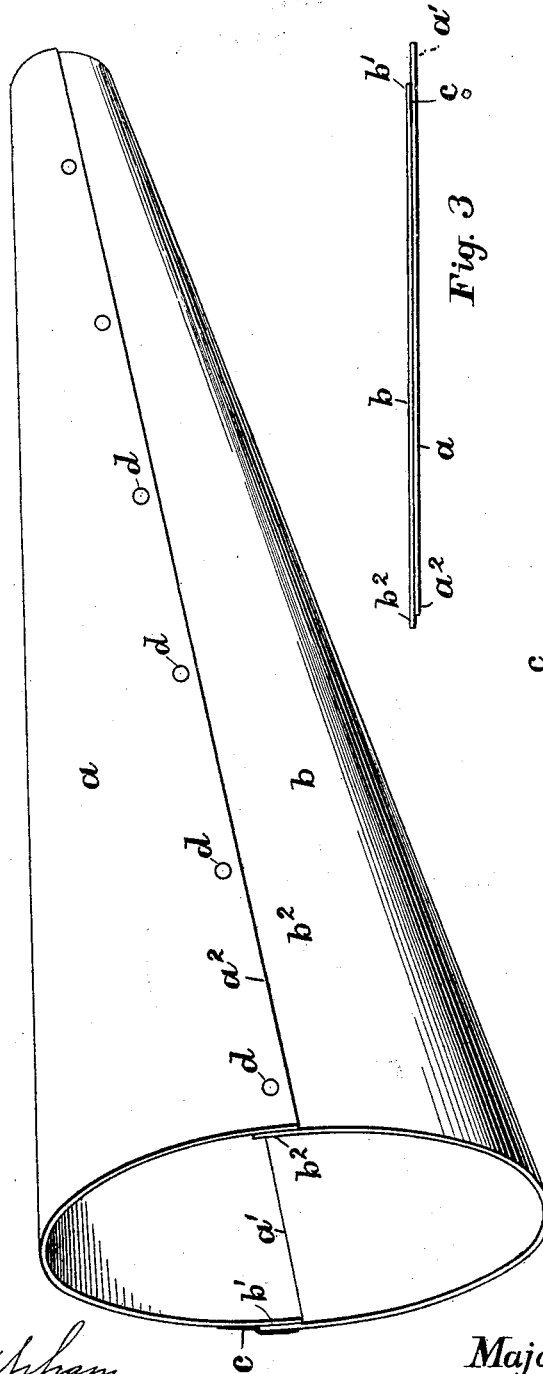


Fig. 3

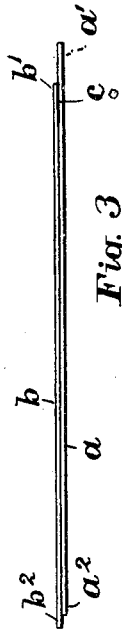
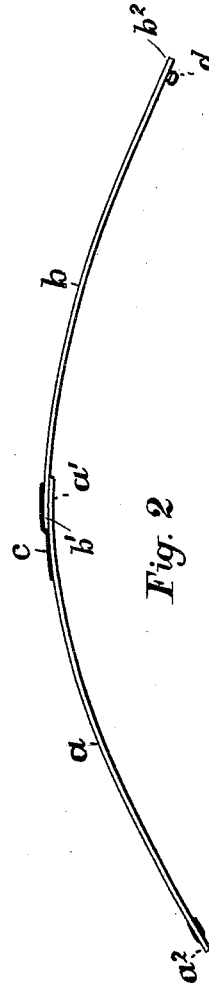


Fig. 2



Attest;

*M. W. Upham*  
*F. O. Caller*

Inventor,

Major D. Porter;

By *A. B. Upham*,  
His Attorney.

