

[54] **OBOE FINGERING SYSTEM AND MOUTHPIECE**

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**Related U.S. Application Data**

[60] Division of Ser. No. 349,625, April 9, 1973, Pat. No. 3,789,721, which is a continuation-in-part of Ser. No. 234,481, May 15, 1972, abandoned.

[57] **ABSTRACT**

[52] **U.S. Cl.** ..... **84/380 A**, 84/382  
 [51] **Int. Cl.** ..... **G10d 7/00**  
 [58] **Field of Search** ..... 84/380, 380 A, 382

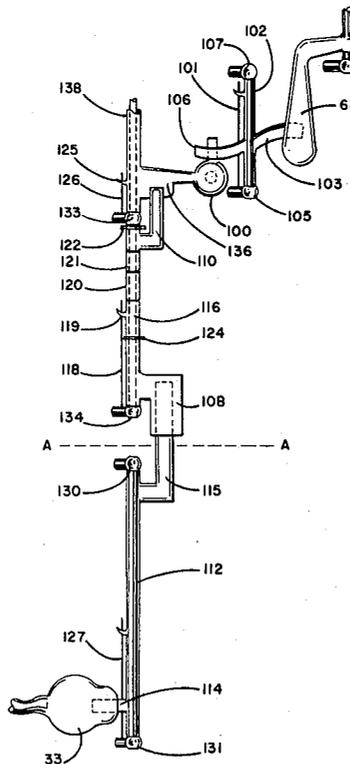
The new oboe or English horn fingering system of the invention comprises a series of new keys added to the instrument and rearrangement of a number of existing keys which cooperate to achieve a new and more versatile fingering system.

[56] **References Cited**

**UNITED STATES PATENTS**

**1 Claim, 4 Drawing Figures**

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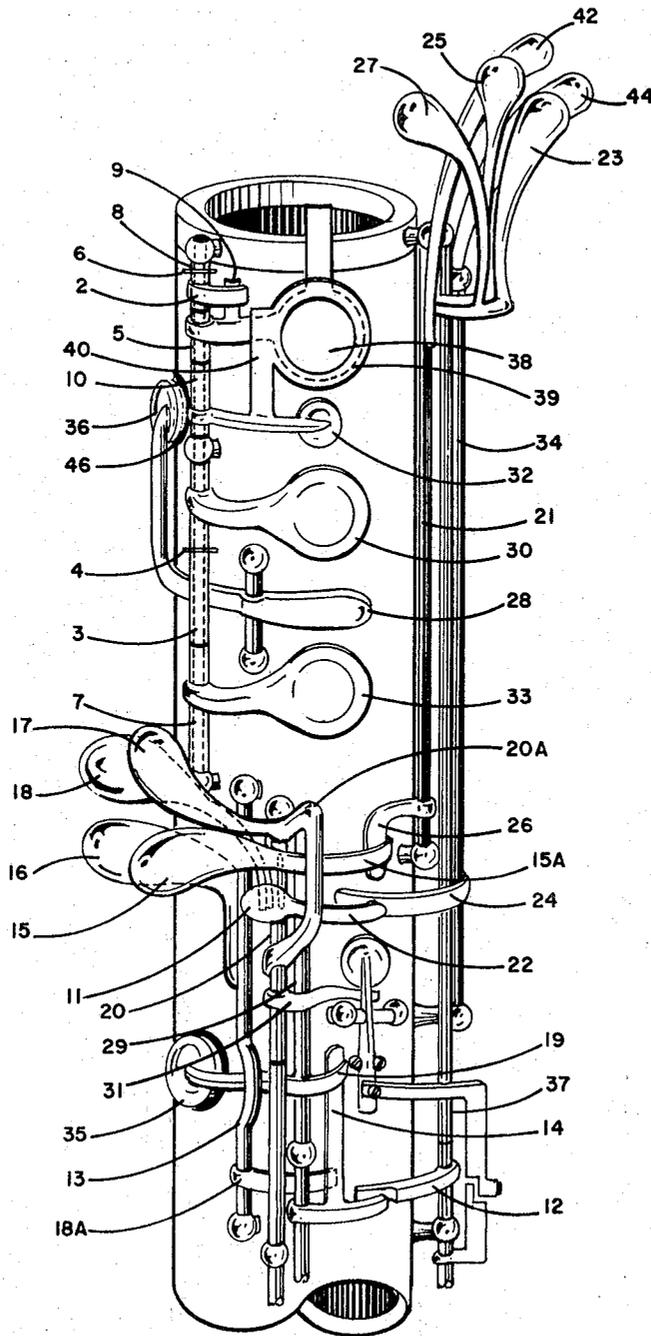


FIGURE 1.

