3 Sheets—Sheet 1.

C. G. CONN & E. DUPONT.

Cornet.

No. 199,516. Patented Jan. 22, 1878.

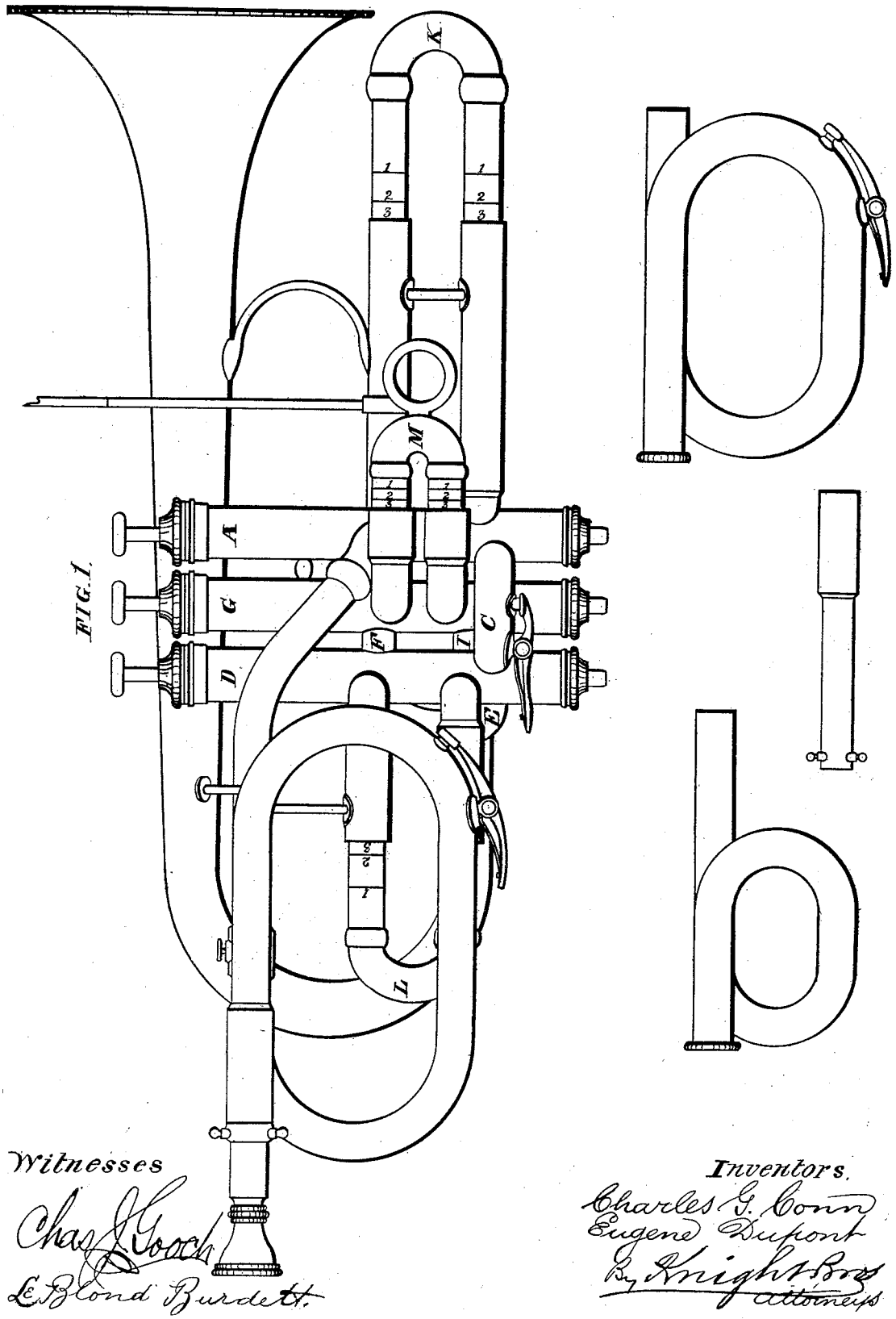

FIG. 1.

