

S. ADKINS.
CORNET.

APPLICATION FILED OCT. 14, 1907.

911,637.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1

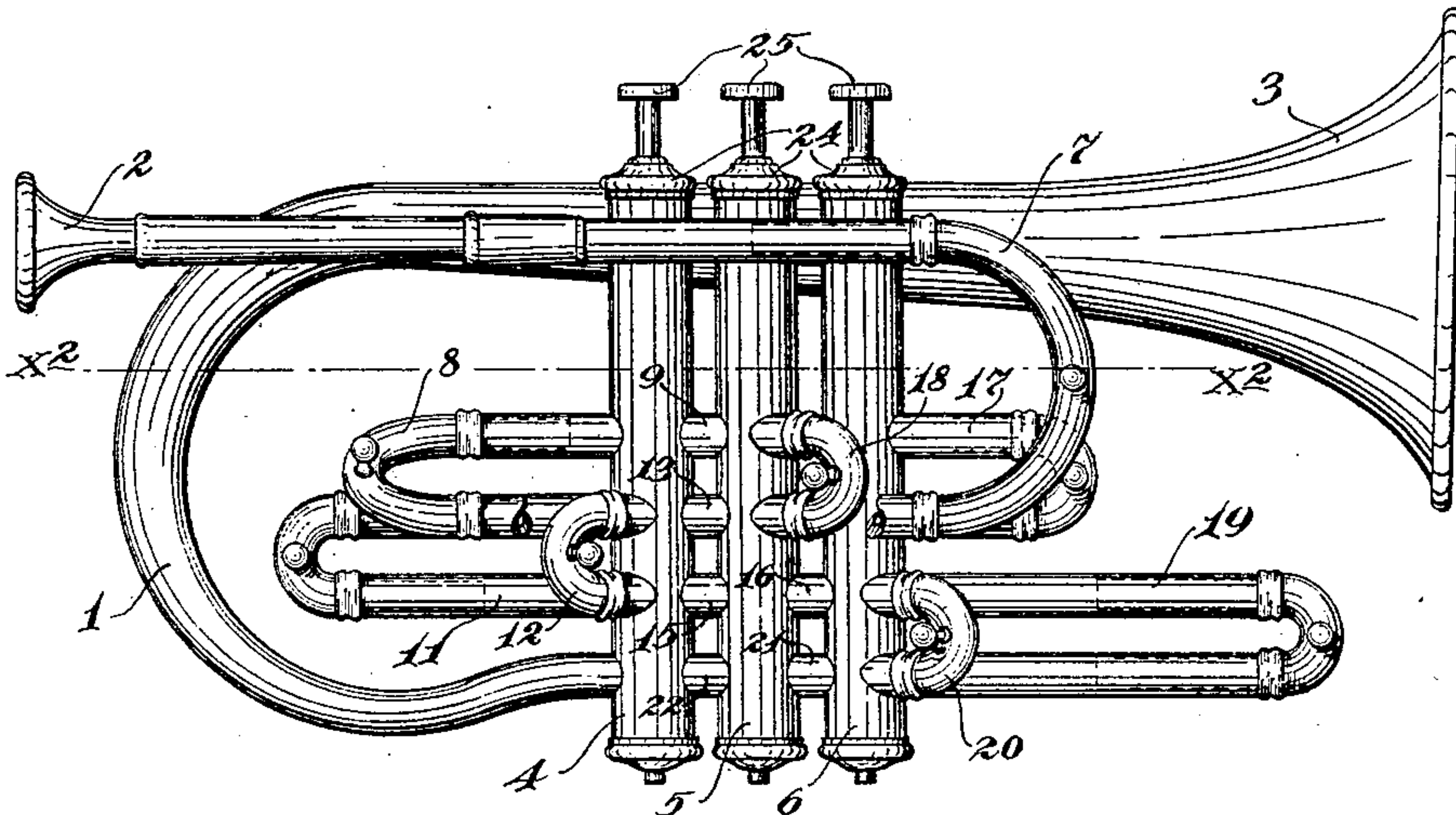


Fig. 2

