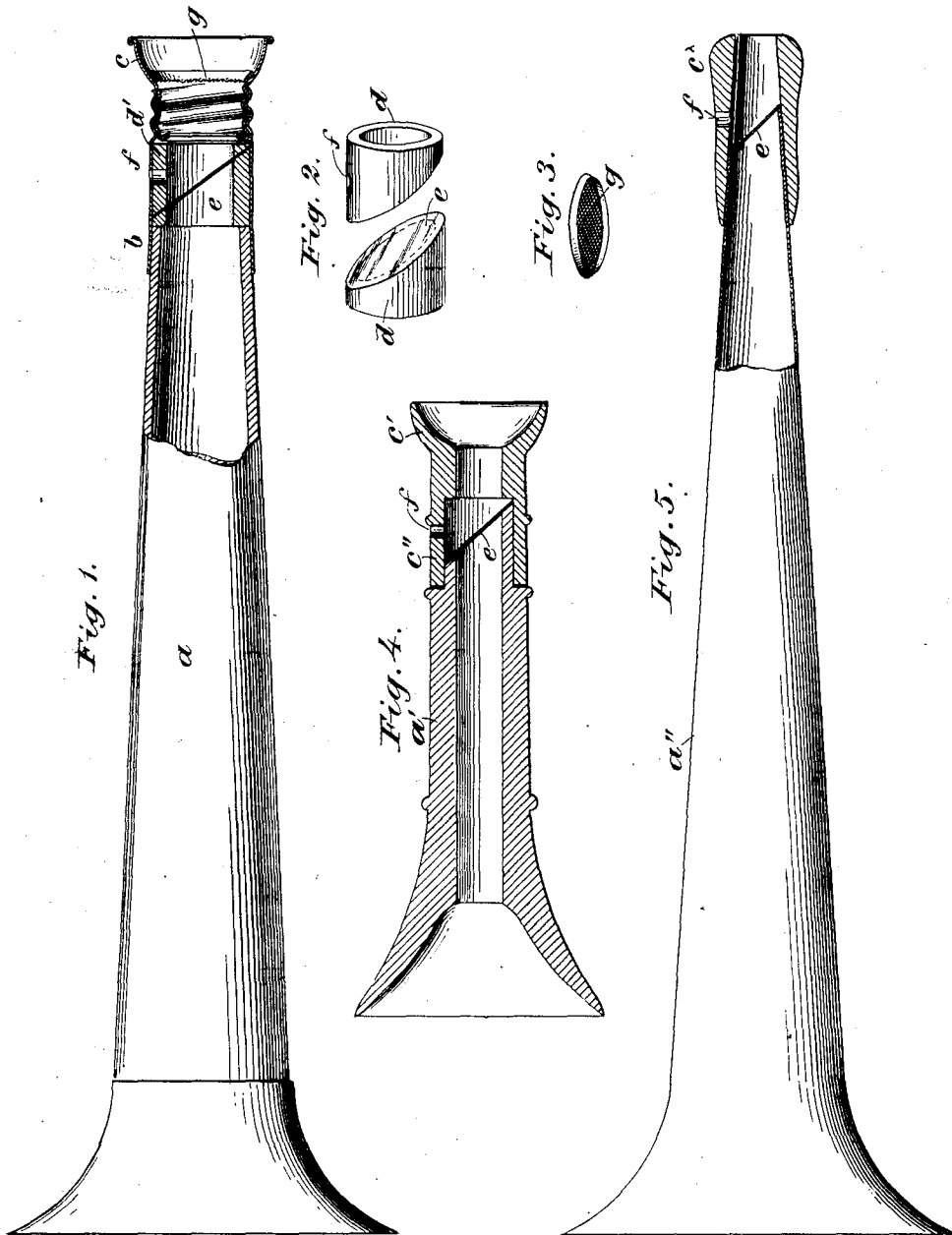


L. N. CRAKOW.  
TOY MUSICAL INSTRUMENT.

(Application filed Oct. 23, 1900.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## TOY MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 663,654, dated December 11, 1900.

Application filed October 23, 1900. Serial No. 34,014. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS N. CRAKOW, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Toy Musical Instruments, of which the following is a specification.

This invention relates to the class of toy musical instruments wherein the sound-waves from the voice impinge directly on a diaphragm of gold-beaters' skin or the like, and thus produce sounds like those of a bugle or cornet; and the object of the present invention is in the main to provide a strained tight elastic diaphragm or tympanum having its surface on which the sound-waves impinge oblique to the axis of the mouthpiece and a lateral outlet for the breath which is deflected from the tympanum and in part to provide other features of improvement, which will be hereinafter fully specified.

In the accompanying drawings, which illustrate several embodiments of the invention, Figure 1 is a sectional view of an instrument embodying all of the features of the invention and showing the tympanum fixed on a removable holder. Fig. 2 shows the removable tympanum-holder and its guard detached. Fig. 3 shows the softening-diaphragm of the mouthpiece detached. Fig. 4 shows a simpler embodiment of the invention, wherein the tympanum is not fixed on a removable holder. Fig. 5 shows a simple form of the instrument, wherein the flared body or resonator is of sheet metal and the mouthpiece of wood or other non-metallic material.

