

J. L. DE GOOD.

TROMBONE.

APPLICATION FILED JAN. 15, 1910.

1,059,043.

Patented Apr. 15, 1913.

2 SHEETS-SHEET 1.

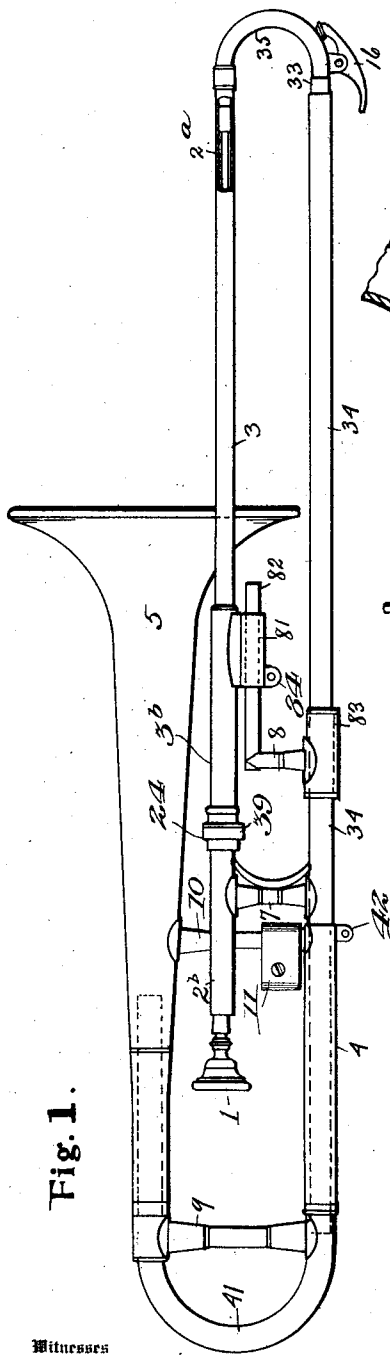


Fig. 1.

Witnesses

O. B. Baenziger.
W. C. Jennings

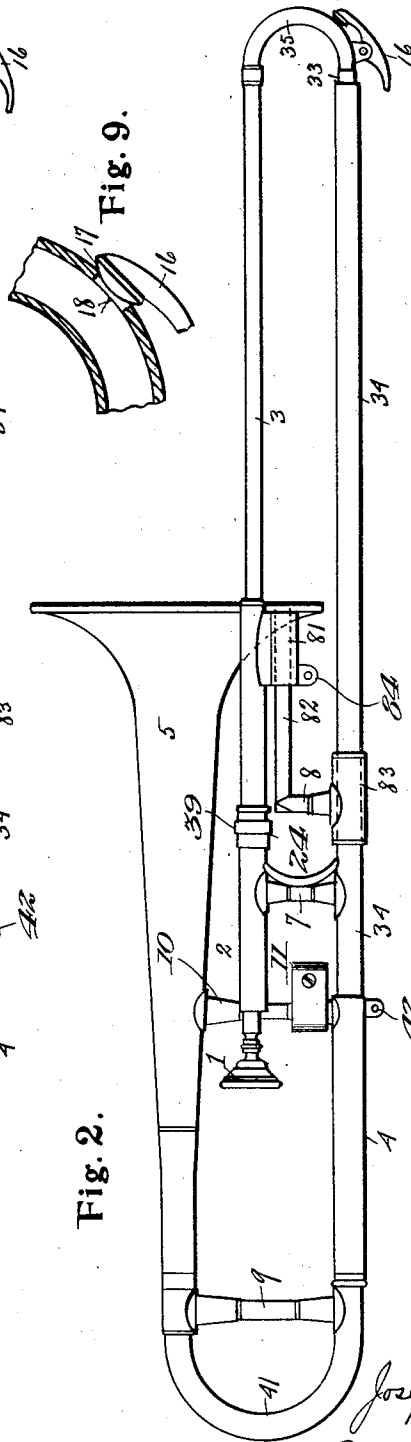


Fig. 2.

Fig.

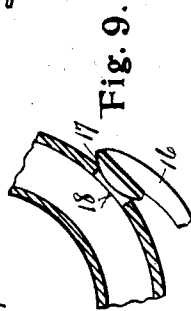


Fig. 9.