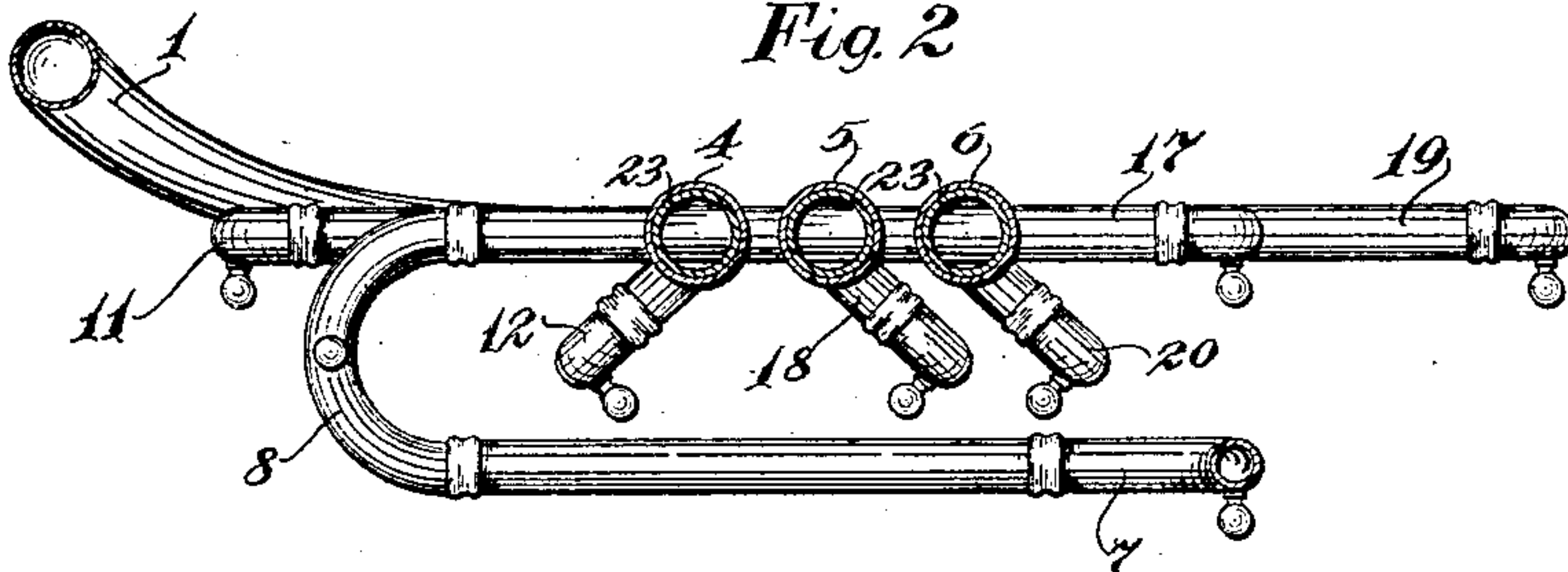
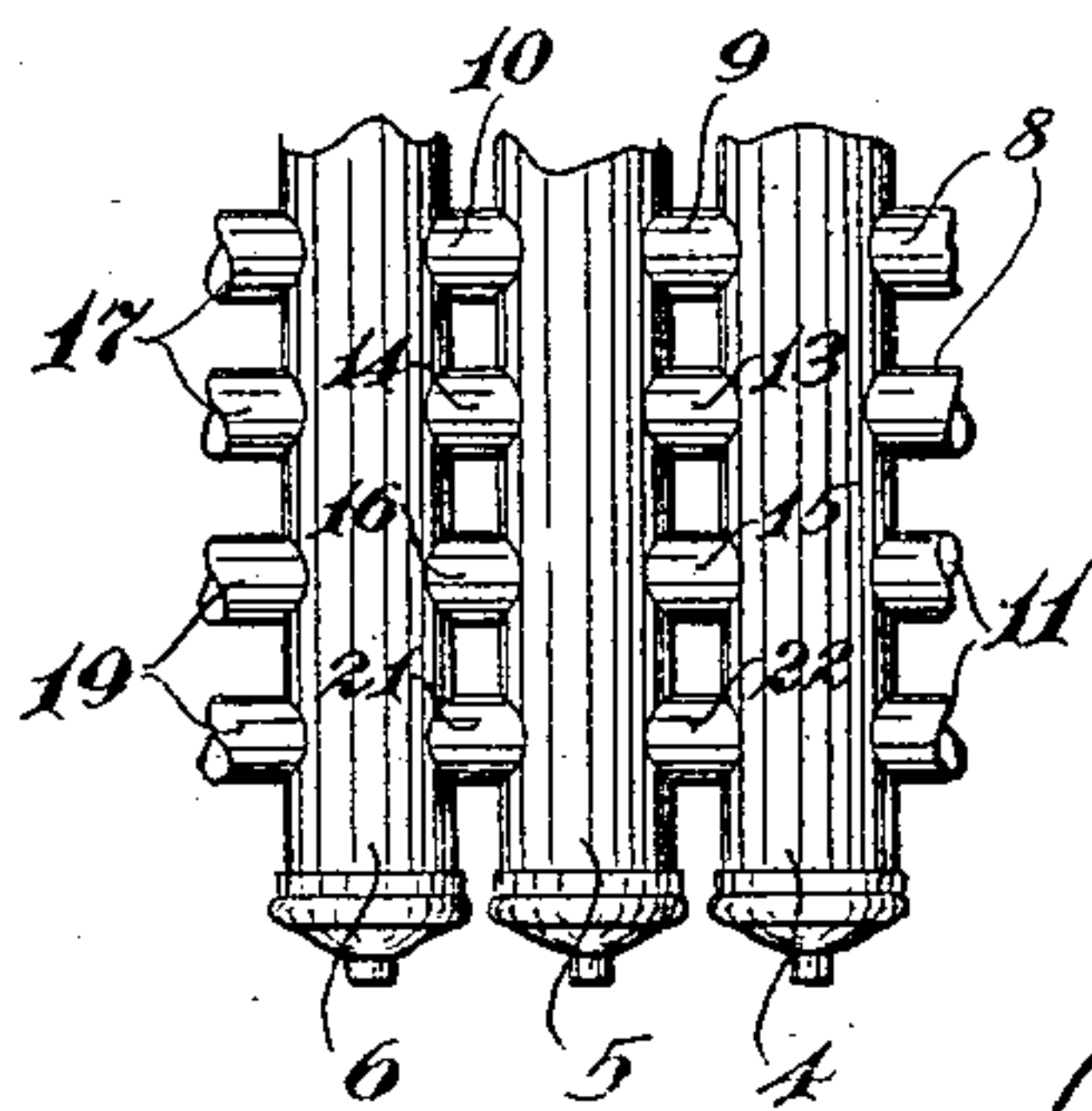


