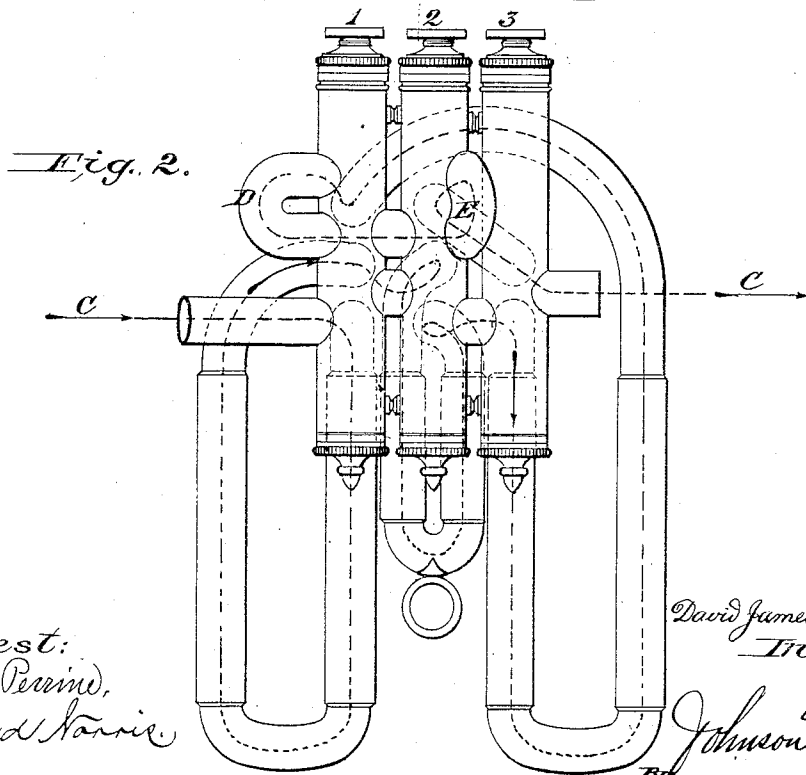
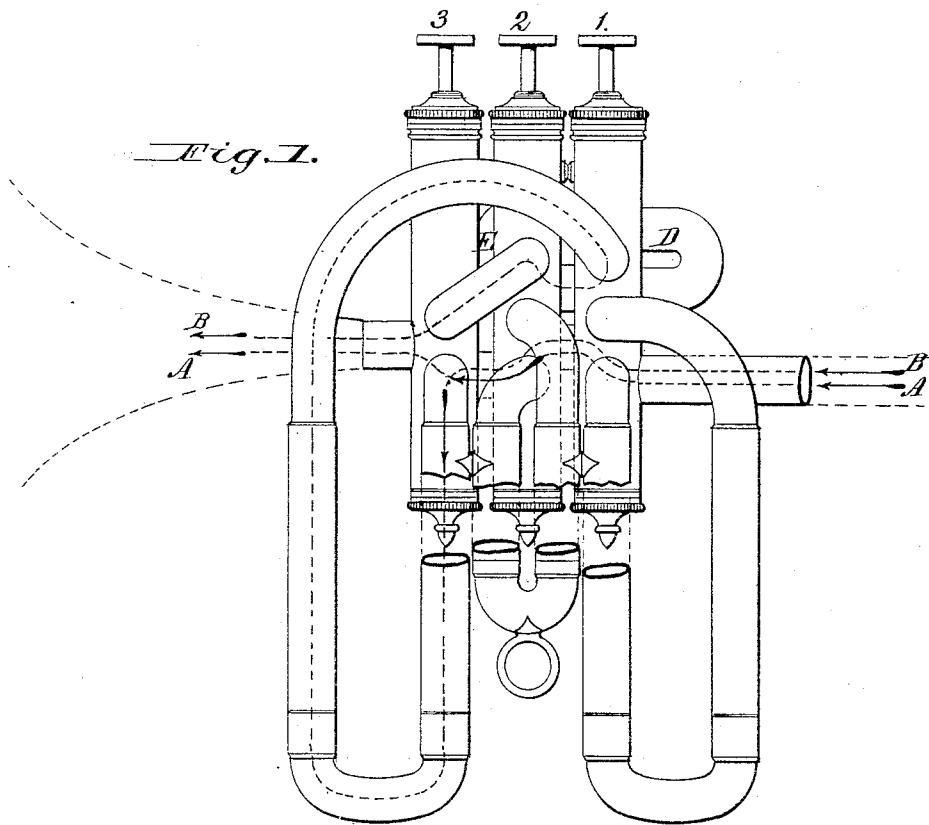


D. J. BLAIKLEY.
Cornet.

No. 216,595.

