

the spring 77. However, it is within my contemplation to effect this action in a more positive manner by pressure applied by one of the digits of the performer. A means for controlling the two upper octave holes in this alternative manner, but in an instrument otherwise the same as that described, is shown in Fig. 6. In said figure there is shown the sleeve 73, arm 76 and the arm 81, carrying the C-sharp tone hole cover, all substantially as previously shown and described. In addition, there is shown the D-natural tone hole cover, carried by an arm 90, the latter being connected with an arm 91, which in turn is connected by a bridge rod 92 with an arm 93 secured to a sleeve 95 carrying a key lever 96 in position for depression by a part of the middle finger of the left hand. A spring 97 mounted in the well known manner on a post or pillar 98 bears on a hook 99 on sleeve 95 and normally closes the cover D. All this mechanism is a part of the instrument, omitted for clearness from Fig. 1. The different construction from that previously described consists in that the sleeve 73 is rigidly connected to the arms 90 and 91, or at least is suitably engaged therewith, so that depression of key lever 96 raises arm 76, and when said key lever is released, arm 76 is either depressed by spring 97 or is left free to be depressed without resistance. In this construction there is no operating connection between the sleeves to which, respectively, the covers for the C-sharp and D-natural holes are attached. The C-sharp cover and its arm have here no influence on the octave mechanism but the ultimate result is the same, because when the highest notes of the instrument, D and those above it, are played, the cover D must be opened, and its opening movement is accompanied with rise of arm 76, accomplished positively by pressure of the performer's digit on the key member 96, which closes the hole 7 and opens the hole 8, just as is done by the spring 77 when the C-sharp hole is opened.

I have previously stated that the invention is applicable to other instruments than the specific one here shown and in connection with that statement I would now say that the foregoing detailed description, and particularly the ascription of specific pitches to certain tone holes, and the implication that certain keys are to be manipulated by certain digits, are for convenience and illustration, without limiting intent. The protection which I claim embraces the principles embodied in this mechanism, and all embodiments of such principles substantially equivalent to that here disclosed, wherever used and however applied.

Although I have hereinbefore distinguished the parts of the instrument body as a body tube and a mouth tube, respectively,

it is to be understood that these tubes collectively form a single complete body. Therefore where the term "body" is used without discrimination as to any certain part of the instrument, it is to be construed as a generic term including both of the tubes of which this specific instruments is composed; that is the fact that this specific instrument has a detachable mouth tube, on which parts of the octave key mechanism are mounted, is not to be construed as in any sense a limitation of the invention to an instrument so constituted, or as excluding the use of the invention in situations where all parts are upon the same integral tube.

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

1. In a wood wind instrument, a triple automatic octave mechanism, comprising a lower octave hole, two upper octave holes at different distances from the blowing end of the instrument, and key mechanisms including covers for said holes, tone hole keys and connections between said keys and covers for opening only the lower octave hole when playing certain notes, for closing said lower hole and opening one of the upper holes when playing certain higher notes, and for closing the previously opened upper octave hole and opening the previously closed upper octave hole when playing other higher notes.

2. In a wood wind instrument, a triple automatic octave mechanism, comprising a lower octave hole, two upper octave holes at different distances from the blowing end of the instrument, key mechanisms including covers for said holes, tone hole keys and connections between said keys and covers for opening the lower octave hole only when playing certain notes, for closing said lower hole and opening one of the upper holes when playing certain higher notes and for closing the open upper octave hole and opening the previously closed upper octave hole when playing still higher notes, and an additional control key for rendering operative or inoperative the control of the octave keys as above set forth.

3. In a saxophone, a lower octave hole and two upper octave holes, one of said upper holes being placed in position for facilitating sounding the uppermost notes of the instrument, and the other of said upper holes being suitably placed for improving the tone quality of the group of notes next below such uppermost notes, a lower octave hole for facilitating sounding the notes below a certain pitch in the upper register, stoppers for said octave holes and mechanism controlled by the tone hole keys of the instrument for opening and closing said octave hole stoppers in the proper order with respect to the tone pitches of the instrument.

4. In a saxophone, a lower octave hole