

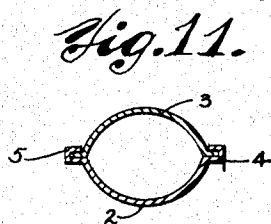
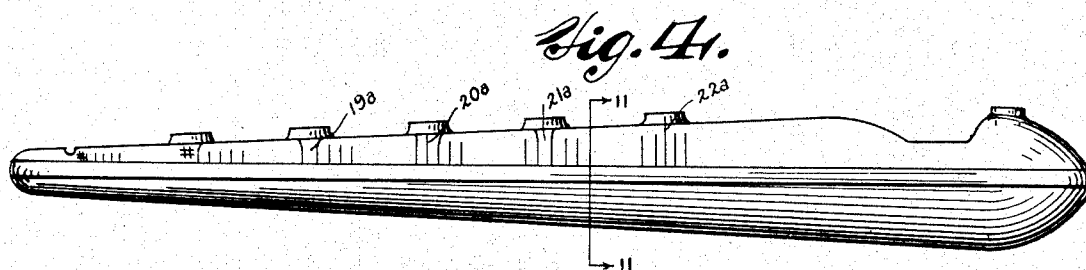
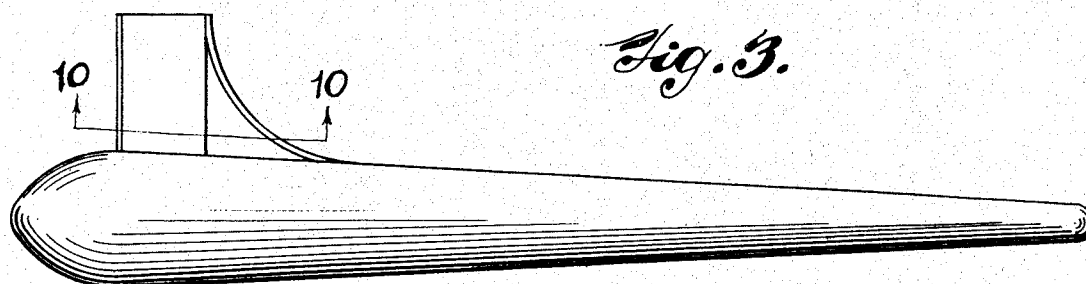
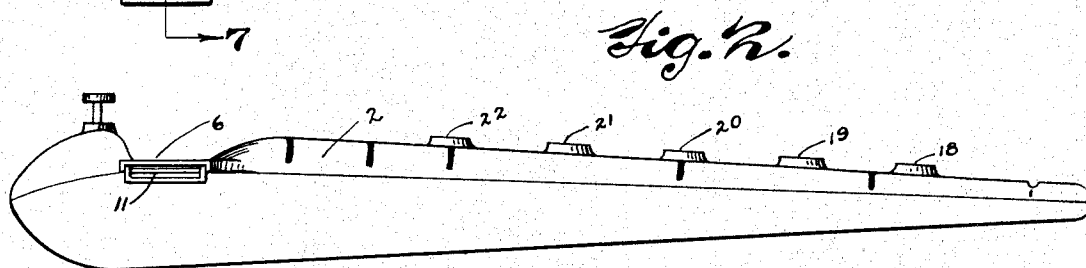
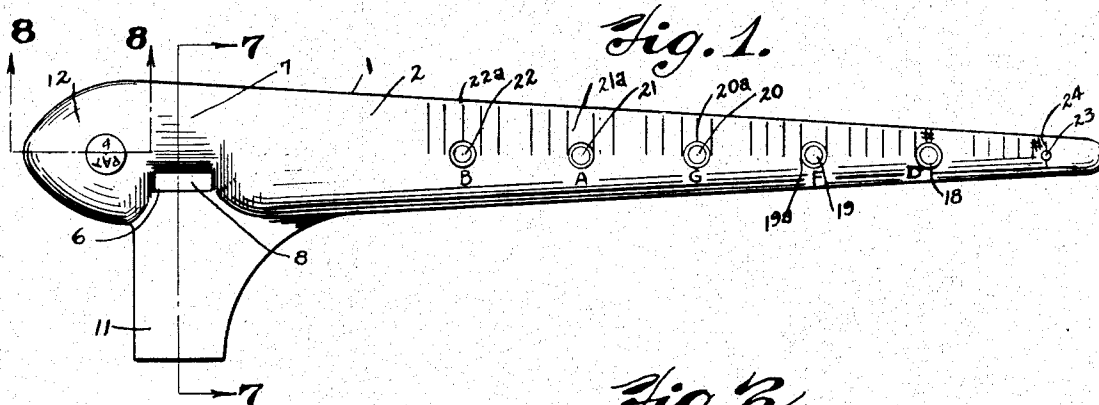
Jan. 13, 1931.