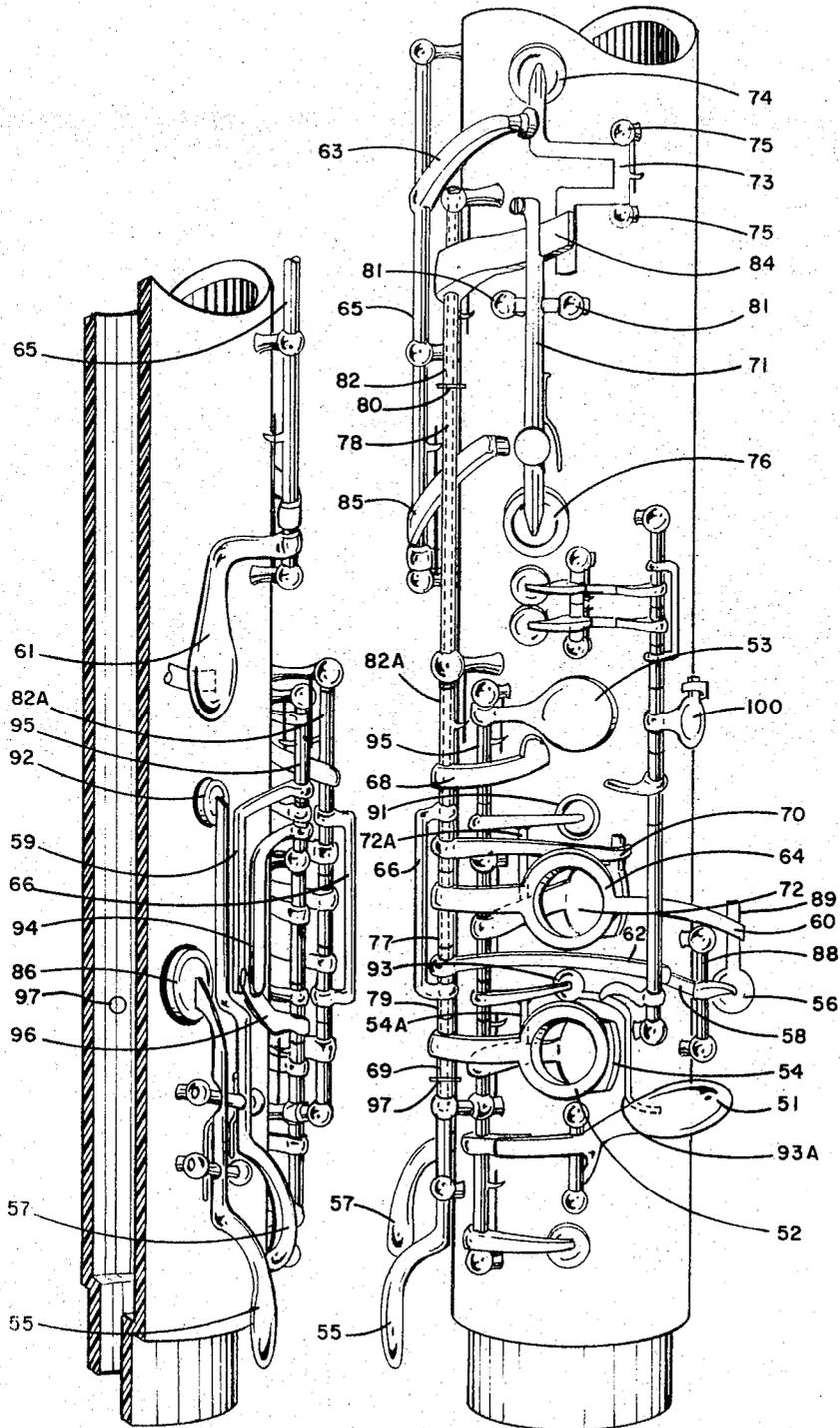


FIGURE 3.

FIGURE 2.

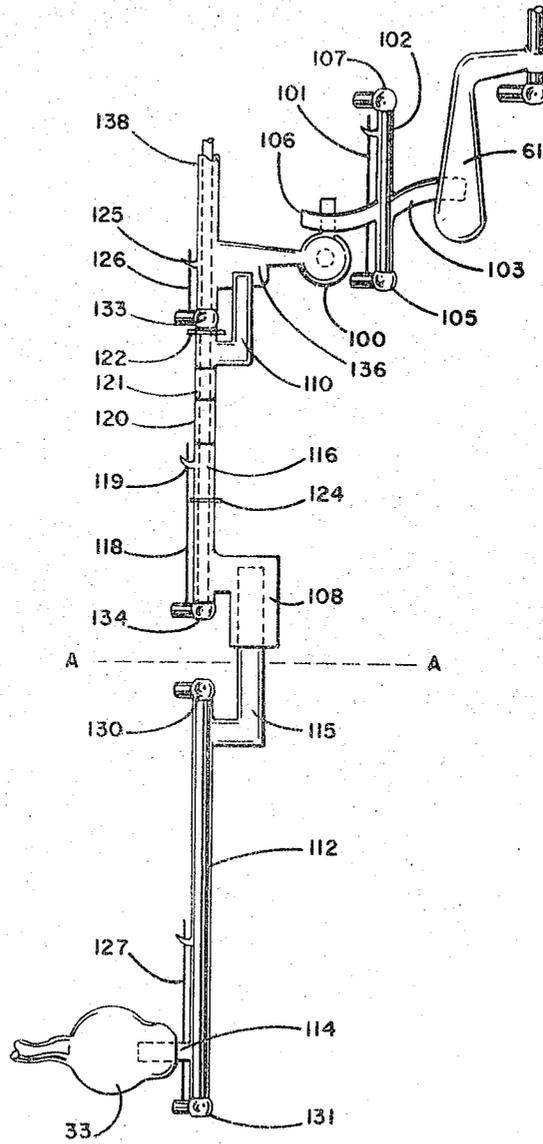


FIGURE 4.

**OBOE FINGERING SYSTEM AND MOUTHPIECE**

This is a division, of application Ser. No. 349,625, filed Apr. 9, 1973, now U.S. Pat. No. 3,789,721, which is a continuation-in-part of my copending application Ser. No. 234,481, filed May 15, 1972 now abandoned.

**BACKGROUND OF THE INVENTION**

The classic or state of the art oboe and fingering system has been used for generations without significant change. However, such a fingering system has a number of disadvantages which makes intervals between certain of the keys and notes quite difficult, especially for other than advanced oboist. Moreover, a few intervals, for example, low B flat to C sharp or D sharp, a D sharp to F natural trill as well as others are extremely awkward or difficult even for the advanced or professional player. It is to the elimination of such difficult fingering that the present invention is directed.

