Dec. 12, 1939. O. E. CHRISTENSEN 2,183,423

BOEHM SYSTEM CLARINET

Filed Aug. 6, 1938

Fig. 2

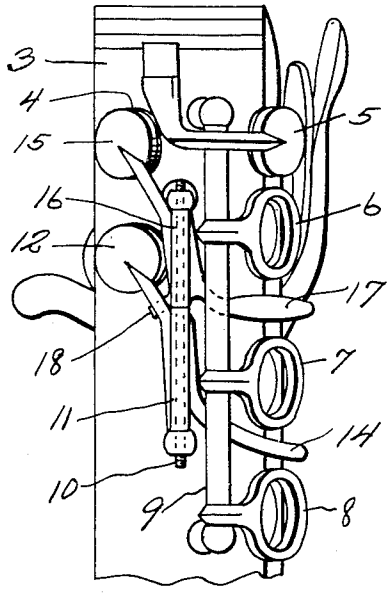
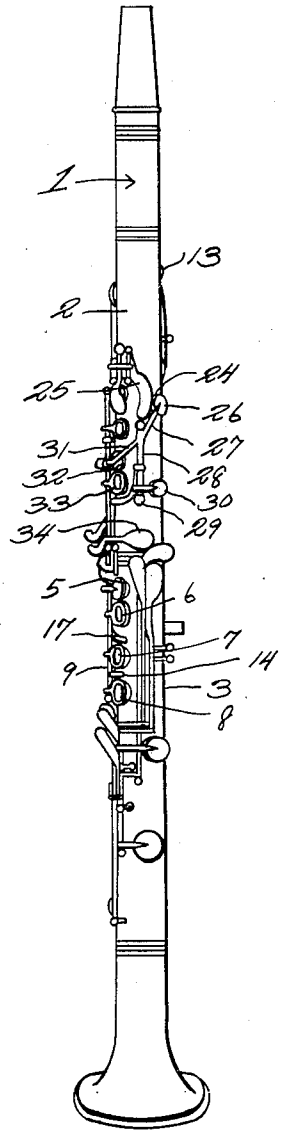


Fig. 1



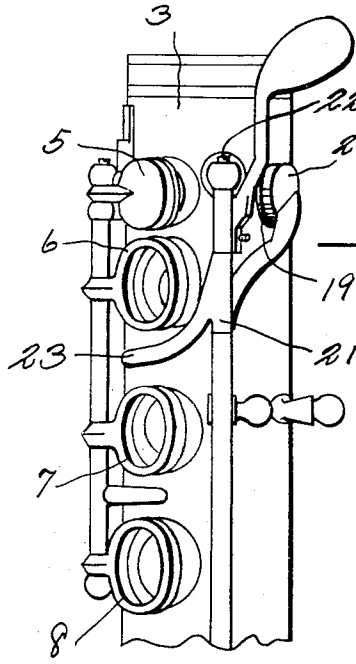


Fig. 3

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Patented Dec. 12, 1939

2,183,423

UNITED STATES PATENT OFFICE

2,183,423

BOEHM SYSTEM CLARINET

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Application August 6, 1938, Serial No. 223,545

6 Claims. (Cl. 84—382)

This invention relates to the class of musical instruments and pertains particularly to improvements in Boehm system clarinets.

The primary object of the present invention is to provide in a Boehm system clarinet certain new tone holes by means of which certain notes may be played in a new manner in addition to the way in which they are at present played upon the instrument so as to facilitate the performance of certain movements on the instrument which are at the present time extremely difficult to negotiate.

A further and more specific object of the invention is to provide certain additional tone holes for Boehm system clarinets with covering or controlling pads therefor, by the opening of which holes and the adoption of certain additional fingerings, trills may be played which are extremely difficult or practically impossible to play at the present time.

