

(No Model.)

H. R. FRISBIE.
CHIME WHISTLE.

No. 472,946.

Patented Apr. 12, 1892.

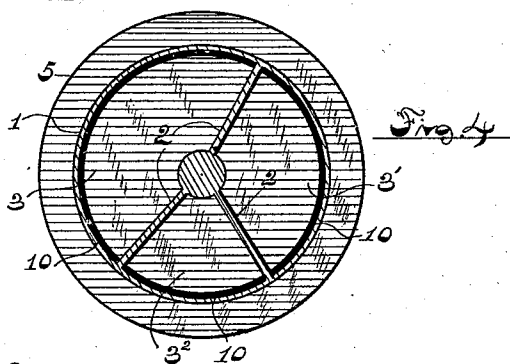
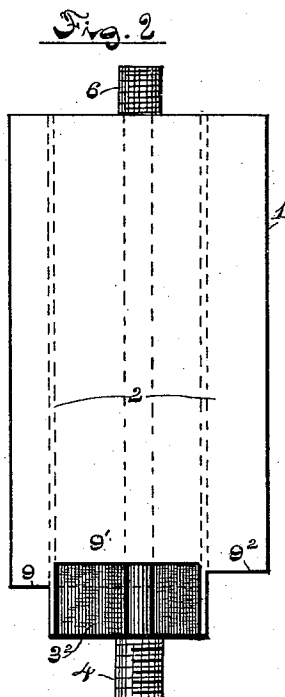
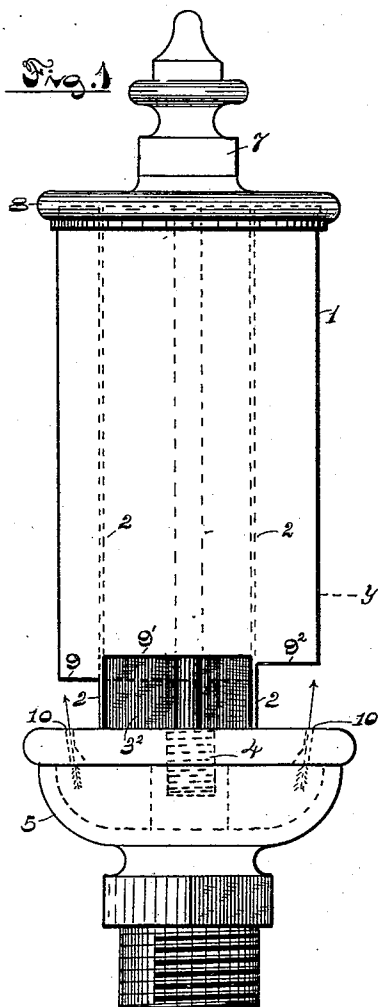
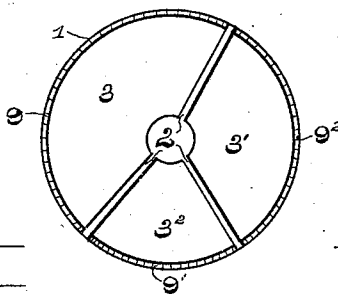


Fig. 3



Witnesses.

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Inventor.

Henry R. Frisbie

By *Geo. Phillips*
att'y

UNITED STATES PATENT OFFICE.

HENRY R. FRISBIE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF ONE-HALF TO FRANK KINSLEY, OF SAME PLACE.

CHIME-WHISTLE.

SPECIFICATION forming part of Letters Patent No. 472,946, dated April 12, 1892.

Application filed September 5, 1891. Serial No. 404,904. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. FRISBIE, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Chime-Whistles, of which the following is a specification.

My invention relates to chime-whistles; and it consists in dividing the bell into longitudinal compartments of equal lengths and unequal sizes, each compartment or chamber constituting a separate whistle having a sounding-orifice proportionate thereto.

The following specification and appended claims will enable others to understand, make, and use the improvements referred to.

In the accompanying drawings, which constitute a part of my specification, Figure 1 represents an elevation of my construction mounted upon an ordinary steam-bowl; Fig. 2, a detached view of the bell; Fig. 3, a plan view of the bell. Fig. 4 is a plan view of the bowl and a section view of the bell through line *y* of Fig. 1.

