

A. JOHNSON.  
MUSICAL WIND INSTRUMENT.  
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963,768.

Patented July 12, 1910.

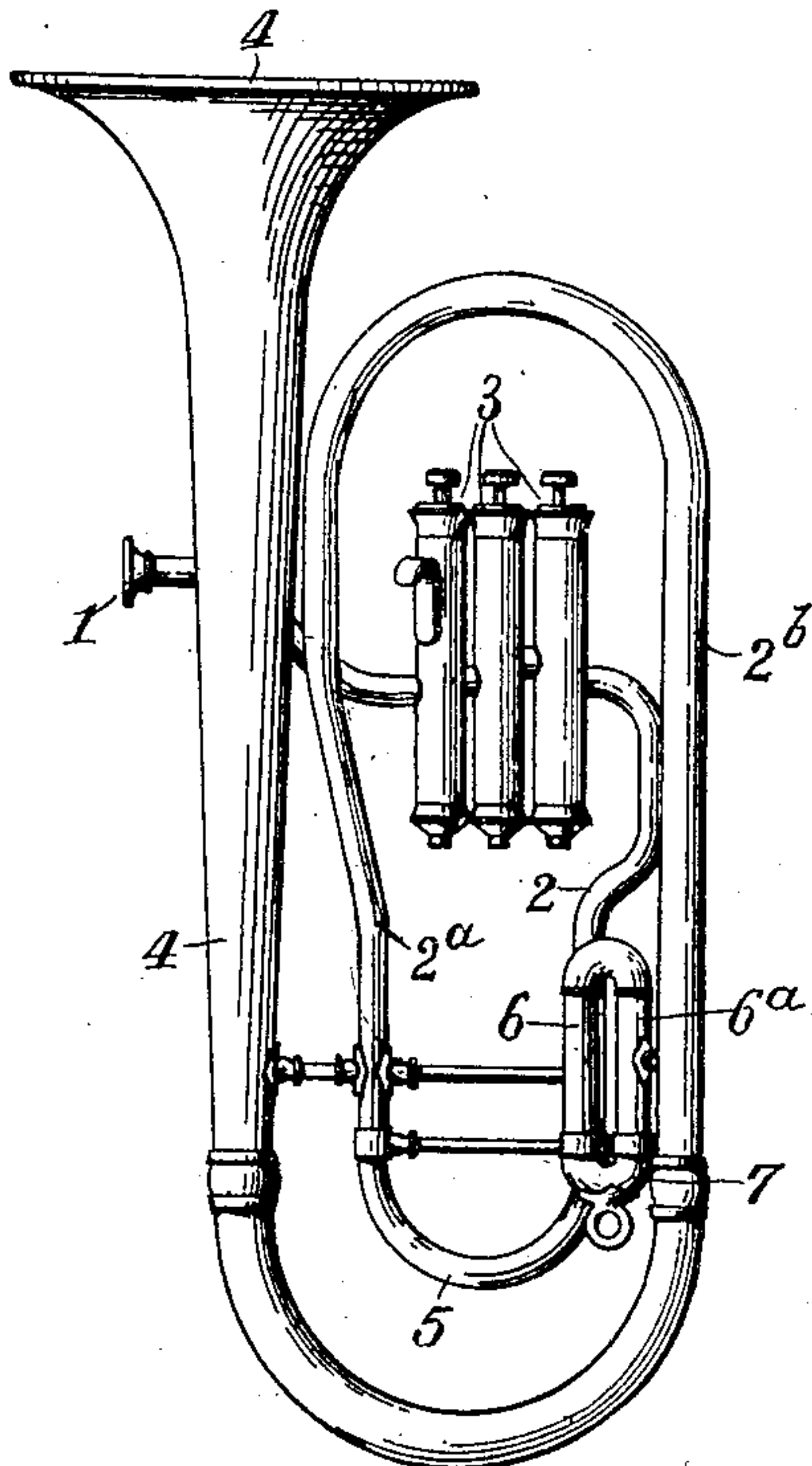


Fig. 1.