Fig. 3



Witnesses:

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Inventor:

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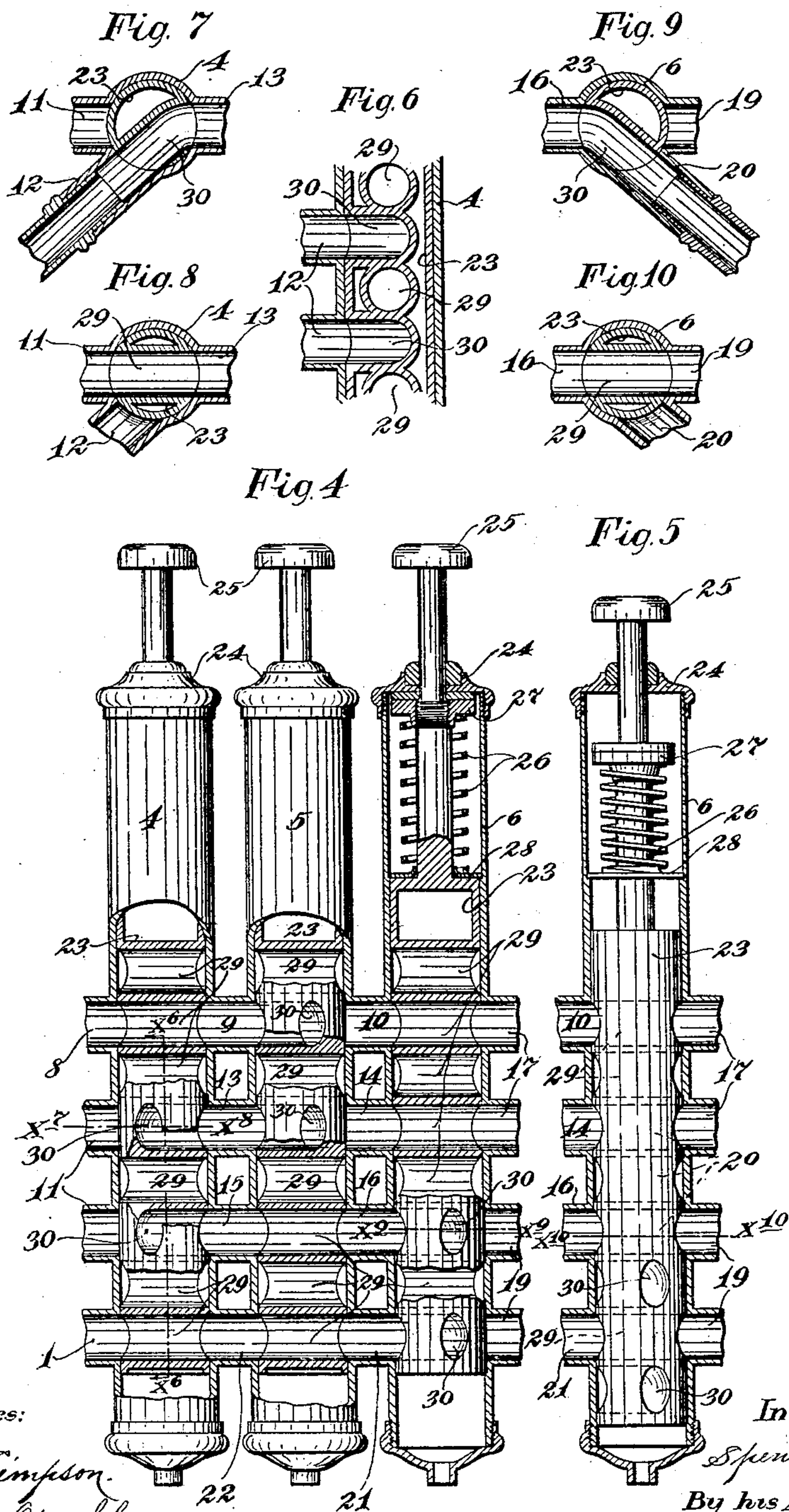
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

SPENCER ADKINS, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-THIRD TO RICK ADKINS
AND ONE-THIRD TO WILLIAM H. ADKINS, JR., OF MINNEAPOLIS, MINNESOTA.

CORNET.

No. 911,637.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed October 14, 1907. Serial No. 397,316.

To all whom it may concern:

Be it known that I, SPENCER ADKINS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Cornets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its particular object to provide an improved cornet, but more generally has for its object to improve the construction and tone producing qualities of wind instruments generally designated as keyed brass horns.

To the above ends the invention consists of the novel devices and combinations of devices and construction and arrangement of parts hereinafter described and defined in the claims.

