Aug. 19, 1947. E. J. GILLESPIE 2,425,796

OCTAVE VALVE CONTROL MECHANISM FOR SAXOPHONES AND THE LIKE

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Fig. 1

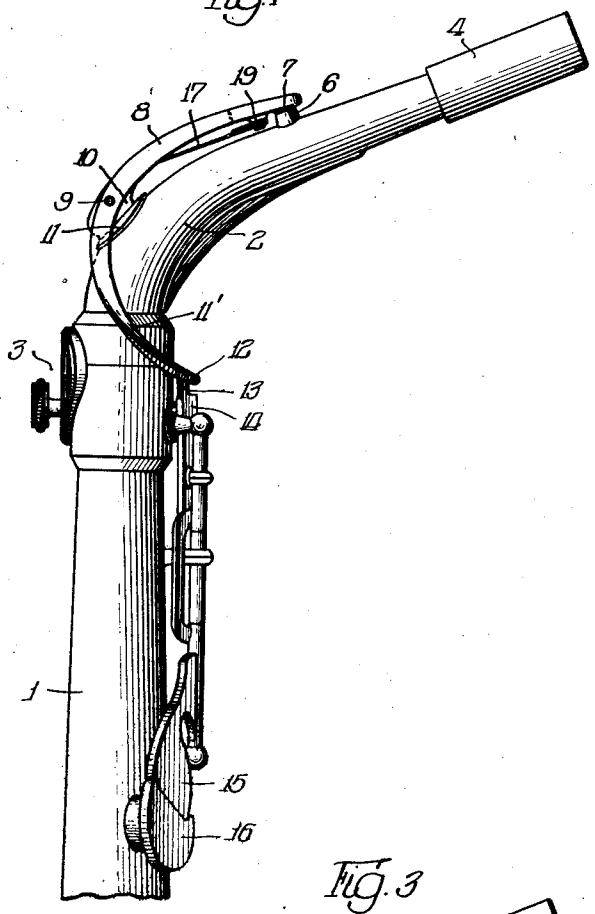


Fig. 2

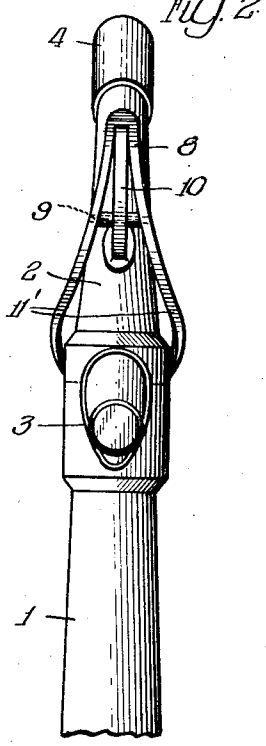
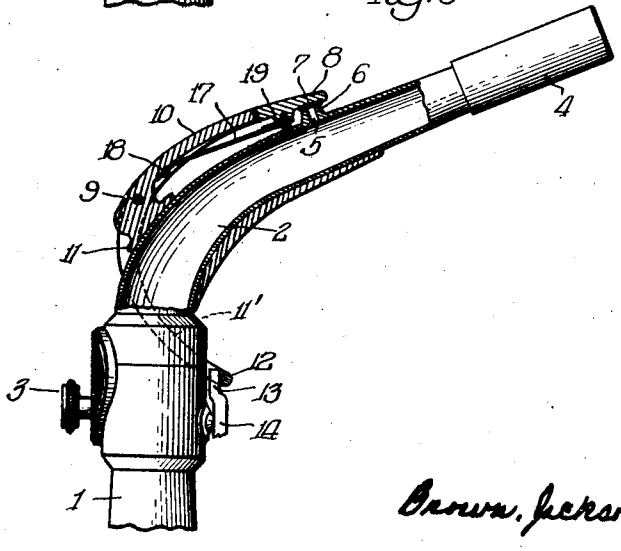


Fig. 3



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OCTAVE VALVE CONTROL MECHANISM FOR SAXOPHONES AND THE LIKE

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This invention relates, in general, to musical instruments, and has particular relation to an octave valve control mechanism for saxophones and the like.

The theory underlying the use of octave holes in instruments of the class described is well understood by those skilled in the art. Their use is analogous to the principle of playing the harmonic octave on a stringed instrument by touching the string, for example, at mid length. They form a node between the vibrating fractional parts of the air column similar, in general, to forming a node between the vibrating fractional parts of the string of a stringed instrument by touching the string.