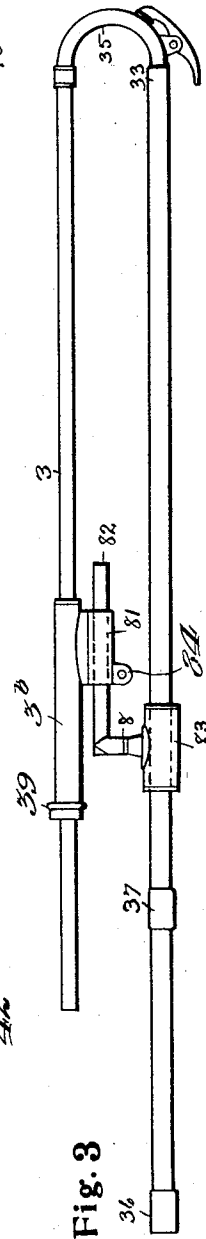


Fig. 3.

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2 SHEETS-SHEET 2.

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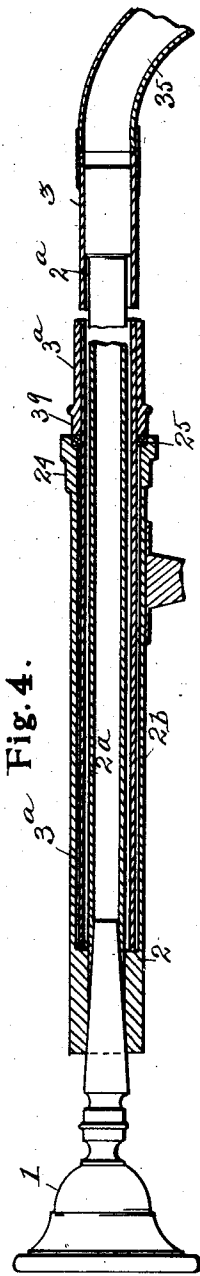


Fig. 4.

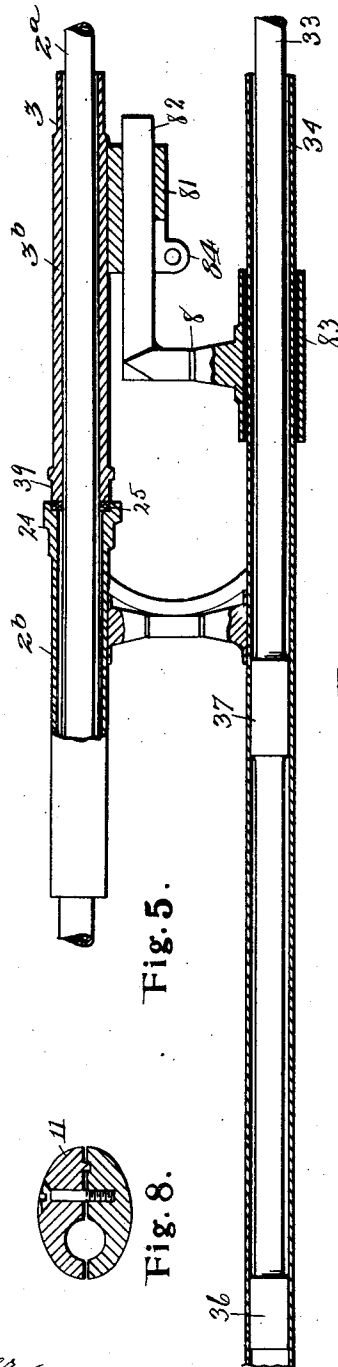


Fig. 5.

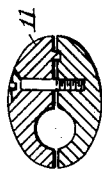


Fig. 8.