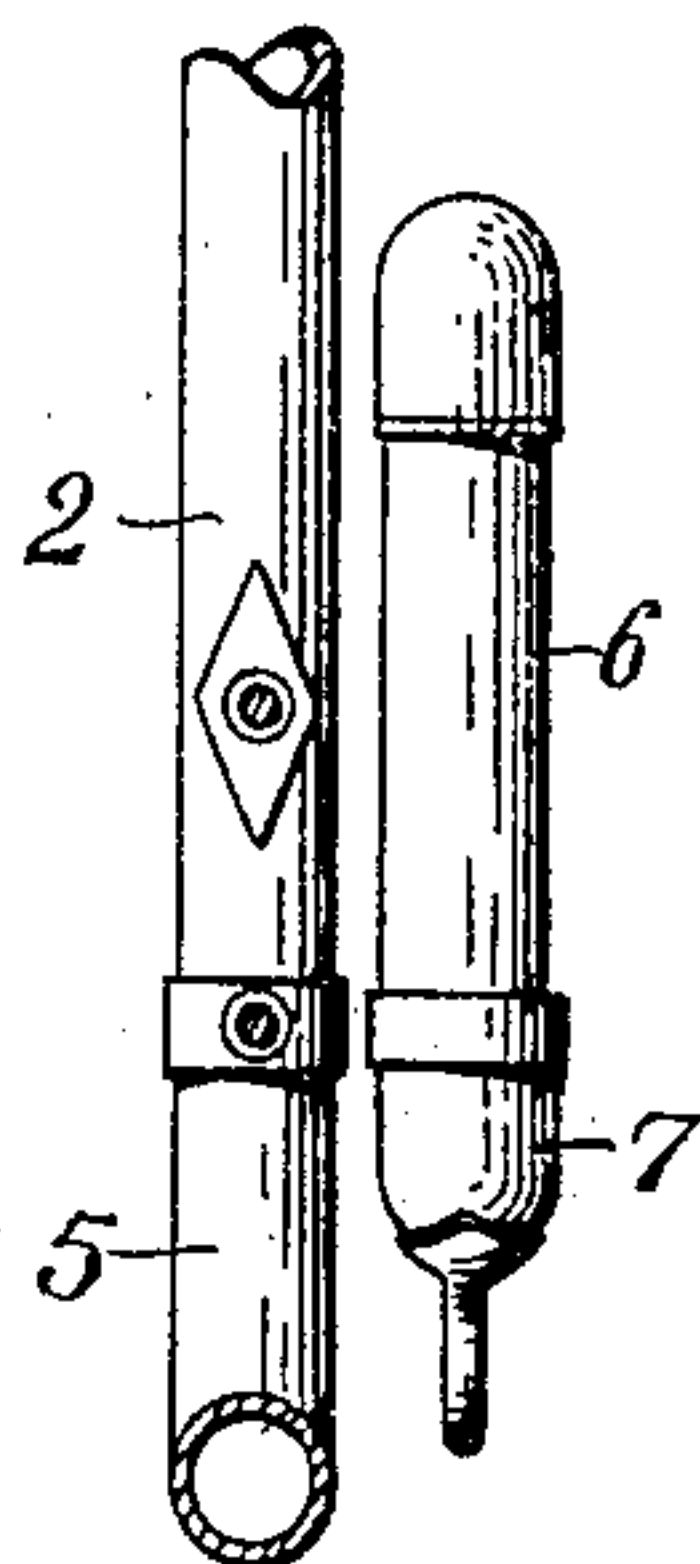


Fig. 2.

