

Oct. 4, 1938.

E. B. TODT

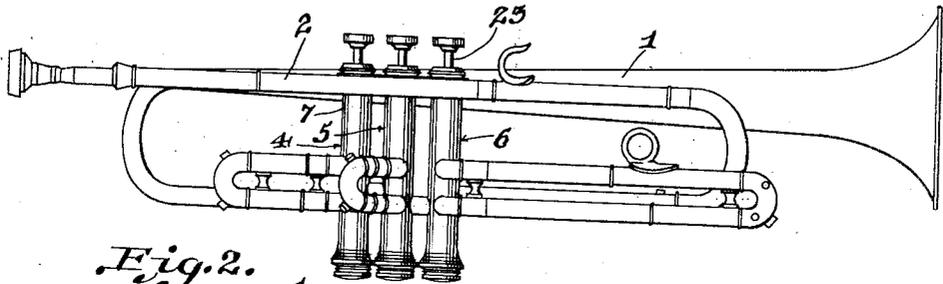
2,132,329

VALVE CONSTRUCTION FOR WIND MUSICAL INSTRUMENTS

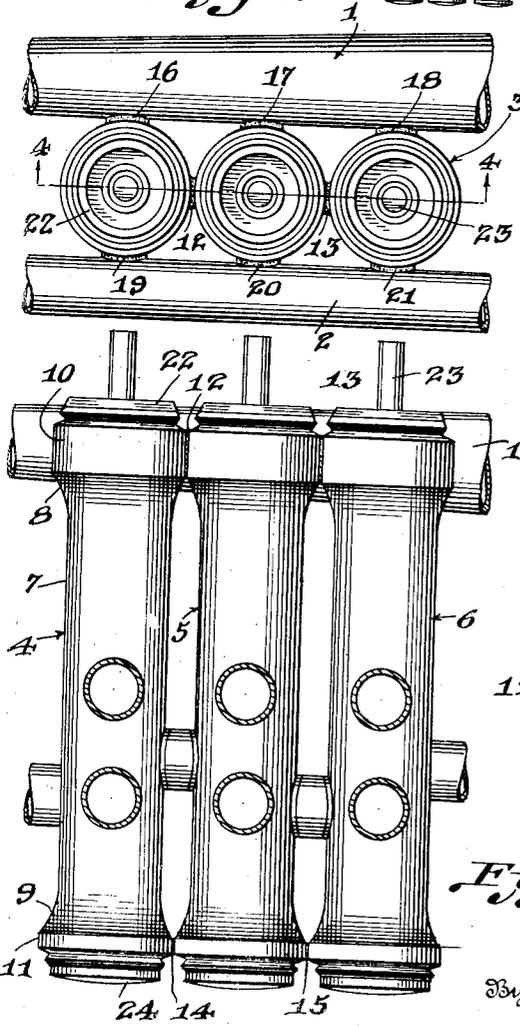
Filed Feb. 13, 1937

2 Sheets-Sheet 1

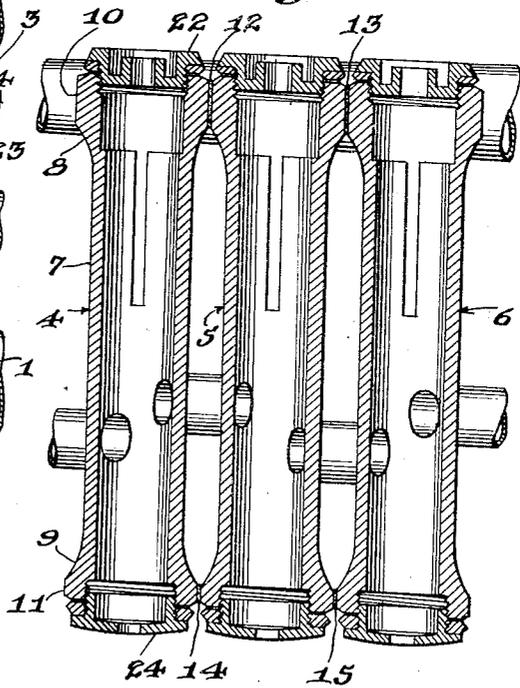
*Fig. 1.*



*Fig. 2.*



*Fig. 4.*



*Fig. 3.* Inventor *Edward B. Todt*

By *Kimmel & Crowell*  
Attorneys

Oct. 4, 1938.