For the sake of convenience, the instrument will hereinafter be designated, both in the specification and in the claims, as a cornet, but it should be understood that the invention is not, in any wise, limited to this particular type of keyed brass or metal horns.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation, with some parts broken away, showing a cornet designed in accordance with my invention. Fig. 2 is a horizontal section, taken on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a fragmentary view of the valve cylinders, looking at the same in a reverse direction from that in which they are shown in Fig. 1. Fig. 4 is an enlarged view, partly in elevation and partly in vertical section, with some parts broken away, showing the three valve cylinders and three co-operating piston valves, the said valves being in their normal or uppermost positions. Fig. 5 is a view partly in elevation and partly in vertical section of the third or right hand valve cylinder and valve, with the said valve in its depressed or lowermost position. Fig. 6 is a vertical section, taken on the line $x^6 x^6$ of Fig. 4. Figs. 7 and 8 are detail views in horizontal section, taken on the line $x^7 x^8$ of Fig. 4, the former showing the valve in its

normal position and the latter showing the valve in its depressed position. Fig. 9 is a detail in horizontal section taken on the line $x^9 x^9$ of Fig. 4; and Fig. 10 is a detail in horizontal section, taken on the line $x^{10} x^{10}$ of Fig. 5.

As usual, the tubular body 1 of the cornet is provided, at one end, with a detachable mouth-piece 2, and at its other end terminates in a bell 3, and three valve-cylinders 4, 5 and 6, hereinafter designated, respectively, as the first, second and third valve cylinders, are connected in said tubular body and are combined with relatively long and relatively short crooks arranged in a novel manner presently described.

The body tube 1 is provided, preferably, with the usual-tuning slide 7 and the usual A-slide 8, the latter of which connects to the first valve cylinder 4 in line with short tube sections 9 and 10 that connect the three valve cylinders. The first valve cylinder 4 is provided with relatively long and short crooks 11 and 12, the upper legs of which open into said cylinder 4 in horizontal line with short tube sections 13 and 14 that connect the three cylinders 4, 5 and 6 below the tube sections 9 and 10, and the lower legs of said two crooks 11 and 12 open into said cylinder 4 in horizontal line with short tube sections 15 and 16 that connect the three cylinders below the tube sections 13 and 14. These crooks 11 and 12 are preferably provided with the usual slides or detachable portions. The second valve cylinder 5 is provided with relatively long and short crooks 17 and 18, preferably having the usual slides or detachable sections. The short crook 18, at its upper end, opens into the cylinder 5 in horizontal line with the upper tube section 9, while the lower end thereof opens into said cylinder in horizontal line with the tube section 13. The long crook 17 which is connected to the cylinder 5 is directly attached to the third cylinder 6, and through said latter cylinder and the tube sections 10 and 14 is connected to said second cylinder. The third cylinder 6 is provided with a relatively long crook 19 and a relatively short crook 20, which crooks are also preferably formed with the usual slides or detachable sections. The upper legs of these crooks 19 and 20 open into the third valve cylinder 6 in horizontal line with the tube sections 15 and 16,

and the lower legs of said crooks open into said cylinder in horizontal line with tube sections 21 and 22 that connect the three valve cylinders below the tube sections 15 and 16.

By reference to Figs. 1 and 2 it will be seen that the crooks 11, 17 and 19 lie in the same plane, while the relatively short crooks 12, 18 and 20 lie in planes at an angle to the plane of the said relatively long tubes 11, 17 and 19. The angularity between the relatively long and short tubes is only sufficient to permit both to tap the corresponding valve cylinder in the same horizontal plane. It does not produce an abrupt turn in the course which the air takes in passing through the short tube.

Working within each valve cylinder is a piston valve 23, the stem of which works upward through a cap 24 on the upper end of said cylinder and is provided with the usual finger-piece 25. Each valve is also normally held upward by a light coiled spring 26 that reacts against a collar 27 on the valve stem and a washer 28 that is anchored within the valve cylinder. Each of these valves is provided with six diametrically extended ports 29 and with two slightly crooked ports 30.

The normal position of the three valves is illustrated in Fig. 4. The open tones are produced, of course, with said valves in their normal positions, and at such time the air passes through the three short crooks 12, 18 and 20 and the valve ports 30, and does not pass through either of the relatively long crooks 11, 17 and 19. If all three of the said valves are depressed or moved into lowered positions, as shown in Fig. 5, the course of the air is through all three of the relatively long crooks 11, 17 and 19 and does not pass through any one of the three relatively short crooks 12, 18 and 20. Otherwise stated, when any one of the three valves is depressed, the air is directed through the corresponding relatively long crook, so that the usual fingering of the valves is employed in playing the instrument.