More specifically the present invention contemplates the addition to a Boehm system clarinet of two new tone holes by means of one of which the tones C, first line below staff, and G, first space above staff, may be played in a different manner from, and in addition to, the one at present followed and the tones C-sharp, second line above staff, and F-sharp, first space in staff, may also be played in a different, and additional, manner and by means of these new tone holes there may be played with greater ease than is possible at the present time the B—C sharp or E—F sharp trill, or the extremely difficult broken internal trill from B flat to D flat, second and third spaces above staff, or the enharmonic equivalents A sharp to C sharp.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not to be confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Fig. 1 is a view in elevation showing the locations of the new keys and tone holes of the present invention.

Fig. 2 is a view of the upper end of the lower section of the clarinet showing one location of the new tone hole by which the tones C and G are played.

Fig. 3 is a view of the same portion of the clarinet, as shown in Fig. 2, but rotates through approximately a half-turn, to show another location for the tone hole by which the notes C and G may be played.

Referring now more particularly to the drawing, references will first be had to the added tone holes by means of which the playing of the notes C and G is accomplished. The clarinet as a whole is indicated by the numeral 1 with the upper and lower sections designated 2 and 3, respectively.

In carrying out the present invention according to one method by which the notes C and G may be played in a new additional way, a tone hole 4 is made in the body of the lower section of the instrument adjacent the upper end thereof, as shown in Fig. 2, and in the same place transversely of the instrument as the tone hole covered by pad 5, which is the pad that is alined with and disposed immediately above the lower group of rings which are three in number and are designated by the numerals 6, 7 and 8. This pad 5 functions with the three lower rings in playing the tones B, B-flat, F and F-sharp. These rings are carried upon the shaft 9 and paralleling this shaft upon the opposite side thereof from the rings is the usual shaft 10 carrying the oscillatable sleeve 11 to which is attached a pad 12 which covers a tone hole by which the notes B and F sharp are played according to whether the register or 12th key which is at the upper part of the instrument at the point indicated by the numeral 13, is closed or open. This pad may be referred to for convenience as covering the B tone hole and is oscillated through the medium of the key lever 14 which extends beneath the shaft 9. It will thus be seen that the new tone hole lies just above the B tone hole.

The new tone hole 4 is covered by the pad 15 which is connected with the oscillatable sleeve 16 which is mounted upon the same shaft 10 as the sleeve for the pad 12 and the key lever 17 which is integral with the sleeve 16 passes laterally to lie between the first and second rings which are indicated by the numbers 6 and 7. The sleeve 16 has formed integral therewith the finger 18 which extends laterally beneath the arm connecting the pad 12 with the sleeve 11 so that when the key lever 17 of the added tone hole is oscillated it will also raise the pad 12 from the B tone hole. Under certain conditions, this finger may be dispensed with, as will be hereinafter explained.

The new tone hole may be located in a different position on the instrument as shown in Fig.

3, where it is indicated by the numeral 19 and is located in a position diametrically opposite from the position of the tone hole 4, but it is here shown as lying in the same plane transversely of the instrument as the pad 5. The tone hole when placed in the position shown in Fig. 3, is covered by the pad 20 and is mounted by the sleeve 21 upon the shaft 22 and the sleeve carries the key lever 23 which extends over between the first and second rings which are indicated by the numerals 6 and 7. In this Fig. 3, two keys have been removed to more clearly show the location of the tone hole 19, the removed keys being shown on the instrument in Fig. 1. The size of the tone hole when placed in the position shown in Fig. 2 will be substantially the same as the tone hole under the padded key 5 which is connected to the three lower rings of the instrument. When placed in the position shown in Fig. 3 it will be of slightly larger size, as will be hereinafter explained.