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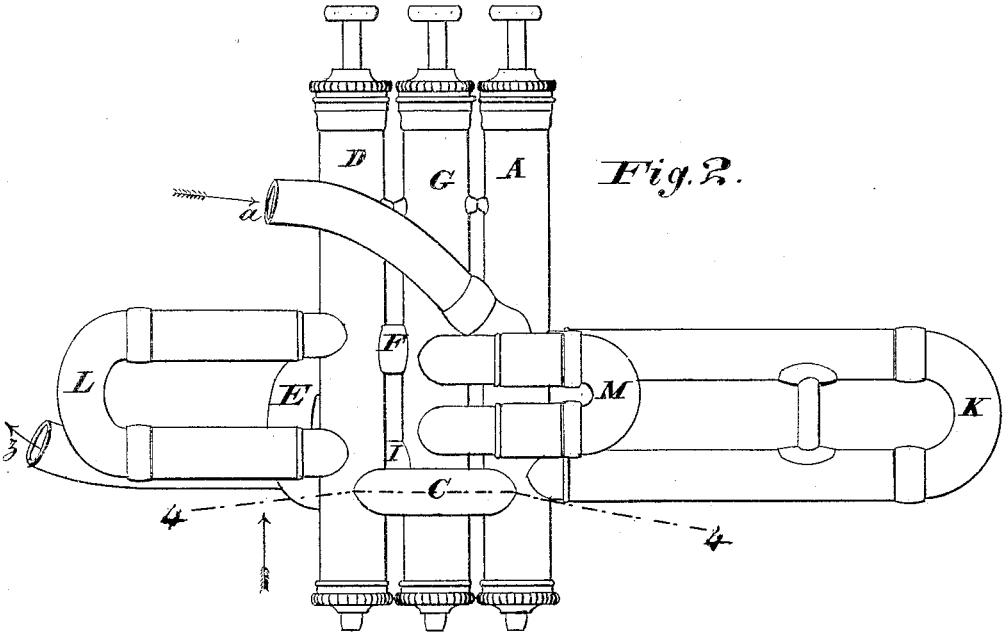

Fig. 2.

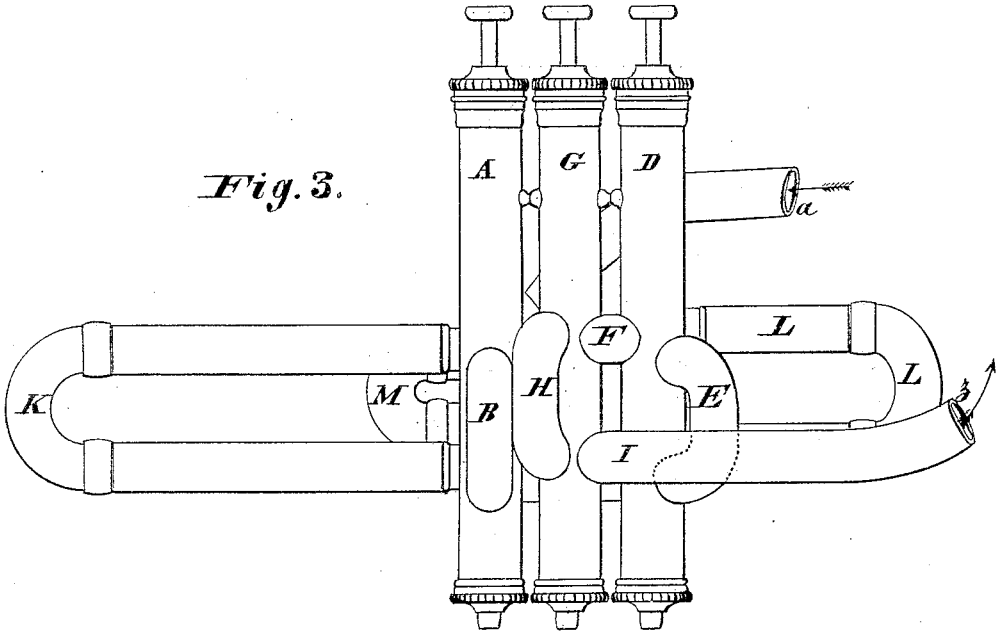

Fig. 3.