In the conventional octave valve control mechanism the octave hole is usually controlled by a valve or pad mounted on a relatively long lever pivoted on the neck of the instrument and provided with a spring for closing the valve or pad. Heretofore the spring action has not been as effective as possible, and the lever has either been subject to being bent or misaligned in the use and handling of the instrument, or guide posts or the like requiring attachment to the body of the instrument in addition to the attachment of the pivot posts for the lever have been required.

Moreover, in the octave valve control mechanisms prior to the present invention the octave lever has usually been positioned on the outer side of the neck of the instrument and has required a ring, stirrup or the like reaching to the inner side of the tubular body for actuation from suitable key mechanism, for example, through the adjacent end of an actuating element.

One of the main objects of the present invention is to provide an improved form of octave valve control mechanism which will not have the disadvantages encountered with prior mechanisms of this sort.

Another object of the invention is to provide an improved mounting for the octave lever which will effectively prevent this lever from being bent or misaligned in the use and handling of the instrument; also in combination with this improved mounting an improved spring arrangement which will act more effectively and, more particularly, right up adjacent the valve or pad to close the same.

Another object of the invention is to provide an improved octave valve control mechanism which will operate with facility and will be relatively quick and certain in action.

Another object of the invention is to provide

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an improved octave control mechanism composed of few parts adapted for convenient assembly and of pleasing appearance, and mechanism of the class described in which the number of soldered or other attachments to the tubular body of the instrument are reduced to a minimum.

Another object of the invention is to eliminate the necessity for a separate ring, stirrup, or the like for reaching to the inner side of the tubular body for actuation by the adjacent end of an actuating element operated by the key mechanism.

Further objects and advantages of the invention will appear from the following detailed description, taken in connection with the accompanying drawing which illustrates the manner of constructing, assembling and operating one form of octave valve control mechanism embodying the present invention.

In the drawing:

Figure 1 is a fragmentary side elevational view of a portion of a saxophone having an octave valve control mechanism embodying the present invention;

Figure 2 is a fragmentary front elevational view of the portion of the saxophone and octave valve control mechanism shown in Figure 1; and

Figure 3 is a view similar to Figure 1 with the octave valve control mechanism and adjacent portion of the tubular neck of the instrument in section.

Referring now to the drawing, the invention is shown for purposes of illustration embodied in a saxophone which comprises a tubular body composed of the longitudinal tubular portion 1 which is preferably tapered, the tubular neck 2 which is usually detachably fastened at 3 to the tubular portion 1, and a bell or flare (not shown) at the opposite end of the tubular portion 1. The outer end of the neck 2 has a mouthpiece 4.

The tubular neck 2 has an octave hole or port 5 which opens through an annular outwardly projecting lip 6, on the outer end of which the octave valve or pad 7 is adapted to seat to close the hole 5.

The octave valve lever 8, which may be in the form of a casting or of other construction, is pivoted at 9 on a spar 10 having at one end an integral flange or plate 11 soldered or otherwise fixed to the outer side of the tubular neck 2. The extending arm of the spar 10 follows, in general, the curvature of the adjacent portion of the neck 2, and its outer end terminates in relatively close proximity to the position of the octave hole 5.

The lever 8 is of curved form and bifurcated or

looped inwardly of its outer end, with the sides or branches of the loop or bifurcated portion straddling the outwardly extending arm of the spar 10 and thereby effectively prevented from being bent or misaligned in the use and handling of the instrument. The octave valve or pad 7 is fixedly secured to the inner side of the outer end of the lever 8. The opposite looped or bifurcated end 11' of the lever 8 is curved across the adjacent portion of the tubular body of the instrument, and by reason of its looped form, which surrounds or straddles the adjacent part of the tubular body, presents at the inner side of the tubular body an abutment at 12 for engagement, for example, with an offset 13 on the adjacent end of an actuating rod or element 14.

The actuating rod or element 14 is operated by an octave key 15, and when thus operated swings the lever 8 counterclockwise (Figures 1 and 3) about its pivot 9 to open the octave valve or pad 7. The looped or bifurcated form of the lever 8, in addition to being prevented from bending or misalignment by the spar 10 provides a better balanced control for the octave valve. A thumb rest 16 is preferably soldered or otherwise attached to the tubular portion of the instrument adjacent the octave key 15, and the thumb rest 16 and key 15 together are shown of generally teardrop form to present a pleasing appearance.

