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OBOE OR SIMILAR MUSICAL INSTRUMENT

Filed Feb. 20, 1929

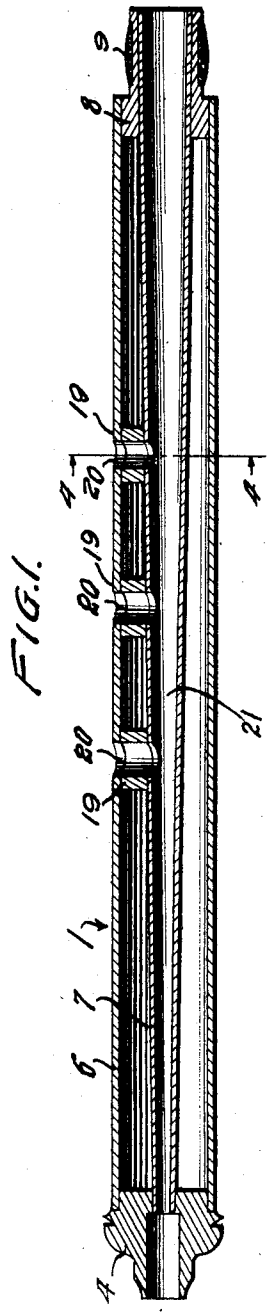

FIG. 1.

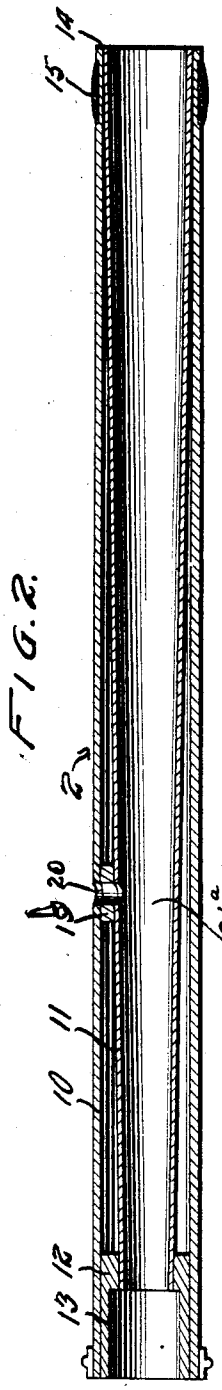

FIG. 2.

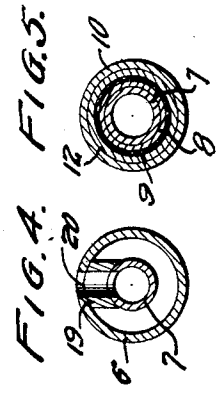

FIG. 4. FIG. 5.

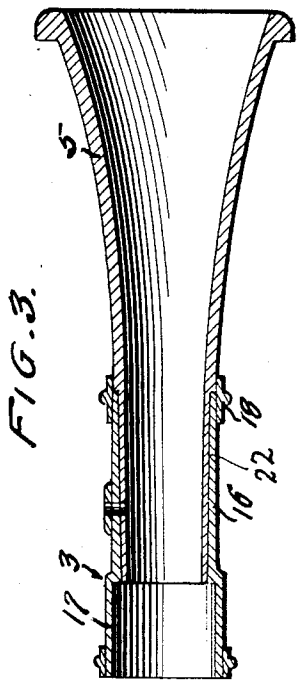

FIG. 3.

Inventor
DONALD D. ARTLEY
ROBERT HART
and ROBERT R. YEOMAN
By Lester L. Sargent
Attorney

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UNITED STATES PATENT OFFICE

DONALD D. ARTLEY, ROBERT HART, AND ROBERT R. YEOMAN, OF ELKHART, INDIANA

OBOE OR SIMILAR MUSICAL INSTRUMENT

Application filed February 20, 1929. Serial No. 341,453.

Our invention relates to an improvement in the construction of oboes or similar musical instruments, such as the English horn, that are commonly known as wood wind instruments, and it is an object of our invention to provide an instrument of this class which is made mainly of metal; to provide a novel construction of the tube and a novel tone hole construction in such an instrument; to provide an instrument the pitch of which is not interfered with by climatic changes; and to eliminate various disadvantages of the conventional wooden or hard rubber construction.

We attain these and other objects of our invention by the construction shown in the accompanying drawings, in which,—

Figure 1 is a longitudinal section through a section or part of the instrument which includes the mouthpiece, the key mechanism of the instrument being omitted;

Fig. 2 is a similar longitudinal section view through the middle section of the instrument, the key mechanism also being omitted;

Fig. 3 is a similar longitudinal section through the bell section of the instrument;

Fig. 4 is a transverse section on line 4—4 of Fig. 1, and

Fig. 5 is a transverse section through the joint connecting the first and second sections of the instrument when they are coupled together instead of being separated as shown in Figs. 1 and 2 of the drawings.

Like numerals designate like parts in each of the several views.

Referring to the accompanying drawings, the mouthpiece, or first section, comprises the conventional reed mouthpiece 4, an outer metal tube 6, an inner tapered metal tube 7, spaced from the outer tube 6 and a telescopic joint member 8, which engages over the end of the inner tube 7. Member 8 has an annular flanged portion, or enlarged portion, which engages the inner end of the outer tube 6. The joint member 8 is also provided with a suitable friction ring 9 of cork or other suitable material so that a firm joint may be made with the adjacent section of the instrument. We provide small, preferably cylindrical channeled tone hole members 19, having the tone hole 20 extending therethrough to the wind chamber or passage 21 of the inner tubes 21 and 21*a*.