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Fig. 4

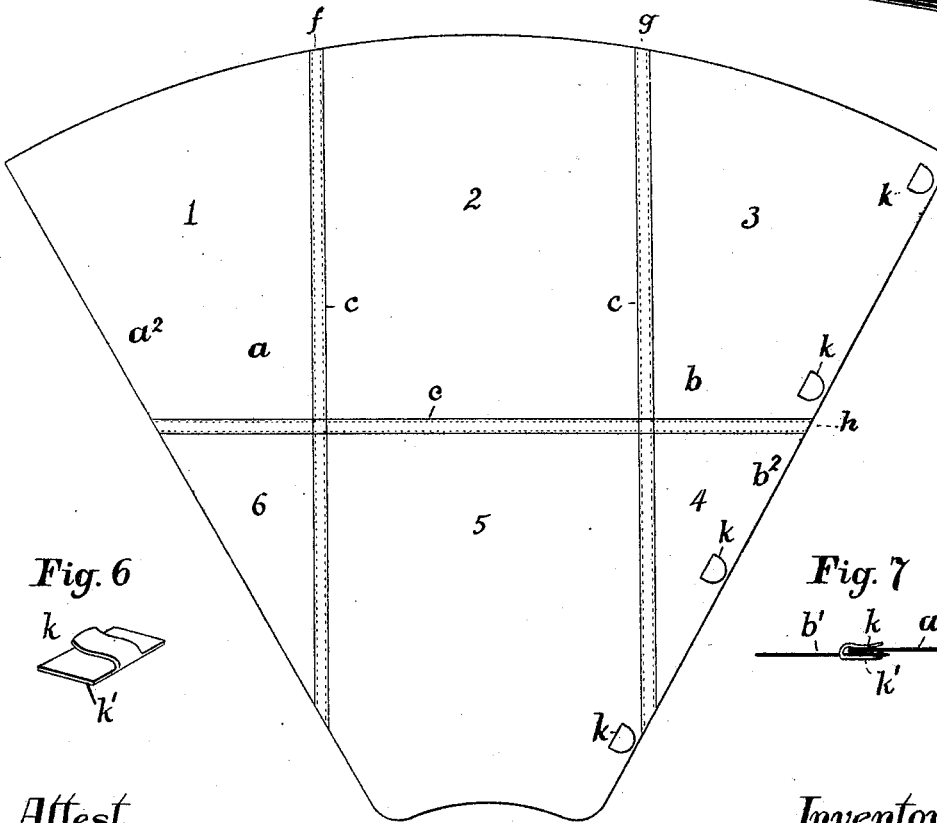
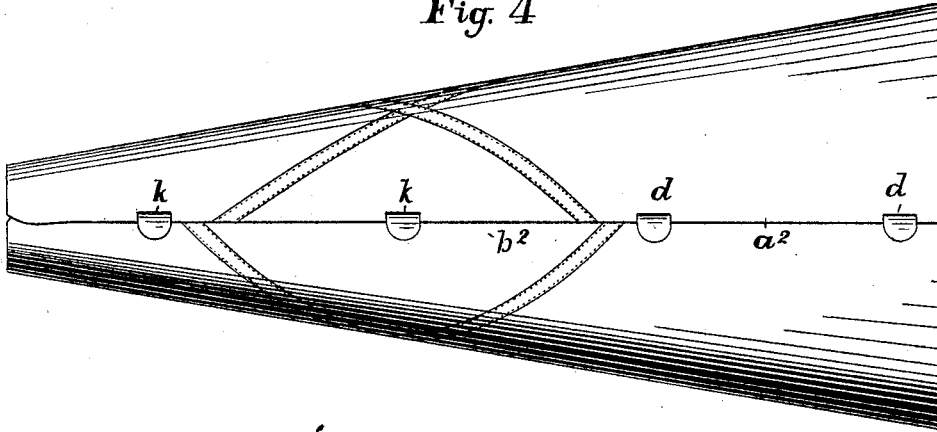


Fig. 6

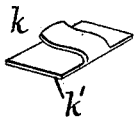
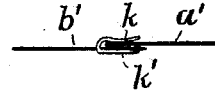


Fig. 7



Attest

*M. W. Upham*  
*F. O. Caller*

Fig. 5

Inventor,

Major D. Porter;

By *M. W. Upham*  
His Attorney

# UNITED STATES PATENT OFFICE.

MAJOR D. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE INTERNATIONAL STYLOPHONE COMPANY, OF SAME PLACE.

## COLLAPSIBLE ACOUSTIC HORN.

SPECIFICATION forming part of Letters Patent No. 648,994, dated May 8, 1900.

Application filed July 31, 1899. Serial No. 725,634. (No model.)

*To all whom it may concern:*

Be it known that I, MAJOR D. PORTER, a subject of the Queen of Great Britain, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Collapsible Acoustic Horn, of which the following is a full, clear, and exact description.

The object of this invention is the construction of a horn for general acoustic purposes, such as what is usually termed a "megaphone," or for phonographs and other talking-machines, which horn shall be capable of being folded into the smallest possible compass for greater convenience in transportation and storage, and yet can be immediately expanded into its perfect and normal condition for use. In accomplishing these results I form the horn from moderately-thin press-board, celluloid, or other material capable of ready, but not too easy, bending, and divide it longitudinally into two or more sections, with certain edges hinged together and the others provided with fastening devices easily engaged or disengaged. An ordinary hinged connection will not do for this purpose, however, as I have found from experiment, for the material being pliable only to a limited degree the hinges will become the apex of a somewhat-acute angle instead of an evenly-rounded curve. To remedy this defect in a simple and inexpensive manner, I form the hinge of some fabric or other pliable material and locate the same at some little distance back from the edge of one of the sections. By this means the outjutting edge serves as a fulcrum, which compels the material itself to bend instead of the hinge, and thereby gives to the horn the circular line in cross-section which is required.

Referring to the drawings forming part of this specification, Figure 1 is a perspective view of the horn embodying my invention. Fig. 2 is a transverse section of the same with the two sections thereof unfastened at one edge. Fig. 3 is a transverse section of said sections folded back to back. Fig. 4 is a side elevation of an improved form of my horn. Fig. 5 is a plan view of this latter horn laid flat. Fig. 6 is a perspective view of my preferred form of fastening for the edges of the

horn-sections, and Fig. 7 is a detail sectional view showing the manner in which the edges of the horn-sections are held by said fastening.