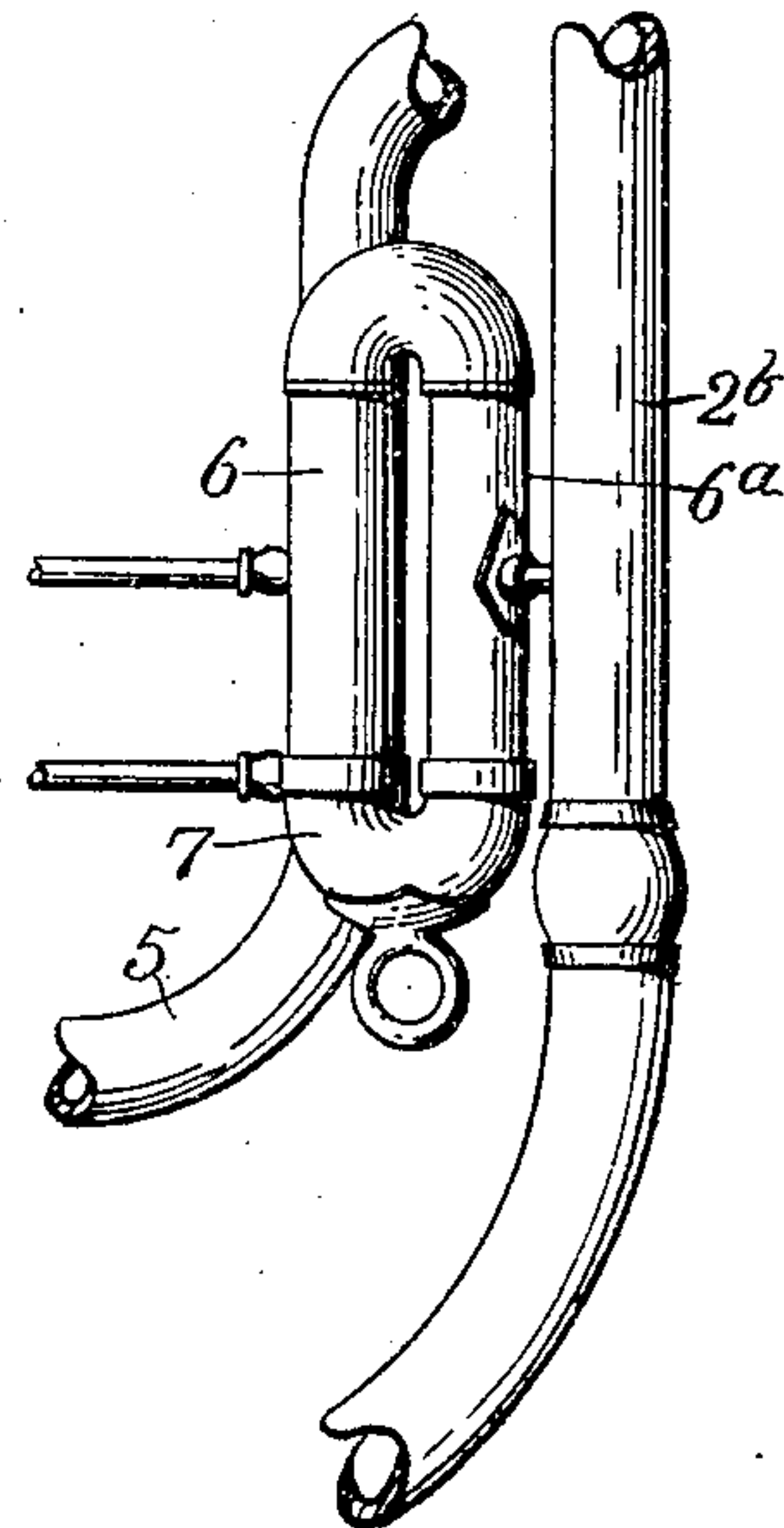


Fig. 3.

