E. S. CONRAD & C. P. SHEPHERD.

VALVE FOR WIND INSTRUMENTS.

APPLICATION FILED AUG. 19, 1912.

1,055,445. Patented Mar. 11, 1913.

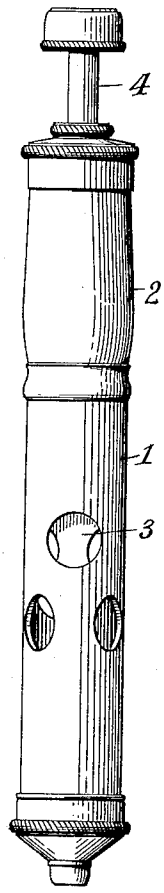

Fig. 1.

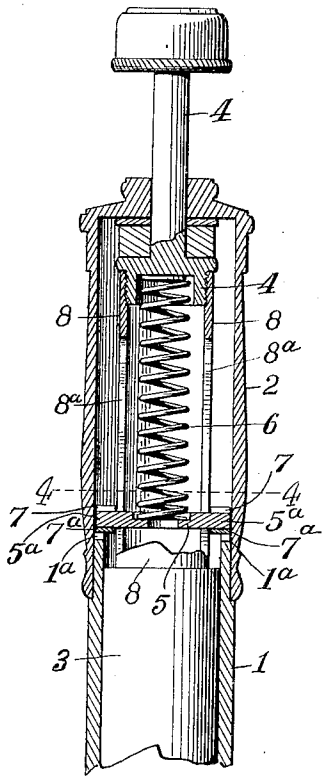

Fig. 2.

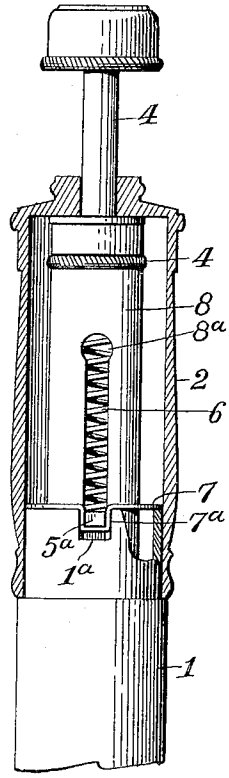

Fig. 3.

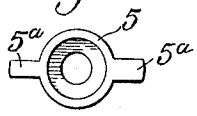

Fig. 5.

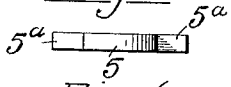

Fig. 6.

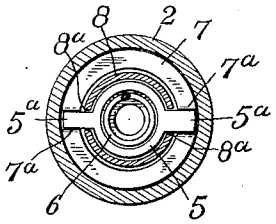

Fig. 4.

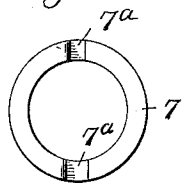

Fig. 7.

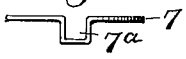

Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

EDWIN S. CONRAD AND CHARLES P. SHEPHERD, OF GRAND RAPIDS, MICHIGAN, ASSIGNORS TO GRAND RAPIDS BAND INSTRUMENT COMPANY, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

VALVE FOR WIND INSTRUMENTS.

1,055,445. Specification of Letters Patent. Patented Mar. 11, 1913.

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To all whom it may concern:

Be it known that we, EDWIN S. CONRAD and CHARLES P. SHEPHERD, citizens of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Valves for Wind Instruments; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in valves for wind instruments and more particularly to the support for the spring of a piston valve of that class, which support is commonly known as the "star", and its object is to provide an improved device for the purpose and to provide the same with various new and useful features hereinafter more fully described and particularly pointed out in the claims reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of a device embodying our invention; Fig. 2 is an enlarged vertical section of the same with the lower portion of the valve broken away; Fig. 3 is an elevation of the parts shown in Fig. 2 with a portion of the upper part of the casing removed; Fig. 4 is a transverse section on the line 4—4 of Fig. 2; Fig. 5 a plan of the spring seat proper; Fig. 6 an edge view of the same; Fig. 7 a plan view; and Fig. 8 a side view of the supporting ring for the part shown in Figs. 5 and 6.

Like numbers refer to like parts in all of the figures.

This invention relates to that class of devices in which a piston valve is used to shift the communication between the various tubes of a wind musical instrument the valve being of the piston type.

1 is the lower part of the valve casing containing the valve piston.

2 is the upper part of the casing containing the spring and operating mechanism for the piston.

3 is the valve piston, 4 the push rod or plunger for manually operating the same, extending through the upper end of the part 2 and terminating in a cup 4^a on its lower end in which the upper end of the expansive spring 6 is fitted. Our invention is comprised in the means for supporting the lower end of this spring which is commonly known as the "star" in this class of devices.

In our present invention, our device consists of a cup-shaped seat 5 for the lower end of the spring 6 having oppositely projecting lugs 5^a which rest in downwardly pressed recesses 7^a in an otherwise flat ring 7 adapted to rest on the upper end of the lower part of the casing 1 which end is inserted within the upper part 2 of the casing and affords a narrow support for the outer margin of the ring 7 and is recessed at 1^a to receive the downwardly pressed portions of the said ring in which recesses the lugs 5^a rest. Surrounding the spring is a tube 8 having downwardly opened slots 8^a to receive and traverse the lugs 5^a. The lower end of this tube is prolonged downward within the casing 1 and forms the usual reciprocable piston to shift the communication of the tubes in the usual manner when manually depressed, the normal position being maintained by the spring with the valve and rod elevated as shown in the drawings. The upper end of the part 1 of the case is too thin to provide a sufficient support for the lugs 5^a which are narrow. This ring, however, has a bearing on this end throughout nearly its entire outer margin, and this is securely supported and the lugs being supported in the depression in the ring are securely sustained thereby.

What we claim is:

1. A valve for wind instruments, comprising a valve casing, a ring supported in the casing, a spring seat supported by the ring and a spring engaging the seat at one end and supporting the movable parts of the valve at the other end.

2. A valve for wind instruments, comprising a valve casing in the lower end of which the piston of the valve is slidable, a ring engaging the upper end of the lower part of the casing and supported thereby, a spring seat within the ring and having opposing lugs engaging the ring to support the spring seat and a spring resting on the said seat at one end and yieldably supporting the piston of the valve at the other end.

3. A valve for wind instruments, comprising a valve casing having an upper part

inclosing the spring and a lower part having its upper end inserted in the upper part and forming a narrow support provided with opposing recesses, a ring supported on said upper end and having depressed portions in said recesses, a cup-shaped spring seat within the ring and having lugs resting in the depressed portions of the ring and a spring supported in the seat and yieldably supporting the piston.

4. A valve for wind instruments, comprising a valve casing having a narrow inwardly projecting support provided with opposing recesses, a piston slidable in the case and having a tubular upward extension provided with slots opposite to the recesses, a ring surrounding the extension and resting on the said support and also having depressed portions within the recesses, a spring seat in said extension having lugs extending through the slots and resting in the depressions of the ring, a spring supported on the ring, and a rod extending through the upper part of the case having a cup at the inner end attached to the piston extension and engaged by the upper end of the spring.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWIN S. CONRAD.
CHARLES P. SHEPHERD.

Witnesses:
HAROLD O. VAN ANTWERP,
LUTHER V. MOULTON.