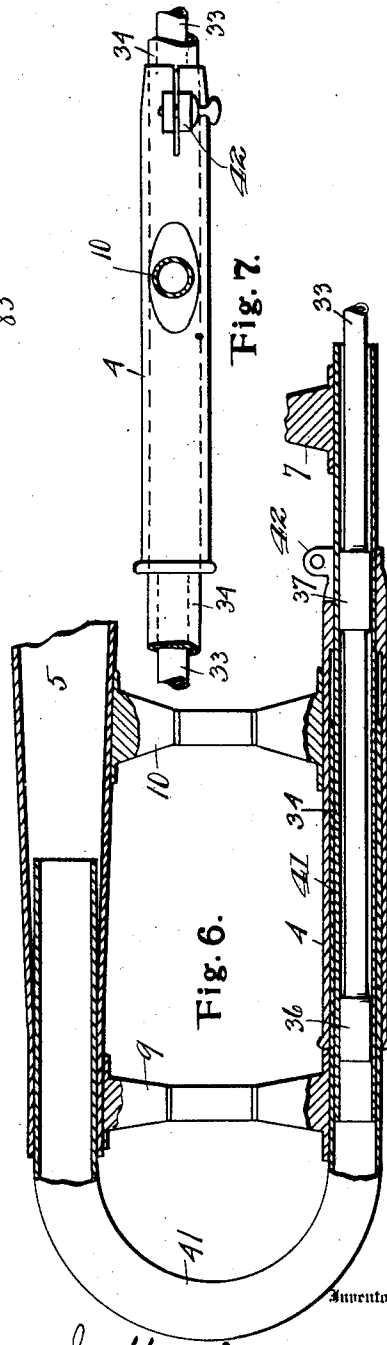


Fig. 6.

Fig. 7.

Witnesses

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JOSEPH L. DE GOOD, OF DETROIT, MICHIGAN.

TROMBONE.

1,059,043.

Specification of Letters Patent.

Patented Apr. 15, 1913.

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To all whom it may concern:

Be it known that I, JOSEPH L. DE GOOD, a citizen of the United States, residing at Detroit, county of Wayne, and State of Michigan, have invented a certain new and useful Improvement in Trombones, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to trombones.

It has for its object an improved trombone, adjustable for high and low pitch in which the air passages from the mouth piece to the bell increase in size at each variation of diameter, consequently, there is no obstruction to the passage of air, and a full and pure tone is produced, more so than in the ordinary trombone.

Another object is a trombone which enables the user to adjust the brace or handle part of the sliding member of the instrument to accord with the length of the arm.

Another feature is means for adjusting the parts of the instrument so as to produce a change in pitch. It is customary among players of trombones to locate what is known as the fourth position by extending the grip-bar to a point substantially opposite the rim of the bell portion and to determine the other positions relative to said rim. This invention permits the adjustability of the bearing tubes with reference to the bell, so as to make the positions, whether in high or low pitch, come at the same point on the bell.

Another object of this invention is to have one tube of the slide longer than the other tube. This affords a longer telescoping portion in connection with the bearing-tube and serves to prevent friction, even when the slide is drawn out to extreme position. In the ordinary trombone the tubes are of like length and a sufficiently long telescoping portion cannot be afforded without making the instrument of unreasonable length. The result is that the extended slide in instruments having a slide with tubes of equal length has a strong leverage in its extended position, and the short telescoping portion bears with a great friction on the other tube. This invention obviates this difficulty.

A further object of this invention is to reduce the wear of the sliding parts by means of telescoping members and bearing

members thereon that are widely spaced along the tubes.

Figure 1, is a side elevation of the trombone containing the specified improvement. 60 Fig. 2, is a side elevation of the trombone in a different position of adjustment than that shown in Fig. 1. Fig. 3, is an elevation of the slide. Fig. 4, is a longitudinal section of the parts of the trombone immediately adjacent to the mouth piece. Fig. 5, is a longitudinal section of the parts of the instrument at the meeting end of the sliding and stationary parts. Fig. 6, is a longitudinal section of the parts adjacent to the turn on the stationary part. Fig. 7, is a detail elevation of the housing-tube. Fig. 8, is a cross section of the thumb rest. Fig. 9, is a section of a detail of a water valve. 65

This instrument comprises a mouth-piece 75 1, a mouth-tube 2, which is made double having an inner air conduit 2^a, an outer tube 2^b between which engages the extension end 3^a of the tube 3 of the slide. A sleeve 3^b is rigidly secured to the shell or outer part of the curved slide 3 and terminates in a collar 39 at the end near the mouth-piece. A return member 33 engages slidably within the housing-tube 4 which is braced to the bell 5 by brace 10. The tuning-slide 41 engages slidably in the bell 5 and also in the tube 4 over the return member 33. From the mouth-piece 2 a bearing-tube 2^a extends to the curved pipe 35 which unites the tubes 3 and 33. The long return tube 33 which is somewhat longer than the tube 3 so as to provide a long telescoped portion when the slide is drawn out to an extreme position, is provided at that end which is within the tuning member 41 with a bearing sleeve, 95 called by musical instrument makers a stocking 36, and at a distance from the end is a second stocking 37 which diminishes the liability of wearing the end of the bearing-tube 34 or that part of the return tube 33 100 which engages and slides against the edge at the end of the bearing-tube 34. The bearing-tube 34 is held to the mouth-piece tube 2 by the brace 7. The housing-tube 4 is split at the lower end and provided with clamping ears 42 through which a thumb screw may be passed. This permits the sliding of the bearing-tube 34 and the mouth piece 2 and extensions 2^a with reference to the housing-tube 4 and the bell 5. The adjustment 110 of these members may be so made that at the same position in either high pitch or low

