J. C. STEINBRUECK.

DRAIN CUP FOR BRASS WIND INSTRUMENTS.

APPLICATION FILED MAR. 1, 1918.

1,298,595.

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Fig. 1.

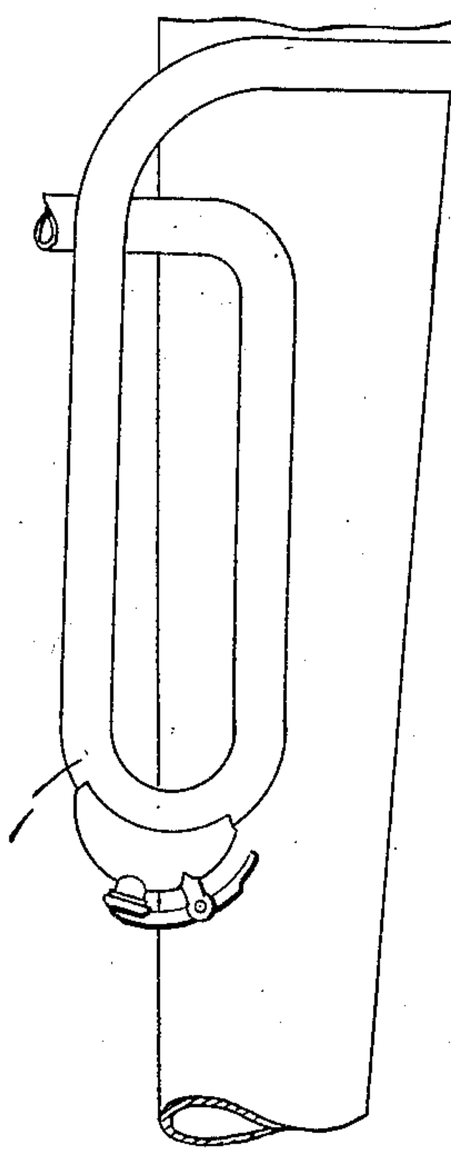


Fig. 2.

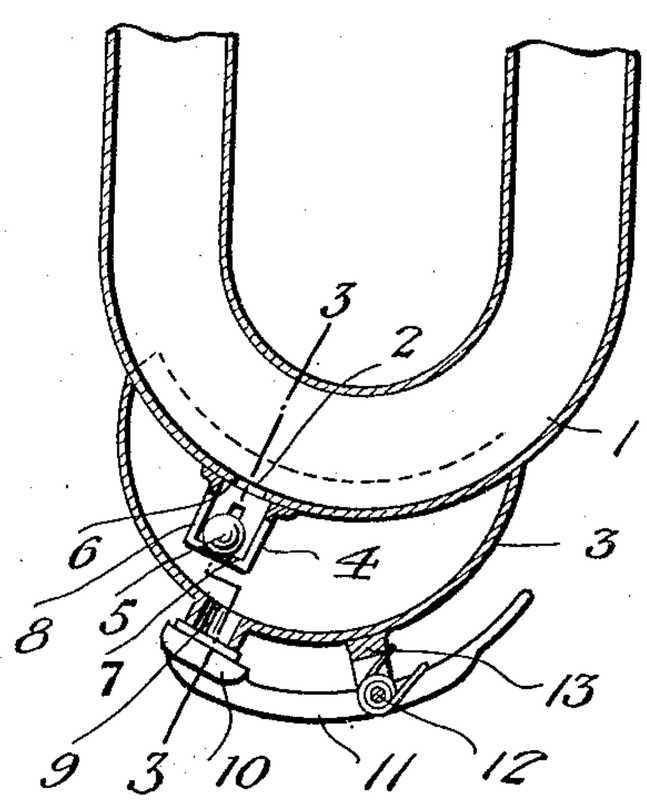


Fig. 3.

Fig. 4.

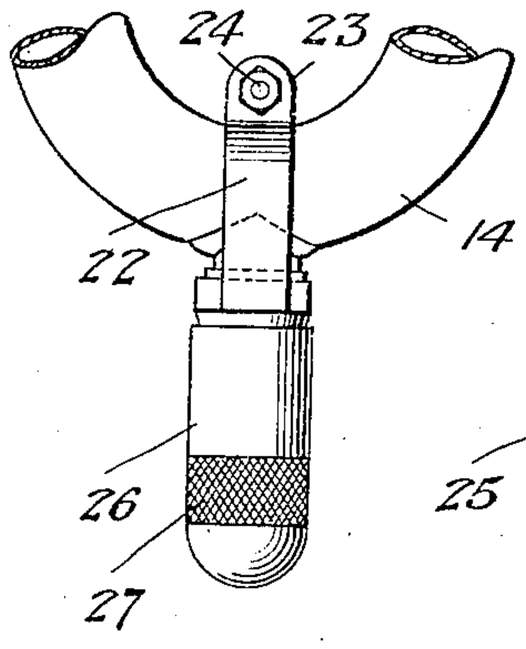


Fig. 5.

