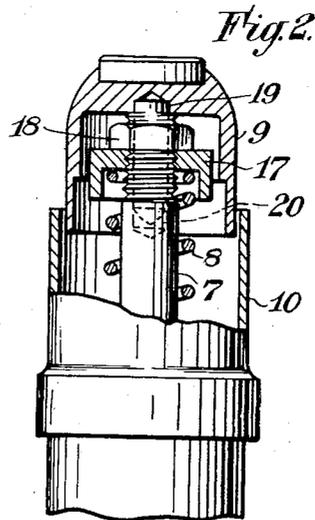
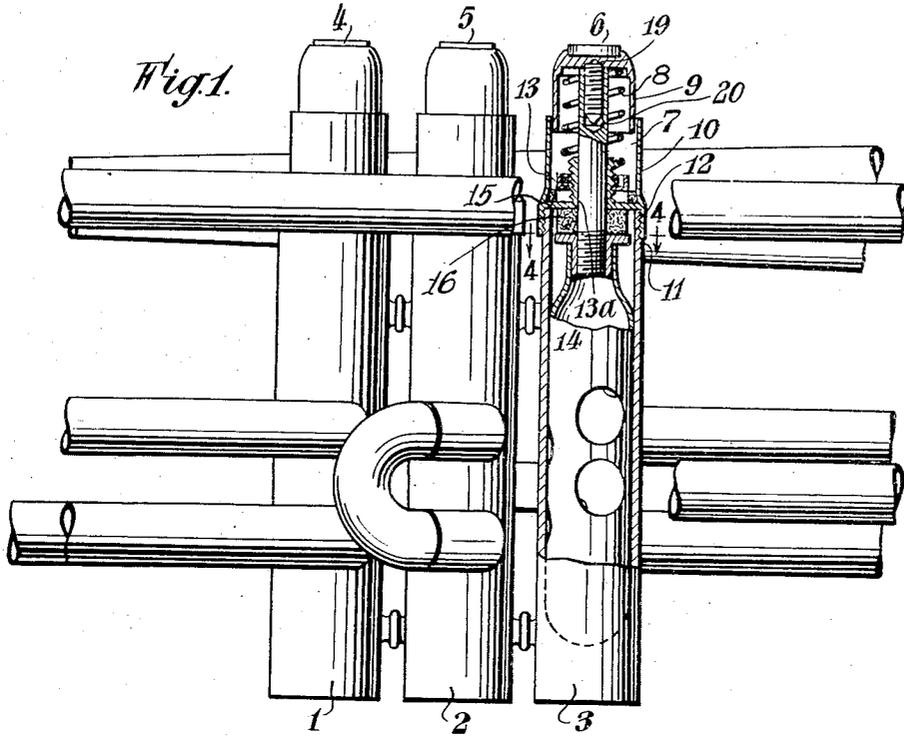


March 7, 1939.

C. N. M. WORNELL
VALVE FOR BRASS WIND INSTRUMENTS

2,149,714

Filed Dec. 24, 1937



INVENTOR:
CHARLES NORMAN MACLEOD WORNELL

By: *Francis Boyce*
ATTORNEY

UNITED STATES PATENT OFFICE

2,149,714

VALVE FOR BRASS WIND INSTRUMENTS

Charles Norman Macleod Wornell, Hampton,
England, assignor of one-half to Thomas
James Wornell, Hampton, England

Application December 24, 1937, Serial No. 181,642
In Great Britain February 16, 1937

4 Claims. (Cl. 84—388)

This invention relates to improvements in valves for brass wind instruments, such as trumpets, cornets, tenor horns, valve trombones and the like.

According to the invention the valve stem of a valve for a brass wind instrument is surrounded by a skirt member dependent from the finger piece and which slidably engages a socket member secured to the valve casing head.

Preferably the chamber provided by the association of the skirt member and the socket member and through which the valve stem extends contains the spring under the action of which the valve is operated.

In order that the invention may be clearly understood reference is directed to the accompanying drawing wherein:

Fig. 1 is an elevation partly in section of the valve portion of a brass wind instrument wherein the valves are constructed in accordance with the invention.

Fig. 2 is a partly sectional view showing a valve of slightly modified construction.

Referring to the drawing which illustrates a portion of a trumpet provided with the usual three valves 1, 2, 3, each of which is operated by means of a spring control finger piece, 4, 5, 6 connected respectively to the aforesaid valves through the medium of valve stems 7, one of which is shown in Fig. 1, the respective finger pieces being returned after depression by means of a spring 8.