Referring, primarily, to Figs. 1, 2, and 3, *a* is the trumpet-like resonator, which may be of pasteboard, as shown in Fig. 1. On the smaller end of the resonator is secured a thimble *b*, which may be of sheet metal and provided with a screw-thread at its outer end, into which screws the mouthpiece *c*. In the thimble *b*, between the inner front end of the mouthpiece and the rear end of the resonator, is a chamber to contain the removable holder *d* of the tympanum *e* and its keeper or guard *d'*. The holder and guard, as represented in Figs. 1, 2, and 3, may be conveniently made by sawing a tube of wood across obliquely at an angle of about forty-five degrees with the axis

of the tube and securing the tympanum *e* to the oblique face of the holder. This tympanum will be of gold-beaters' skin or some similar material stretched tightly, like a drum-head. The guard *d'* is designed to keep the holder *d* in place in the chamber in the thimble. The breath from the mouthpiece impinges on the tympanum *e* in front of the latter obliquely and is deflected therefrom substantially at right angles to the axis of the mouthpiece laterally, escaping at an outlet *f* in the thimble *b* and the guard *d'*, if there be a guard. In the mouthpiece *c* is a softening-diaphragm *g*. (Seen detached in Fig. 3) This diaphragm is preferably removable and consists of a foraminous disk of fine wire-gauze provided with a marginal band or rim, which will be by preference of rubber, but which may be of other material. This diaphragm softens the tone of the instrument somewhat in the manner of the soft pedal of a piano or the damper of an organ.

The simpler form of the instrument (shown in Fig. 4) has a resonator *a'*, of wood, the lesser rear end of which is cut off obliquely and the tympanum *e* fixed thereon by any suitable means—as with cement, for example. The mouthpiece *c'* is slipped onto the lesser end of the resonator, its neck *c''* forming the tympanum-chamber and having in it the outlet-aperture *f*.

Fig. 5 shows a simple form of the instrument, wherein the resonator *a''* is of sheet metal, with its lesser rear end cut off obliquely and the tympanum *e* fixed thereon. The mouthpiece *c''* is slipped onto the end of the resonator, so as to house the tympanum, and it has in it the outlet-aperture *f* for the breath. This mouthpiece, as well as that seen in Fig. 4, may be of wood.

In all the embodiments illustrated it will be noted that the face of the tympanum *e* is oblique to the axis of the mouthpiece and the aperture *f* is opposite to said oblique face. The tympanum *e* is strained tight and is elastic or resilient, so as to vibrate under the influence of sound-waves or pulsations of the breath.

For convenience the parts are made circular in cross-section; but this is not material to the invention. When the diaphragm *g* is made removable, it may of course be used or not

at will, so that the instrument will produce stronger or softer sounds, as desired. The obliquity to the direction of the breath pulsations of the vibrating surface of the tympanum not only increases the area of said surface over that produced by placing the tympanum with its surface at right angles to the axis of the mouthpiece, but it avoids the deflection of the air pulsations back in the direction of their approach, and thereby produces clearer and less-confused sounds or notes.

Having thus described my invention, I claim—

1. A musical instrument of the character described, having a mouthpiece, a tympanum situated in front of the outer end of the said mouthpiece, with its surface upon which the breath impinges oblique to the axis of the mouthpiece, and having an outlet for the breath back of said tympanum.

2. A musical instrument of the character described, having a mouthpiece, a tympanum in front of the outer end of the said mouthpiece for the breath to impinge upon, and a foraminous diaphragm in the instrument between said tympanum and the outer end of the mouthpiece.

3. A musical instrument of the character described, having a mouthpiece, a tympanum for the breath to impinge upon, an outlet for the breath deflected from the tympanum, and a removable, foraminous diaphragm situated between the outer end of the mouthpiece and the said tympanum.

4. A musical instrument comprising a resonator, a mouthpiece, and an obliquely-arranged tympanum *e* between the resonator and the outer end of the mouthpiece, said instrument having a lateral outlet *f*, for the breath deflected from said oblique tympanum.

5. A musical instrument comprising a resonator, a mouthpiece removable from the resonator, and an obliquely-arranged tympanum *e*, back of the outer end of the mouthpiece, of a foraminous, removable diaphragm *g*, situated between the outer end of the mouthpiece and the said tympanum, said instrument having a lateral outlet for the breath deflected from said tympanum.

6. A musical instrument comprising a resonator, a removable tympanum-holder *d*, in a chamber back of the resonator, the oblique tympanum *e* on said holder, and the removable mouthpiece, said chamber having a lateral outlet for the breath.

7. A musical instrument comprising a resonator, a removable, tubular, tympanum-holder *d* in a chamber back of said resonator, an oblique tympanum *e* on said holder, a guard back of said holder, and a removable mouthpiece, said chamber having a lateral outlet for the breath.

8. In a musical instrument, the combination with a tubular resonator, and a thimble *b*, attached to the rear end thereof and forming a tympanum-chamber, of the tubular holder *d* in said chamber, the obliquely-arranged tympanum *e* on said holder, the guard *d'*, back of said diaphragm, the mouthpiece removably attached to said thimble, and the foraminous diaphragm in said mouthpiece, said thimble having in it a lateral outlet for the breath deflected from the tympanum.

In witness whereof I have hereunto signed my name, this 19th day of October, 1900, in the presence of two subscribing witnesses.

LOUIS N. CRAKOW.

Witnesses:

HENRY CONNETT,  
PETER A. ROSS.