

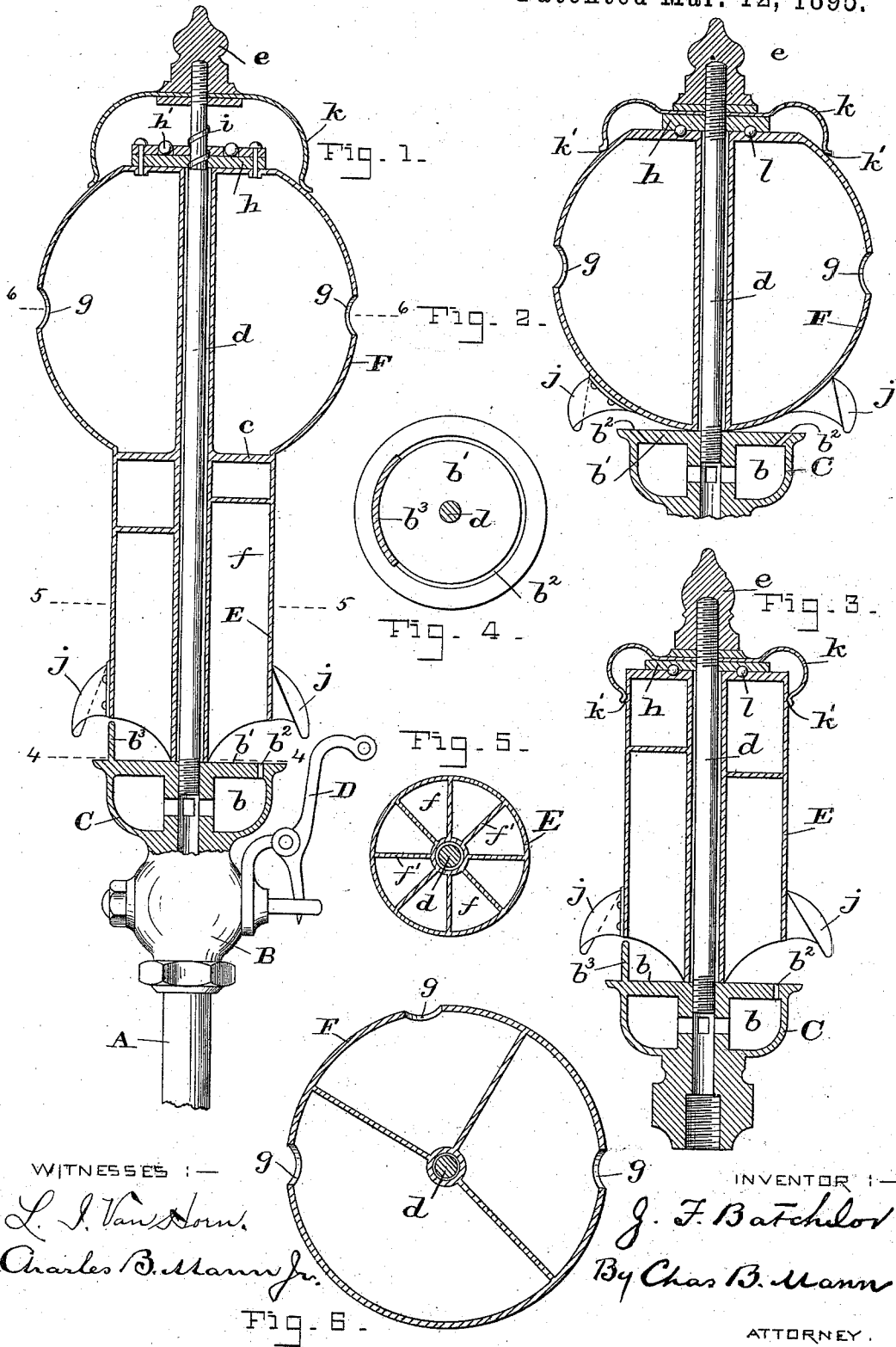
(No Model.)

2 Sheets—Sheet 1.

J. F. BATCHELOR.
REVOLVING STEAM WHISTLE.

No. 535,658.