**SUMMARY OF THE INVENTION**

The present oboe fingering system is designed to give the oboist a greater versatility and ease in playing certain intervals and scales as well as to increase the speed at which intervals and scales may be accomplished and an improved control of the instrument while performing. Specific details and advantages of the new fingering system will be evident from the following detailed description.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 illustrates a partial view of an oboe showing the lower half or right hand portion of the fingering system of the invention;

FIG. 2 illustrates a partial view of the oboe showing the upper portion or left hand of the fingering system;

FIG. 3 is another view of the upper portion shown in FIG. 2 and illustrating a further embodiment of the improved fingering system;

FIG. 4 is a view of still another improvement of the fingering system with the components of the assembly detached from the instrument.

**DETAILED DESCRIPTION OF THE INVENTION**

Referring now to FIGS. 1 and 2, there are illustrated partial views of the lower portion (FIG. 1) and upper portion (FIG. 2) of an oboe incorporating the improved oboe fingering system of the invention. The figures illustrate all of the fingering keys located on the lower and upper portions or halves of the oboe so that the tone hole pad covers and bell end of the instrument below those keys shown in FIG. 1 are not shown for simplicity and since they remain substantially unchanged from existing oboes. For the sake of simplicity, the key and the sequence of playing the keys of the fingering system of the invention will be described individually beginning with the low end of the oboe scale. When tone hole covers are referred to it will be understood that they include pads for closing the tone holes with no vent holes in the keys anywhere. Reference will be made by comparison with existing oboe fingering systems known to those skilled in the art and shown in beginning oboe books, for example, the Rubank oboe chart by N. W. Hovey or any similar available fingering charts.

**LOW B FLAT**

On an oboe or English horn the fingering for low B flat according to the system of the invention is significantly improved. To sound low B flat, left hand keys 53, 64, 52 (FIG. 2), 23 and right hand keys 39, 30 and 33 are depressed. A cross bar 12 and T bar 14 connected to the existing low B natural hinge tube 29 and tone hole cover cooperate with cross member 19 to close C natural tone hole cover 35 and existing B natural pad cover when B flat key 23 is depressed with little finger left hand. B flat key 23 is attached to hinge tube 37 as is cross bar 12 so that when key 23 is depressed, the cross bar is displaced or elevated and which also displaces cooperating T bar 14 since the ends of these members abut one another as shown. The upper end of the T bar underlies cross member 19 and is attached to hinge tube 29 as is the C natural key 15. Accordingly, when B flat key 23 is depressed C natural key 15 is also depressed, along with B natural tone hole cover and pad (not shown) attached to hinge tube 29, due to the cooperation of the cross bar 12 and T bar 14 to close the C natural tone hole underlying tone hole cover 35. This leaves the oboe player's little or fourth finger right hand free to make smooth and rapid transitions to actuate other keys which is especially important when attempting a trill from B flat to B natural or, for example, intervals between B flat and C sharp or D sharp. Such a feature presents a decided advantage over the existing oboe fingering system in which the player must hold down B flat, a C natural bar and at the same time cover a D natural hole with the third finger right hand just to trill to C sharp. Moreover, when playing an interval from B flat to C sharp, the little finger right hand is required to slide to C sharp or D sharp which is very cumbersome and awkward requiring a four finger combination, the present system only a two finger movement. Further, in the old or existing system, B flat to D sharp interval requires depressing the B flat key with little finger left hand while third finger right hand depresses a C natural bar and at the same time covers a D natural tone hole. Thus, in making the interval, the third finger right hand must be pulled back off the C natural bar using a right hand rocking motion while keeping the D natural hole covered which is extremely unnatural. With the system of the invention, the player simply alternately depresses B flat key 23 or C sharp key 18. A further significant improvement is the interval between B flat and B natural. A new B natural key 16 has been added for depression by the right hand little finger so that the interval can simply be played by holding down or depressing B natural key 16 with the right hand little finger while raising and lowering little finger left hand for actuation of B flat key 23. Thus, a high speed B flat to B natural trill can be accomplished with extreme ease as opposed to the old or existing fingering system which required the player to slide the little finger left hand back and forth between the B natural and B flat key which is considered very impractical.

**LOW B NATURAL**

A new B natural key 16, as previously noted, has been placed for actuation by little finger right hand and which key depression causes pivot of hinge tube 13 in turn elevates cross bar 18A attached to the hinge tube as shown. This cross bar displacement also displaces T bar 14 and, as previously explained, because of the co-

operation of the T bar and cross member 19, C natural tone hole cover 35 is closed and C natural key 15 is concomitantly depressed without requiring the player to depress the key. This feature greatly enhances the ability to play intervals from low B natural to C sharp to D sharp to B natural, without sliding, B natural to G sharp to D sharp to low B natural, also since the little finger left hand is free to make such intervals whereas under the old system the left hand little finger was required to hold down the C natural key. Accordingly, in the instant system, B natural key 16 played in the right hand is in addition to existing B natural key 25 which is connected to hinge tube 37 and which offers much greater versatility in making otherwise difficult intervals. Thus, low B natural may now be played by depressing either key 25 or key 16 as well as keys 53, 64, 52 (left hand) and 39, 30 and 33.