H. BERNARD

1,788,613

WIND INSTRUMENT
Filed June 26, 1923

2 Sheets-Sheet 1



Inventor

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Jan. 13, 1931.

H. BERNARD

1,788,613

WIND INSTRUMENT

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2 Sheets-Sheet 2

Fig. 5.

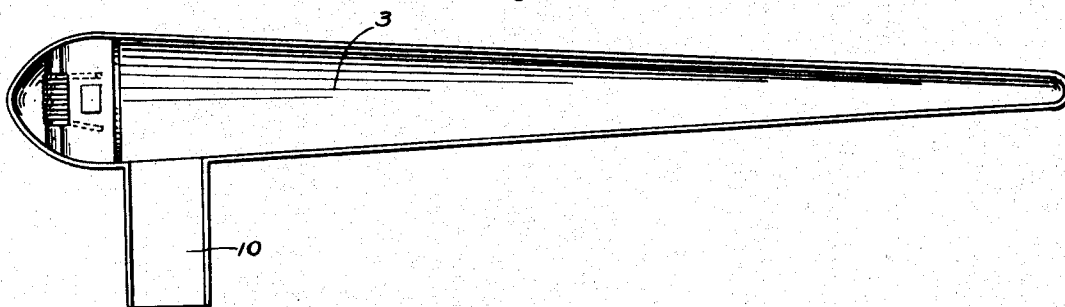


Fig. 6.

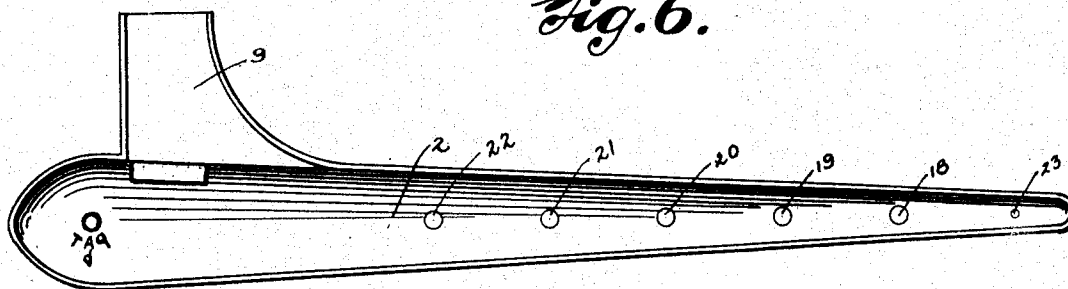


Fig. 7.

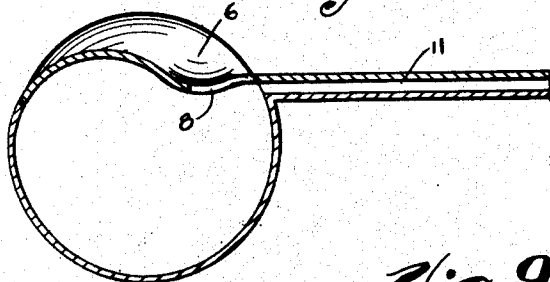


Fig. 8.