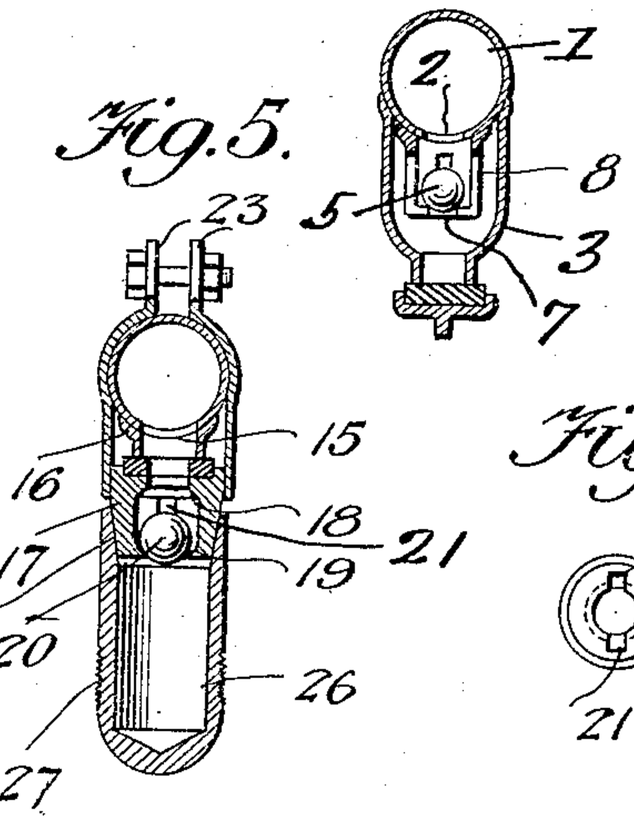
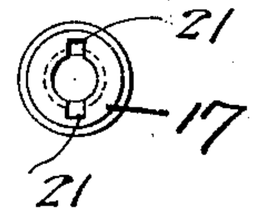


Fig. 6.



Witnesses

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DRAIN-CUP FOR BRASS WIND INSTRUMENTS.

1,298,595. Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed March 1, 1918. Serial No. 219,816.

To all whom it may concern:

Be it known that I, JOHN C. STEINBRUECK, a citizen of the United States, residing at Auburn, in the county of King and State of Washington, have invented new and useful Improvements in Drain-Cups for Brass Wind Instruments, of which the following is a specification.

This invention relates to improvements in wind instruments of that class held in an upright position when being played and is especially designed to provide means for trapping water which would otherwise accumulate in the bends of such instruments in a manner to interfere with their tone.

The primary object of the invention is to provide a trap or drain receptacle which is located below the actual wind passage in the bend of the instrument so that water will not accumulate in such bend, but will drain into the receptacle, novel means being provided for preventing the return of the water into the wind passage at any time and especially in the event of the instrument being stood upon its bell or in a position reversed from its playing position.

It is well known that in an instrument of this character there is a constant accumulation of water in the bend due to the moisture from the breath of the performer and it has been the usual custom to provide a so called water key for the purpose of permitting the escape of accumulated moisture. The present invention however, prevents this accumulation, by the use of the drain receptacle. This is especially advantageous in the playing of long solos by obviating the necessity of an awkward break or pause for the purpose of opening the key and emptying the wind passage.

The present invention overcomes these, and many other advantages will be apparent when the following description is read in connection with the accompanying drawings, in which:—

Figure 1 is a fragmentary elevation of a portion of a wind instrument of the upright type, illustrating a bend of the instrument with the invention applied thereto;

Fig. 2 is an enlarged vertical longitudinal sectional view of the same;

Fig. 3 is an irregular cross sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 1, but illustrating a modified form of the invention which is detachably secured to the instrument;

Fig. 5 is a sectional view on the line 5—5 of Fig. 4; and

Fig. 6 is a bottom plan view of the extension to which the drain receptacle illustrated in Figs. 4 and 5 is secured.

Referring to the drawings in detail, the numeral 1 designates the bend of a wind instrument of the upright type, such as is ordinarily known as a base, baritone or alto horn and which is held in an upright position when playing, but which, when not in use is usually inverted, so that the bell of the instrument rests upon the floor or other support.