Patented Mar. 12, 1895.



(No Model.)

2 Sheets—Sheet 2.

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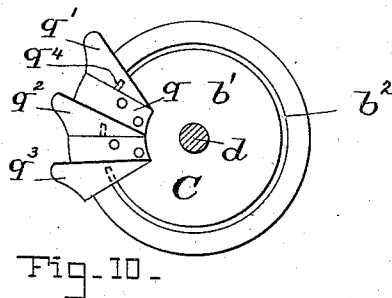
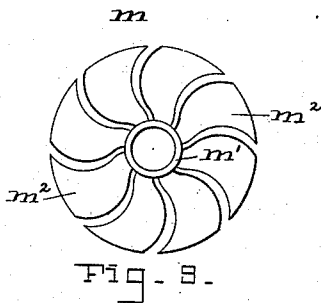
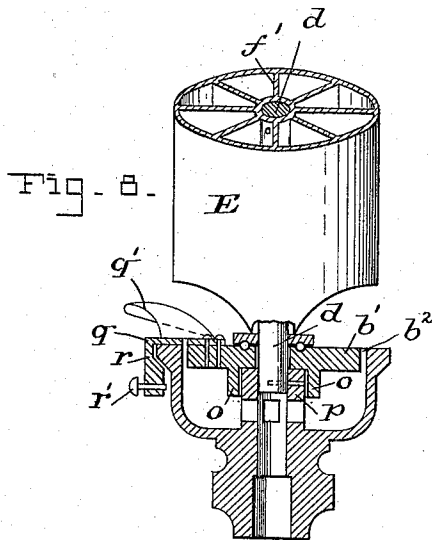
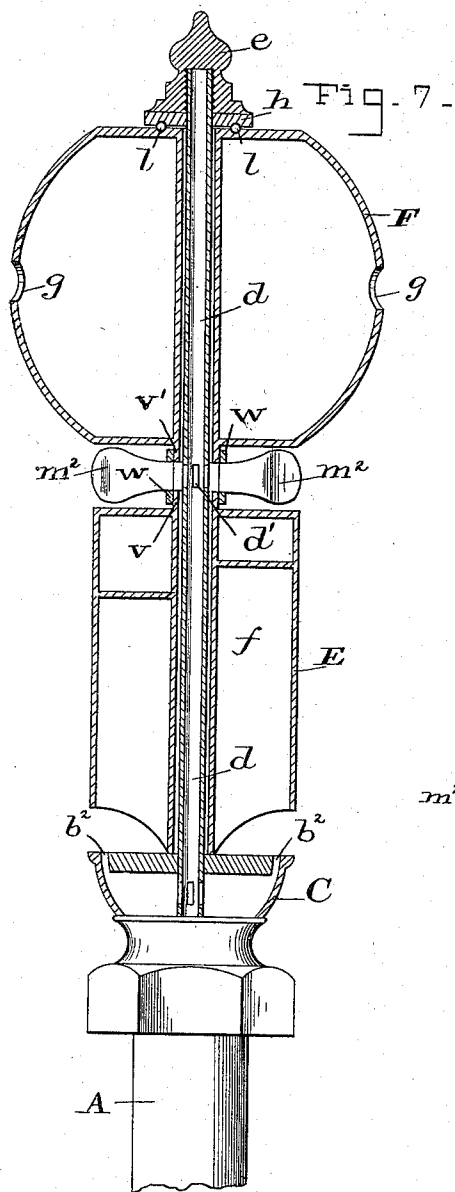
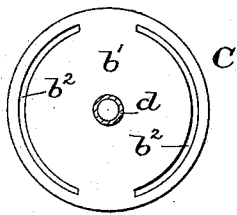


Fig. 11.



WITNESSES :-

L. I. Van Dorn,

Charles B. Mann Jr.

INVENTOR :-

J. F. Batchelor
By Chas B. Mann

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH F. BATCHELOR, OF BROOKLYN, NEW YORK.

REVOLVING STEAM-WHISTLE.