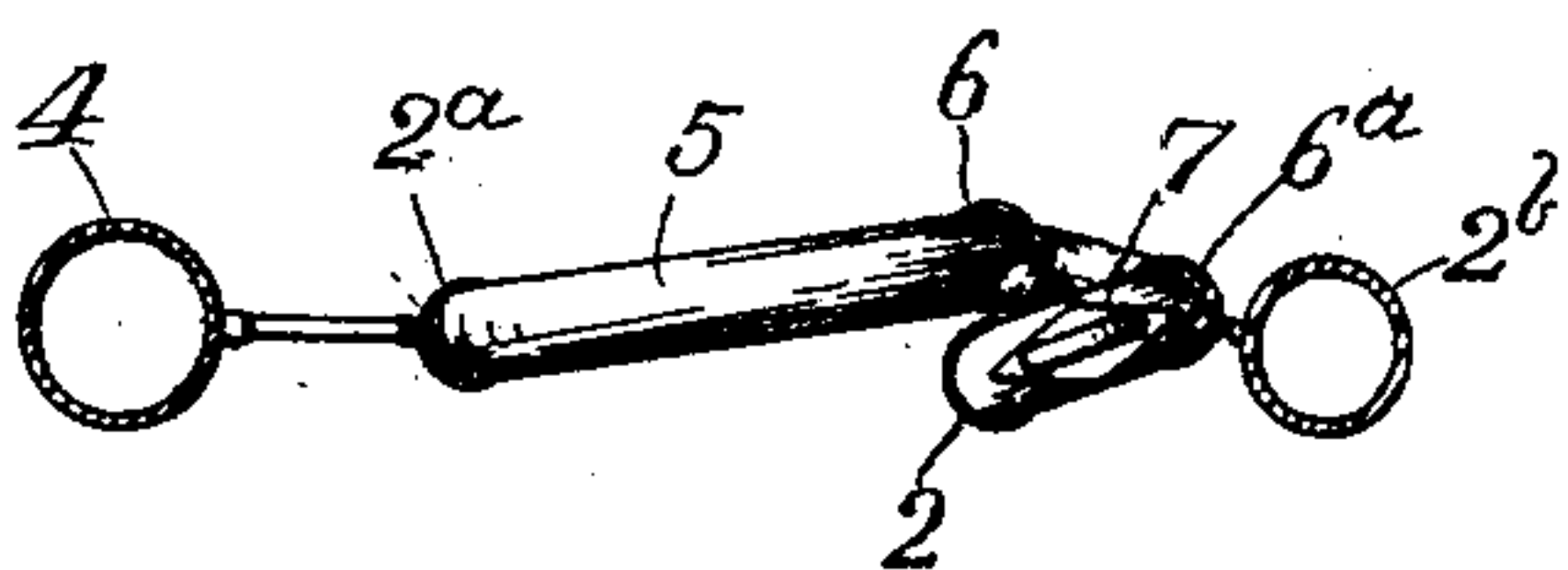


Fig. 4.

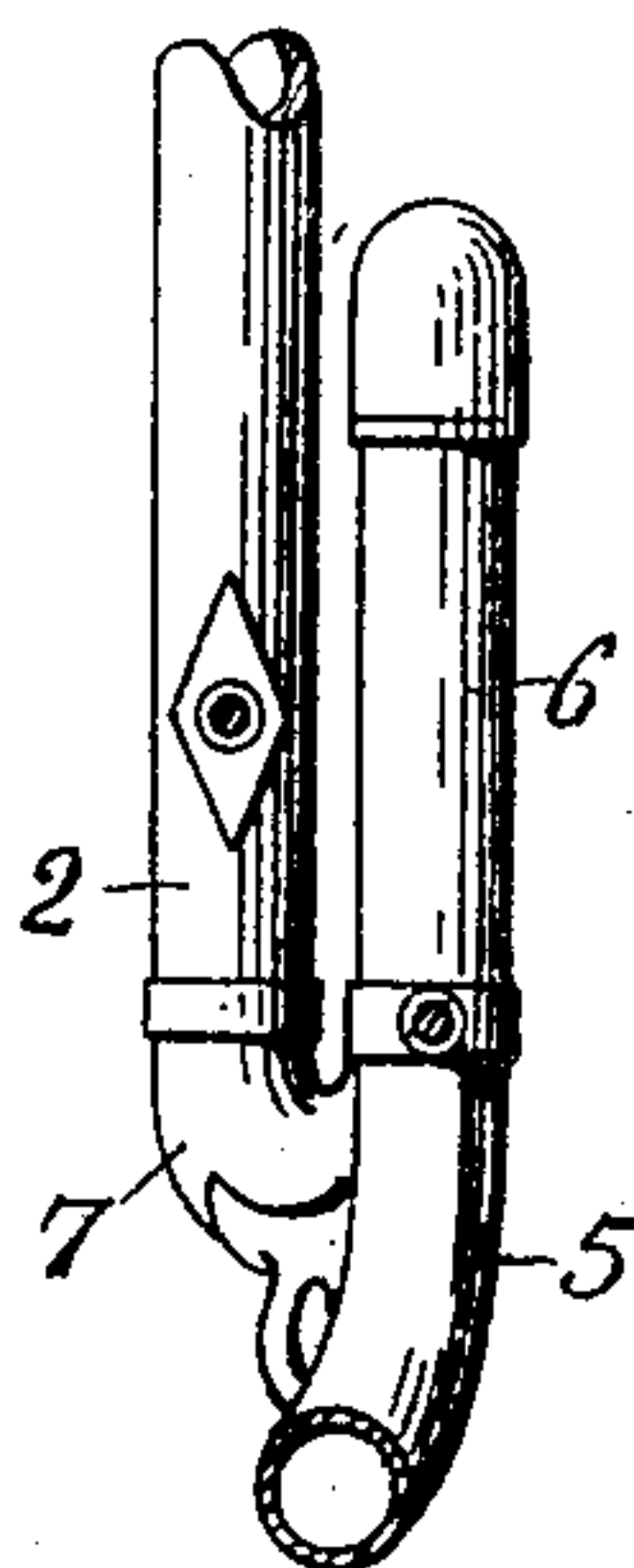


Fig. 5.