At the bend 1 there is provided an opening 2, which communicates with the wind passage of the instrument and surrounding this opening and in communication with the wind passage through said opening, is a casing or receptacle 3. The casing 3 is disposed to one side of the wind passage, its position being below the latter when the instrument is held in playing position and the opening 2 is so located that moisture entering the wind passage will drain through the opening 2 into the receptacle 3, so that the accumulation of water within said passage will be prevented and the proper tone of the instrument maintained.

Surrounding the opening 2 and disposed within the casing 3 is a retaining cage 4, within which is located a ball valve 5. This valve is permitted a limited movement between a valve seat 6 and a port 7, the cage being provided with a slot which forms passages 8 surrounding the port, so that moisture from the wind passage may pass freely from the cage, into the receptacle 3. When the instrument is inverted so that it rests upon the bell. the ball valve 5 will engage the seat 6 and form a seal between the interior of the receptacle 3 and the wind passage and effectually prevent accumulated moisture from passing from the said receptacle back into the wind passage.

The receptacle 3 is provided with an outlet 9, which is normally closed by a cap 10, the latter being arranged upon one end of a spring pressed lever 11, that is pivotally secured as at 12 upon a lug 13 secured to the receptacle 3. The construction just described is illustrated in Figs. 1 to 3 of the drawings and is intended to be applied to in-

struments during their process of manufacture.

In Figs. 4 to 6 of the drawing there is illustrated the form of the invention which is designed to be detachably connected to instruments already in use. This consists in providing the bend 14 of the instrument with an opening or passage 15, which is formed in an extension 14, the said opening being in communication with the wind passage of the instrument. Removably secured to the extension 16 is a valve cage 17, which is provided with a valve seat 18 and a port 19 and within which is located a ball valve 20. The port 19 has extending therefrom radial grooves or depressions 21 for the purpose of permitting the accumulated moisture to pass the valve when the latter is positioned upon this seat. When the valve 20 is upon the seat 18 however, as when the instrument is inverted, the said valve will effectually prevent the passage of moisture therethrough. The cage 17 is removably secured upon the bend 14 by means of oppositely disposed straps 22, one end of each of these straps being secured to opposite sides of the cage, while their opposite ends terminate in alined ears 23, which are provided with openings for the passage of a securing element 24, which may be in the form of a bolt or other similar fastening device. The exterior surface of the cage 17 is of frusto conical formation, so as to provide a slip joint 25 for a drain receptacle 26, which is adapted to receive the accumulated moisture passing from the wind passage through the opening 15. The drain receptacle 26 is preferably cylindrical in form and is provided with a knurled or roughened band 27 to facilitate its positioning upon the valve cage 17. Arranged between the valve cage and the extension 16 is a suitable packing by means of which the passage of moisture around opening 15 is prevented.

The invention is susceptible of various changes in form, proportion and minor details of construction, for example the valve cage may threadedly engage the extension 16 if desired.

While the invention is shown and described as applied to a particular type of wind instrument, it is desired that it be understood to be equally well adapted to wind instruments of any type or design.

Having described the invention, what is claimed is:—

1. The combination with a wind instrument provided with a bend having an opening therein, of a drain receptacle located at said bend below the wind passage thereof and surrounding said opening, a valve and means other than manually operated means whereby the valve is opened when the instrument is in a normal or playing position and closed when the instrument is in an inverted position.

2. The combination with a wind instrument provided with a bend having an opening therein, of a drain receptacle located at said bend below the wind passage thereof and surrounding said opening and a gravity operated valve within said receptacle, said valve being opened when the instrument is in a normal or playing position and closed when the instrument is in an inverted position.

3. The combination with a wind instrument provided with a bend having an opening therein, of a valve cage surrounding the opening, a valve seat at one end of said cage, a slotted port at the other end thereof and a gravity valve freely movable between said port and seat.

4. The combination with a wind instrument provided with a bend having an opening therein, of a valve cage secured around said opening, a valve seat at one end of the cage, a port at the other end thereof, said cage having notches in communication with said port, a valve movable in said cage and a receptacle surrounding the cage and removably connected to the instrument.

5. The combination with a wind instrument provided with a bend having an opening therein, of a valve cage communicating with said opening, a valve seat at the inner end of the cage, a port at the opposite end thereof, the latter being provided with radially disposed notches, a ball valve in said cage, a receptacle removably connected with the cage and means secured to the instrument for retaining said cage in position.

In testimony whereof I affix my signature.

JOHN C. STEINBRUECK.