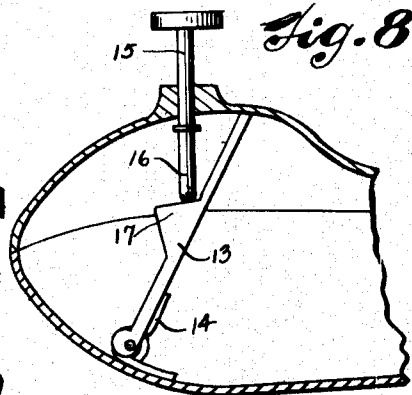
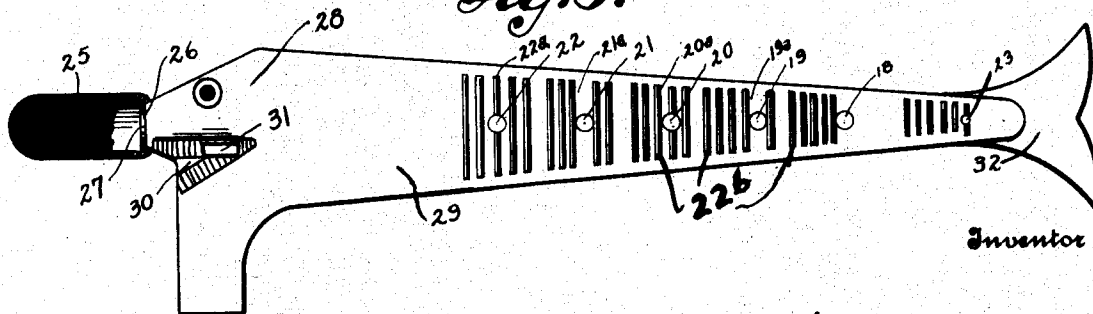


Fig. 9.



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WIND INSTRUMENT

Application filed June 26, 1923. Serial No. 647,895.

This invention relates to improvements in lateral-vent instruments of the so-called wood wind type and ocarinas in starting an upper register at C as one of its objects.

Another object of the invention is to provide an ocarina having a mechanical device for changing the size of the tone chamber whereby the tones may be quickly changed from full tones to half-tones, also to provide a vent having the same effect as "mechanical" device in nullifying a tone chamber for half-tones.

A still further object of the invention is to provide an ocarina having a series of tone holes or ports with a staff formed in connection therewith in such a manner so that the hole will indicate the note in the staff.

Another object of the invention is to provide an ocarina stamped from sheet metal, with integral wind-lay.

A further object of the invention is to provide an ocarina having a mouth on top of the instrument.

A still further object of the invention is to provide an ocarina of a long, tapering construction thus facilitating overblowing and causing the majority of notes to octave in tune, by discarding from the main (or octaving) scale those tones in an ordinary ocarina that require all vents closed and substituting a "leak" hole therefor.

With the above and such other objects in view as may hereinafter more fully appear, I have invented the device illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of an ocarina;

Figure 2 is a side elevational view thereof;

Figure 3 is a bottom plan view thereof;

Figure 4 is a side elevational view of a modified form;

Figure 5 is a plan view of one member of the device;

Figure 6 is a similar view of another member;

Figure 7 is a section on line 7—7 of Figure 1;

Figure 8 is an enlarged section on line 8—8, of Figure 1;

Figure 9 is a plan view of another modified form of the invention;

Figure 10 is a section on line 10—10, Figure 3; and

Figure 11 is a section on line 11—11, Figure 4.

