Sept. 20, 1927. 1,642,783

C. LEHMANN

CONTROL VALVE FOR SHEET METAL WIND INSTRUMENTS

Filed Oct. 19, 1926

Fig. 1.

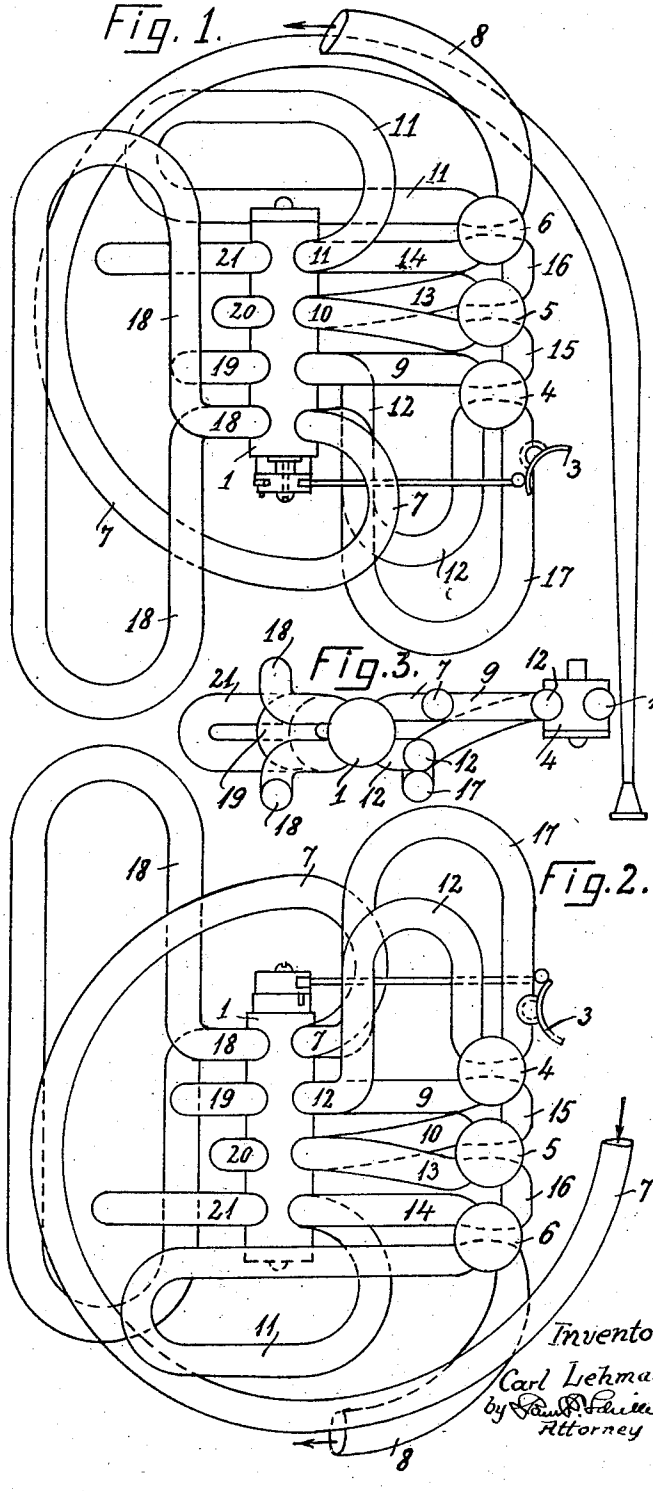


Fig. 5.

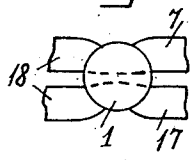


Fig. 4.

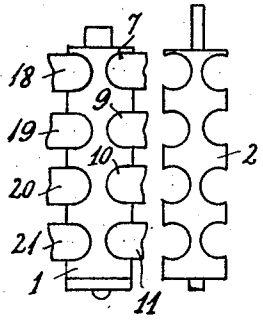


Fig. 3.

Fig. 6.

