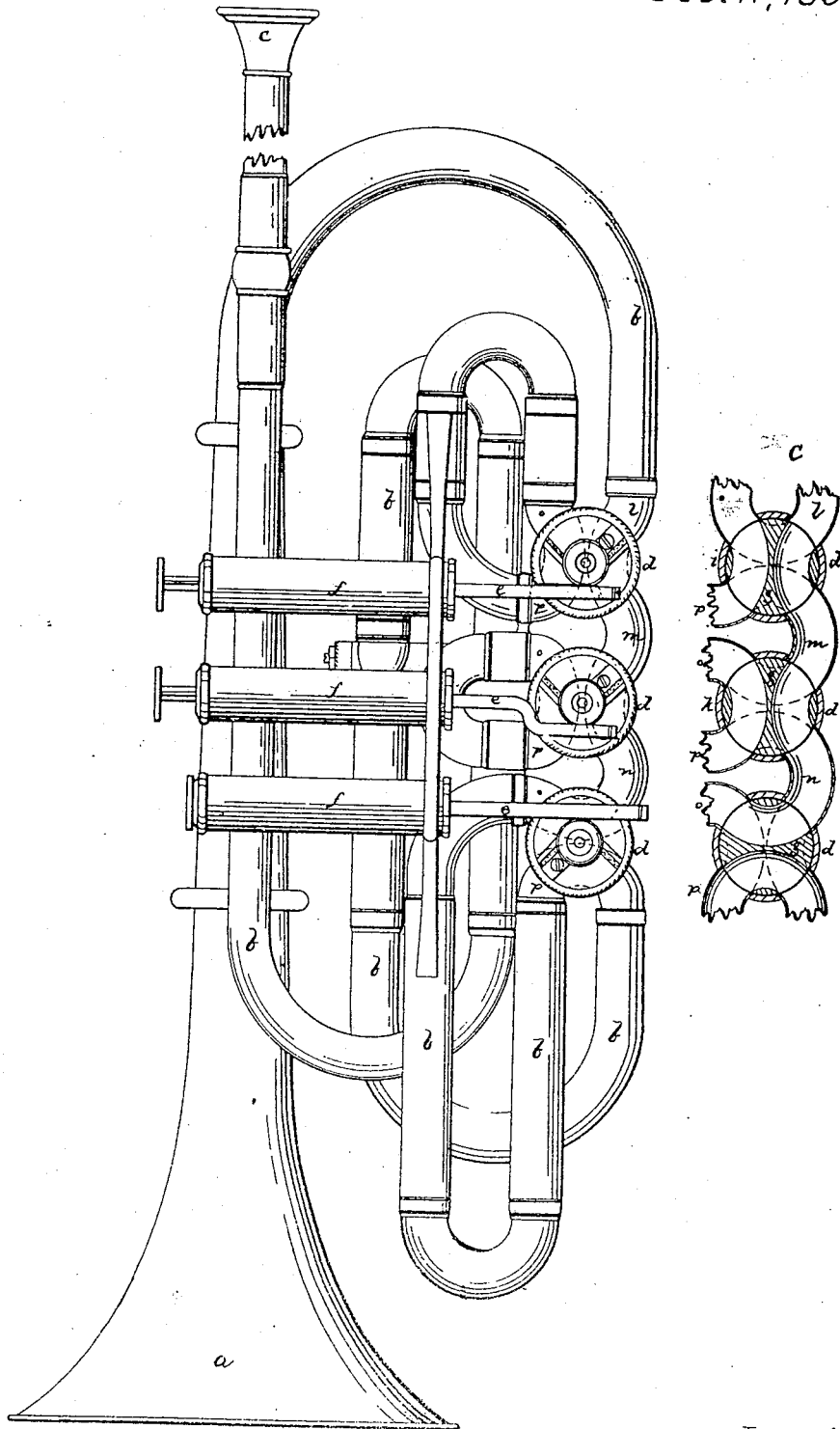


I. Fiske,

Corneils & c.

N^o 74331

Patented Feb. 11, 1868.



