

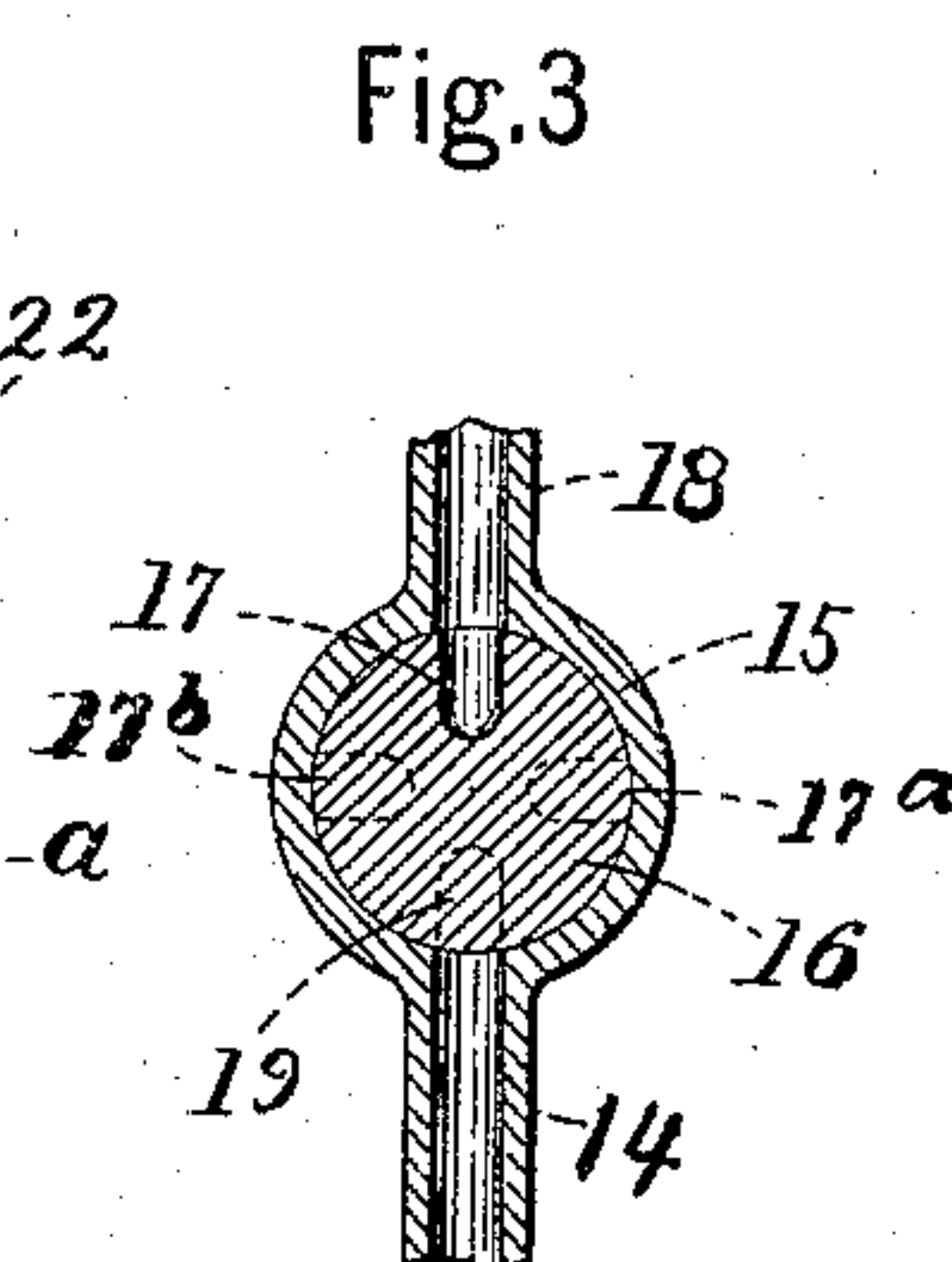
