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P. SUCHY

1,588,390

BRASS AND LIKE WIND MUSICAL INSTRUMENT

Filed March 22, 1921

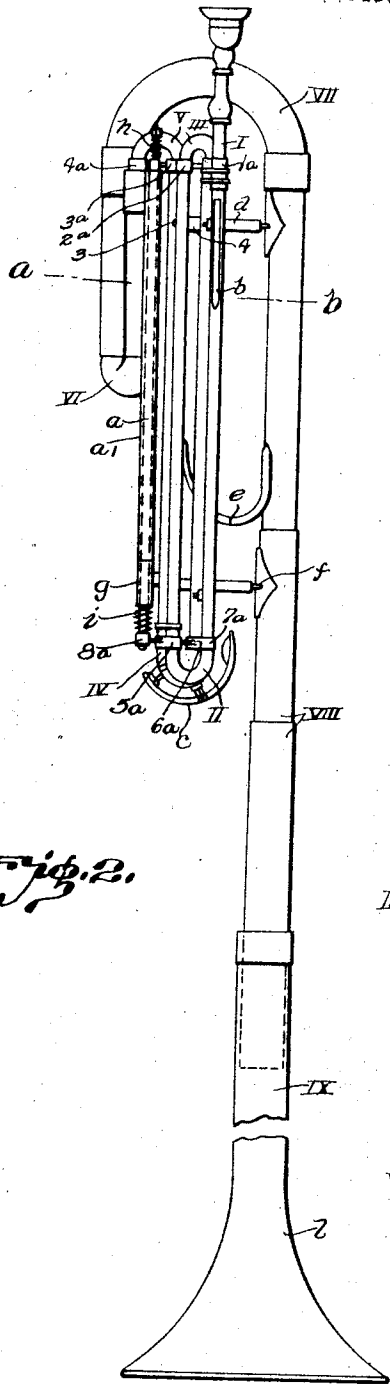


Fig. 2.

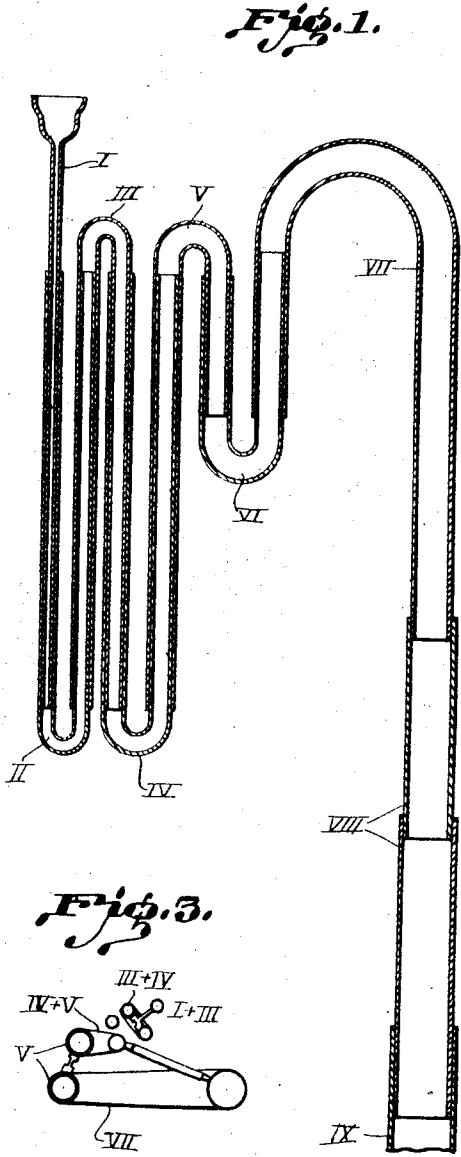


Fig. 1.

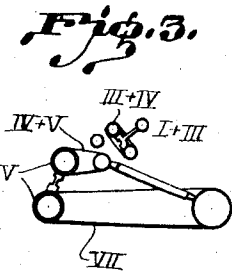


Fig. 3.

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BRASS AND LIKE WIND MUSICAL INSTRUMENT.

Application filed March 22, 1921, Serial No. 454,403, and in Germany January 16, 1920.