The leaf spring 17 underlies the extending arm of the spar 10 and has one end abutting or secured at 18 to the inner side of the spar 10. The opposite end of the spring 17 abuts or is secured at 19 to the inner side of the outer end of the lever 8, and the spring 17 operates to hold the valve or pad 7 in closed position against the outer end of the rim of the octave hole 5 and to return the valve 7 to closed position. With the spring arrangement described, the spring pressure or force is applied right up adjacent the valve or pad 7.

It will be apparent from the foregoing description that with the present invention the attachment of the spar 10 to the neck 2 constitutes the only attachment of the octave valve control mechanism to the tubular body of the instrument. The device is composed of few parts which are adapted for convenient assembly and are of pleasing appearance. The mechanism is adapted for operation expeditiously, and is relatively quick and certain in action. Moreover the spring action is better, the octave lever is prevented from being bent or misaligned in use and handling of the instrument, and other advantageous results are provided.

The embodiment of the invention shown in the drawing is for illustrative purposes only, and it is to be expressly understood that said drawing and the accompanying specification are not to be construed as a definition of the limits or scope of the invention, reference being had to the appended claims for that purpose.

I claim:

1. In an instrument of the class described having a tubular body provided with an octave hole in the tubular neck portion thereof, the combination with said instrument of a spar attached to said neck portion and having an arm extending outwardly along said neck portion in spaced relation thereto and into proximity to said octave hole, an octave lever pivoted to said spar and of curved form and bifurcated and looped inwardly of its outer end with the sides thereof straddling the outwardly extending arm of the spar, whereby said spar by its engagement between the sides of said lever prevents bending and misalignment of said lever in use, and an octave valve attached to the outer end of said lever and adapted to close said octave hole.

2. In an instrument of the class described having a tubular body provided with an octave hole in the tubular neck portion thereof, the combination with said instrument of a spar attached to said neck portion and having an arm extending outwardly along said neck portion in spaced relation thereto and into proximity to said octave hole, an octave lever pivoted to said spar and of curved form and bifurcated and looped inwardly of its outer end with the sides thereof straddling the outwardly extending arm of the spar, whereby said spar by its engagement between the sides of said lever prevents bending and misalignment of said lever in use, an octave valve attached to the outer end of said lever and adapted to close said octave hole, and a spring extending along the inner side of the extending arm of said spar and cooperating at its inner end with said spar and at its outer end with said lever adjacent said octave hole to hold said valve in closed position and to return same to said position.

3. In an instrument of the class described having a tubular body provided with an octave hole in the tubular neck portion thereof, the combination with said instrument of a spar attached to said neck portion and having an arm extending outwardly along said neck portion in spaced relation thereto and into proximity to said octave hole, an octave lever pivoted to said spar and of curved form and bifurcated and looped inwardly of its outer end with the sides thereof straddling the outwardly extending arm of the spar, whereby said spar by its engagement between the sides of said lever prevents bending and misalignment of said lever in use, an octave valve attached to the outer end of said lever and adapted to close said octave hole, and a spring extending along the inner side of the extending arm of said spar and cooperating at its inner end with said spar and at its outer end with said lever adjacent said octave hole to hold said valve in closed position and to return same to said position, the opposite looped or bifurcated end of said lever being curved across the adjacent portion of the tubular body of the instrument and by its looped form surrounding or straddling the adjacent part of the tubular body to present an integral abutment for engagement by a key operated actuating element.

4. In an instrument of the class described having a tubular body provided with an octave hole in the tubular neck portion thereof, the combination with said instrument of a spar attached to said neck portion and having an arm extending outwardly along said neck portion in spaced relation thereto and into proximity to said octave hole, an octave lever pivoted to said spar and of curved form and bifurcated and looped inwardly of its outer end with the sides thereof straddling the outwardly extending arm of the spar, whereby said spar by its engagement between the sides of said lever prevents bending and misalignment of said lever in use, and an octave valve attached to the outer end of said lever and adapted to close said octave hole, the opposite looped or bifurcated end of said lever being curved across the adjacent portion of the tubular body of the instrument and by its looped form surrounding or straddling the adjacent part of the tubular body to present an integral

abutment for engagement by a key operated actuating element.

