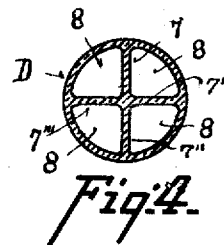
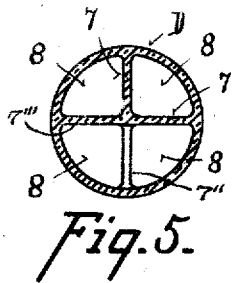
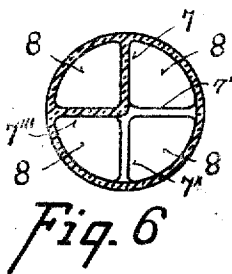
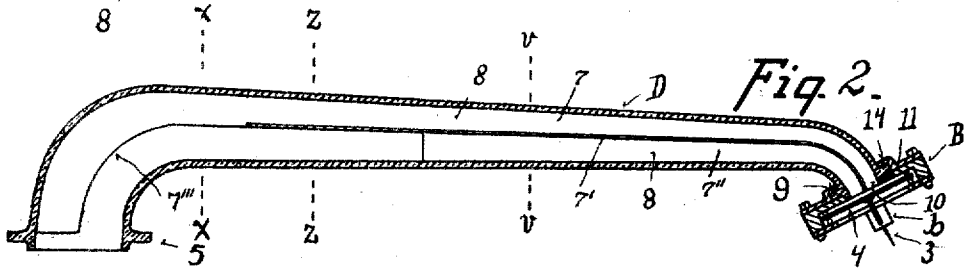
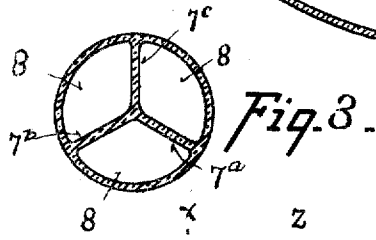
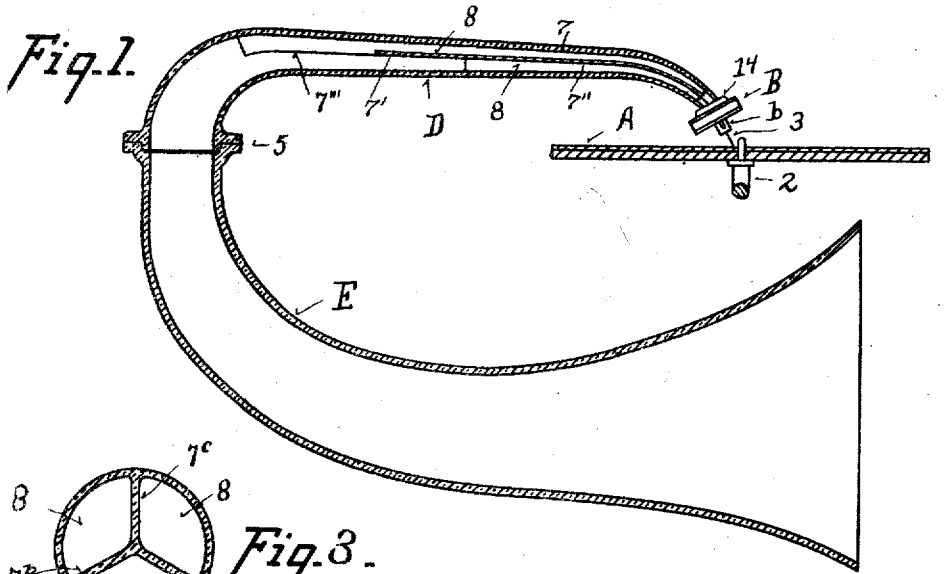


A. J. SWING AND A. S. KING,  
 TALKING MACHINE APPARATUS.  
 APPLICATION FILED SEPT. 23, 1915.

1,355,711.

Patented Oct. 12, 1920.



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# UNITED STATES PATENT OFFICE.

ALFRED J. SWING AND ALBERT S. KING, OF CINCINNATI, OHIO.

## TALKING-MACHINE APPARATUS.

1,355,711.

Specification of Letters Patent.

Patented Oct. 12, 1920.

Application filed September 23, 1915. Serial No. 52,293.

*To all whom it may concern:*

Be it known that we, ALFRED J. SWING and ALBERT S. KING, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Talking-Machine Apparatus, of which the following is a specification.