#### LOW C NATURAL

A new C natural key 42 has been added and is located directly beneath the existing low left hand B natural key 25. The left hand C natural key is attached to hinge tube 21 as is cross bar 26. The location of the right hand C natural key 15 has been moved in the fingering system of the invention and which key includes an extension 15A overlying cross bar 26. Thus, when left hand C natural key 42 is depressed, hinge tube 21 rotates and cross bar 26 is elevated and urged against extension 15A thereby causing depression of right hand C natural key 15 and C natural tone hole cover 35 is closed. However, right hand C natural key 15 works independently of key 42 to achieve a greater variety of fingering possibilities. Thus, low C natural can be played by depressing either key 42 or key 15 together with keys 53, 64, 52, 39, 30 and 33. This improved C natural fingering also eliminates an old C natural bar which was required to be depressed by third finger right hand as earlier described. Such versatility will also be better understood hereinafter by explanation of additional keys in both the left hand and right hand little finger key arrangement whereby a variety of trills can be easily accomplished in either hand. Because of the newly added left hand C natural key 42, a variety of intervals may be easily played which were heretofore much more difficult. Examples of such intervals include D natural to B natural, C natural to D sharp, and C natural to C sharp, all without difficult and awkward finger sliding techniques which were required. Moreover, C natural to C sharp trill is accomplished by holding down right hand C natural key 15 and trilling C sharp key 44 with the left hand or alternatively holding down left hand C natural key 42 and trilling right hand C sharp key 18.

#### LOW C SHARP

Two new C sharp keys have been added, right hand C sharp key 18 and left hand C sharp key 44 which, together with the old existing C sharp key 11, offer a variety of alternative finger combinations. Low C sharp may now be played by depressing either key 44 or key 18 together with keys 53, 64, 52, 39, 30 and 33. Left hand C sharp key 44 is attached to hinge post 34 which causes cross bar 24 to be elevated when key 44 is depressed. An extension 22 has also been added to existing C sharp key 11 so that when cross bar 24 is displaced, it is urged against extension 22 which causes concomitant depression of key 11. Right hand C sharp

key 18 is connected at its end, such as by soldering or the like, to C sharp key 11, which is attached to hinge tube 20. Moreover, a short bar, shown partially in phantom, underlying keys 11 and 15, is connected to the latter so that depression of key 11 causes depression of key 15. Thus, when either of these three C sharp keys are depressed, hinge tube 20 is pivoted, except for the segment to which arm 31 is attached, and opens a tone hole cover and pad covering the existing C sharp tone hole (not shown) and at the same time depresses key 15 which rotates hinge tube 29 and closes the C natural tone hole cover 35, as in the old system. With these additional C sharp keys, there is significant advantage offered over the old C sharp fingering system which required holding down the C natural bar with fourth finger right hand and then trilling C sharp with the right hand little finger. However, with the system of the invention, the left hand C sharp key 44 can be depressed independently to achieve the desired tone. The advantages of these C sharp keys also is particularly useful in playing chromatic scales as well in the keys of G flat, D flat, or B major whereby intervals from low D sharp to C sharp to B natural to D sharp to C sharp are much more easily accomplished. Right hand C sharp key 18 offers particular advantage even to the professional who might have much difficulty in making or playing such intervals rapidly in the low register. D natural to C sharp trill is also easily accomplished in the right hand because of the position of key 18 as compared to old key position 11. The fingers no longer need to reach out or spread unnaturally. Further, key 18 is positioned directly under newly positioned D sharp key 17 and adjacent B natural key 16 for additional ease in playing intervals to those notes.

#### D NATURAL

Fingering for low D natural remains unchanged by depressing keys 53, 64, 52, 39, 30 and 33 while middle or second octave D natural can now be played without moving the first finger left hand forward to uncover a vent hole in the center of the B natural key. Instead, for middle D only the single octave key 61 (FIG. 3) is depressed together with the same keys for low D natural. Low D natural key 33 is provided with a solid tone hole pad so that unlike earlier open hole oboes having vented keys, key 33 merely needs to be pressed and the D tone hole is covered. D natural key 33 also activates and controls the automatic vent key which is discussed hereinafter.

#### D SHARP

Low and middle octave D sharp is played with the same fingering as in the old system. Thus, keys 53, 64, 52, 39, 30 and 33 are depressed together with either key 17 or key 27 for low D sharp plus octave key 61 for middle octave D sharp. Right hand D sharp key 17 has been moved to a new position shown in FIG. 1 making it much easier to play, for example, in the key of B major. D sharp key 17 is attached to hinge tube 20 by a bridge 20A. Hinge tube 20 is split as shown so that depression of key 17 elevates arm 31 and does not affect the C sharp keys 18 and 11 attached to the upper segment of the hinge tube so that when playing in the key of B major, or otherwise making an interval from low B natural to C sharp to D sharp to B natural or C sharp to low D sharp, the movement for the player's right hand little finger is much more natural than the old sys-

tem which required sliding the little finger from C sharp to D sharp.

### E NATURAL

Low and middle E natural fingerings are unchanged. However, there is no longer a vent hole in the middle of key 30 as found on the old system. This vent hole has been eliminated due to the alteration and fingering change of the F natural. A solid tone hole cover and pad now closes this tone hole.

### F NATURAL

F natural has been altered by incorporating an over ring 39 attached to bridge member 40 and in turn attached to F sharp tone hole cover 32. Located beneath over ring 39 is tone hole cover 38 which is a newly positioned F natural fingering. Accordingly, the F natural tone hole of the present invention is now located beneath key 38 and allows the note F natural to be produced through a new tone hole making possible a much clearer sounding note. It is now in place of the old F sharp fingering. The F sharp fingering has instead been moved to key and tone hole cover 30. Moreover, the F natural tone hole has been made slightly smaller and has a diameter of approximately nine sixty-fourths inch. To play F natural according to the invention, the oboist uses only the first finger right hand to depress over ring 39 which also causes depression of tone hole covers 38 and 32. Low F natural also requires depression of left hand keys 53, 64 and 52 while for middle octave F, octave key 61 is also depressed. Such a fingering for F natural is a significant improvement over the old F natural in fingering system whereby first, second and third fingers right hand are required to depress keys to achieve that note.

