

Dec. 12, 1950

F. N. MEYERS

2,533,388

WATER KEY FOR TROMBONES AND THE LIKE

Filed Dec. 13, 1947

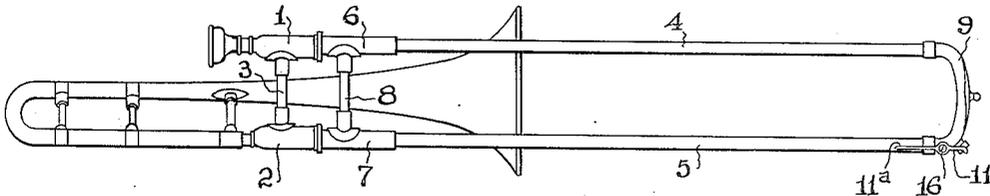


FIG. 1

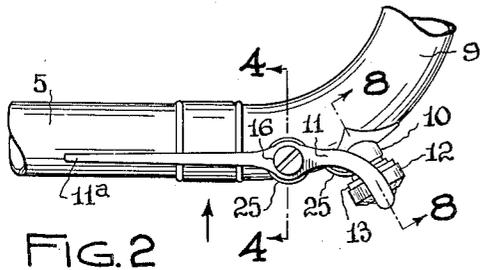


FIG. 2

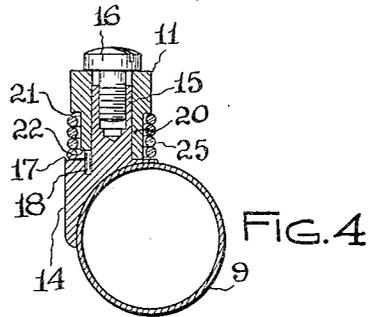


FIG. 4

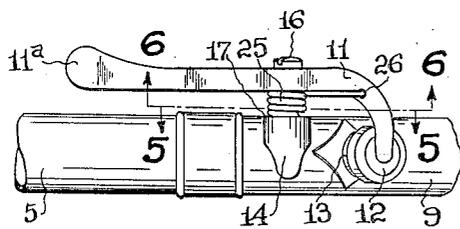


FIG. 3

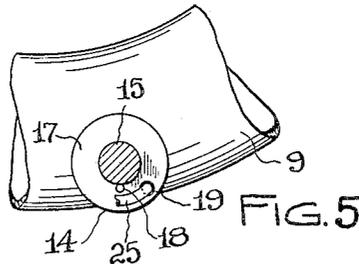


FIG. 5

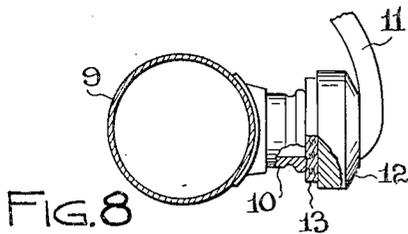


FIG. 8

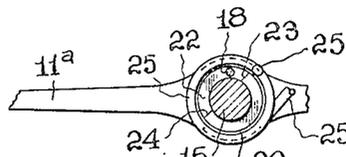


FIG. 6

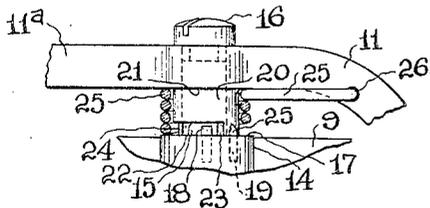


FIG. 7

INVENTOR.
FRED N. MEYERS
BY
William J. Siler
ATTORNEY.

UNITED STATES PATENT OFFICE

2,533,388

WATER KEY FOR TROMBONES AND THE LIKE

Fred N. Meyers, Andover, Ohio, assignor to The
H. N. White Company, Cleveland, Ohio, a cor-
poration of Ohio

Application December 13, 1947, Serial No. 791,631

7 Claims. (Cl. 84-397)

1

This invention relates, as indicated, to a water key for trombones and the like.

A primary object of the invention is to provide a water key which is so mounted and arranged on the trombone as to enable it and its mounting to be made of a fewer number of parts than in conventional practice, whereby the weight of the key and mounting is reduced to a minimum and the key is placed in a more accessible position in which it can be actuated somewhat more easily.

Another object of the invention is to provide a water key and mounting having a spring member, the ends of which are concealed in such a manner as to avoid their being caught on clothing and other extraneous objects.

A further object of the invention is to provide a water key having means incorporated therein for limiting the movement of the key to an arc of predetermined length.

A still further object of the invention is to provide a water key and mounting which are so designed and arranged relatively to the trombone as to improve the styling, design and appearance of the instrument as a whole.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevational view of a trombone embodying the novel water key of the invention;

Fig. 2 is a fragmentary view, on approximately full-size scale, of a portion of the trombone shown in Fig. 1;

Fig. 3 is a view of the parts shown in Fig. 2, as viewed in the direction indicated by the single arrow in Fig. 2;

Fig. 4 is a cross-sectional view, taken on the line 4-4 of Fig. 2;

Fig. 5 is a fragmentary cross-sectional view, on an enlarged scale, taken on the line 5-5 of Fig. 3;

Fig. 6 is a fragmentary cross-sectional view, taken on the line 6-6 of Fig. 3;

Fig. 7 is a view, on an enlarged scale, of a portion of Fig. 3, but showing certain parts in section, and

Fig. 8 is a fragmentary cross-sectional view, on an enlarged scale, taken on the line 8-8 of Fig. 2.

Referring more particularly to the drawings, reference characters 1 and 2 designate the frame members of a slide trombone, which are con-

2

ected together by a cross handle 3, these members having inner slideway members (not shown) connected thereto, which are telescopically movable in tubular members 4 and 5. The members 4 and 5 are provided at their inner ends with sleeves 6 and 7, which are connected by a cross handle 8, and are connected at their outer ends by a tubular slide bow or cross-loop 9.

