

No. 773,388.

PATENTED OCT. 25, 1904.

H. L. GERKEN.
VALVE MECHANISM.
APPLICATION FILED MAR. 7, 1904.

NO MODEL.

Fig. 1.

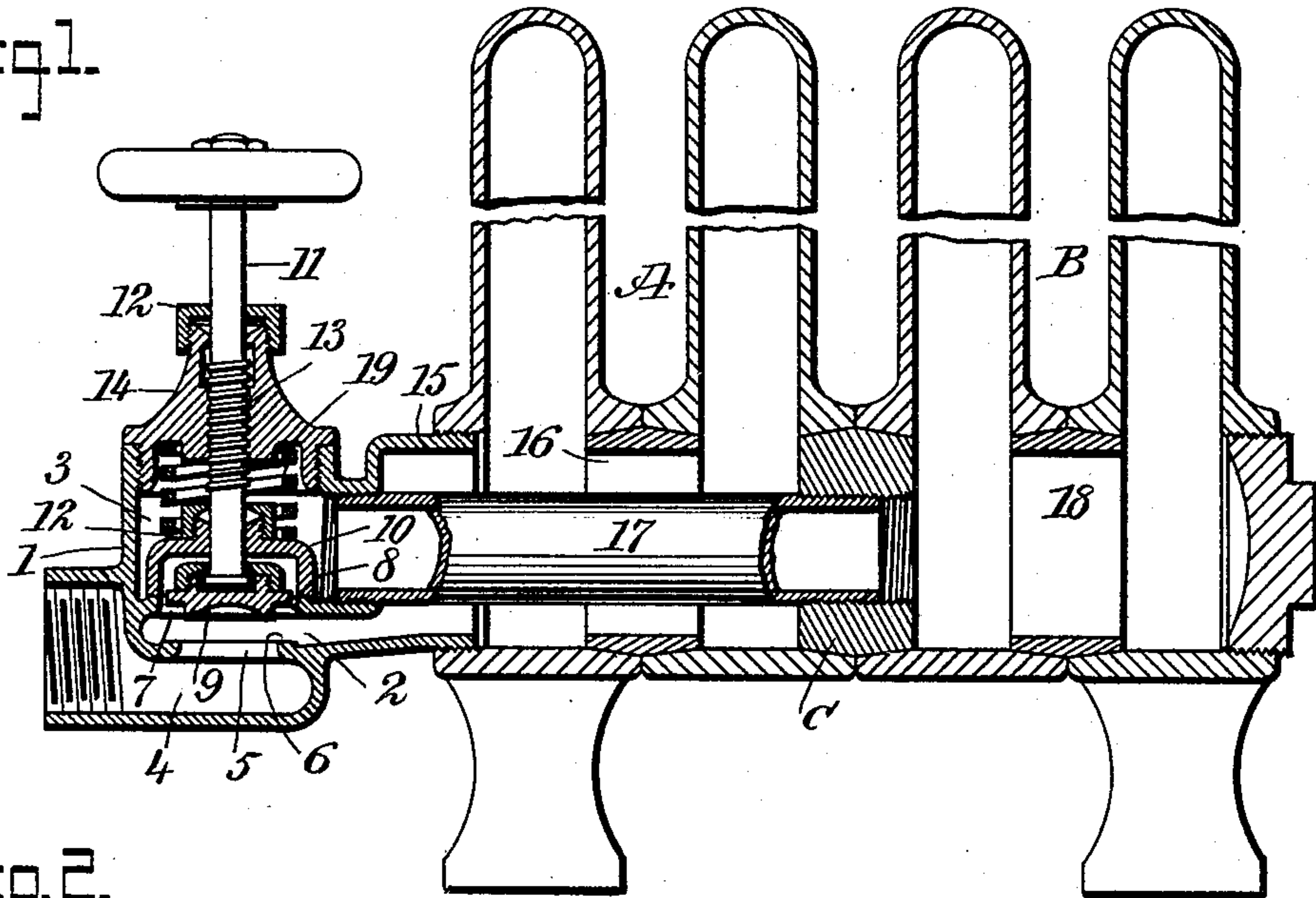


Fig. 2.