Its construction and operation are as follows:

1 represents the bell or outer shell; 2, the longitudinal partitions extending the entire length of the bell; 3 3' 3², longitudinal chambers formed by means of said partitions; 4, threaded stud projecting from the lower end of the bell, which stud fits a threaded hole in the bowl 5; 6, threaded stud of the upper end of the bell to receive the nut 7. 8 is a cap mounted on the upper end of the bell and held there by nut 7; 9 9' 9², upper sounding edge or lips of the mouth-pieces; 10, blowing-orifice in the bowl 5.

Heretofore in order to produce a variety of tones whistles have been divided into the longitudinal compartments or chambers, and these made of different lengths to give the tone required. The full-length compartment would represent the lowest tone, the next highest by shortening another compartment, and so on for each, varying the height to suit the tone required.

It is a well-known fact that in proportion as the compartments are shortened for the

higher notes the force must be correspondingly increased to produce them. Therefore the deeper tone which is produced at a low pressure is completely drowned in raising the same to sound the higher notes on the scale. Increasing the pressure for this purpose would drown the lower note, so that in a group constructed as above described but one full distinct tone is sounded on the high or low pressure, and never more than two at any point between the extremes, and these will be out of chord.

The construction shown in Fig. 1 is provided with longitudinal chambers extending the full length of the bell, and these (see Figs. 3 and 4) are of unequal sizes, the largest 3 representing the lowest tone, 3' the next higher, and 3² the highest note. The sounding edges or lips 9 9' 9² are each placed at a height above the bowl 5, corresponding to the size and volume of the different chambers to produce the required pitch or tone of each whistle. Thus the deeper tone of the large chamber 3 has its sounding edge or lip 9 placed lower than either 9' or 9², which represents the two higher notes of the scale.

The several tones are not produced entirely by means of the varying heights of the sounding edges or lips, but rather by a combination of these with the different-sized chambers. The several chambers being all of one length will give to each whistle its full sounding capacity, which is not the case when the different tones are sought to be obtained by varying the lengths of the chambers, as this choking process will permit but two at most of the whistles to sound, and these, as before mentioned, will be out of chord. While in my construction the capacity of each chamber is so proportioned with respect to the height of the sounding-lips that under the same pressure all the whistles will sound together. The several tones required will be determined as near as possible by the size or volume of each chamber, and whatever may be lacking in this respect can be remedied by varying the heights of the sounding edges or lips 9 9' 9², always keeping in view the importance of preserving the proper proportion between the size or volume of the different

chambers and the height of their sounding-edges 9 9' 9², so that a full, clear, and distinct tone will be produced in each whistle at any and all pressures. A change of pressure, while it will raise or lower the octave, will not produce discord or cause one to sound independent of the whole series.

Reeds of equal depths but of different areas in cross-section may be sounded simultaneously and under the same pressure with less liability to discord than when the different notes are sought to be obtained by shortening the reeds. Therefore I have constructed all my chambers the same depth, expanding or contracting their volume to produce the required tone or note in each under the same pressure. This I endeavor to accomplish as near as possible by means of the different volumes; but in the construction of the whistle due allowance cannot always be made for the difference in thickness and quality of the metal, therefore a slight change may be needed in the height of the sounding-lips to establish the exact proportion necessary for harmony under varying pressures.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a chime-whistle, the bell 1, whose interior is divided into the longitudinal sound-

ing-chambers 3 3' 3², of unequal or different volumes, but of equal depths, by means of the longitudinal partitions 2, extending the full length of the bell and arranged unequally about the axis of the same, combined and arranged with the steam-bowl having a steam-orifice, as shown. 35

2. The bell 1, whose interior is divided into the longitudinal sounding-chambers 3 3' 3², of unequal or different volumes, but of equal depths, by means of the longitudinal partitions 2, extending the full length of the bell and arranged unequally about the axis of the same, thus forming independent whistles, combined with the steam-bowl and a steam-orifice therein, the height of the sounding lips or edges 9 9' 9² above said orifice and the volumes of the chamber so proportioned to each other that a full, clear, and distinct tone will be produced in each of the separate whistles at any and all pressures, as shown and set forth. 40 45 50

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 25th day of August, A. D. 1891.

HENRY R. FRISBIE.

Witnesses:

JOHN CONNORS,
JOHN B. DUFFY.