pitch the position of the grip-bar 8 with reference to any determined point on the bell 5 is the same. The slide is actuated by means of the grip-bar or handle brace 8 held in sliding engagement in a holder 81 which is attached to the sleeve 3^b and in which the stem member 82 of the grip bar or handle brace may be clamped. The cross bar of the grip 8 carries the guide-sleeve 83, which slidably engages the bearing tube 34.

The operator grasps the instrument with his left hand clasping the brace 10 and with the forearm above, the thumb hooked over the top of the brace and the fingers grasping the brace 7. The right hand grasps the grip-bar 8 which actuates the slide member comprising the tubes 3, 35 and 33. The grip-bar 8 may be adjusted by loosening the thumb screw which engages through the ears 84 of the holder 81. This adjustment permits the sliding member to be adjusted with reference to the length of the arm of the operator, so that any one may locate the same position at the same points on the trombone regardless of the length of his arm. Upon the brace 10 a thumb rest 11 is clamped in place. This thumb rest consists of two semi-oval pieces with a perforation at one end when both are secured together by the screw 43. When the bearing-tube 34 is adjusted with reference to the tube 4 for high pitch the braces 7 and 10 are spaced so that one may conveniently grip the brace 10 with his thumb and the brace 7 with his fingers, but when the parts are adjusted for low pitch the braces 7 and 10 are so close together that is inconvenient to hold them with the hand. The thumb rest 11 is then revolved on the brace 10 so as to place the extended end in which the screw engages on the upper side of the brace 10 thereby giving it proper scope for the extension of the hand.

The sleeve 3^b which is secured on the outside of the tube 3 terminates with an impact collar 39 adapted to engage against an impact collar 24 which terminates the end of the outer shell 2 of the mouth tube. The impact collar 24 is preferably provided with a recess in which is a receiving cushion 25, against which the collar 39 strikes when the sliding tube is brought toward the mouth tube. The bend 35 is provided with a water discharge valve 16, whose cushioning or packing 17 engages against the outer part, but is not permitted to extend through the opening 18 into the air channel. The air tube 2^a from the mouth-piece 1 is smaller in diameter than the tube 3 which engages over it and the tube 3 is smaller in diameter than the bend 35 which connects it to the return tube 33, which in turn is larger than the bend 35. The return bearing-tube 34 is of larger diameter than the return-tube 33 which engages in it, and the tuning-slide 41

which extends into the housing-tube 4 and into which the tube 34 is telescoped and never withdrawn while in play, is of larger diameter than the bearing-tube 34. The bell 5 is of larger diameter than the tuning-slide 41 and thus at each change of diameter the diameter progressively increases from the mouth piece to the rim of the bell member, so that at no point in the travel of the air is there an obstacle which would tend to contract it. This affords a conduit which produces a pure and clear sound.

What I claim is:—

1. A trombone, having in combination a bell provided with a bearing-tube leading thereinto, a mouth-piece tube and a bearing-tube extending therefrom, a slide engaging over the bearing-tube extending from the mouth-piece and within the bearing-tube leading to the bell, and a brace adjustably connected to the slide and slidably connected to the bearing-tube leading into the bell, substantially as described.

2. In a trombone, in combination with a mouth-piece tube a bearing-tube having a portion of its length within the mouth-piece tube, secured thereto at its end and concentrically spaced therefrom, and the other portion of the length of said bearing-tube extending outside of said mouth-piece tube and a slide adapted to slide on said bearing-tube, substantially as described.

3. A trombone, having in combination a mouth-piece, a bell, a mouth-piece tube leading from said mouth-piece, a bearing tube leading from said mouth-piece tube, a second bearing tube leading into said bell and extending above said mouth-piece, and a slide comprising a tube and a return tube, the return tube being slidable on the bearing tube leading into the bell, and substantially longer than the other tube which is slidable on the bearing tube leading from the mouth-piece tube, whereby, when the slide is extended to extreme position a large bearing surface is afforded to overcome the leverage in such position, substantially as described.