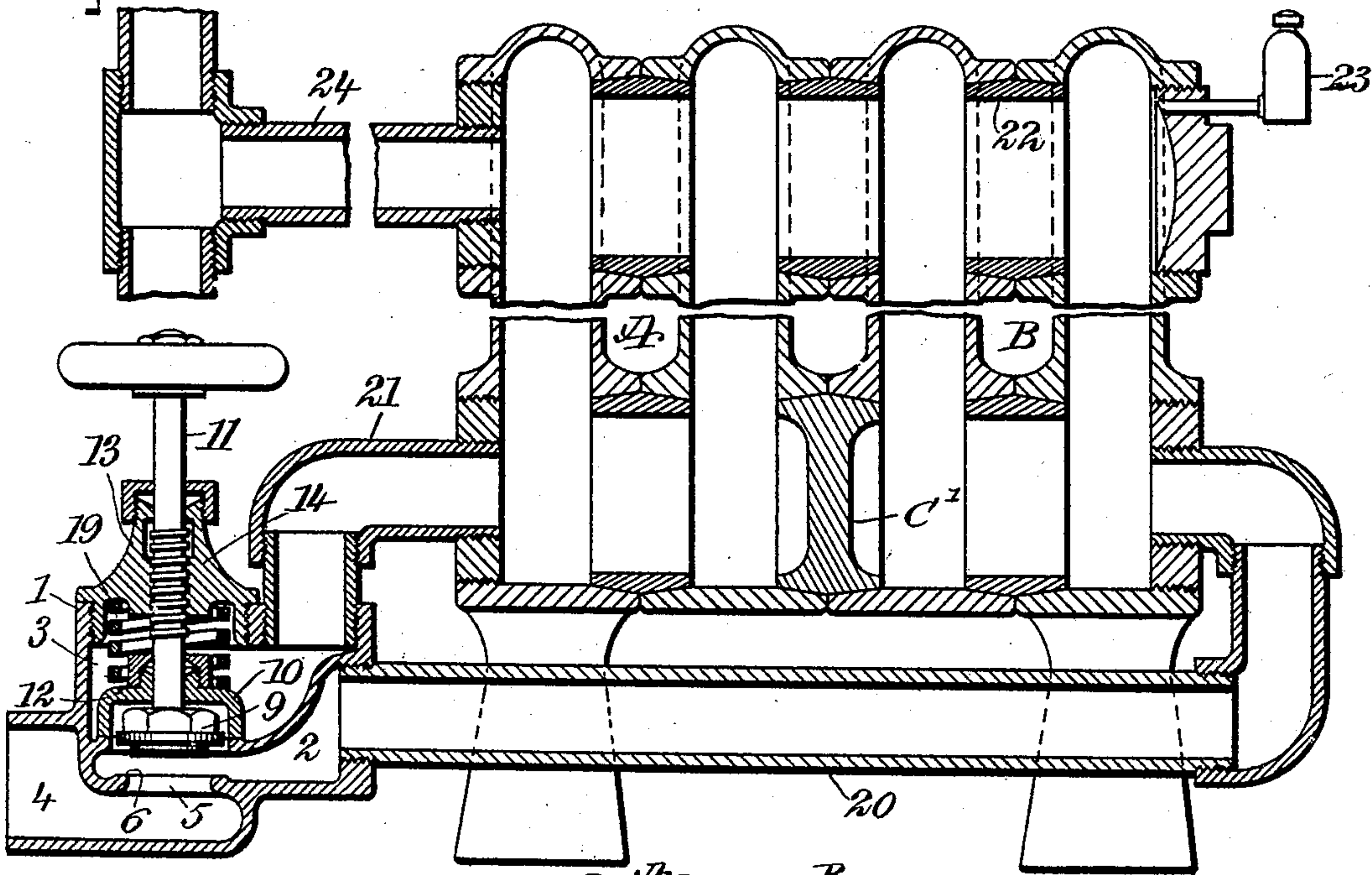
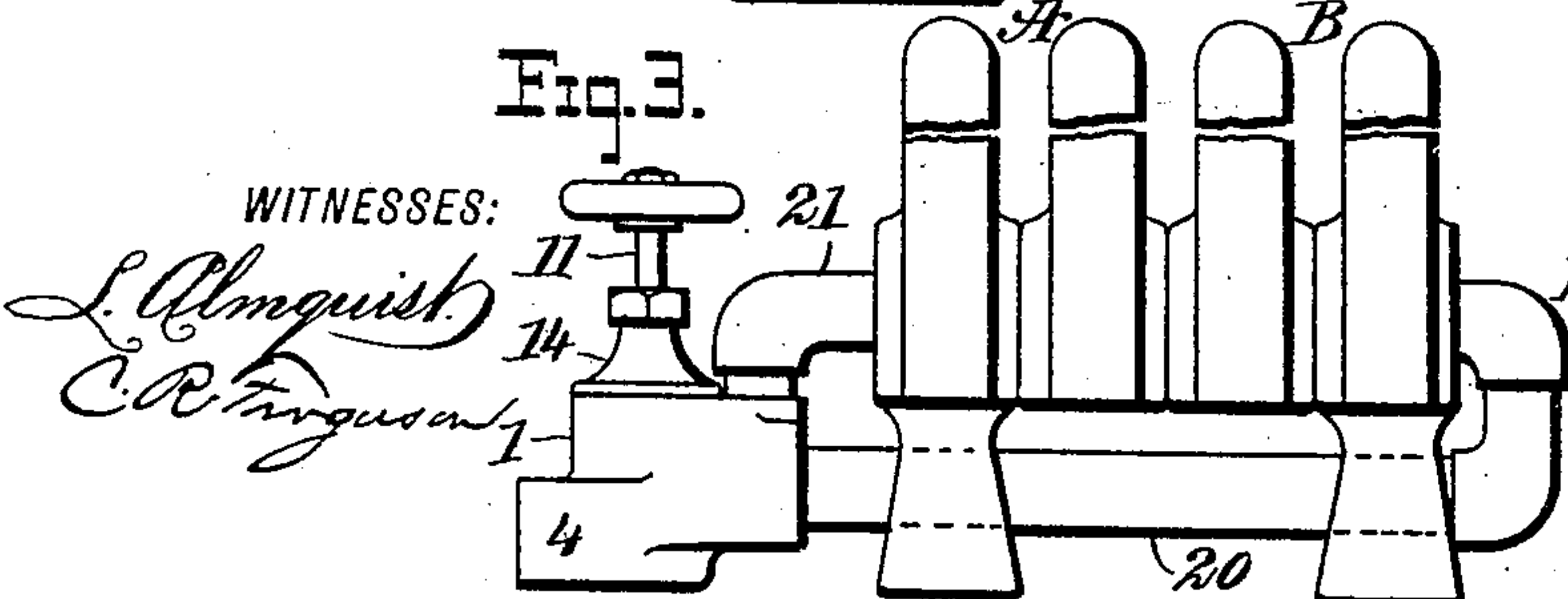