### F SHARP

One F sharp position and fingering according to the invention requires depression of key 30 with second finger right hand instead of first finger right hand position according to the old system. The F sharp tone hole located beneath tone hole cover 32 has been enlarged from eleven sixty-fourths inch fifteen sixty-fourths to fifteen-sixtyfourth inch or one-fourth inch with the specific diameter depending on the individual instrument and the pitch of the note desired. It will be noted that the hinge tube to which keys 33, 30 and 39 are attached is split into segments 7, 3, 10, 5 and 8. The hinge tube is hollow and has a rod (shown in phantom) extending through the length of the tube's hollow interior. Pin 4 secures segment 3 to the rod while pin 6 similarly secures segment 8 to which bar 2 is attached. Thus, key 33 works independently from keys 30 and 39. When key or over ring 39 and F natural tone hole cover 38 are depressed, keys 33 and 30 remain open. However, when the instrumentalist depresses key 30, tone hole cover 38 will also be depressed since hinge tube segments 3 and 8 will rotate because of pins 4 and 6 thereby causing depression of bar 2 (attached to segment 8) which overlies stud 9 attached to the tone hole cover 38. Yet, over ring 39 is not then depressed due to the action of a spring (not shown) which holds the over ring, bridge member 40 and tone hole cover 32 up unless specifically depressed since these members are secured to independent segment 10. Thus, the new F sharp tone hole located beneath tone hole cover 32 remains open when key 30 is depressed to sound F sharp.

When playing low F sharp, keys 53, 64 and 52 are also depressed as is octave key 61 when playing middle or second octave F sharp. Accordingly, the improvement of the present F sharp comprises enlarging the size of the tone hole, the new fingering position, the elimination of a vent hole in key 30, and the operating mechanism of the key as described herein.

### F SHARP TRILL KEY

A new F sharp trill key 28, tone hole cover 36 and underlying tone hole 46 have been added to the instrument. Thus, an additional F sharp tone hole 46 has been placed on the instrument adjacent and in line horizontally with the F sharp tone hole under tone hole cover 32. This new tone hole is substantially the same size as the previously described F sharp tone hole, i.e., between about fifteen sixty-fourths inch and one-fourth inch depending on the specific instrument and intonation desired. Accordingly, F sharp trill key 28 can be actuated independent, and normally first finger right hand depresses key 39 and the third finger right hand depresses key 28. Thus, F sharp can be produced either by actuating the trill key 28 and key 39 or by depressing key 30 singularly as previously explained which gives added versatility to the instrument.

Referring now also to FIG. 2, there is shown an upper half of the oboe and fingering system of the invention with the upper portion thereof omitted. FIG. 3 shows the side of the instrument and keys thereon which are not visible in FIG. 2. It is also to be understood, and it will be evident to those skilled in the art, that in the previous discussion regarding the described fingering techniques and system that keys 53, 64 and 52 in FIG. 2 are depressed with first, second and third fingers left hand to achieve notes as previously described. Moreover, although certain keys will be described as over rings, it is to be appreciated that these keys may comprise solid discs or plateaus to achieve the same purpose.

### G NATURAL AND THE SINGLE ACTION OCTAVE KEY

Referring to FIG. 2, G natural key position is unchanged but now comprises a tone hole cover and pad 54 and over ring 52 which may be independently actuated since they are respectively attached to different hinge tubes as shown. G natural is played by depressing over ring 52 and underlying key 54 with the third finger left hand with, of course, A natural and B natural keys 64 and 53 being depressed at the same time. Attached to and adjacent the upper end of hinge tube segment 82 is cross bar 84 which extends to engage arm 71 for actuating octave hole cover 76 and arm 73 for actuating octave hole cover 74. Arm 73 is pivotally connected between posts 75. The hinge tube to which over ring 52 is attached is also segmented in a manner as previously described with a rod extending there-through. Pin 97 extends through the rod and segment 69 while pin 80 extends through the rod and segment 82. When over ring 52 is depressed, underlying G natural tone hole cover 54 is depressed and at the same time hinge tube segments 69 and 82 are rotated whereby cross bar 84 is depressed. As this occurs, arm 73 is depressed, as is octave hole cover 74, while octave hole cover 76 is raised by a biasing spring with arm 71 pivoting on posts 81.

Cooperating with this mechanism is octave key 61 shown in FIG. 3 which is connected to hinge tube 65

to which tube are also attached arms 63 and 85 shown in FIG. 2. Octave key 61 is referred to as a single action octave key and eliminates the old system which utilized two octave keys. Thus, in the new fingering system a left side octave key has been removed. As will be understood by those skilled in the art, the second or left side octave key was a bar which was required to be held down with the side of the first finger left hand while playing octaves A natural, B natural, C natural and C sharp and which was released while depressing the left hand thumb octave key for playing certain other octave notes. When the person was required to hold the side of the first finger left hand on the octave key it significantly reduced the efficiency of playing notes with the fingers of the left hand.

Observing FIGS. 2 and 3, when octave key 61 is depressed with the thumb of the left hand and which is the only octave key now used, hinge tube 65 will be rotated to elevate arms 63 and 85 and allow octave hole covers 74 and 76 to be elevated for upper octave notes. With this understanding, low G natural is played without octave key 61 depressed while second octave G natural is played with the octave key depressed. Thus, when playing low octave G by depressing over ring 52, but without depressing octave key 61, arms 63 and 85 remain depressed and octave hole covers 74 and 76 are closed. When octave key 61 is depressed, arms 63 and 85 are elevated so that when at the same time G natural over ring 52 and tone hole cover 54 are depressed, arm 84 is also depressed to close octave key 74 while octave key 76 remains open sounding G natural in the second octave. The next note up, second octave A natural, is where the old system second octave key bar was placed; instead one merely raises the third finger left hand of the G natural key 52 activating cross bar 84 against arm 71 to close cover 76 and releasing cover 74, thus sounding second octave A natural. Octave key 61 is depressed for middle D natural and all higher notes.