The slide bow or cross-loop 9 has a tubular valve seat member 10 soldered or otherwise secured thereto, which member communicates with the interior of the loop. The valve seat member 10, it may be noted, lies in substantially the same plane as the loop 9; its axis intersecting the axis of the latter, as apparent from Fig. 8. The valve seat member 10 forms a conduit through which condensed moisture may be evacuated, as by shaking the trombone at intervals.

The valve seat member 10 is normally closed by a water key 11, provided at one end with a valve or valve plate 12 in which a pad 13 is mounted, this pad bearing against the outer end of the valve seat member.

Soldered or otherwise secured to the cross-loop 9, adjacent the valve seat 10, is a boss-like member 14, which is of generally-cylindrical formation, with its axis normal to a plane which is common to the members 4 and 5 and loop 9. The member 14 has an extension 15 of reduced diameter, the upper end of which is tubular and internally threaded for the reception of a screw 16. Extending upwardly from the shoulder or ledge 17 which is formed at the junction of the member 14 with its extension 15 is a stop pin 18, the function of which will be presently explained. The shoulder 17 also has an opening 19 therein, whose function will also be presently explained.

The water key 11 is mounted for pivotal movement about the extension 15, as clearly shown in Fig. 4, and is provided with a tubular extension 20 of reduced diameter, which bears against the shoulder 17, the junction of the extension 20 with the key forming a shoulder 21. The key 11 is maintained in the aforesaid position by means of the head of the screw 16. A portion of the lower end of the tubular extension 20 is removed to form a recess 22 having end walls 23 and 24. The stop pin 18 extends into this recess.

A coil spring 25 is disposed about the tubular extension 20 of the key 11, being interposed between the shoulder or ledge 17 and the shoulder 21. In assembling this spring with the other parts of the water key, one end of the spring is inserted into the opening 19 in the ledge 17, after which the key is positioned on the extension 15

of the member 14 and is secured in place by the screw 16. The spring is then placed under sufficient tension to bring the other end of the spring in front of the key, as shown in Fig. 7, after which this end of the spring is entered in an opening 26 in the key 11. The tension of the spring thus maintains the key 11 in its normal or closed position, as shown in Figs. 2 and 3.

The water key 11 is provided with a finger-piece 11a, and when it is desired to open the key to permit drainage of the moisture contents of the trombone, this finger-piece is pressed by means of the index finger to cause the key to rotate in clockwise direction from the position shown in Fig. 2, thereby withdrawing the pad 13 from the valve seat member 10. This action is performed against the tension of the spring 25, so that when the finger-piece 11a is released, the water key 11 is automatically returned to its closed position.

In order to prevent the key 11 from being rotated through an excessively large angle, thereby placing undue tension on the spring 25, the end wall 23 of the recess 22 is so positioned that it comes into engagement with the stop-pin 18 after the water key has been rotated through an arc of about 30 degrees.

It should be noted that the water key rotates about an axis which is substantially at right angles to the common plane of the parts 4, 5 and 9 of the trombone, in contra-distinction to conventional practice, in which the water key rotates about an axis which lies in a plane parallel with the plane of the aforesaid parts. This enables the key and its mounting to be made of a fewer number of parts, reducing the weight to a minimum. It also brings the key to a more accessible position, in which it can be actuated somewhat more easily. Moreover, the arrangement is such as to avoid exposed parts which might catch on other objects, and to improve the styling, design and appearance of the instrument as a whole. By inserting the ends of the spring into openings provided therefor, the possibility of such ends being caught in clothing is entirely obviated.

Although the invention has been described with particular reference to a trombone, it will be understood that it is applicable as well to other wind instruments, such, for example, as trumpets, cornets, etc.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of my invention, or the scope of the subjoined claims.

Having thus described my invention, I claim:
1. In a musical instrument of the wind type, a

boss-like member extending from said instrument, a water key mounted on said member for rotation thereabout, and spring means coiled about the axis of rotation of said key and biasing said key to closed position, said spring means having the ends thereof concealed from view.

2. A musical instrument, as defined in claim 1, in which one end of said spring is disposed within said member and the other end thereof is disposed within said key.

3. A musical instrument, as defined in claim 1, in which said spring means is a coil spring disposed about a portion of said key, one end of said spring being disposed within an opening in said member and the other end of said spring is disposed within an opening in said key.

4. In a musical instrument of the wind type, a boss-like member extending from said instrument, said member having an extension of reduced diameter, a water key mounted for rotation about said extension, and spring means, coiled about said key and normally biasing the key to closed position, said spring means having the ends thereof concealed from view.

5. An instrument, as defined in claim 4, in which said member has a stop-pin extending therefrom, and said key has a tubular extension provided with a recess to accommodate said pin, said recess having an end wall adapted to abut said pin after the key has rotated through a predetermined arc.

6. An instrument, as defined in claim 4, in which a screw is provided for attachment to said extension, said screw adapted to maintain said key in mounted position.

7. An instrument, as defined in claim 4, in which one end of said spring is enclosed in said member and the other end is enclosed in said key.

FRED N. MEYERS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
49,925	Schreiber	Sept. 12, 1865
799,707	Boast	Sept. 19, 1905
1,005,972	Holton	Oct. 17, 1911
1,083,620	Krause	Jan. 6, 1914
1,240,177	Conn	Sept. 18, 1917
1,298,595	Steinbrueck	Mar. 25, 1919
1,646,059	Hebs	Oct. 18, 1927
1,705,634	Bettoney	Mar. 19, 1929

FOREIGN PATENTS

Number	Country	Date
995	Great Britain	Jan. 13, 1913