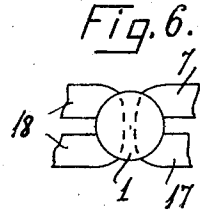


Fig. 2.

Inventor
Carl Lehmann
by Paul Schumann
Attorney

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UNITED STATES PATENT OFFICE.

CARL LEHMANN, OF HAMBURG, GERMANY, ASSIGNOR OF ONE-HALF TO ERDMANN CHEMNITZER, OF HAMBURG, GERMANY.

CONTROL VALVE FOR SHEET-METAL WIND INSTRUMENTS.

Application filed October 19, 1926, Serial No. 142,572, and in Germany November 23, 1925.

Various constructions of control valves for sheet metal wind instruments are known. These known arrangements, however, have the disadvantage that they require twelve to eighteen sound conducting pipes, three double playing valves and a single and a double change over valve. The air passages thus formed are excessively long and the player therefore is required to use whole lung power for the tunes and becomes quickly fatigued. Further by reason of the numerous and long pipes the instrument is rendered very heavy and its manufacture is expensive.

In comparison with the known arrangements the control valve according to the invention has the advantages that—

1.—In combination with three single playing valves and only six sound conducting pipes it can be played for F and B pitches,

2.—The air passages in both cases (F and B) are very considerably shorter and therefore the player is required to use considerably less lung power and may play the instrument for longer periods without fatigue.

3.—By reason of the simpler construction the B pitch approaches the F pitch more in tone.

4.—The weight of the instrument is considerably reduced and

5.—The costs of manufacturing the instrument by reason of reduction of material, is considerably lower.

In the drawing the control valve is illustrated by way of example in combination with a French horn.

Figs. 1 and 2 show the essential parts of such an instrument in front and rear elevation, whilst

Fig. 3 shows a side elevation.

Fig. 4 shows the control valve casing and adjacent thereto the inner rotary part.

Figs. 5 and 6 illustrate the positions of the control valve in end elevation for the F and B tuning.

The control valve casing is indicated by 1 and the corresponding inner rotary part by 2. The part 2 is provided with eight passages; the control valve 1, 2 may therefore be referred to as a quadruple two way valve. 3 is a thumb lever for turning the valve part 2. By 4, 5 and 6 the three single playing valves are designated. 7 is the inlet and 8 the outlet pipe for the air. 9—14 are the six sound conducting pipes between the control valve 1 and the three single playing valves 4, 5 and 6 the pipes 9, 10, 11 being on the front side of the instrument and the pipes 12, 13, 14 on the rear side of the instrument. 15 and 16 are the usual connecting pipes between the playing valves 4, 5 and 6. The pipes 17 forms the main passage for the B pitch, is disposed on the rear side and forms communication between the control valve 1 and the playing valve 4. The pipe loop 18, of which the two ends are connected to the control valve 1, forms the extension of the main pipe for the F pitch, whilst the pipe bends 19, 20 and 21, which are also connected to the control valve 1, serve for obtaining the different tone positions for the F-pitch.

The method of operation of the arrangement described will be readily understood with reference to the drawing, the flow for the F pitch, when the inner part 2 of the control valve 1 is in the dotted position shown in Fig. 5 and the playing valves 4, 5 and 6 are also in the dotted position, being through the entire pipe system, whilst the separate tone positions can be obtained in the known manner by the playing valves 4, 5 and 6. If however the B pitch is to be obtained the inner part 2 of the control valve 1 is moved into the position, shown in dotted lines in Fig. 6 by means of the thumb lever 5, thus cutting out the pipes 18, 19, 20 and 21.

I claim:—

A control valve for double sheet metal wind instruments with different pitches, comprising in combination with a control valve casing, a double quadruple valve in said casing, three single playing valves, sound conducting pipes connecting said valve casing, said three single playing valves, and four extension pipes leading from said quadruple valve and operatively arranged, according to the position of said control valve, so as to be connected up or disconnected, respectively, for producing the F or B pitch.

In testimony whereof I affix my signature.

CARL LEHMANN.