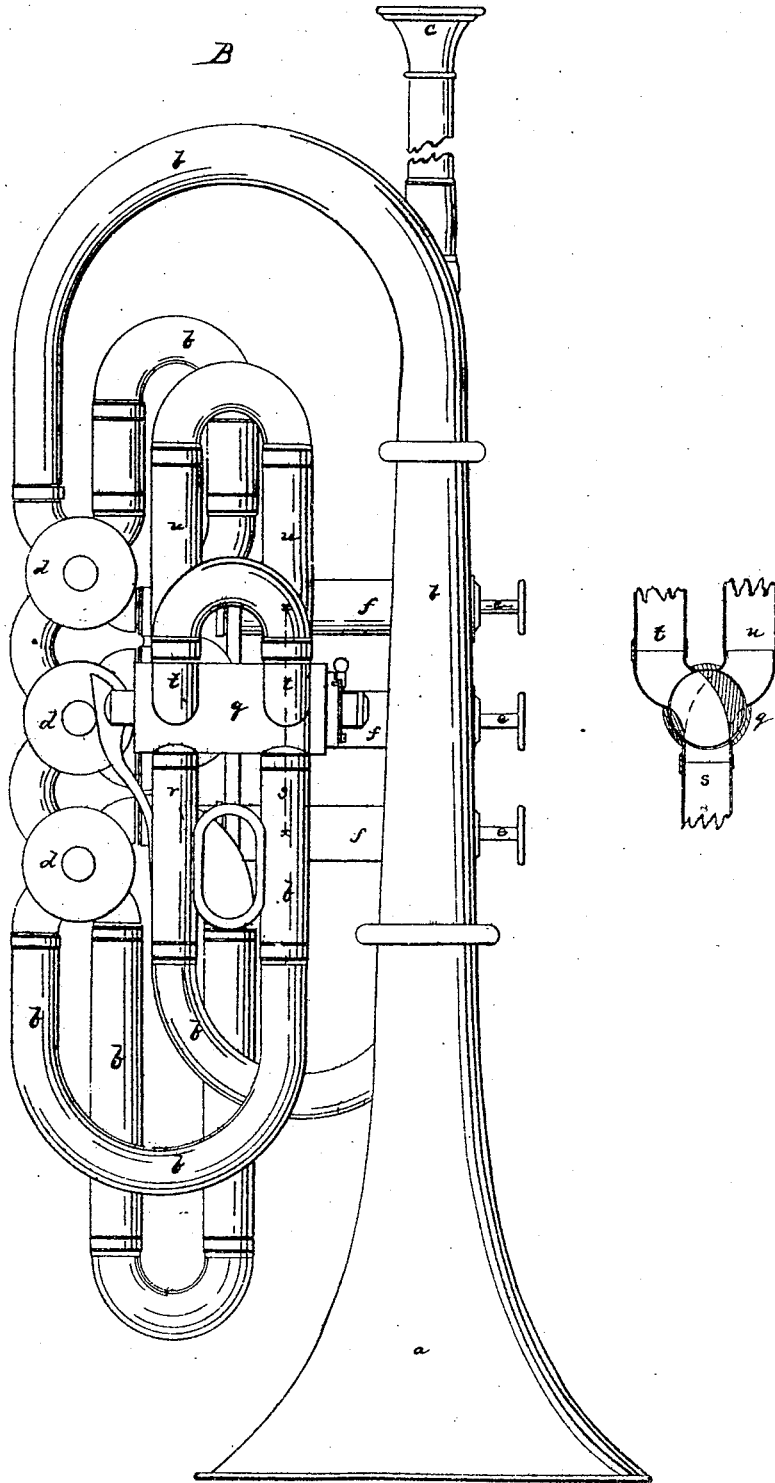
Witnesses.
Henry William
Theodore S. Johnson

Inventor.
Isaac Fiske

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Cornets &c.

N^o 74331

Patented Feb. 11, 1868



Witnesses.
Hart, Williams.
Theodor B. Schwan.

Inventor.
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ISAAC FISKE, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 74,331, dated February 11, 1868.

IMPROVEMENT IN CORNETS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ISAAC FISKE, of Worcester, in the county of Worcester, and State of Massachusetts, have invented an Improvement in Cornets and other Musical Instruments; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

This invention relates particularly to the construction of that class of wind musical instruments known as cornets.