This invention relates to wind instruments, of the type disclosed in German Patents Nos. 209,711 and 258,819, and consists in certain improvements to the instruments of said patents, whereby compositions of the old masters, for example, for the trumpet by Bach, can be played on an instrument without valves, while, when provided with valves, the instrument is adapted for modern music and players.

For playing trumpet parts, such as composed by Bach, the important point is that the notes from $\bar{c}$ to $\bar{e}$ be tuned diatonically as free natural tones.

To accomplish this, the connection, designated by "III" in said Patent No. 258819, has been omitted, and a so-called "four-lengths tube" substituted, and the single tube sections have been shortened, while their diameters progressively increase, section by section, from the mouth-piece to the bell.

In the drawings, Figs. 1 and 2 are elevations from opposite sides of an instrument without valves embodying my invention;

Fig. 3 is a similar view of an instrument with valves.

The "four-lengths tube" is represented at I, II, III and IV, the branches II, III and IV being parallel to each other and connected by tube I, on the one hand, to the mouth-piece and by the tube V, on the other hand, to the tapering tubes VII, VIII, IX, leading to the bell T. Branches I II, II III, III IV, and IV V slide together. Together they regulate the imperfect note $\bar{f}$ and enable the chromatic scale to be obtained. The tubes are secured to the bends by clips 1, 1^a, 2, 2^a, 3, and by braces *d*, *e* and *f*. *b* is a handle by which the lengths are moved up and down. *c* is a water flap at the lower end and *a* is a slide rod, mounted in tube *a'*, the purpose of which is to prevent the lengths from turning over and falling out. *i* and *h* are compression springs acting on rod *a* and tube *a'*.

In Figs. 3 and 4, the instrument is shown as equipped with valves, to adapt it for modern music. Here the lengths I—IV, are combined with valves 11, 12, 13 and corresponding sections 11^a, 12^a and 13^a, in such a manner that one connection *u* is situated

in front of, looking from the mouth piece, while the other connection *u'* is behind the valves. The part *u* is connected to valve 11 by bend XIII and the part *u'* to the valve 13 by a double bend *s*, so as to clear the edge of the bell in pulling out.

Both parts *u* and *u'* are arranged parallel to the plane passing through the axes of the valves but, for the sake of clearness, in the drawing *u* has been turned forward through a right angle. Tube IV passes into the bell-piece T, which is bent to the left in the usual way.

Since the telescope parts *u*, *u'*, separated by the valves, represent two U-shaped sections arranged close together, any desirable adjustment to lower keys is rendered possible. For instance, if the instrument is in the key of D, it can be lowered to Db, C, B, Bb and A.

By operating the valves, other notes are obtainable, for example, A flat by depressing the half-tone valve 11 when the instrument is set for the lowest key A; G by the valve 12; F sharp by the valve 13; F by the valves 11 and 12 or 13 alone; E by the valves 13 and 12, and E flat by the valves 13 and 11, so that all tonal sounds of 12 tones can be obtained, with all their harmonic tones, and each time with a freely intoning diatonic scale up to $\bar{c}$, $\bar{d}$, $\bar{e}$, etc. In the keys from D to A, the player blows in the same way as on any other trumpet, but the blowing from A flat to E flat requires special study.

By this construction of instrument, many advantages are offered to players, for instance any desired tonality, enlarged volume of sound, with perfect purity of tone, and a fullness of new sound effects, such as, for example, natural trills, which are obtained automatically and can be produced by simple vibration of the instrument.

It also enables the tone of any brass wind instrument to be improved, the proportion of the single tube lengths to the length of the trumpet being given a corresponding value.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A brass or the like wind instrument comprising a plurality of telescopically fit-

ting straight, cylindrical tube lengths successively increasing in diameter, and bends connecting each two successive tube lengths.

2. A brass or the like wind instrument
5 comprising a "four-length" section composed of telescopically fitting straight cylindrical tubes successively increasing in diameter,

bends connecting the tubes in parallel, and connections from the tubes both to the mouth piece and the bell.

In witness whereof I have hereunto set
my hand.

PAUL SUCHY.