Like reference characters indicate like parts throughout the following specification and in the several views in the drawings, in which 1 indicates the ocarina formed of two sections 1 and 2 (see Figs. 5 and 6) from stamped sheet metal, said sections being secured together by means of the overlapped seams 4 and 5 (see Figure 11). As will be noted in the drawings this ocarina is in a relatively long, narrow tapering form having a turned-in portion 6 in its large end 7, said turned-in portion extending to the mouth 8, in the upper section 2. Integrally formed on the members 2 and 3 in alignment with said mouth 8, are a pair of cooperating channel members 9 and 10 which forms the mouth piece or wind-lay 11. In the extreme head 12 of the enlarged end 7, is provided a pivoted valve 13, held normally closed by a spring 14 and controlled by a key 15, the inner end 16 of which bears upon the lug 17, whereby down pressure upon the key 15 will cause the valve 13 to open, thus enlarging the tone chamber and changing the full tones of the scale to half-tones through said enlargement being thrown in between the normal whole-tone progressions of the main scale-holes.

In this instrument I start the scale with the note "C", this, as other notes, being indicated on the upper surface of the member 2 by providing a staff in connection with which the leak forms the note "C", each of the ports 19, 20, 21 and 22 indicating notes on their accompanying staff lines 19a, 20a, 21a and 22a.

The vent or valve "pat" is used to "flat" all tones, so what is normally marked C sharp, D sharp, becomes C, D, when it is used.

To obtain the scale all of the ports and vent or valve "pat" being closed the note "C" is played; by opening the port 18 the note "D" is made; then by opening the port 19 the note "E" is made; then by releasing the vent or valve "pat" the note "F" is sounded; then by opening the ports 20, 21 and 22 respectively the remaining notes "G", and "A" and "B" of the scale are sounded.

In Figure 9, of the drawings a flexible tone chamber 25 in the form of a rubber bulb is secured on the flange 26, surrounding the open end 27 of the head 28, the ocarina 29. In this form of the device the indentation 30, adjacent the mouth 31, is made in a form to represent the mouth of a fish in which form the entire instrument is shaped, a tail piece 32 being provided at its small end. In this form of the device by collapsing the bulb 25, the size of the tone chamber is decreased, thus changing the pitch, but giving routine of scale fingering that may be more familiar to accordion players where a depression of finger may cause rise in scale.

Heretofore lateral-vent instruments have been constructed to "octave" (if they "octaved" at all) at "D". However, I have found that this arrangement makes it very hard to learn to play the instrument as in studying music in school the natural place to start a scale is at low "C"—"do" not "re" (D). Then in my scale follows re, mi, etc., as second, third notes, etc. In the present arrangement if octaving is attempted at "C" in following the scale two keys must be operated by the little finger which is the hardest finger to control, in fact so hard that in the piccolo the lowest "C" sharp and "C" natural are omitted. However, by starting to octave my scale with "C" in the main scale, as explained, these notes are retained. In the common type of ocarinas ten holes, in order to reach from "C" to "F", are provided which must be manipulated with the fingers of the musician, whereas, in my instrument only five main tone holes are necessary in order to produce the full scale of chromatics by using a 6th finger or limb-motion on a vent or valve marked "Pat" b.

Because of the arrangement of the mouth-piece I have also provided means for facilitating overblowing whereby the majority of notes may "octave" in tune through the discarding of all tones for main-scale use in the common ocarina obtained by closing all the finger holes. By starting my useful scale above the fundamental low (closed tone) the scale generally follows the same law of overblowing and octaves. The leak (not a nodal hole) causes "C" to repeat itself exactly one octave higher by overblowing. In my instrument all of the holes are on top and in a

line which permits of new, harmonic effects in high notes. By intercalating the staff lines as raised lines between or adjacent to the vents the tones are indicated for the blind and beginners in music.

As will be noted in Figure 9 the staff lines 22b are all raised in order that they may be read by the touch of a blind person, but it is intended to adopt any mode of marking the five lines of a single staff on the exterior of inst. with the holes intercalated between or on the lines as shown on the top half of Figure 2.