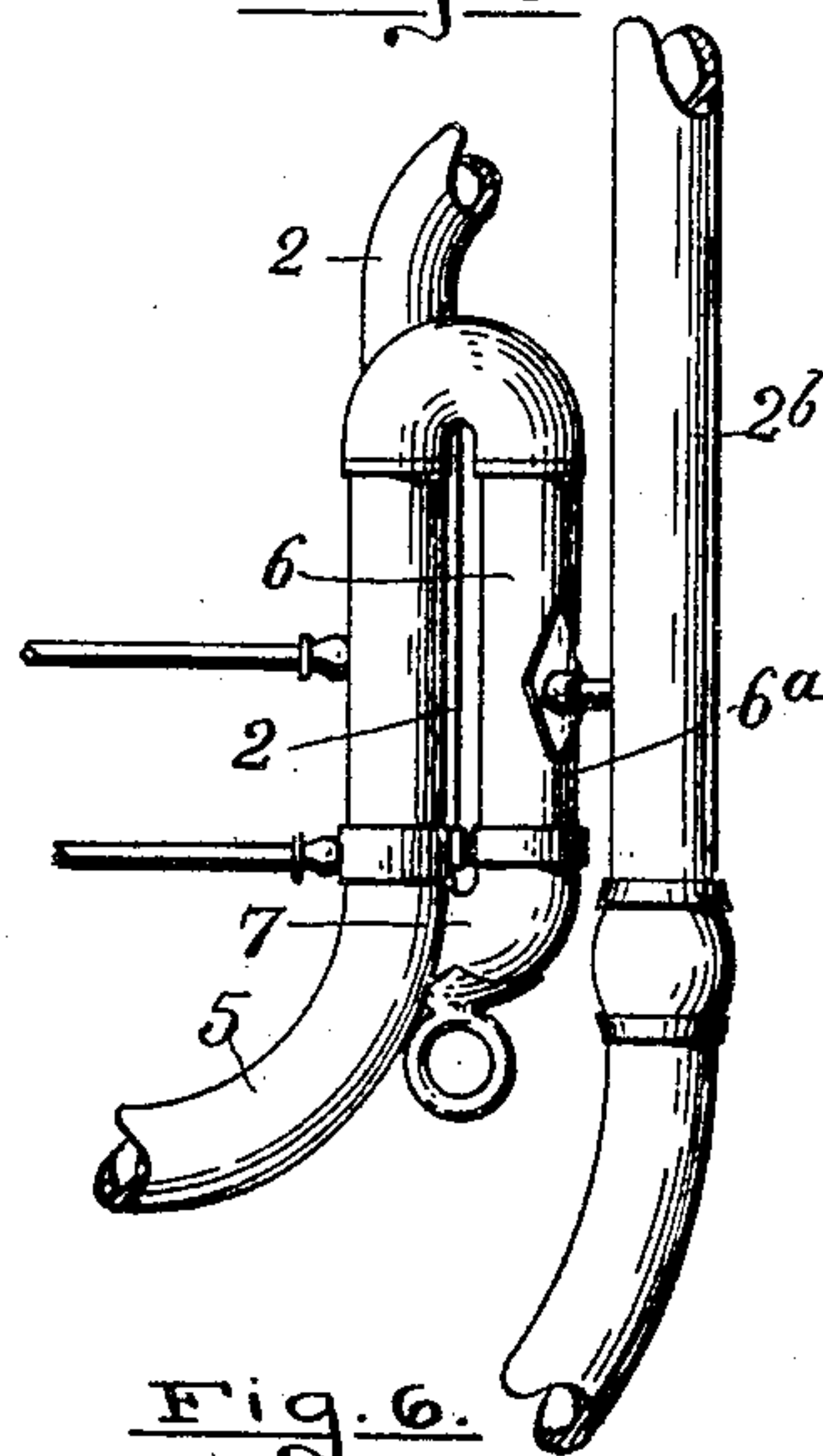


Fig. 6.