The second tone hole by which the C-sharp and F-sharp notes are played is located at 24 in the upper section of the instrument in the space between the left thumb hole of the instrument (not shown) and the control lever indicated by the numeral 25 which actuates the key known by clarinetists as key 9 for the playing of the tones A-flat and G-sharp which lie in the staff, second space and second line, respectively. This tone hole 24 is of similar size to the left thumb hole, its exact size being determined by its position relative to the thumb hole. In other words, should it be placed upwards with respect to the thumb hole, it will be slightly smaller size and if placed at a lower point with respect to the thumb hole, it will be of slightly larger size than the thumb hole.

The tone hole 24 is covered by a pad 26 connected with the arm 27 which is joined to the sleeve 28 and this sleeve is mounted upon the shaft 29 which also carries the key pad 30 which is known by players of the instrument as key 7 bis and which is an alternate key for playing the tones E-flat and B-flat. The control lever for the key pad 26 covering the tone hole 24 is indicated by the numeral 31 and extends from the sleeve 28 to a position directly above the central point of the pad 32 which is attached to or connected with the lower ring 33 of the upper main part or joint 2 of the clarinet and this lever 31 is to be manipulated by the second finger of the left hand.

As previously stated, the purpose of the new tone hole 4 or tone hole 19 is to provide a new way (additional) of playing the tones C, first line below staff, and G, first space above staff, and the playing of these notes is accomplished by opening the new tone hole while the index (first) finger of the right hand remains closed or, in other words, from the B-flat position below staff, or the F position, top line of staff, the control key or pad for the new tone hole is moved to open the hole, with the second finger of the right hand, to produce C or G, depending upon whether the 12th or register key is opened or closed.

By making or playing the note G as above described by the use of the new tone hole, a new means or way is provided for playing the A-flat—B-flat trill, the trill referred to being just above the staff. For example, from this new G position, the regular key, indicated by the numeral 34, and by which the tones C-sharp and G-sharp are normally played, is manipulated to produce the tone A-flat and while holding this key 34 open, the second finger of the left hand is raised and the note B-flat will be produced. Thus by simply manipulating the second finger of the left hand, the trill may be played.

The broken interval trill from tone G, first space above staff, to B-flat, second space above staff, may be played by making G as above described and making B-flat with the thumb of left hand and only the index (first) finger of each hand covering, or closing, their respective tone holes. The 12th or register key, indicated by numeral 13, is, of course, employed for all of these tones.

The outstanding feature of the new tone hole in the position shown in Fig. 2 or the position shown in Fig. 3, is that the tone B flat in all cases is of the same pitch when produced as in the playing of the A-flat—B-flat trill and the G—B flat broken interval trill as described in the two preceding paragraphs. This is not the case with this tone B-flat when these trills are played on the conventional models of the instrument that have extra ring and mechanism provided for that specific purpose. It will be found upon investigation that on these models of the instrument where the extra ring and mechanism are provided, the tone B-flat as played in the A-flat—B-flat trill is of a higher pitch than the B-flat as played in the G—B-flat broken interval trill.

The finger 18 connected with the sleeve 16 carrying the key pad 15 opens the tone hole covered by the adjacent pad 12 when lever 17 is operated, in order to compensate for the closing of the first finger of the right hand. The closing of the key attached to the three lower rings 6, 7 and 8 is compensated for by the opening of the new tone hole covered by pad 15. By making the new tone hole of larger size so that it alone would compensate for the closing of both tone holes, the first finger of the right hand and padded key attached to the three lower rings, the finger 18 could be eliminated. It will be understood from this that when placing the new tone hole in the position shown in Fig. 3, which is at the opposite side of the instrument from the position where tone hole 4 is shown, this hole will have to be of larger size as no finger connection is employed to open the tone hole covered by the key 12.