E. B. TODT

2,132,329

VALVE CONSTRUCTION FOR WIND MUSICAL INSTRUMENTS

Filed Feb. 13, 1937

2 Sheets-Sheet 2

Fig. 5.

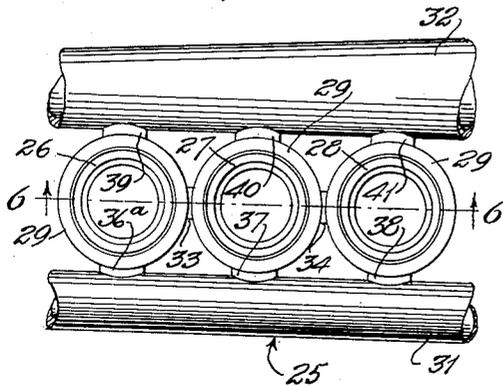


Fig. 7.

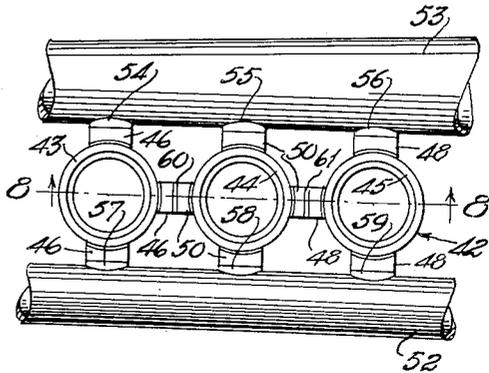


Fig. 6.

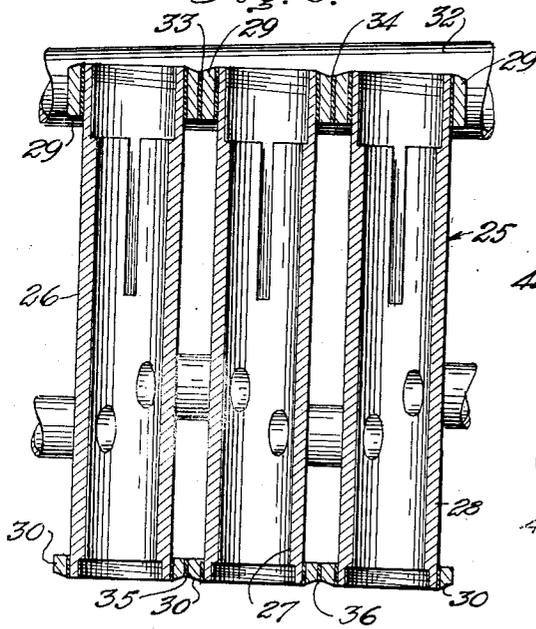
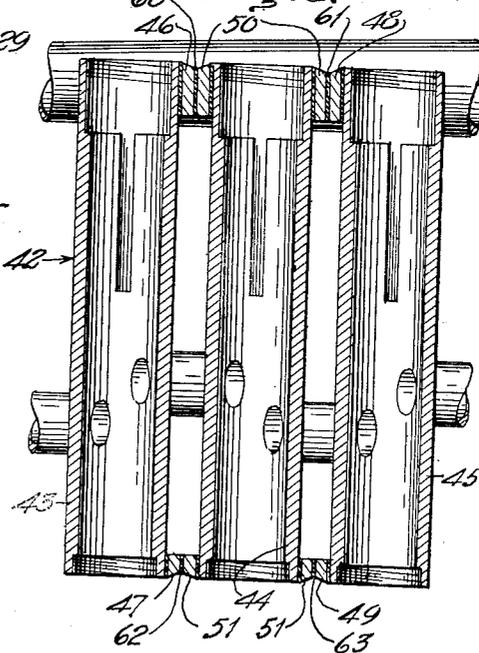


Fig. 8.