Turning to Fig. 1, it will be seen that the horn is composed of the two sections  $a$  and  $b$ , held together at the edges  $a'$   $b'$  by a hinge  $c$ , preferably formed of fabric or leather. As shown, said edges overlap for a short distance, usually about half an inch, in order to preserve the true curve of the horn, as above set forth. For the same purpose the section edges  $a^2$   $b^2$  are made to overlap for a similar distance and provided with fastenings  $d$  for securing them together. Such fastenings may be the common ball-and-socket devices used for gloves and purses, as indicated in the drawings. The hinge  $c$  is adapted to permit the two horn-sections to be folded back to back, as in Fig. 3, and thereby enable the same to lie perfectly flat.

In my preferred construction I divide the horn into six sections, as shown in Fig. 5, in order to enable the same to be folded into the smallest possible compass. The lines of severance for this purpose are three in number  $f$ ,  $g$ , and  $h$ ,  $f$  and  $g$  running parallel to each other and  $h$  at right angles with the others. The last of said lines of severance  $h$  is adapted to be folded in either direction, but the lines  $f$   $g$  are hinged substantially like that of the construction illustrated in Figs. 1, 2, and 3.

The fastening devices for the edges  $a^2$   $b^2$  are formed, as shown in Figs. 6 and 7, where the thin base  $k'$  is provided with the thin flattened hook  $k$ . Said base is affixed to the under side of the edge  $b^2$ , preferably by being stitched thereto, with the hook  $k$  reaching through a slit therein to the upper surface thereof. (See Fig. 7.) The mouth of this hook is arranged, as in Fig. 7, in order to receive the edge  $a'$  of the opposite section, and the opening is slightly constricted to receive said edge quite tightly, and thereby securely retain it.

In knocking down this horn the edge  $a'$  is first withdrawn from the grip of the fastenings  $k$ , then the sections 1 and 6 are folded over upon the sections 2 and 5, then the sections 3 and 4 are brought over upon the first-named ones, and, finally, the superposed sections 4, 5, and 6 are folded over upon the

combined sections 1, 2, and 3. The entire horn now occupies a space covering no more area than the single section 2, with a thickness equal to the six layers of the material composing the horn. Thus reduced in dimensions the horn can be packed in a very small compass and is hence capable of being carried from place to place in a small grip, a coat-pocket, or similarly-convenient receptacle. While this perfectly adapts the horn for use as a megaphone easy to be carried about and yet ready for use at a moment's notice, my preferable or most valued use for the same is in connection with phonographs. By packing this horn within the case arranged for the phonograph the entire talking-machine is complete, and yet occupies substantially no more space than the sounder mechanism alone. This is a most convenient arrangement for those giving phonograph entertainments at private parties or elsewhere necessitating the machine's being carried from place to place.

What I claim as my invention, and for which I desire to secure Letters Patent, is as follows, to wit:

1. In a collapsible horn, the combination of the sections formed of resilient material and hinged together along a substantially-longitudinal line, said hinge being adapted to permit said sections to be folded back to back but will compel flexure of the material itself when the free edges of the sections are brought together to form the horn, and fastening devices for said free edges, substantially as set forth.

2. In a collapsible horn, the combination of the sections formed of resilient material and hinged together along a substantially-longitudinal line, said hinge being formed of flexible material affixed to the edge of one section and a short distance back of the corresponding edge of the other section, whereby such overlapping edge is adapted to compel flexure of the material composing said sections when they are brought into the desired conical

form, and fastening devices for the free edges of said sections, substantially as and for the purpose set forth.

3. In a collapsible horn, the combination of the sections formed of resilient material and hinged together along a substantially-longitudinal line, and the fastening devices for the free edges of said sections, said fastening devices comprising the thin flat hooks having the bases affixed to the edge of one of said sections and adapted to receive and retain the edge of the other section, substantially as set forth.

4. In a collapsible horn, the combination of the plurality of sections formed of resilient material and shaped as shown, the flexible hinges securing the same together, and the fastening devices for the free edges of said sections, substantially as set forth.

5. In a collapsible horn, the combination of the sections formed of material capable of moderately-resisting flexure, the dividing-line between said sections being substantially longitudinal, and means for securing together the edges of said sections, such means being adapted to compel flexure of the sections themselves and thereby preserve the true conical shape of the horn, substantially as and for the purpose set forth.

6. In a collapsible horn, the combination of the sections formed of resilient material, the flexible hinges uniting said sections, and the fastening devices for securing together the exposed edges of said sections, two of the division-lines of said sections being parallel and substantially longitudinal therewith and the other at right angles to said parallel lines, substantially as set forth.

In testimony that I claim the foregoing invention I have hereunto set my hand this 14th day of June, 1899.

MAJOR D. PORTER.

Witnesses:

GUY H. HOLLIDAY,  
A. B. UPHAM.