The new tone hole 24 provides a new way of playing C sharp, second line above staff, and F sharp, first space in the staff, by simply opening this hole from the B position, second space above staff, or the E position, first line of the staff, by pressing the control lever 31 with the second finger of the left hand. It can be readily seen that the heretofore extremely difficult B—C sharp or E—F sharp trill is made easily playable. This is an improvement which has been long desired among clarinetists. The B flat—D flat broken interval trill, second and third spaces above staff, which is practically impossible to perform upon the conventional model clarinet, is made quite easy by means of the two new tone holes 4 and 24 in the following manner. By playing B flat as in the G—B flat broken interval trill, or with left thumb and the two index (first) fingers covering, or closing, their respective tone holes, and from this position opening both new tone holes 4 and 24 or 19 and 24 at the same time, the tone D flat will be obtained. Thus it will be seen that the provision of the two new tone holes makes it possible to perform an action upon the instrument which is practically

impossible to perform with the conventional types of the instrument.

What is claimed is:

1. In a clarinet of Boehm type, means providing a C—G tone hole, a key pad covering said tone hole, and means for lifting said pad, said tone hole producing the tones C and G respectively with the B-flat and F tone holes respectively covered.

2. In a clarinet having on the lower section the regular three tone hole rings with a tone hole and pad at the upper end of the group and a pad covered tone hole at one side of the ring group by which B or F♯ is played, means providing a C and G tone hole above the B—F♯ tone hole and at one side of the group of rings, a pad for said C—G tone hole, a sleeve connected with said last pad and concentrically pivoted with the B—F♯ tone hole pad, and a lever coupled with said sleeve and extending to a position between the first and second ones of the three rings, said C—G tone hole producing the tones C and G, respectively, with the B♭ and F tone holes respectively covered.

3. In a clarinet having on the lower section the regular three tone hole rings with a tone hole and pad at the upper end of the group and a pad covered tone hole at one side of the ring group by which B or F sharp is played, means of playing C—G tone hole located in substantially the same plane transversely of the instrument as the tone hole pad above the first one of the three rings, a pad covering said C—G tone hole, means facilitating oscillations of said last pad, and an actuating lever connected with said means and extending to a position between the first and second rings said C—G tone hole producing the tones C and G, respectively, with the B♭—F tone holes respectively covered.

4. In a clarinet having the regular thumb hole adjacent the register key controlling lever, means providing a C-sharp and F-sharp tone hole located adjacent to said thumb hole, a pad covering said tone hole, means facilitating oscillation of said pad, and a lever connected with said means and extending to a position above the pad attached to the lower ring of the upper main joint of the instrument and designed to be manipulated by the second finger of the left hand, the said tone hole producing the tones C♯—F♯, respectively, when opened from the B position (second space above staff) or E position (first line of staff), respectively.

5. In a clarinet having the regular thumb hole adjacent the octave key controlling lever and having in the lower section the regular three tone hole rings with a tone hole and pad at the upper end of the ring group, a new means of playing the difficult B-flat—D-flat broken interval trill, which comprises providing a C♯—F♯ tone hole adjacent the thumb hole, a pad covering the same, means for raising said pad with the second finger of left hand, providing a C—G tone hole adjacent to the tone hole above the three tone hole rings, a pad covering the C—G new tone hole, and lever means for raising said last pad which is positioned between the first and second tone hole rings, the said trill being accomplished by playing B-flat with the 12th, or register key open, left thumb tone hole and the index (first) finger tone hole of each hand closed and then simultaneously opening the C♯—F♯ and C—G tone holes which will give the tone D-flat.

6. In a clarinet having on the lower section the regular three tone hole rings with a tone hole and pad at the upper end of the group and a pad covered tone hole at one side of the ring group by which B, or F sharp is produced, means providing a C and G tone hole above the B-flat tone hole and at one side of the group of rings, a pad for said new hole, a sleeve connected with said last pad and concentrically pivoted with the B—F-sharp tone hole pad, and a lever coupled with said sleeve and extending to a position between the first and second ones of the three rings, the said C—G tone hole and the B—F-sharp tone hole being of the same size, and a finger connected with said sleeve and arranged to lift the B—F-sharp tone hole pad when the new tone hole pad is raised.

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