Moreover, as shown in FIG. 2, hinge tube 95 is also segmented and tone hole covers 91 and 93 are each attached to independent segments thereof as are tone hole covers 72 and 54 unlike the old system whereby all these keys were attached to each other. Lift springs (not shown) underlie the arms extending between the hinge tube segments and tone hole covers 91 and 93 whereby they remain open until depressed in response to depression of other keys or over rings as do covers 54 and 72. Observing also FIG. 3, cross bar 94 is attached to cover 91 unlike the old system where it was attached to a key replaced by tone hole cover 72. Cross bar 96 is now attached to cover 93 instead of a key corresponding to cover 54 in existing oboes. Thus, cooperating cross bars 59, 94 and 96 cause depression of different combinations of tone hole covers 91 and 93 depending on which keys are depressed. Two new cross bars 72A and 54A (see FIG. 2) have been added for the purpose of closing tone hole covers 91 and 93 by the depression of tone hole covers 72 and 54 respectively. As over ring 64 is depressed also depressing its underlying cover 72 to which is attached cross bar 72A, cover 91 is also depressed and held closed by the pressure of cross bar 72A acting on the cover arm. It will be noted that bar 72A underlies members 64 and 70. Similarly, cover 93 is closed with applied pressure from cross bar 54A which is attached to cover 54 and the latter being depressed when over ring 52 is also depressed. For ex-

ample, when over ring 52 is depressed as is tone hole cover 54 and cover 93, cross bar 96 is elevated by the rotating hinge tube segment to which it is attached and causes elevation of cross bar 94. In turn, since tone hole cover 91 is attached to the same hinge tube segment as is cross bar 94, covers 93 and 91 will be then closed when G natural over ring 52 and tone hole cover 54 are depressed. Moreover, cross bar 93A has been moved from the old G natural key and is now permanently attached to the top of cover 93. It extends out and reaches under the G sharp key 51 and underlies the latter for depression by key 51. When key 51 is depressed as is cross bar 93A it will be noted that covers 93 and 91 will be closed due to the cross bar 96, as described herein.

#### G SHARP

The G sharp fingering remains the same in both low and middle octaves, for either left or right hand fingering. However, a new trill for G sharp has been created, and due to the interrelationship of the system, it is much less difficult. The player simply depresses keys 53 and 64 with the first and second fingers left hand and key 39 with the first finger right hand the latter being the trill finger. The old system required trilling with the third finger left hand, a much more difficult technique for rapid trilling. Accordingly, the old G sharp trill required holding down of fourth or little finger left hand and first and second finger left hand while raising and lowering the third finger which is obviously difficult.

#### A NATURAL

Low A natural is played the same by depressing keys 53 and 64. Second octave A natural is played by simply depressing the same keys and octave key 61 whereas in the old system the alternate or second octave key bar was used. It is to be noted that over ring (key) 64 is attached to independent hinge tube segment 77 which allows over ring (key) 52 to remain elevated so that octave hole cover 76 is depressed and cover 74 elevated to produce the second octave A natural. Depression of over ring 64 also causes closing of new B flat tone hole pad 56 when key 68 has been depressed by allowing arm 60 to urge the underlying tone hole cover extension 89 downwardly.

#### B FLAT (OCTAVE 2 AND 3)

A new B flat key 55 has been added for playing with the side of the right hand first finger to open B flat tone hole beneath cover 86. The diameter of the new B flat tone hole is about three thirty-seconds inch. Cover 86 and its tone hole beneath are located directly adjacent cover 93 (to the side). Thus, second octave B flat may be played by depressing key 55 with the side of the first finger right hand while at the same time depressing keys 53 and 64 first and second fingers left hand respectively. Third octave B flat is played identically except that octave key 61 is also depressed.

A new left hand B flat key 68 has also been added to make playing in a certain key such as G minor, A flat, E flat, B flat and others in which the B flat is frequently used, much simpler. Playing B flat with key 68 requires the instrumentalist to depress B natural key 53 and key 68 simultaneously with the first finger left hand. Depression of key 68 also closes A natural tone hole cover 72 and at the same time a newly added B flat tone hole 97 adjacent cover 93 and to the side (FIG. 3) is opened

since tone hole cover 56, normally in a closed position, is elevated as arm 62 is depressed against flexible spring member 58. This will be observed from FIG. 2 wherein key 68 is attached to hinge tube segment 82A as is bridge 66 and which bridge also is secured to hinge tube segment 79 as is arm 62. Over ring 64 extends from independent tube segment 77 so that as key 68 is depressed causing hinge tube segments 82A and 79 to rotate, arm 62 is depressed against member 58 rotating hinge tube 88 and elevating B flat tone hole cover 56 from the tone hole. The new B flat tone hole 97 which underlies B flat tone hole cover 56 is also approximately three thirty-seconds inch in diameter. Utilizing the new fingering system, a new A natural to B flat trill may be played by raising and lowering the second finger left hand on over ring 64 while depressing new B flat key 68 and key 53 with first finger left hand. G natural to B flat trill may be easily accomplished by maintaining keys 53 and 68 depressed with first finger left hand while raising and lowering second and third fingers left hand on over rings 64 and 52. Third octave B flat is played the same as the second octave note except that octave key 61 is also depressed.