Patented June 17, 1879.



Attest:
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UNITED STATES PATENT OFFICE.

DAVID J. BLAIKLEY, OF ISLINGTON, COUNTY OF MIDDLESEX, ENGLAND.

IMPROVEMENT IN CORNETS.

Specification forming part of Letters Patent No. **216,595**, dated June 17, 1879; application filed March 12, 1879; patented in England, November 14, 1878.

To all whom it may concern:

Be it known that I, DAVID JAMES BLAIKLEY, of Islington, in the county of Middlesex, England, have invented certain new and useful Improvements in Brass Musical Wind-Instruments with Valves, of which the following is a specification, my British patent for the same being dated November 14, 1878.

This invention has for its object the improvement of the chromatic scale in cornets, trumpets, saxhorns, and, generally, all wind-instruments in which three piston-valves are employed for the purpose of producing the chromatic scale. In such instruments the valves actuated by the first, second, and third fingers are commonly termed the "first," "second," and "third" valves, and are so referred to in the following description.

In the ordinary arrangement of these valves, on pressing down the piston of the first, a sufficient length of tube is added to lower the pitch of the instrument one tone, and in like manner the second valve lowers the pitch half a tone and the third valve one tone and a half; but as such additional lengths should be in inverse proportion to the number of vibrations of the required notes, the desired result is not exactly obtained when two or three valves are used in combination. For example, suppose an instrument to be in the key of C. When the first valve only is actuated the pitch is lowered to B-flat. When the third valve only is employed the pitch is lowered to A. To produce G, the first valve is used in combination with the third; but as its tubing is tuned to give the interval from C to B-flat, and the instrument, when the third valve is down, is virtually in A, the tubing of the said first valve is not sufficiently long to flatten the pitch a true tone from A to G. This defect is intensified when all three valves are used together to produce the notes D-flat and G-flat.

My said improvements, by means of which the above-described defects are avoided, consist in passing the tubing connected with the third valve through the first and second valves in such a way that when the third valve is pressed down the vibrating column of air passes through passages in the first and second valves, in addition to the two passages in

the third valve, as used in the common arrangement; and for the purpose of bringing additional tubing into action with the first and second valves, as required for correct intonation when they are either or both used in combination with the third, I add two air-passages to each of these valves, and in connection with each pair of passages a loop or circuit of tube of the required length, which is added to the effective length of the instrument only when the third valve is used in connection with the others. Such additional tubing compensates for the lowering of the pitch of the instrument due to the pressing down of the third valve.

In the accompanying drawings, Figure 1 is a front elevation of the valves with the pistons up; and Fig. 2 is a back elevation, showing all the pistons down.

The same letters of reference indicate like parts in both figures.

The dotted line A A, Fig. 1, shows the air-passage through the pistons for open notes—that is to say, notes produced with the pistons up. The line B B in the same figure indicates the air-passage when the third piston only is pressed down. In Fig. 2 the line C C represents the air-passage when the whole of the pistons are pressed down. D is the additional tubing connected with the first piston, and E the additional tubing connected with the second piston.

The action of the apparatus is as follows: When either the first or second piston only is pressed down, the air-passages are of the same length as in instruments of ordinary construction; but when either or both of those pistons is or are pressed down together with the third piston, then the air-passage is lengthened by the additional length of tubing D or E, or both, thereby lengthening the air-passage in inverse proportion to the number of vibrations of the required notes.

Additional tubing or valve-bends in a cornet or sliding-valve instrument, for the purpose of changing it from a higher to a lower tone, is not claimed, broadly, as new herein, but only in connection with the specific construction and combination before described.

I claim as my invention—

1. A cornet or other similar wind-instrument

provided with the air-passage B, arranged in the manner shown and described.

2. A cornet or other similar wind-instrument having the additional tubing D connected with piston 1, in combination with piston 3, constructed and arranged as described.

3. A cornet or other similar wind-instrument having the additional tubing E connected with piston 2, in combination with piston 3, constructed and arranged to operate substantially as set forth.

4. A cornet or other similar wind-instrument having the additional tubings D and E connected with pistons 1 and 2, respectively, in combination with piston 3, all constructed and arranged to operate substantially as set forth.

D. J. BLAIKLEY.

In presence of—

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