SPECIFICATION forming part of Letters Patent No. 535,658, dated March 12, 1895.

Application filed March 29, 1894. Serial No. 505,634. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. BATCHELOR, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Revolving Steam-Whistles, of which the following is a specification.

This invention relates to an improvement in steam whistles.

One object is to provide a steam whistle one part of which will be revolved by the steam when sounding.

Another object is to combine in a whistle of this character a whistle bell having a number of chambers of different sizes each chamber representing one of the notes of the musical scale with means for cutting out alternately one or more of these chambers during the movement of the revoluble part of the whistle so that the tone or notes of the chime may be constantly varied to produce a distinctive sound which will be of an agreeable musical harmony.

In the accompanying drawings illustrating the invention,—Figure 1 is a vertical section of the steam-bowl, a revoluble whistle-bell, and a humming sphere used in conjunction with the bell. Fig. 2 is a vertical section showing a revoluble humming sphere connected directly with the steam-bowl, the bell being dispensed with. Fig. 3 is also a vertical section of the steam-bowl and revoluble bell, in which the humming sphere is not employed. Fig. 4 is a top or plan view of the steam-bowl on horizontal line 4—4; of Fig. 1. Fig. 5 is a cross-section of the bell on line 5—5; of Fig. 1. Fig. 6 is a cross-section of the humming-sphere on line 6—6; of Fig. 1. Figs. 7, 8, 9, 10, and 11, are modifications of my invention.

Referring to the drawings, A, designates a steam-supply pipe; B, a valve-casing; C, a steam-bowl arranged on the valve-casing, and, D, a valve-lever to operate a valve within the casing which controls the admission of steam from the supply-pipe to the steam-bowl. The steam-bowl shown in Fig. 1 has a chamber, *b*, communicating with the valve-chamber, *a*, rigid top, *b'*, provided with a segmental-shaped slot, *b²*, through which the steam from the supply-pipe, A, has access to the whistle-bell, E.

A vertical projection, *b³*, between the ends of the segmental slot extends up toward the bell and its function is to prevent access of steam at that point to the bell as the latter revolves, as will be hereinafter described.

The whistle-bell, E, and the humming sphere, F, in the device shown in Fig. 1, are integral and have a division, *c*, separating them. A spindle, *d*, has a cap-nut, *e*, and connects the bell and humming sphere with the steam-bowl, C. This spindle is fixed or stationary and the bell and sphere revolve around it. This whistle-bell is divided into a number of vertical compartments, *f*, by partitions, *f'*, preferably eight, varying in depth. These compartments serve to produce an octave of notes, the long compartments giving a low note, the next in size a higher tone, and so on. The humming-sphere is provided with a suitable number of compartments each having an opening, *g*, which serve to produce a humming sound when revolving by the action of the air on them. Steam is not admitted to the sphere. A block, *h* on top of the humming-sphere is screw threaded and has ball-bearings, *h'*. The spindle is provided with worm-threads, *i*, which enable it to rise or lift on this block to alter the octave of sound when the blast of steam strikes the bell. In this raised position of the bell, E, and sphere, F, the balls, *h'*, take against the under side of the cap-nut, *e*, and reduce friction when the bell and sphere revolve.

The exterior of the lower edge of the bell has propeller-shaped blades, *j*, and when the blast of steam from the steam-bowl, C, strikes these blades the action thereon of the steam causes the bell and humming-sphere to revolve on the spindle, *d*. With the bell thus revolving, the steam from the segmental slot, *b²*, will be supplied to all those compartments of the bell which are immediately over said slot, but no steam will be supplied to those chambers which are over the vertical projection, *b³*, and thus as the bell continually revolves there will be a constant recurring alternation in the sound of the notes, and the sound of the whistle will be continually varied accordingly. A spring presser-bar, *k*, rests upon the humming-sphere and the spindle, *d*, passes through it to the cap-nut, *e*. In the construction shown in Fig. 1, this

spring presser-bar may be made to bear with greater or less pressure on the sphere by turning the cap-nut and by the frictional contact of its ends it will regulate the speed of rotation of the whistle. When the whistle-bell and sphere are raised on the worm, J, by the action of the steam, this spring presser-bar distends and allows the balls, h' , of the block, h , to take against the under side of the cap-nut, e , and when steam is shut off this presser-bar, by its spring action, will force the bell and sphere back to their normal position. In the construction shown in Figs. 2 and 3, the spring presser-bar takes in an indentation, h' , in the whistle-bell or sphere and in this position the bar acts as a detent to prevent further revolution of the bell or sphere when steam is shut off.