Fig. 3.



WITNESSES:

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VALVE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 773,388, dated October 25, 1904.

Application filed March 7, 1904. Serial No. 196,955. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. GERKEN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Valve Mechanism, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in valves and distributing mechanism for radiators, the object being to provide a valve of simple construction and positive in its operation that will permit a supply of steam, hot water, or refrigerating liquid to one or more divisions of a radiator or to one or more radiators at will.

I will describe a valve mechanism embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of a radiator and valve mechanism embodying my invention. Fig. 2 is a sectional elevation thereof, showing a modification; and Fig. 3 is a side elevation showing features of Figs. 1 and 2.

The radiator comprises vertical circulating-tubes divided into sections A B by means, as here shown, of a partition C. At one end of the radiator is a valve-casing 1, divided into lower and upper chambers 2 3. The chamber 2 communicates with an inlet 4 through an opening 5, around which is a valve-seat 6, and the chamber 2 communicates with the chamber 3 through an opening 7, having an annular valve-seat 8. For engaging with the valve-seat 6 I employ a valve 9, and a valve 10, which is cup-shaped, is designed to engage with the seat 8.

Having rotary connection with the valve 9 is a stem 11, the said stem passing through a suitable stuffing-box 12, carried on the valve 10, and the threaded portion 13 of the stem 11 engages with a thread in the hood 14.

The valve-chamber 2 communicates with the section A of the radiator through a pipe

15, the two tubes of said section A communicating one with the other through a passage 16. The upper chamber 3 of the valve-casing communicates with the section B through a pipe 17, which passes through the pipe 15 and also through the opening or passage 16, and the two tubes of the section B communicate through a passage 18. While I have shown but two tubes in each section, it is to be understood that my invention is not limited to any particular number of tubes in a section or to the particular construction of radiator shown. The valve 10 is held yieldingly against its seat by means of a spring 19, which engages on the upper side of the said valve and also engages with the hood 14.