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3 Sheets—Sheet 3.

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Fig. 4.

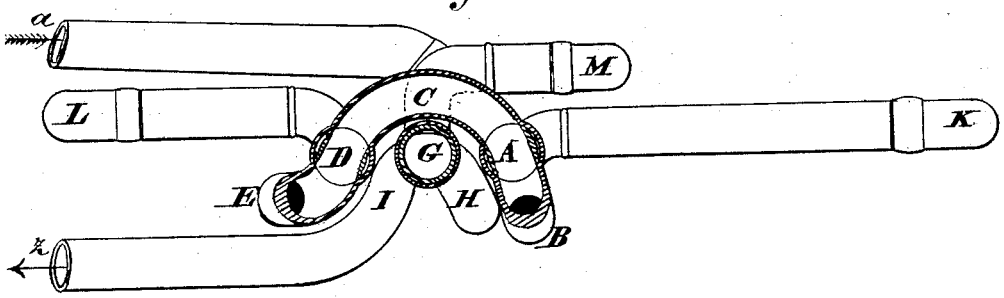
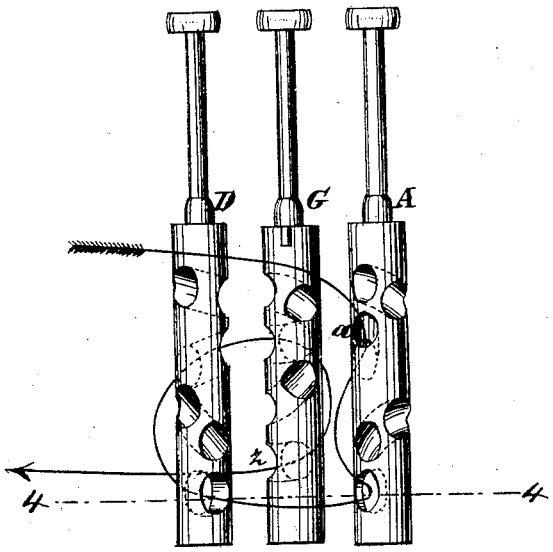


Fig. 5.



WITNESSES.
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UNITED STATES PATENT OFFICE.

CHARLES G. CONN AND EUGENE DUPONT, OF ELKHART, INDIANA.

IMPROVEMENT IN CORNETS.

Specification forming part of Letters Patent No. **199,516**, dated January 22, 1878; application filed January 17, 1877.

To all whom it may concern:

Be it known that we, CHARLES G. CONN and EUGENE DUPONT, both of Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Cornets and other Wind Instruments, of which the following is a specification:

We construct a cornet or other sliding-valve instrument so that it may be changed from a higher to a lower key by the introduction of additional piping. To this end we employ valve-slides of such length that they may be drawn out to the necessary extent when the main piping is increased, and to compensate for the length which is added to the valve-slides to admit of drawing them out, as aforesaid, we apply to the valves bends corresponding in length to the added length of the valve-slides, which bends form parts of the wind-passage when open tones are produced, and are closed by the depression of the valves to produce valve tones.

The invention further relates to the use of graduated valve-slides, in combination with the aforesaid compensating-bends, as hereinafter described.

The objects of our invention are to provide a cornet or other wind-instrument which may be adapted to play in different keys at the will of the performer; and, further, to construct a cornet or other analogous instrument which will produce open tones and valve tones of the same quantity and quality by avoiding a change in the direction of the air-current when the valve tone is substituted for the open tone.

In the accompanying drawing, Figure 1 is an elevation of the front side of a cornet illustrating our invention, with the slides extended and a long crook applied, also showing detached views of other crooks employed for changing the key. Fig. 2 is an elevation of the working parts thereof with the slides in. Fig. 3 is an elevation of the rear side. Fig. 4 is a horizontal section, looking upward, on the line 4 4, Fig. 2. Fig. 5 is a detached view of the several valves, illustrating the course of the air-current when open tones are produced.