#### B NATURAL (OCTAVE 2 AND 3)

A new cross bar 59 (FIG. 3) has been attached to hinge tube 95 so that when key 53 is depressed, tone hole covers 91 and 93 are also depressed leaving both tone hole covers 72 and 54 in a raised position to sound B natural. These covers remain open to sound C sharp unless B natural key 53 is depressed as opposed to the old system where these covers were closed normally until opened by depressing the right hand first finger key to sound B flat, C natural and C sharp. This embodiment replaces a lengthy bar used in the old system for this key. Observing also again FIG. 3, when key 53 is depressed, new cross bar 59 is elevated on the rotating segment of hinge tube 95 which thus lifts cross bars 94 and 96 thereby depressing both tone hole covers 91 and 93 only. Thus, cross bar 59 and tone hole cover 53 are commonly attached to the same segment of hinge tube 95 whereas cross bar 96 and tone hole cover 93 are commonly attached to a different segment of the hinge tube. In addition, cross bar 94 and tone hole cover 91 are commonly attached to still a different segment, as described earlier under G natural. It will be appreciated that this new fingering system also makes the B natural to C sharp trill a one finger exercise as opposed to the old system requiring two fingers. To play third octave B natural, in addition to key 53, octave key 61 is depressed.

#### C NATURAL (OCTAVE 2 AND 3)

Second octave C natural is played by depressing over ring 64 with second finger left hand. Third octave C natural is played in the same way but also requires depression of octave key 61 with the thumb of the left hand. Both of these notes are obviously played with much more simplicity as compared to the old system requiring depression of keys with both the first finger left and right hand. A new side C natural trill key 57 has been added to give greater ease for playing trills and grace notes, the latter often required to enhance the sound of the basic melody note. Accordingly, this may be easily accomplished by depressing C natural key 57 which elevates tone hole cover 92 over a new C natural tone hole (about three thirty-seconds inch in diameter)

and key 53. Tone hole cover 92 is located directly adjacent cover 91 and to the side. Key 57 is located adjacent new B flat side key 55 and above it. Accordingly, the new C natural key 57 is depressed with the side of first finger right hand. It is also understood that key 55 is pressed with side of first finger right hand and also works independently for B flat. Observing again also FIG. 2, tone hole cover 72 underlying over ring 64 is attached to a segment of hinge tube 95 so that when cover 73 is depressed this causes cross bar 72A to be depressed thereby also closing tone hole cover 91 and leaving tone hole covers 53, 93 and 54 elevated, thus producing a clear second octave C natural with the second finger left hand. Although this fingering is the same as the old military system, the operating mechanism of the keys set forth is not the same. In old existing system, keys 91 and 93 are already in a closed position, this being their normal state. This does not produce a clear C natural as does the new system described herein.

#### C SHARP

Middle or second octave C sharp is played with no keys depressed and may be referred to as open C sharp. Third octave C sharp is played by depressing octave key 61 so that it will be understood that the playing of these notes is greatly simplified from the old fingering system. High or third octave C sharp may also be played by depressing octave key 61, over rings 64 and 52 with second and third finger left hand respectively, and keys 39, 30 (FIG. 1) and key 15 in the right hand. This latter key must be depressed for playing all notes above third octave C sharp, with the exception of the notes A natural, A sharp, B natural and C natural fourth octave to which the alternate key 17 may be applied. It will be further noted that, due to the development of the simplified fingerings above the third octave C sharp, all the old system alternate and out of tune fake fingerings have been eliminated.

#### D NATURAL — THIRD OCTAVE

The fingering for third octave D natural requires depression of over rings 64 and 52 with second and third fingers left hand, key 39 (first finger right hand) and key 15 with little finger left hand. Of course octave key 61 is also depressed. Such a fingering is different from the old system requiring use of first, second and third finger left hand keys plus C natural key with little finger right hand or the alternate fingering using left hand first finger on the old second octave key while at the same time depressing D natural trill key and first and second finger right hand keys. Moreover, the instant system presents a simplified interval between C sharp and D natural by simply raising or lowering the second finger right hand as opposed to the old system requiring first finger right hand to be raised and first finger left hand to close B natural key but leaving the orifice or hole open which was obviously very inconvenient.

#### D SHARP — THIRD OCTAVE

This note is played like D natural except that the third finger right hand depresses key 28. Thus, the movement between D natural and D sharp third octave simply requires the depression of key 28. Referring to FIGS. 1 and 2, the new D natural fingering is depression of keys 64 and 52 second and third fingers left hand respectively and keys 39, 28 and 15 in the right hand by respective fingers one, three and four. Also oc-

tave key 61 is depressed. The old D sharp third octave fingering required first finger left hand rolled forward to open the old vent hole in B natural key while second, third and little fingers left hand depressed keys together with the second and third fingers right hand as well as second octave key, a total of seven fingers to play one note.

#### E NATURAL — THIRD OCTAVE

Third octave E natural is played with octave key 61 depressed as well as over ring 64 and 52 in the left hand and key 17 in the right hand, thus being only a single finger variation between D natural and E natural. The ease of playing E natural in the third octave as opposed to the old seven finger combination which will be understood by those skilled in the art.

#### F NATURAL — THIRD OCTAVE

The F natural fingering is a one finger movement from E natural. The depression of over rings 64, 52 and key 51 with the second, third and fourth fingers left hand respectively, octave key 61, plus key 15 with the right hand fourth finger, produce this note. Seven fingers were needed to make this same note on the existing old system, being an obvious hardship.

#### F SHARP — THIRD OCTAVE

The fingering of this note requires only the depression of octave key 61, over ring 64, key 51 and key 17 so that it is only a one finger variation from F natural third octave. In the old system a number of keys were to be depressed for this note which was much more difficult as will be understood by those skilled in the art.

#### G NATURAL AND G SHARP — THIRD OCTAVE

G natural is played by depressing octave key 61, key 53 and over ring 64 in the left hand and over ring 39 and key 15 in the right hand. G sharp fingering requires only depressing octave key 61 and key 53 in the left hand and over ring 39 and key 15 in the right hand. Thus, the interval between G natural and G sharp in the third octave is a one finger movement and very simply accomplished.

#### A NATURAL — THIRD OCTAVE

This note is played by depressing left hand second and third fingers on over rings 64 and 52, octave key 61 and right hand keys 30, 33 and 17.