In the operation when it is desired to pass the heating medium to one section of the radiator the valve 9 is to be raised from its seat, opening communication between the inlet and the chamber 2. The heating medium of course will pass into this chamber and thence into the section A of the radiator. If it is desired to heat both sections of the radiator, the stem 11 is to be turned so that the valve 9 will engage with the valve 10 and move it upward from its seat against the resistance of the spring 19. Obviously the heating medium will then pass through the pipe 17 into the section B, and the heating medium will also pass into the section A. By turning the stem 11 down it is obvious that the valve 10 will be forced against its seat by means of the spring, and by the continued downward movement of the stem the valve 9 will be caused to be seated, thus preventing the entrance of heating medium to either section of the radiator, suitable air-valves of course being provided for each section.

In Fig. 2 the two sections A B are separated at the lower portion by means of a solid partition C'. In this example of my improvement a supply-pipe 20 leads from the chamber 2 along the outer or under side of the radiator and communicates with the section B of the radiator, while from the chamber 3 a pipe 21 leads into the section A.

In Fig. 2 the upper portions of the tubes of the radiator are connected one with an-

other by short tubes 22, so that there can be a free circulation of liquid or the like, and this upper portion is provided with an air-valve 23, and a supply or return pipe 24 also communicates with the upper sections of the radiator. This is designed particularly for refrigerating or for hot-water heating, and consequently both supply and return pipes will be required.

10 The operation is as follows: First, if used as a supply-valve connect the return-pipe at either end of or elsewhere on the upper part of the radiator, and the valve will then operate practically as in Fig. 1, supplying liquid
15 in place of steam, which will pass off through the return-pipe 24, thus cooling or heating the part or parts through which the circulation is permitted to pass. This method of connections will be found preferable for re-
20 frigerating systems. Second, if used as a return-valve connect the supply-pipe 24 at either end or elsewhere on the upper part of the radiator and connect the lower divisions of the radiator to the different parts of the valve, as
25 shown in Fig. 2. By raising the valve 9 a circulation will start in division B, and by a further movement the valve 10 is raised. A circulation will then start through the division A, thus using the entire radiator, and so
30 heating or cooling the part or parts through which the circulation is taking place.

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

1. A radiator comprising two sections, a
35 valve-casing having two chambers communicating one with the other and communicating with an inlet, a pipe connection between one chamber of the valve-casing and one section of the radiator, a pipe connection between
40 the other chamber of the valve-casing with the other section of the radiator, and valves for controlling the communication between the inlet and chambers and for controlling the communication between the chambers, and
45 a single stem for operating both valves.

2. A radiator comprising separated sections, a valve-casing comprising a lower chamber and an upper chamber, a pipe leading from the lower chamber to one section of the radiator, a pipe leading from the upper chamber to the other section of the radiator, the said two chambers communicating one with the other, and the lower chamber communicating with the inlet, a valve for controlling the communication between the two chambers, a valve for controlling the inlet, a stem extended from said inlet-controlling valve loosely through the first-

named valve, and a spring for holding the first-named valve yieldingly against its seat.

3. A radiator comprising two separated
60 sections, a valve-casing arranged at one end of the radiator and comprising lower and upper chambers, an inlet having communication with the lower chamber and the said lower chamber communicating with the upper chamber, a valve for controlling the inlet, a valve for controlling the communication between the two chambers, a stem extended from the inlet-controlling valve loosely through the second-named valve, a thread on said stem,
70 and a hood on the valve-casing having a threaded opening for receiving the thread of the stem.

4. A radiator comprising separated sections, a valve-casing having lower and upper
75 chambers communicating one with the other, the lower chamber communicating with an inlet, a pipe leading from the upper chamber into one section of the radiator, a pipe leading from the other chamber through the first-named pipe and into the other section of the radiator, a valve for controlling the inlet, a valve for controlling the communication between the two chambers, a stem extended from the first-named valve through the last-named valve and having a threaded portion for engaging in a threaded portion of the casing-hood, and a spring for holding the last-named valve yieldingly on its seat.

5. A radiator comprising two separated
90 sections, a valve-casing having a lower and an upper chamber, the said chambers communicating one with the other, an inlet having communication with the lower chamber, a pipe leading from one chamber into one section of the radiator, a pipe leading from the other chamber into the other section of the radiator, a valve for controlling the inlet, an inverted cup-shaped valve for controlling the communication between the two chambers,
100 the said valve being adapted to receive the first-named valve, a stem extended from the inlet or outlet controlling valve loosely through the cup-shaped valve and having screw-threaded engagement with the valve-casing, and a spring for holding the cup-shaped valve yieldingly on its seat.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY L. GERKEN.

Witnesses:

JNO. M. RITTER,
C. R. FERGUSON.