For the purpose of illustration, we shall describe our invention as used in connection with a cornet in which the air from the mouth-piece and pipe passes first through the third or farthest valve, then through the first valve, and lastly through the middle or second valve, and thence to the bell. In this case the air enters the portion of the instrument shown at *a*, and leaves it at *z*, as indicated by the arrows.

When the valves are up open tones are produced, and when the valves are down valve tones. The air-current, when the tone is open, passes into and through the third valve A, into the compensating-bend B, from this again into and through the lower part of the valve A to a connecting-pipe, C, which conducts it to the first valve, D, thence through the first valve and the compensating-bend E of the same, again through the upper portion of the first valve, thence through the connecting-pipe F into and through the second valve, G, thence through the compensating-bend H thereof, again through the second valve, G, and thence through the curved pipe I to the bell of the instrument.

When either valve is depressed the compensating-bend belonging thereto is closed by the said valve, so that the air-current does not pass into the compensating-bend, but into the valve-slide proper, K, L, or M, as the case may be. It will thus appear that the passage of the air-current for the valve tones is the same as that already described in relation to the open tones, except that it does not enter the compensating-bends, which are cut off by the valves, but passes through the valve-slides proper instead.

The valve-slides are constructed of an additional length to make up for the use of the compensating-bends. This enables us to tune the instrument in different keys. The adjustment of the valve-slides is indicated by graduated scales thereon, as shown at 1 2 3 in Fig. 1, which shows the adjustable portions of the valve-slides extended.

The disposition of the wind-passages can be altered to suit the fancy or preference of the maker. The connections of the valves need not be the same as we have described. We prefer at present to connect the first valve with the third valve, and the second valve with the first valve, as we think this the best disposition of the wind-passages.

The compensating-bend is not used to change the horn in different keys; but it is used for

the purpose of allowing us to add to the length of the valve-slides, that we may draw them to sufficient length to put the instrument in perfect tune when the pitch of the instrument is lowered by additional length of pipe. We lower the pitch of our cornets by substituting longer crooks in the mouth-pipe of the main instrument. Our principle is this: We first build a cornet in E-flat, which may be lowered in pitch to the keys of C, B-flat, and A. Now, that we may tune the valve to correspond with open or main pipes of the horn, we place on each valve a bend, through which the air-current passes when the open tone is used. Precisely the same length of pipe is added to the valve-slides. This enables us, when we lower the pitch of the cornet, to draw out the valve-slides, that they may be in tune with the lowered pitch. This bend on the valves is a part of the body of the instrument when the open tone is used, but is cut off and its equivalent transferred to the valve-slides when the valve tones are produced.

This construction enables us to use a lighter piston, and to make a perfectly free and clear bore through the pistons with a much shorter stroke or action. By the use of the additional pipe to the valve-slides proper we can set the instrument in different keys and tune the valve tones perfectly with the open tones. The direction of the air-current is not changed when the valve tone is substituted for the open tone. Hence we have both valve and open tones of the same quantity and quality.

The division of the holes in our register-valve is made to have a perfectly clear bore without enlarging the diameter of the tubing, as used in the ordinary system. The compensating-bend is to give to an E-flat cornet a length of piping to enable us to draw the slides to any key under the E-flat we may desire. The length of the compensating-bend can be adapted to suit any key.

Having thus described our invention, the following is what we claim as new and desire to secure by Letters Patent:

1. The combination of a compensating-bend with the valve of a cornet or other wind-instrument, arranged so as to be closed by the depression of the valve to produce a valve tone, as and for the purpose herein set forth.

2. The valve-slides graduated for adjustment, as herein described.

3. The combination of the valves, the compensating-bends, and the graduated valve-slides, as and for the purpose set forth.

4. A cornet or other wind-instrument constructed with a compensating-bend connected with the valve and arranged to be closed thereby when a valve tone is produced, and with a valve-slide of correspondingly-increased length to admit of drawing the said slide out when the instrument is changed from a higher to a lower key by the introduction of an additional length of pipe, substantially as described.

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