Letters Patent of the United States were granted to me on the 30th day of October, A. D. 1866, for certain improvements in these instruments, and my present invention has reference to such modifications of the valvular arrangements of such instruments as shall increase their range and efficiency, and improve the quality of tone and freedom of action throughout the compass of the scales.

The invention consists in the construction and arrangement of the valve-passages with reference to their connections with the pipe, by which, through the valve-passages and pipes, both in the open and valve-tones, a continuous wind-passage of uniform diameter, free at all times from sharp turns and corners, is formed.

Also in the construction and arrangement of a valve and valve-case, by which the instrument may be changed from one to another key in such manner that the same quality of tone may be produced in either key, and without increasing the number of crooks or turns in the wind-passage.

The drawings represent a cornet embodying my improvements, A and B showing respectively opposite side views thereof.

a denotes the bell of the instrument; *b*, the pipe; *c*, the mouth-piece; *d*, the valve-boxes; *e*, the valve-stems or rods, working through cylinders *f*, containing the springs by which the valves are held in normal position; the general relative disposition and operation of all of these parts, excepting as regards my present improvements, being similar to what is shown in my patent referred to. The valve *g* of each valve-chamber has two passages, one of which makes a direct and short connection from the section of pipe on one side of the chamber to that on the other, when the valves are in normal position, or in the "open tone," while, when the valve is partially rotated by the pressure of the finger of the player upon the valve-stem, the direct connection between the opposite sections of the pipe is broken, and the wind passes through one valve-passage, around the crook or extension in the pipe, back to the valve-chamber, and through the opposite passage from the valve, to produce the "valve tone."

Now, in the ordinary construction of the valve, no particular attention has been given either to the form or diameter of these valve-passages, or their disposition with reference to the variation in the quality of tone produced by the passage of air through an angular or a curvilinear passage, it having been considered sufficient if the connections were in any way accomplished, the crooks, sharp angles, and contractions in the valve-passages, producing eddies, making it impossible to produce tones of desirable fullness or even quality. This being a matter of material importance, I so construct each valve as to have each passage therein of uniform diameter throughout, and with the diameter of the sections of pipe connected thereto, and this construction is indicated by the red lines at A, and is further shown in the section through the valves at C. At *i* and *k* the valves are shown in normal position, or in "open tone," making a direct connection between the sections of pipe *l* and *m* and *m* and *n*, the valve-passage making a continuation of the pipe through each valve-chamber, of uniform diameter throughout, and with no change of form or curvature, other than that the curvature of each valve-passage is simply the reverse of that in the sections *l m n*. And when the valve-stems are depressed, carrying these two valve-passages, for instance, into the positions denoted by dotted lines, it will be seen that the same uniform curvature is kept up in the connections made with the pieces *o p*, as is also shown in the valve at *q*.

This construction greatly improves and equalizes the quality, richness, and smoothness of tone, both in the open and in the valve tones, and with particular reference to changing from open to valve tones, and *vice versa*, enabling the tones to be forced to the same extent in the valve as in the open tones without producing badeffects or blowing the instrument out of tune.

For changing the instrument from one key to another, I place in the pipe a long valve-cylinder, *g*, having connected thereto, on one side, the main pipes *r s*, while from the opposite side branch two pieces or bends, *t u*, one for each key, the valve-chamber having a valve containing a single passage through each end, by which, by simply turning the valve and locking it in one position, the connection may be made from pipe *r* around pipe *t* to pipe *s*; or, by turning it and locking it in the other position, connection may be made from pipe *r* around pipe *u* to pipe *s*, thus enabling the player to change from one to another key without changing his instrument, and without increasing the number of crooks through which the wind passes, the arrangement enabling him to produce the same quality of tone in either key.

I claim so constructing and arranging the passages through the valves *g*, and the sections of pipe connected therewith, that a continuous uniform passage is secured through the pipes and valves for both the open and valve tones, said valve and pipe-passages being not only uniform in diameter, but free from angles, substantially as shown and described.

I also claim, in combination with the main pipes *r s*, the valve-cylinder, *g*, having the two pipes, *t u*, branching therefrom, and having its valve so arranged that connection may be made through either of said branches, thereby enabling the key of the instrument to be changed without increasing the crooks or detracting from the tone of the instrument.

ISAAC FISKE.

Witnesses:

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