5. In an instrument of the class described having a tubular body provided with an octave hole in the tubular neck portion thereof, the combination with said instrument of octave valve control mechanism comprising a spar attached to said neck portion and having an arm extending outwardly along said neck portion in spaced relation thereto and into proximity to said octave hole, an octave lever pivoted to said spar and of curved form and bifurcated and looped inwardly of its outer end with the sides thereof straddling the outwardly extending arm of the spar, whereby said spar by its engagement between the sides of said lever prevents bending and misalignment of said lever in use, an octave valve attached to the outer end of said lever and adapted to close said octave hole, and a spring extending along the inner side of the extending arm of said spar and cooperating at its inner end with said spar and at its outer end with said lever adjacent said octave hole to hold said valve in closed position and to return same to said position, the opposite looped or bifurcated end of said lever being curved across the adjacent portion of the tubular body of the instrument and by its looped form surrounding or straddling the adjacent part of the tubular body to present an integral abutment for engagement by a key operated actuating element, the attachment of said spar to the tubular neck of the instrument constituting the only attachment between said octave valve control mechanism and the tubular body of the instrument.

6. In an instrument of the class described having a tubular body provided with an octave hole in the tubular neck portion thereof, the combination with said instrument of a spar attached to said neck portion and having an arm extending outwardly along said neck portion in spaced relation thereto and into proximity to said octave hole, an octave lever pivoted to said spar and of curved form and bifurcated and looped inwardly of its outer end with the sides thereof straddling the outwardly extending arm of the spar, whereby said spar by its engagement between the sides of said lever prevents bending and misalignment of said lever in use, an octave valve attached to the outer end of said lever and adapted to close said octave hole, a spring extending along the inner side of the extending arm of said spar and cooperating at its inner end with said spar and at its outer end with said lever adjacent said octave hole to hold said valve in closed position and to return same to said position, the opposite looped or bifurcated end of said lever being curved across the adjacent portion of the tubular body of the instrument and by its looped form surrounding or straddling the adjacent part of the tubular body to present an integral abutment, and a key operated actuating element cooperating with said abutment for swinging said lever about its pivot to open said octave valve.

7. In an instrument of the class described wherein a curved tubular neck having an octave hole in the outer side thereof is joined to a longitudinal tubular portion and a key actuated rod has an end terminating adjacent the joint between said neck and said tubular portion and at the inner side thereof, the combination with said instrument of a spar having an inturned mounting end attached to the outer surface of said neck adjacent the curved part thereof and

having an elongated arm extending outwardly along said neck into proximity to said octave hole and in spaced relation to said neck, an octave lever of bifurcated and looped form and curved with the loop extending from the inner end of the lever to position in close proximity to the outer end of said lever, the curved inner end of said lever surrounding the instrument adjacent said joint; also the adjacent end of said rod for abutment therewith, the curved looped portion of said lever extending across the instrument adjacent said joint with the looped part intermediate the end of said lever straddling said spar adjacent its attachment to said neck and outwardly of said neck, the outer end of said lever extending along the outer side of said neck in spaced relation thereto, and an octave valve member on the outer end of said lever adapted to close said octave hole, the outwardly extending arm of said spar being disposed between the sides of the outer looped part of the lever and operable to prevent bending and misalignment of the lever in use.

8. In an instrument of the class described wherein a curved tubular neck having an octave hole in the outer side thereof is joined to a longitudinal tubular portion and a key actuated rod has an end terminating adjacent the joint between said neck and said tubular portion and at the inner side thereof, the combination with said instrument of a spar having an inturned mounting end attached to the outer surface of said neck adjacent the curved part thereof and having an elongated arm extending outwardly along said neck into proximity to said octave hole and in spaced relation to said neck, an octave lever of bifurcated and looped form and curved with the loop extending from the inner end of the lever to position in close proximity to the outer end of said lever, the curved inner end of said lever surrounding the instrument adjacent said joint; also the adjacent end of said rod for abutment therewith, the curved looped portion of said lever extending across the instrument adjacent said joint with the looped part intermediate the end of said lever straddling said spar adjacent its attachment to said neck and outwardly of said neck, the outer end of said lever extending along the outer side of said neck in spaced relation thereto, an octave valve member on the outer end of said lever adapted to close said octave hole, the outwardly extending arm of said spar being disposed between the sides of the outer looped part of the lever and operable to prevent bending and misalignment of the lever in use, and a spring extending along the inner side of the extending arm of said spar and cooperating at its inner end with said spar and at its outer end with said lever adjacent said octave hole to hold said valve in closed position and to return same to said position.

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