The stem 7 of the valve is surrounded by a skirt member 9 which slidably engages a socket member 10 secured to the top of the valve casing, for example, by screw threading as indicated at 12, the spring 8 being disposed in the chamber formed by the association of the two members 9 and 10. The skirt member 9 is preferably of substantially bell shaped form as indicated in the drawing and surrounds the upper part of the valve stem the rim of the skirt member extending into the socket member 10 which is of cylindrical cross-section, valve stem 7 extending through the base 13 of the socket and being connected to the piston valve 14 in the usual manner.

The chamber formed by the association of the bell like skirt and the socket member provides a housing for the valve spring 8 which latter surrounds the valve stem and is compressed by depression of the bell-shaped member which carries the finger piece, into the socket member 10, the inner wall of which slidably engages the

outer wall of the skirt member 9 thus providing a telescopic construction.

Preferably the base 13 of the socket member is formed centrally thereof with a tubular upstanding, exteriorly threaded projection 13a through which the valve stem 7 extends and in threaded engagement with which projection is a washer or collar 15 which forms a means for locating the lower end of the spring 8 and regulating the tension of said spring. Similarly the inner end of the skirt member is recessed or approximates in size to the upper end of the spring. The construction serves to maintain the spring perfectly upright in relation to the valve stem, the spring being out of contact with the walls of the skirt and socket and valve stem.

A felt washer 16 is associated with the valve stem 7 in the known manner to provide means for closing off the opening through which the valve stem extends and serve as a damper or cushion upon the return of the valve stem to its normal position thus obviating noise.

Fig. 2 illustrates a slight modification of the construction of the means for adjusting the tension of the spring 8. In this arrangement the valve stem 7 is screw threaded at its upper end to receive a screw-threaded dished collar 17 which is capable of adjustment along the valve stem 7 and thereby affects the tension of the spring 8. The collar 17 is locked into its adjusted position by means of a nut 18, which may be recessed into the collar 17, a pin spanner being used for its removal. The finger piece 9 is connected to the valve stem 7 in the usual manner, or for example, by means of a screw 19 secured to the finger piece and which co-operates with a screw threaded recess 20 formed axially in the valve stem 7.

The skirt and the socket member although preferably of circular cross section may be rectangular or other cross section, the exterior form of the two members may be of any desired shape, for example, of step formation from the top of the finger piece to the base of the socket member.

It will be appreciated that a valve constructed in accordance with the invention provides an arrangement in which a piston valve and its associated stem is readily operable without jamming or sticking due to dirt or other cause. Further the spring is contained in a substantially dust proof chamber, and, being isolated from the valve chamber is protected from corrosion due to moisture caused by condensation or saliva of the player.

Further the valve proper only contacts with

the wall of the valve casing and the two sides of the lug which forms a guide.

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

5 1. A valve for a wind musical instrument of the kind specified comprising a valve casing, a head therefor, a valve having a stem extending through said casing head, and the extremity of said stem being provided with a finger piece secured to the
 10 extremity of said valve stem, a skirt member dependent from said finger piece extending into a socket member formed in one piece with said casing head, said skirt member and socket member together forming a housing for a valve spring,
 15 and means for adjusting the tension of said spring.

2. A valve for a wind musical instrument of the kind specified comprising a valve casing, a head therefor, a valve having a stem extending through
 20 said casing head, and the extremity of said stem being provided with a finger piece secured to the extremity of said valve stem, a skirt member dependent from said finger piece extending into and slidably engaging a socket member secured
 25 to said valve head said skirt member and socket

member together forming a housing for a valve spring, means for adjusting the tension of said spring comprising a collar adjustable longitudinally upon said valve stem and between which and the casing head the valve spring is disposed. 5

3. A valve for a wind musical instrument of the kind specified comprising a valve casing, a head therefor, a valve having a stem extending through said casing head, and the extremity of said stem being provided with a finger piece secured to the
 10 extremity of said valve stem, a skirt member dependent from said finger piece extending into and slidably engaging a socket member formed in one piece with said casing head and wherein the said members house the valve spring, and
 15 means for adjusting the tension of said spring comprising a collar adjustable longitudinally upon said valve stem and between which and the casing head the valve spring is disposed.

4. A valve for a musical wind instrument as
 20 claimed in claim 2, having a lock nut for maintaining the position of said collar after adjustment.

CHARLES NORMAN MACLEOD WORNELL. 25