Inventor.  
Edward B. Todd

By

Kimmel & Crowell

Attorneys

# UNITED STATES PATENT OFFICE

2,132,329

## VALVE CONSTRUCTION FOR WIND MUSICAL INSTRUMENTS

Edward B. Todt, Elkhart, Ind., assignor to Buescher Band Instrument Co., Elkhart, Ind.

Application February 13, 1937, Serial No. 125,664

2 Claims. (Cl. 84—392)

This invention relates to wind musical instruments of that type which employ piston valves, such as cornets, trumpets, baritones, euphoniums, valve trombones, mellophones, ballad horns, piston valve French horns, basses, helicons and sousaphones.

The invention has for its object to provide, in a manner as hereinafter set forth, a wind musical instrument whereby the employment of braces for the tubes or casings of the valve structure are eliminated.

A further object of the invention is to provide, in a manner as hereinafter set forth, a valve structure for an instrument of the type referred to whereby the tubes or casings of the valve structure thereof are set up in rigid relation with respect to each other and with respect to the bell and mouthpipe of the instrument.

A further object of the invention is to provide, in a manner as hereinafter set forth, a wind musical instrument having the tubes or casings of the valve structure thereof formed with oppositely disposed bell-shaped end terminal portions and with the terminal portions at one end of the tubes integral with each other and with the terminal portions at the other end of the tubes integral with each other whereby a valve structure in the form of an integral unit is provided.

A further object of the invention is to provide, in a manner as hereinafter set forth, a wind musical instrument having its valve structure in the form of an integral unit and also integral with the bell and mouthpipe of the instrument thereby preventing any possibility of the valve structure being displaced from its original set position with respect to the other parts of the instrument.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a valve structure for wind musical instruments which is simple in its construction, strong, durable, rigid, formed of an integral unit, readily installed with respect to the bell and mouthpipe of the instrument, thoroughly efficient in its use, eliminating the employment of braces for the tubes or casings thereof, and comparatively inexpensive to set up.

To the above ends essentially and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically described and are as illustrated in the accompanying drawings wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may

be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a side elevation of a trumpet showing the adaptation therewith of a valve structure in accordance with this invention,

Figure 2 is a fragmentary view of the trumpet in top plan illustrating the arrangement of the valve structure in accordance with this invention,

Figure 3 is a fragmentary view of the instrument and illustrating in side elevation the valve structure,

Figure 4 is a section on line 4—4, Figure 2,

Figures 5 and 6 are respectively a top plan view and section on line 6—6, Figure 5 of a modified form, and

Figures 7 and 8 are respectively a top plan view and a section on line 8—8, Figure 7 of still another modified form.

Referring to the drawings, 1 illustrates the bell, 2 the mouthpipe and 3 the valve structure of the instrument.

The structure 3 is shown as consisting of three independent valve casings or tubes of like form arranged in parallel relation and communicating with each other in a known manner. The upper portion of valve structure 3 is arranged between the bell 1 and the mouthpipe 2, or in other words, the valve structure 3 is disposed in depending relation with respect to the bell 1 and mouthpipe 2 intermediate their ends. The valve casings or tubes of structure 3 are indicated at 4, 5 and 6 and each of which consists of a tubular body 7 having a flared upper terminal portion 8 and a flared lower terminal portion 9. The portion 8 is of greater length than the portion 9. The portion 8 has a part thereof intermediate its ends of uniform outer diameter and such part is indicated at 10. The portion 9 intermediate its ends has a part of uniform outer diameter and such part is indicated at 11. In lengthwise section the part 10 is of greater length than the part 11. The part 10 of casing 4 is soldered to the part 10 of the casing 5 as at 12. The part 10 of the casing 5 is soldered to the part 10 of the casing 6 as at 13. The part 11 of the casing 4 is soldered to the part 11 of the casing 5 as at 14. The part 11 of the casing 5 is soldered to the part 11 of the casing 6 as at 15. The casing 4 for the major portion of its length is spaced from the major portion of the length of the casing 5 and the major portion of the length of casing 5 is spaced from the major portion of the length of the casing 6. The construction aforesaid