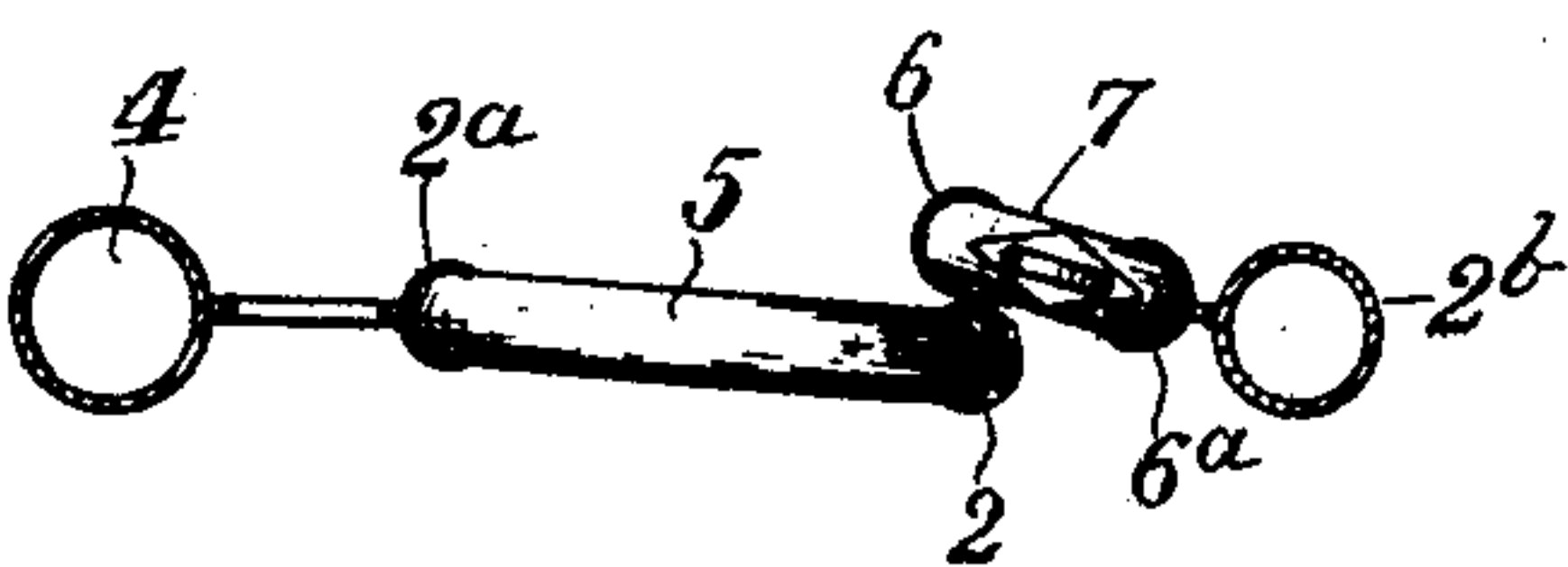


Fig. 7.

Witnesses  
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# UNITED STATES PATENT OFFICE.

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MUSICAL WIND INSTRUMENT.

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*To all whom it may concern:*

Be it known that I, ALFRED JOHNSON, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Musical Wind Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in musical wind instruments, and its object is to provide an improved pitch changer for the same, and it comprises essentially a detachable portion of the tube of the instrument between the valves and the bell, and a separate auxiliary tube also having a detachable portion, said detachable portions being adapted to be so shifted relative to the main tube and the auxiliary tube, that the latter may be brought into the circuit or cut out of the same, whereby the total length of the active tube is varied to change the normal pitch of the instrument, as will more fully appear by reference to the accompanying drawing in which:

Figure 1 is an elevation of a cornet having my device attached, the parts being in position to give the higher pitch. Fig. 2 an enlarged detail of a portion of the same shown at right angles to Fig. 1; Fig. 3 an enlarged detail of a portion of the horn shown the same as in Fig. 1; Fig. 4 an end view of a portion of the device comprising my invention, adjusted to give the lower pitch and bring the auxiliary tube into the circuit. Fig. 5 an enlarged detail of a portion of the same corresponding to Fig. 2; Fig. 6 the same shown in elevation corresponding to Fig. 1; and, Fig. 7 an end elevation of the same parts as in Fig. 4 shifted to the first position to throw the auxiliary tube out of circuit.