4. A trombone, having in combination a bell, a pair of bearing tubes connected together, one of said bearing tubes having a slidable connection with the bell, means for holding said tubes at any point along said slidable connection, and a slide engaging said bearing tubes, substantially as described.

5. A trombone, having in combination a bell having a split tube portion, clamping means for said split tube portion, a bearing tube adjustable lengthwise in said split tube portion, a bearing tube attached to said bearing tube, and a slide slidable on said bearing tubes, substantially as described.

6. A trombone, having in combination a bell, a bearing tube leading therefrom, a

mouth-piece tube connected thereto, a bearing tube leading from said mouth-piece tube, and means for adjusting, longitudinally, said first-mentioned bearing tube with reference to said bell, whereby a change of pitch is made and the same position in different pitches may be located on the same point upon the bell, substantially as described.

7. A trombone, having in combination a mouth-piece tube, a bearing tube of equal or larger inside diameter leading therefrom, a bell, a housing tube braced to said bell, a tuning slide of less diameter than said bell engaging within said bell and housing tube, a bearing tube leading into said tuning slide and of less diameter than the same, the last-mentioned bearing tube being adjustable lengthwise within said housing tube, the said bearing tubes being connected together, and a slide comprising a tube and a return tube of substantially uniform diameter, the tube sliding over the bearing tube leading from the mouth-piece tube, and the return tube sliding within the bearing tube leading into the tuning slide, whereby, there is no diminution of diameter from the mouth-piece tube to the bell, substantially as described.

8. In a trombone, in combination with a bell, a housing member, a brace joining the bell and the housing-member, a mouth-piece tube, a bearing-tube adjustable lengthwise in said housing-tube, a brace connecting the mouth-piece tube and said bearing-tube and an adjustable thumb rest on the first-mentioned brace, substantially as described.

9. A trombone, having in combination braces which change their positions relative to each other when other parts are adjusted, a thumb rest having unequal diameters adjustable about the brace upon which it revolves.

10. A trombone, having in combination a mouth-piece, a mouth-piece tube, a bell, a bearing tube leading from said mouth-piece tube and provided with a bearing stocking, a second bearing tube leading into said bell and extending above said mouth-piece, and a slide comprising two tubes, one being longer than the other and provided with a bearing stocking slidable within the bearing tube leading into the bell, and the other tube being slidable upon the bearing stocking of the bearing tube leading from the mouth-piece tube, substantially as described.

11. In a trombone, the combination of a bell, a bearing tube leading thereinto, a mouth-piece tube connected to said bell, a bearing tube leading from said mouth-piece tube, a slide, comprising two tubes, one being returned upon the other, one of the tubes adapted to slide over one of the bearing tubes, and the other tube adapted to slide within the other bearing tube, a holder, attached to the tube of the slide which slides on the outside of its bearing tube, a grip bar having a stem adjustable lengthwise within said holder, and a guide sleeve supporting said grip bar, slidable on the outside of the bearing tube which the tube of the slide engages within, substantially as described.

12. A trombone, having in combination a mouth-piece tube, a bearing tube of equal or greater inside diameter extending therefrom, a bell, a housing tube attached thereto, said housing tube having one end split, clasp means adapted to draw the split tube portions together, a bearing tube of less inside diameter extending into said housing tube and adapted to be adjusted lengthwise with respect to the said housing-tube by the clasp means and the split tube portion and bell, a slide comprising a tube and a return tube, the tube engaging over said bearing tube leading from the mouth-piece tube and being of uniform diameter, and the return tube engaging within the said bearing tube leading into said housing tube and bell and being of equal or greater diameter than the other tube of the slide, whereby said tubes have a progressively increasing diameter at each change of diameter from the mouth-piece tube to the bell, substantially as described.

13. In a trombone, in combination with a bell provided with a bearing tube leading therefrom, a mouth-piece tube, and a bearing tube extending therefrom, a slide engaging the said bearing members, and a brace adjustable lengthwise said slide, whereby the same may be adjusted to accord with the length of the arm of the user, substantially as described.

In testimony whereof, I sign this specification in the presence of two witnesses.

J. L. DE GOOD.

Witnesses:

CHARLES F. BURTON,
VIRGINIA C. SPRATT.