forms the valve structure of an integral unit and the spacing between the casings 4, 5 and 6 is from the upper integral ends of the casings to the lower integral ends of such casings.

5 The parts 10 of the casings 4, 5 and 6 are soldered to the inner side of the bell 1 as at 16, 17 and 18 respectively. The parts 10 of the casings 4, 5 and 6 are soldered to the inner side of the mouthpipe 2 as at 19, 20 and 21 respectively. The points of connection 16, 17 and 18 are arranged diametrically opposite the points of connection 19, 20 and 21. The points of connection 12 and 13 are arranged in alignment. The points of connection 14, 15 are arranged in alignment.

15 As aforesaid the points of connection 12, 13, 14 and 15 provide the valve structure as an integral unit and the points of connection 16, 17, 18, 19, 20 and 21 provide the integral valve structure integral with the bell 1 and the mouthpipe 2.

20 The casings 4, 5 and 6 are provided with valves of known form.

The terminal portions 8 of the casings are interiorly threaded for connection therewith of apertured caps 22 constituting guides for the valve stems 23. The terminal portions 9 of the casings are interiorly threaded for connection therewith of apertured bottom closures 24 of known form.

25 With reference to Figures 5 and 6 there is disclosed thereby a modified form of valve structure 25 having its casings indicated at 26, 27 and 28. The casings of the structure 25 are of like form and of uniform outer diameter. Each casing of structure 25 is provided at each end with a peripheral collar which may form an integral part of or is soldered to the casing. The peripheral collars of each casing of the structure 25 are shown by way of example as soldered to the outer periphery of the body of the casing. The collars for each casing of the structure 25 are indicated at 29, 30. The collar 29 has its body of greater width and of the same thickness as collar 30. In Figures 5 and 6 the mouthpipe and bell of the instrument are indicated at 31, 32 respectively.

30 The collar 29 of the casing 27 is soldered at diametrically opposite points thereof to the collars 29 of the casings 26, 28 as at 33, 34 respectively. The collar 30 of the casing 27 is soldered at diametrically opposed points thereof to the collars 30 of the casings 26, 28 as at 35, 36 respectively. The collars 29 of the casings 26, 27, 28 are soldered to the inner side of mouthpipe 31, as at 36a, 37, 38 respectively. The collars 29 of the casings 26, 27, 28 are soldered to the bell 32 as at 39, 40 and 41 respectively. The connecting points between the collars 29 are disposed at right angles to the connecting points between the collars 29 and the mouthpipe 31. The connecting points between the collars 29 are disposed at right angles to the connecting points between the collars 29 and the bell 32. The connecting points 36, 37, 38 are aligned with the connecting points 39, 40, 41 respectively.

35 With reference to Figures 7 and 8 which disclose another modified form of valve structure which is indicated at 42, the valve casings thereof are indicated at 43, 44 and 45. The casings of structure 42 are of like form and of uniform outer diameter. The casings 43, 44 and 45 of structure 42 are provided at one end with a set of spaced laterally extending peripheral lugs. The other end of the casing 44 is provided with a set of laterally extending peripheral lugs. The forward side of casing 43 at its other end is provided with a laterally extending peripheral lug.