When it is desired to use the humming-sphere alone, said sphere is mounted directly upon the steam-bowl, as shown in Fig. 2, and in this construction the sphere is provided with propeller blades, j , and the slot b^2 in the top-plate, b' , of the steam-bowl is continuous instead of segmental and flared so as to throw the steam slightly outward and directly against the blades; and a block, h , sits directly upon the top of the sphere and ball-bearings, l , are interposed in a groove between the block and the top and serve to reduce friction during the revolution of the sphere; and the spindle and cap-nut are the same as in the other case.

Fig. 3 shows the whistle-bell mounted without the humming-sphere. In this case the construction of steam-bowl is the same as in Fig. 1, and the cap-nut, spindle and spring presser-bar are applied as to the sphere in Fig. 2.

In Fig. 7, the spindle, d , is rigidly attached at its lower end to the steam-bowl, C, and is hollow or tubular. Steam passes up through the tube from the bowl and is supplied through orifices, d' , in the tube to the blades, m^2 , of a propeller-wheel, m , mounted loosely on the spindle between the bell and sphere. The whistle-bell has a tubular flange, v , at its upper end, and the humming-sphere a tubular flange, v' , at its lower part, and the wheel is between these tubular flanges and is connected thereto by two collars, w , on the propeller-wheel which encircle or take around the said flanges, v , v' , and thereby the wheel, bell and sphere are held securely together. This propeller-wheel is shown in Fig. 9 and comprises a hub, m' , and irregularly-shaped hollow blades, m^2 , radiating therefrom. The top-plate of the steam-bowl, in this case, is provided with two segmental slots, b^2 , arranged oppositely, as shown in Fig. 11.

In the whistle shown in Fig. 8, I have illustrated means for producing the variations of sound while the bell is stationary, being rigidly mounted on the spindle. In this instance the top-plate, b' , revolves. The top-plate has a flanged hub, o , which takes around the center part, p , of the steam-bowl. The slot, b^2 ,

is formed between the top-plate and rim of the bowl and in this case extends continuously in a circle, and a metal-plate, q , is attached to the top-plate and projects across the slot, b^2 , and is provided with angular blades, q' , q^2 , q^3 , and openings, q^4 , in the plate are in line with, or coincident with, the slot, b^2 , and these openings allow the steam to pass out and strike against the angular blades, q^2 , q^3 . This metal-plate, q , is provided with a pendant flange, r , having a set-screw, r' , to bind against the exterior of the steam-bowl and by its friction thereon regulate the speed of the top-plate, b' .

When both the sphere and whistle-bell are employed, the humming sound of the former combined with the varying musical chime of the latter will produce a peculiarly distinctive sound of great depth and harmony.

It will be seen that my whistle differs essentially from the whistles in general use, from the fact that the latter only sound the notes when the valve is first opened when they sound the highest or shrillest note first, then the next shrillest, &c., finally all blending in one sound, thus at last giving only one note. In my whistle the sound is constantly varied, all the time steam is on, up and down the musical scale.

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

1. In an audible steam signal, the combination of the following three elements, to wit: a steam-escape device for the issuance of a blast of steam directly to the atmosphere; an audible signal device having a number of compartments of different sizes and mounted on the said steam-escape so that the blast of steam issuing from the said escape will sound the signal device; and means whereby the same blast of steam as it issues from the said escape will cause the revolution of one of the first two-named elements.