#### A SHARP, B NATURAL, C NATURAL AND C SHARP — FOURTH OCTAVE

The fingerings for the four notes identified in the fourth octave do not appear on standard oboe fingering charts. A sharp is played by depressing octave key 61 and over rings 64 and 52 with left hand second and third fingers, and keys 33 and 17 in the right hand with third and fourth fingers. For B natural, keys 64 and 52 are depressed, key 51 is held down with the little finger left hand and key 17 is depressed with the fourth finger right hand. For C natural, keys 64 and 52 are depressed with the left hand and keys 30, 33 and 17 with the right hand. For C sharp, keys 64 and 52 are depressed with second and third fingers left hand, plus key 61 and with the right hand keys 33 third finger and key 17 fourth little finger.

### AUTOMATIC VENT KEY

Referring now to FIG. 4, there is illustrated an optional embodiment which may be referred to as the automatic vent key the purpose for which is eliminating a vent hole found on the old system B natural key and played with first finger left hand. Normally in the old fingering system playing middle or second octave, D sharp or D natural, key 53 is depressed with first finger left hand but the finger rests on the key such that an orifice on the key itself remained open. Thus, for playing many intervals it was necessary to roll the finger back and forth on the key to open and close the orifice which movement is somewhat inconvenient and cumbersome. The new proposed automatic vent key 100, a covered tone hole, drilled into the side of the instrument and along the length thereof so that it is substantially in line horizontally with the tone hole beneath key 53 as shown in FIG. 2. The new tone hole has a diameter between about one-sixteenth and about five sixty-fourths inch.

The mechanism for operating automatic vent key 100 and the placement thereof will be appreciated by noting D natural key 33, observing also its position shown in FIG. 1, octave key 61 (see also FIG. 3) and line A—A which represents the approximate location of the part line between upper and lower halves of the instrument. Cooperating between automatic vent key 100 and octave key 61 is hinged member 102 which is supported and rotates between posts 105 and 107 secured to the other side of the instrument from the keys illustrated in FIG. 2. Hinge member 102 is also biased by a spring 101 and includes extensions 103 and 106, the former underlying and in abutment with octave key 61 as illustrated. Vent key 100 will remain in a closed position to cover the newly placed vent hole as previously described since spring 101 will hold extension 106 against the protruding part of vent key 100 until octave key 61 is depressed whereupon hinge member 102 will rotate and allow the vent key to open. Attached to vent key 100 is arm 136 which is secured to hinge tube 138 and which arm includes a protuberance 125 against which spring 126 acts to bias vent key 100 in an open position. However, spring 101 overrides that bias and acts to maintain the down pressure of arm 106 against the vent key 100 until octave key 61 is depressed whereupon the vent key will be opened. Also secured along hinge tube 138 is arm 110 secured downwardly from post 133 and arm 108 secured upwardly from post 134. Hinge tube 138 is hollow and has extending along its interior length a rod (shown in phantom) which allows portions or segments of the hinge tube to act independently of one another. Moreover, a pin 122 extends through hinge tube segment 133 and interior rod as does pin 124 on segment 116. The hinge tube is also split between extensions 110 and 108 to form independent segments 120 and 121. These two segments are located in the same positions as were keys D natural and D sharp in the old system. Observing now the other end or lower portion of the embodiment of FIG. 4 there is shown a hinge tube 112 secured between posts 130 and 131 and having a spring 127 which biases the hinge tube to urge cross bar 114 upwardly and maintain abutment with key 33. Member 115 is also secured to hinge tube 112 and underlies and cooperates with member 108 as shown. Accordingly, when low D natural key 33 is depressed, vent key 100 will re-

main closed even though member 115 is elevated thereby elevating abutting member 108 and in turn member 110 since, as previously explained, until octave key 61 is depressed, the vent key will remain closed due to the biasing action of spring 101. On the other hand, when only depressing octave key 61, vent key 100 will still remain closed unless key 33 is also depressed because springs 127 and 118 bias the respective hinge tubes to which they are attached to maintain extensions 115, 108 and 110 depressed with the latter one exerting downward pressure against arm 136 to keep the vent key closed. On upper octave or register notes on which the octave key 61 is used, vent key 100 is closed unless D key 33 is also depressed. Upper D natural in the second octave, is played by actuating both the octave key 61 and D natural key 33 simultaneously without requiring the instrumentalist to rock first finger left hand back and forth to open and close an orifice on key 53 and which orifice may now be eliminated entirely utilizing this embodiment. It will be appreciated that the apparatus shown in FIG. 4 will be secured to the instrument on the other side of the fingering keys shown in FIG. 2 whereby the hinge tubes and various extensions and members will be of sufficient length so that cross bar 114 underlies key 33, extension 103 underlies octave key 61 and cross bar 106 overlies new vent key 100 and the underlying orifice or hole in the instrument is appropriately placed as will be

30  
35  
40  
45  
50  
55  
60  
65

understood by those skilled in the art.

I claim:

1. In an oboe or English horn, a key arrangement comprising:

- first, second, and third keys to be actuated by the first, second and third fingers of the left hand, said keys located on the upper portion of said instrument;
- first and second octave holes located above said first key;
- first and second octave hole covers biased toward the open position;
- a single octave key having means connected thereto for closing both said octave hole covers when said octave key is not depressed;
- a tone hole located on the lower portion of said instrument corresponding to D natural and an overlying combined D natural key and tone hole cover; and
- a vent hole and cover therefor laterally displaced from said first finger left hand tone hole cover, means cooperating with said octave key and said D natural key for opening said laterally displaced vent hole cover when both said octave and D natural keys are simultaneously depressed and for closing said vent hole cover when either or both of said octave and D natural keys are undepressed.

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