The middle section 2 of the instrument illustrated in Fig. 2 is provided with a suitable joint member 13 adapted to telescope with the exposed portion of the joint member 8 of the mouthpiece section, and is provided with an annular inwardly flanged portion 12 which engages the small end of the tapered inner tube 11, while the end of the outer tube 10 seats over the outer surface of the joint member 13. The opposite end of the middle section 2 is provided with a suitable friction ring 15, adapted to frictionally engage the joint member 17 of the bell section.

Fig. 3 of the drawings illustrates the bell section 5 of the instrument, which has a telescopic joint member 17 adapted to seat over the friction ring 15 on the end of the middle section of the instrument. Member 17 has an annular extension 16 of slightly reduced diameter seating on the smaller end of the bell 5 of the instrument over the annular recessed portion 22 of said bell. We prefer to provide a suitable ring 18 seating over the end of the annular extension 16 to seal the joint and also to improve the ornamental appearance of the instrument.

To assemble the instrument for use the three sections of the instrument shown in Figs. 1, 2 and 3, respectively, are telescopically connected at the joints thus providing a continuous evenly tapering wind passage through the inner tube 7 of the mouthpiece or first section and the inner tube 11 of the middle section, into the bell 5 of the bell section of the instrument. The walls of the outer tubes 6 of the mouthpiece section and outer tube 10 of the middle section are aligned. The instrument thus presents a symmetrical appearance and this construction also affords an annular air space between the two metal tubes which form the walls of the air passage and outer wall of the instrument respectively throughout both the mouthpiece and middle sections and into the bell section or wind passage. The inner

tube is thus continuously tapered from the reed receiver or mouthpiece to the end of the bell and is known as the "bore". The outside tubes or walls are straight.

The tone hole construction is accomplished by the insertion of the metal cylindrically bored member 19 between the walls of the inner and outer tubes. The members 19 are silver soldered to the inside tube and soft soldered or silver soldered to the outside tube after which operation the tone holes are drilled. This method of construction insures a permanent airtight, non-breakable tone hole, or opening, from the inside of the inner tube to the outside of the outer tube.

The metal construction of the instrument makes possible a slender straight body which eliminates the excess weight of the original full-sized tapered body of the wood or hard rubber oboe and also makes possible a more economical manufacturing method, more accurate fitting of any set of keys (not shown in the accompanying drawings as not a feature of our invention), and a more perfect spring action of the key actuating mechanism. Our construction also provides a dead air space between the outer wall and wind passage tubes and this dead air space forms to a certain extent an insulation which maintains an even playing temperature of the inner tubes 7 and 11, which form the major portion of the wind passage.

Another advantage of the metal construction is that contraction and expansion from moisture effects and from climatic changes are reduced to a minimum which also tends to maintain a proper operation of key mechanism. Thus the faulty points of the wood and hard rubber oboes, such as cracking and splitting in the wood, and warping and breaking of the rubber oboes, are entirely eliminated.

What we claim is:

1. In an instrument of the oboe type, a combination of sections comprising aligned tubes forming the outer wall of the mouthpiece section and middle section of the instrument, the outer wall being straight from top to bottom to eliminate excess weight, tapered inner tubes spaced from the aforesaid outer wall and forming a continuously tapered wind passage from the bell to the mouthpiece of the instrument, a bell of single wall construction engageable on the middle section of the instrument, and a suitable mouthpiece on the mouthpiece section of the instrument.

2. In combination with the mechanism defined in claim 1, small channeled tubes silver-soldered between the outer wall and the inner tube of the instrument in alignment with the tone hole opening to provide the required tone holes.

3. In an instrument of the oboe type, a combination of sections comprising a reed mouthpiece, metal tubes forming the outer wall of the mouthpiece section and middle section of the instrument, the outer wall being straight from top to bottom to eliminate excess weight, tapered metal inner tubes spaced from the aforesaid outer walls and forming a continuously tapered wind passage from the bell to the mouthpiece of the instrument, and a bell of single wall construction engageable on the middle section of the instrument.

4. In an instrument of the oboe type, the combination of a metal mouthpiece section, a metal middle section, and a metal bell section of single wall construction, joints for telescopically connecting the respective sections, the joint members having friction rings to effect a tight joint, the mouthpiece section and middle section having a wind passage wall spaced from the outer wall to provide dead air spaces therebetween, the outer wall being straight from top to bottom to eliminate excess weight.

5. In combination with the mechanism defined in claim 3, the combination of telescopic members connecting the sections, and channeled cylindrical tone hole members extending between and silver-soldered to the walls of the outer and inner tubes, whereby to provide a non-leakable tone hole.

6. In combination with the mechanism defined in claim 1, the combination of telescopic elements engaging the tubes, and channeled tone hole members silver-soldered between the walls of the outer and inner tubes and aligned with the tone hole openings of said walls to provide a non-leakable tone hole.

7. In combination with the mechanism defined in claim 1, small channeled tone hole members positioned between the inner surface of the outer wall and the inner tube of the instrument and hard-soldered in place to provide the required tone holes.

8. In combination with the mechanism defined in claim 1, the combination of a middle section comprising a telescopic joint member, an inner tapered tube, an outer straight tube, a friction ring on the end of the outer straight tube adjacent to the bell section, a bell section of single wall construction telescopically connectable with the middle section, and channeled tone hole members silver soldered between the walls of the outer and inner tubes and aligned with the tone hole openings of said walls to provide a non-leakable tone hole, whereby to provide an instrument of long life and without excess weight.

DONALD D. ARTLEY.
ROBERT HART.
ROBERT R. YEOMAN.