The six diametrically extended ports 29 of the first valve, or the valve in the cylinder 4, are so disposed that in the normal position of the said valve one of the said ports will afford communication through the tubular portions 8 and 9, and one thereof will afford communication between the tubular section 22 and the outer end portion of the body tube 1 (see Fig. 4); and when the said valve is depressed another of said ports 29 will afford communication between said tubular section 8 and 9, and still another of said ports 29 will afford communication between said tubular sections 22 and 1. The valve in the second cylinder 5 has its diametrical ports 29 so arranged that when said valve is depressed its upper port 29 will afford com-

munication between the tubular sections 9 and 10, and another of its ports 29 will afford communication between the tube sections 13 and 14, and the four lower members of said ports 29 are so arranged that in both positions of said second valve they will afford communication between the tube sections 15 and 16 and 21 and 22. The four uppermost diametrical ports 29 in the third valve are so arranged that in either position of said valves there will be unobstructed communication between the tube sections 10 and 14 and the upper and lower legs, respectively, of the relatively long so called second valve crook 17. The two lowermost diametrical ports 29 of said third valve are so arranged that when said valve is depressed they will open up communication between the long crook 19 of the third valve and the short tube sections 16 and 21.

It has now been seen that each valve cylinder is provided with a relatively long and a relatively short crook and that these are extended at the least possible angle to each other. This minimizes and evenly distributes the irregularity in the course of the air through the instrument. In cornets, as hitherto constructed, some notes may be produced through a pipe or tube that is not objectionably irregular, while other tones must be produced through a tube or pipe that is exceedingly tortuous and has extremely abrupt turns that interfere materially with the free passage of air and damage the tone qualities of the instrument.

In the improved cornet herein described, no tone is produced through a tube or pipe that has an abrupt crook or offset, such as will interfere with the tone qualities of the instrument. The tone qualities of the instrument are greatly improved by the fact that when the valves are depressed or moved from their normal positions the relatively long crooks are opened by the aligned, diametrically extended ports of said valves, so that the passages that connect the legs of these long crooks are straight. It is also important to note that when all of the keys are depressed or down, the air passes through but five crooks, including the tuning slide and the so-called A slide, whereas in the ordinary cornet when the keys are depressed the air passes through about fifteen crooks.

As is evident, the principle of construction above described and set forth in the claims may be used in horns or brass instruments of various design and size and is not limited to what is usually designated as a cornet.

What I claim is:

1. A valved cornet having three valve cylinders and piston valves working therein, said cylinders each having a relatively long and a relatively short crook, the said long crooks being connected diametrically through the said three cylinders, and the said three

piston valves having diametrically extended ports which, when depressed, open the said diametrically extended relatively long crooks, whereby when all three valves are depressed
5 the passage through the long crooks passes four times straight through the said three cylinders, substantially as described.

2. A valved cornet having three cylinders, the intermediate cylinder having a long and
10 a short crook, which long crook is extended diametrically through one of the outer valve cylinders, the said valve of said latter cylinder having diametrically extended ports which in both positions of said valve leave
15 the long crook open with straight passages through said valve, substantially as described.

3. A valved cornet having three valve cylinders and piston valves working therein, said cylinders each having a relatively long

and a relatively short crook, the said long 20 crooks being connected diametrically through said three cylinders, the said valves having diametrically extended ports which, when depressed, open the said long crooks straight through said three cylinders, the long crook 25 from the intermediate cylinder being extended diametrically through one of the outer cylinders, and the valve in said latter cylinder having diametrically extended ports which in both positions of said valve leave 30 the said coöperating long crook open, substantially as described.

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

SPENCER ADKINS.

Witnesses:

H. D. KILGORE,
MALIE HOEL.