The interior view of a top half, Fig. 6, shows the raised letters "Pat b" (reversed) that indicate the vent to "pat-for-a-flat"; and the location of this hole for altering pitch by a half-tone near the mouth is a basic feature giving more equal effect than a hole near small end now used on ocarinas for some of the half-tones.

Having described my invention that which I claim to be new and desire to procure by Letters Patent is:

1. A lateral vent wind instrument having its proportions and the vents so placed that the relation of the vents and their allocation enables fingering and octaving to be normally begun at a desired tonic pitch.

2. An ocarina having a tapered body and a series of vents therein, and a vent in the larger end of the body for controlling the half tone steps of the chromatic scale while playing.

3. The invention as in claim 2, all the scale vents of the ocarina being in approximate alignment.

4. A twenty or more toned ocarina having means to control production of the fundamental scale from the tonic at the smaller end to the next leading note at its larger end, said means consisting of vents only.

5. An ocarina including a tapered body and a modifying vent in its larger end for controlling half step alterations in tones emitted from whole tone vents in the body when said modifying vent is used in playing.

6. An ocarina having a long tapered body with a modifying vent in the larger end to control tones at half tone steps in the scale, a series of aligned whole tone vents in the body and an escape vent at the smaller end of the body for octaving fundamental tones.

7. An ocarina having a tapered body portion and made with a series of definite and progressive tone vents for the production of full tones and with a tone modifying vent at its larger end to control the production of half tone steps to said full tones, and with an escape vent at the smaller extremity for controlling the production of true octaves.

8. An ocarina having a tapered body portion, a mouth and a respectively angular wind lay, and made with a series of definite

- and progressive tone vents for controlling full tones, and with a tone modifying vent at its larger end to control half tone steps relative to said full tones, and with an escape vent at the smaller extremity for producing true octaves.
9. A wind instrument having a tapered body, a mouth, and a respectively angular wind lay, a series of definite and progressive tone vents and a tone modifying vent at its larger end to control the production of half tone steps relative to the tones controlled by the progressive tone vents throughout the compass of the instrument.
10. An ocarina having a tapered body portion, a plurality of scale vents therein, and an escape vent at its smaller end, said vent being never covered and for controlling the production of true octaves.
11. An ocarina having a mouth on top of the body, and having a plurality of aligned definite progressive tone vents for controlling the production of twenty or more tones.
12. A musical instrument of the wood wind type, having a tapered body, scale vents thereon, a vent at the larger end of the body beyond said scale vents, and means still further beyond said scale vents to control, while playing, the making of tones at half tone steps to the tones controlled by the scale vents.
13. An ocarina including tone-modifying means used in conjunction with the normal scale vents, the taper of the body of the ocarina being substantially in the proportion of two to seven in six inches, said tone-modifying means giving a substantially uniform effect on each of the full tones of the instrument's scale.
14. An ocarina having a body portion with an approximate taper of ten degrees and vents positioned on top of the ocarina.
15. An ocarina with a series of definite and progressive tone vents and a manually variable sound chamber, for exact $\frac{1}{2}$ tone changes, at the larger end of the instrument.
16. An ocarina having a series of definite and progressive tone vents and with a pitch varying chamber at the larger end, said chamber being manually operable to change its volume rapidly enough to produce half tone steps while playing scale runs.
17. An ocarina with a series of definite and progressive tone vents, and a sound chamber variable manually fast enough for scale runs, at the larger end of the instrument, comprising a respectively transversely positioned spring controlled hinged wall.
18. An ocarina having a series of definite and progressive tone vents, and at the larger end of the instrument a variable sound chamber and means for manually controlling the size of said chamber fast enough for scale runs.
19. A wind instrument including a body portion having tone vents and a tone modifying vent, and an octaving vent and also a taper whereby with the instrument there may be produced the fundamental tones and the true octaves thereof.
20. In a wind instrument, a series of vents for controlling fundamental tones and an additional vent for aid in the production of two or more half tone steps while playing scale runs.
- In testimony whereof I affix my signature.
- HARRY BERNARD.

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