The rear side of casing 45 at its other end is formed with a laterally extending lug. The lugs may form an integral part of or may be soldered to the outer periphery of the body of the casings and are shown as soldered. The lugs of the set at one end of the casing 43 are indicated at 46. The lug at the other end of casing 43 and which is on the forward side thereof is indicated at 47. The number of the lugs 46 is three. The lugs of the set at one end of the casing 45 are indicated at 48 and the lug at the other end of casing 45 and on the rear side of the latter is indicated at 49. The number of the lugs 48 are three. The lugs of the set at one end of the casing 44 are indicated at 50. The lugs of the set at the other end of casing 44 are indicated at 51. The number of the lugs 50 is four. The number of the lugs 51 is two. The lugs 50 are equally spaced from and disposed at right angles to each other. The lugs 46, 48 and 50 are of like thickness and width. The lugs 47, 49 and 51 are of like thickness but of less width than the lugs 46, 48 and 50.

A pair of lugs 46 are diametrically disposed and aligning in spaced relation with respect to casing 43 and the other lug 46 is arranged on the forward side of casing 43, equally spaced from the aligned lugs 46 and vertically aligning with the lug 47. A pair of lugs 48 are diametrically disposed in aligned spaced relation with respect to the casing 45 and the other lug 48 is arranged on the rear side of casing 45, equally spaced from the aligned lugs 48 and vertically aligning with the lug 49. A pair of lugs 50 are arranged in spaced aligned relation with respect to the horizontal diametric center of the casing 44 and the other two lugs 50 are arranged in spaced aligned relation with respect to the transverse diametric center of casing 44 and vertically aligned with the lugs 51 which are arranged in spaced aligned relation with respect to the transverse diametric center of the casing 44.

In Figures 7 and 8 the mouthpipe and bell are indicated at 52, 53 respectively.

40 One of the lugs 46 is soldered as at 54 to the bell 53. One of the lugs 50 is soldered as at 55 to the bell 53 and one of the lugs 48 is soldered as at 56 to the bell 53. Another of the lugs 46 is soldered as at 57 to the mouthpipe 52. Another of the lugs 50 is soldered as at 58 to the mouthpipe 52 and another of the lugs 48 is soldered as at 59 to the mouthpipe 52. The lugs 46, 48 and 50 which are secured to the mouthpipe 52 and the bell 53 are anchored to the inner sides of said mouthpipe and bell. The other of the lugs 46 is soldered as at 60 to another of the lugs 50 and the other of the lugs 50 is soldered as at 61 to the other of the lugs 48. The lug 47 is soldered as at 62 to one of the lugs 51 and the other lug 51 is soldered as at 63 to the lug 49.

The other parts of the instrument not described will correspond to known parts in an instrument of the type with which the valve structure 3 is used.

What I claim is:

1. In a wind musical instrument, a fabricated valve structure comprising a plurality of valve casings disposed in side by side relation and spaced from each other at their intermediate portions, enlarged end portions carried by each casing, the periphery of the end portions of one casing contacting the periphery of the end portions of an adjacent casing, the exterior diameters of said end portions determining the spac-

ing between the axes of adjacent casings, and means integrally securing together the contacting end portions of adjacent casings.

5 2. In a wind musical instrument including a bell pipe and a mouth pipe, a valve structure interposed between said bell pipe and mouth pipe comprising a plurality of valve casings disposed in side by side relation and spaced from each other at their intermediate portions, enlarged end portions carried by each casing, the enlarged end portion at one end of a casing being  
10 substantially longer than the enlarged end por-

tion at the other end thereof, the periphery of the end portions of one casing contacting the periphery of the end portions of an adjacent casing and the exterior diameters of said end portions determining the spacing between the axes of adjacent casings, means integrally securing together the contacting end portions of adjacent casings, and means securing the enlarged portion of said one end of each casing to the periphery of said bell pipe and said mouth  
10 pipe.

EDWARD B. TODT.