Like numbers refer to like parts in all of the figures.

1 represents the mouth piece of the horn; 2, 2<sup>a</sup>, and 2<sup>b</sup> portions of the main tube of the same; 3 the valves, and 4 the bell of the horn, all as usually constructed. Connecting the parts 2 and 2<sup>a</sup> of the tube, is a detachable return bend 5. 6 and 6<sup>a</sup> are supplementary tubes of suitable length connected at one end by a fixed return bend, and having

a detachable return bend 7 at the other end. The tubes all have open ends in the same plane, and the tubes 2 and 6 terminate side by side and with the axis equidistant from the axis of the part 2<sup>a</sup>, whereby the bend 5 may be shifted to connect the tube 2<sup>a</sup> with either the tube 2 or tube 6 at pleasure. The axis of the tube 6<sup>a</sup> is also located equidistant from the axis of both tubes 2 and 6, whereby the return bend 7 can be shifted to connect the tube 6<sup>a</sup> with either the tube 2 or the tube 6.

When the bend 7 is inserted in 6 and 6<sup>a</sup> and the bend 5 inserted in 2<sup>a</sup> and 2, it connects 2 and 2<sup>a</sup> directly one with the other, and the entire passage from the mouth piece to the bell is of the normal length, as illustrated in Figs. 1, 2, 3 and 7, producing the highest normal tone of the instrument, and it can be accurately tuned by withdrawing the bend 5 more or less. Thus arranged the auxiliary tube is a closed circuit into which nothing can enter. When, however, it is desired to lower the normal tone, the bend 7 is shifted to connect the tube 2 and 6<sup>a</sup>, and the bend 5 shifted to connect 2<sup>a</sup> and 6, as illustrated in Fig. 4. The tubes 6 and 6<sup>a</sup> are thus brought into the circuit and the total length of the air passage is increased to positively lower the normal tone of the instrument, which can now be again tuned accurately by partially withdrawing either or both of the bends 5 and 7. There are thus no detached parts to the instrument liable to be mislaid, and no valves requiring extra expense and liable to get out of order or leak. The device is thus made very simple and reliable, and quite satisfactory in operation.

The drawing herein represents, an alto horn, the normal pitch of which is E flat. The auxiliary coil or tube is so proportioned to the main tube of the instrument that when the parts are adjusted to include this tube in the closed circuit the pitch is lowered a small fraction more than one half of a tone. The instrument is so proportioned as to change from the normal standard "high pitch" of band instruments to the "low pitch" or "international pitch" of orchestra instruments. Obviously, the auxiliary tube may be proportioned for producing any preferred change of pitch, and the device is adapted for various horns, used as musical instruments.



What I claim is:—

1. A horn, comprising a main tube having a shiftable portion, and an auxiliary tube also having a shiftable portion, one end of  
5 each shiftable portion being adapted to shift to alternately communicate with either the main tube or with the auxiliary tube at pleasure.

2. A horn, comprising a main tube, an  
10 auxiliary tube normally disconnected from the main tube, a slidable return bend in each tube adapted to be withdrawn and disconnected at one end, and said disconnected  
15 end then shifted and inserted in the other tube, whereby the auxiliary tube is connected in the circuit of the main tube or disconnected therefrom at pleasure.

3. A horn, comprising a main tube having a slidable and detachable return bend,  
20 an auxiliary tube forming a detached and closed circuit and also having a slidable and detachable return bend, each return bend

being detachable at one end and rotative about the axis of the other end, whereby each bend can be shifted at one end to insert in either of said tubes at pleasure. 25

4. In a horn, a main tube and an auxiliary tube, each having two open ends, all of said ends terminating in the same plane, two adjacent ends of the respective tubes being  
30 equidistant from the respective remote ends of the tubes, and return bends each normally connecting the ends of the respective tubes thus forming separate disconnected  
35 tubes, the auxiliary tube being in a closed circuit, said bends also being shiftable at their adjacent ends to connect the tubes with each other to form a single continuous tube.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED JOHNSON.

Witnesses:

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PALMER A. JONES.