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MUSICAL INSTRUMENT

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This invention relates to musical instruments and, more particularly, to valves and valve seats therefor. More specifically, the invention is primarily concerned with musical instruments of the woodwind type of which the saxophone, clarinet, flute, oboe and bassoon are examples.

In respect to the application of the invention to saxophones, clarinets, etc., the present invention has for its main object the provision of an improved valve and valve seat for the tone holes. In saxophones of the prior art constructions, the tampions for the tone holes are provided with pads which are carried by the tampions and overlie the tone holes in the open position of the valves or tampions as well as in the closed position thereof when said pads engage the edges of the tone holes for sealing the latter. By reason of the fact that the pads on the tampions thus overlie the tone holes when the tampions are in open position, there results, among other things, an objectionable muffling of the sound which issues from the tone holes controlled by their respective tampions. This objectionable muffling is eliminated by the present invention by the provision of a non-muffling tampion without impairing the sealing action of the tampion. Briefly, this is accomplished by eliminating the pads from the tampions whereby to expose the metallic or other non-muffling face of the tampion or valve disks to the sound issuing from the companion tone holes, and in order to obtain the proper sealing action of the tampions without muffling the sound, valve seats are provided on the tubular body of the instrument adjacent each tone hole in position to be engaged by the valve disks in the closed position thereof for sealing the tone holes. The valve seats include resilient members which, when engaged by the valve disks, provide an effective seal for closing the tone holes.

By reason of the above described valve and valve seat provided in accordance with the present invention, not only is the muffling of the sound eliminated, but also other advantages are derived. Among these additional advantages resulting from the elimination of the muffling of the sound are the reduction in the blowing effort required for playing the instruments and the improvement in the articulation of the notes, an improved distinction between notes being obtained, as compared with musical instruments of the prior art. Moreover, and quite apart from the elimination of the muffling of the sound, the effect of the moisture which is blown into the instrument by the player and which deleteriously affects the valve pads in the prior art instru-

ments is substantially eliminated, with the result that the sealing members for the tone holes have a longer life than tampion pads. Also, the provision of the valve seats adjacent the tone holes serve to protect the rims of the latter against damage which frequently occurs in instruments of the prior art in which said rims are apt to become uneven or worn during buffing of the instrument.

The invention and the above mentioned and other objects and advantages thereof will be more fully comprehended from the following description considered with reference to the accompanying drawing which, however, are to be taken and understood as illustrative of the invention but not in limitation thereof.

In the drawing:

Fig. 1 is a side view of a saxophone embodying the present invention, parts of the saxophone being omitted in order to simplify the drawing;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a view in elevation of part of the tubular body of the saxophone showing in plan view a tone hole and a valve seat associated therewith;

Fig. 4 is a face view of the valve at the side thereof which confronts the tone hole;

Fig. 5 is a sectional view on the line 5—5 of Fig. 2;

Fig. 6 is a sectional view similar to Fig. 5 and showing also a valve disk in closed position, said valve disk being constructed in accordance with another form of the invention;

Fig. 7 is a view similar to Fig. 3 taken at the mouth pipe of the instrument which is provided with the upper octave vent;

Fig. 8 is a sectional view on the line 8—8 of Fig. 1.

In the drawing many of the well known parts of the saxophone have been omitted in order to simplify the drawing and better to illustrate the invention. Also only a few of the relatively large number of tone holes and companion valves and valve seats are illustrated. It is, therefore, to be understood that the present illustration is to be considered as relating to a saxophone having all the necessary parts including such parts and mechanisms as are well known to those skilled in the art whereby an operative instrument of the improved construction herein contemplated is provided.

Referring now to the drawing in detail, the saxophone, here shown for the purpose of illustrating one application of the present inven-