Our invention relates to improvements in talking machines. One of its objects is to provide an improved combination of sound transmitting mechanism to preserve and transmit all of the sound reproduced by the diaphragm. Another object is to provide in combination with a transmitting diaphragm a horn or megaphone the inner end of which from a point close to the diaphragm is subdivided into a plurality of separate tubular compartments, and which merge into a common compartment at different points between the inner and outer ends of the horn. Another object is to provide an improved horn. Our invention also comprises certain details of form combination and arrangement, all of which will be fully set forth in the description of the accompanying drawings in which:

Figure 1 is a diagram partly in section through a talking machine apparatus embodying our improvements.

Fig. 2 is an enlarged sectional view of the diaphragm casing and tone arm detached.

Fig. 3 is a cross sectional diagram through a modified form of tone arm divided into three compartments.

Fig. 4 is a section on line *v-v* of Fig. 2.

Fig. 5 is a section on line *s-s* of Fig. 2.

Fig. 6 is a section on line *w-w* of Fig. 2.

The accompanying drawings illustrate the preferred embodiments of our invention in which A represents a disk shaped record mounted upon a spindle 2. B represents a casing on which are mounted a lever 3 carrying a needle 3 to engage the record and a diaphragm 4 to be vibrated by and in unison with the movements of said needle. D represents a tone arm or movable section of the megaphone which is pivotally jointed at 5 to a stationary section E of the megaphone so that its inner end may move freely across the face of the record. The casing B is mounted upon the free end of the tone arm and movable therewith across the face of the record.

The tone arm D and section E of the meg-

aphone are both preferably constructed of a rigid non-corrosive vitreous material having a highly polished surface, such as molded glass for instance, although they or either of them may be constructed of metal or wood if desired. The tone arm is divided commencing at its inner end by one or more longitudinal partitions 7 7', 7'' and 7''' preferably into three or more separate longitudinal compartments 8, and said partitions terminated at different points along the tone arm so that said several compartments 8 are of different lengths before merging into one common or general compartment.

At the inner end of the tone-arm is a collar or flange 9 which seats against the outer face of the casing B, while the end 10 of the tone arm projecting in advance of the collar 9 enters a recess 11 in the rear face of the casing B to bring the end of the tone arm and the inner end of the partition 7 close to the rear face of the diaphragm. This is so that as soon as the sound has been produced by the diaphragm and before it has been influenced in any manner it may be received directly into the separate compartments of the tone arm and transmitted thereby practically unaltered except by augmentation to the section E and the open air. The compartments 8 are by their nature and different lengths adapted to transmit a great variety of sound waves from their inception at the diaphragm to the outer section E without loss or alteration, and should be in position close to the diaphragm so as to take up and transmit the sound waves before any other influences are permitted to act upon them. A divided plate 14 engaging the collar 9 and clamped to the casing B serves to hold the casing B in engagement with the end of the tone arm.

The number of compartments 8 and their relative lengths are dependent upon the dimensions of the tone arm and diaphragm and casing, and result to be attained.

In the modification Fig. 3 partitions 7<sup>a</sup>, 7<sup>b</sup>, and 7<sup>c</sup> divide the tone arm into three instead of four compartments 8.

The mechanism herein illustrated and described is capable of considerable modification without departing from the principle of our invention.

Having described our invention, what we claim is:

1. In a talking machine a tone arm di-

vided from its diaphragm end toward its megaphone end by a partition into a plurality of longitudinal compartments of different lengths.

5 2. In a talking machine a tone arm divided from its diaphragm end toward its megaphone end into a plurality of tubular compartments of different lengths.

10 3. In a talking machine a tone arm divided from its diaphragm end toward its megaphone end by a partition into a plurality of tubular compartments of different lengths, all of said tubular compartments terminating at the diaphragm end close to  
15 the diaphragm.

4. In a talking machine transmitting

mechanism a tone arm having an interior longitudinal partition extending from its movable end toward its pivotal end and dividing said tone arm into a plurality of 20 tubular compartments of different lengths and means externally located near the movable end of the tone arm to provide for attaching a diaphragm casing thereto.

In testimony whereof we have affixed our 25 signatures in the presence of two witnesses:

ALFRED J. SWING.  
ALBERT S. KING.

Witnesses:

C. W. MILES,  
W. THORNTON BOGERT.