2. In a steam signal, the combination of a steam escape device for the issuance of a blast of steam; a whistle-bell mounted on the steam-escape device and having a number of compartments representing the different notes of the musical scale; means acted upon by the steam as it issues from said escape device for revolving one of said two elements; and means between the said steam-escape device and whistle-bell for automatically cutting off successively from one or more the said compartments of the bell the blast of steam, to produce a recurring alternation in the sound of the notes, and thereby vary the sound of the whistle.

3. In an audible steam signal, the combination of a steam-bowl having an escape for a blast of steam; a revoluble whistle-bell mounted on the steam-bowl; a humming-sphere connected with said whistle bell so as to revolve also; and means whereby the whistle-bell is caused to revolve.

4. In an audible steam signal, the combi-

nation of a steam-bowl having a slotted opening in its top for the escape of a blast of steam; a revoluble audible signal device mounted on the steam-bowl and provided with
 5 propeller blades; a spindle passing from the steam-bowl up through the said audible signal device; and means connected with said spindle to vary the speed of rotation of said audible signal device.

10 5. In an audible steam signal, the combination of a steam-bowl having an opening for the escape of a blast of steam directly to the atmosphere; a revoluble audible signal device provided on its exterior with propeller
 15 blades which project outwardly therefrom; and a spindle-rod attached to the steam-bowl and projecting axially through the said revoluble audible signal device, whereby said signal device is revolved by the escaping
 20 blast of steam and sounds while revolving.

6. In an audible steam signal, the combination of a steam-escape device for the escape of a blast of steam; and a revoluble bell having a number of compartments of different
 25 sizes, each compartment representing a note of the musical scale, whereby, when the bell revolves, the blast of steam will be cut off successively from one or more of the said compartments to vary the sound of the whistle.

30 7. In an audible steam signal, the combination of a steam-escape device for the issuance of a blast of steam; a revoluble audible signal device; a spindle projecting from said escape-device and supporting the signal-de-
 35 vice; a cap-nut, *e*, on the top-end of said spindle; and ball-bearings between the bottom of said cap-nut and the top surface of the signal-device.

8. In an audible steam signal, the combination of a steam-escape bowl; a spindle projecting from said bowl; an audible signal device revoluble on the spindle; a cap-nut, *e*, on
 40 the top-end of said spindle; and a spring presser bar, *k*, secured to the cap-nut and having its ends in frictional contact with said signal device whereby the speed of rotation of
 45 the signal device may be varied.

9. In an audible steam signal, the combi-

nation of a steam-bowl having a slotted opening in its top for the escape of a blast of
 50 steam; a spindle projecting from said steam-bowl; a revoluble bell provided with propeller-blades which are acted upon by the blast of steam to revolve said bell; and a revoluble humming-sphere provided with openings in
 55 its walls and connected with the bell, whereby, when the blast of steam strikes said propeller blades, both the bell and the sphere are revolved and while revolving caused to sound.

10. In an audible signal, the combination
 60 of a steam-bowl having an escape for a blast of steam; a spindle projecting from the steam-bowl and provided with worm-threads near its upper end; and a whistle-bell mounted to revolve on the spindle, whereby, when the steam
 65 issuing from the escape bowl strikes the bell, the latter will revolve and automatically rise on the spindle to alter the sound of the whistle.

11. In an audible steam signal, the combination of a steam escape device having an
 70 escape for a blast of steam; a spindle; a whistle-bell which both revolves around the spindle and has endwise movement thereon; and means coacting with the spindle and bell, whereby, when steam issuing from the es-
 75 cape strikes the bell, the latter will revolve and automatically rise on the spindle to alter the sound of the whistle, as set forth.

12. In an audible steam signal, the combination of a steam escape device for a blast of
 80 steam; a spindle; a whistle-bell revoluble around the spindle and also movable endwise thereon and provided with a number of compartments of different sizes, each compartment representing a note of the musical scale;
 85 and means co-acting with the spindle and bell whereby when steam issuing from the escape device strikes the bell, the latter will revolve and automatically rise on the spindle to alter the octave of sound of the whistle-bell.
 90

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH F. BATCHELOR.

Witnesses:

ALBERT A. DAY,
 HENRY E. NELMES.