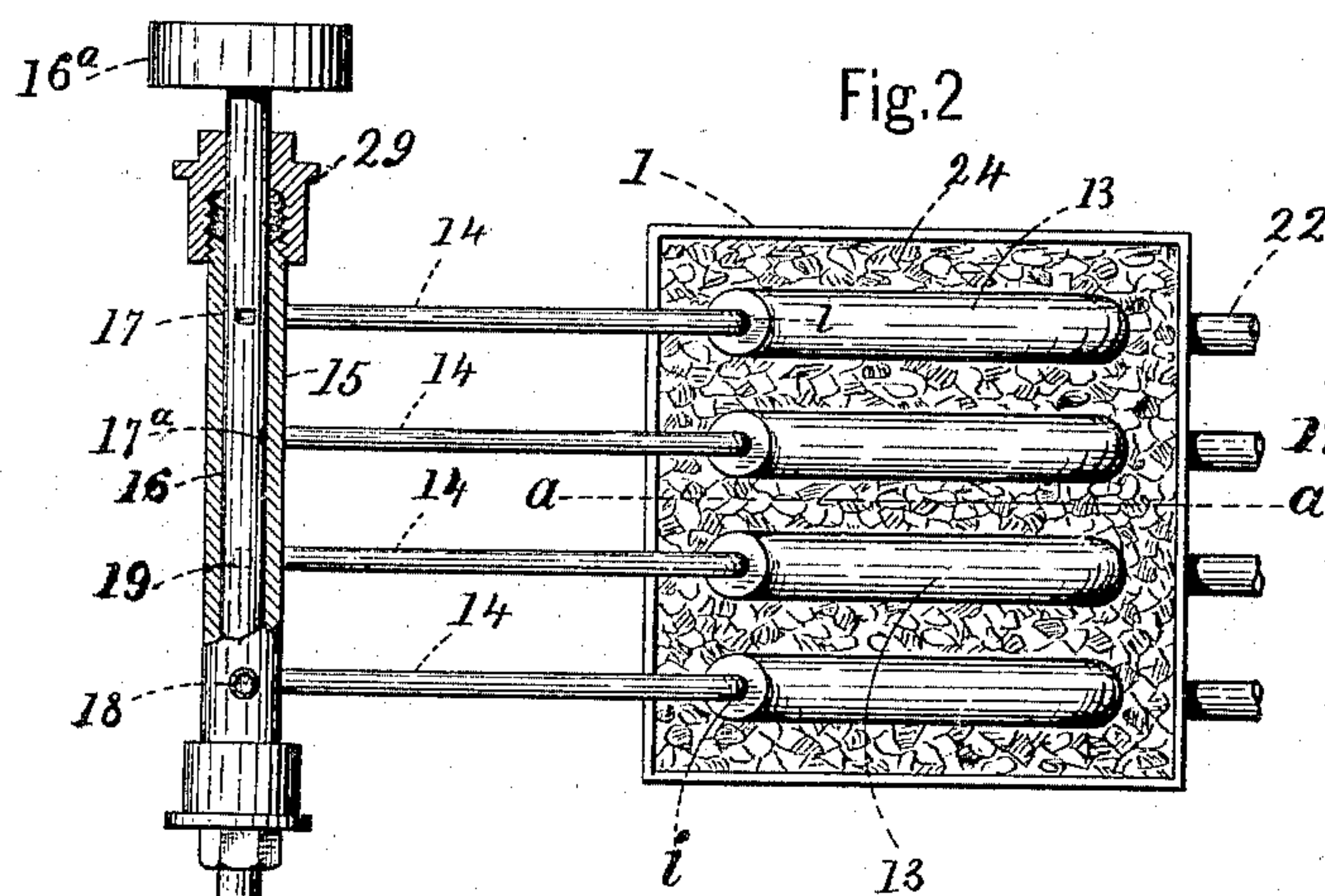
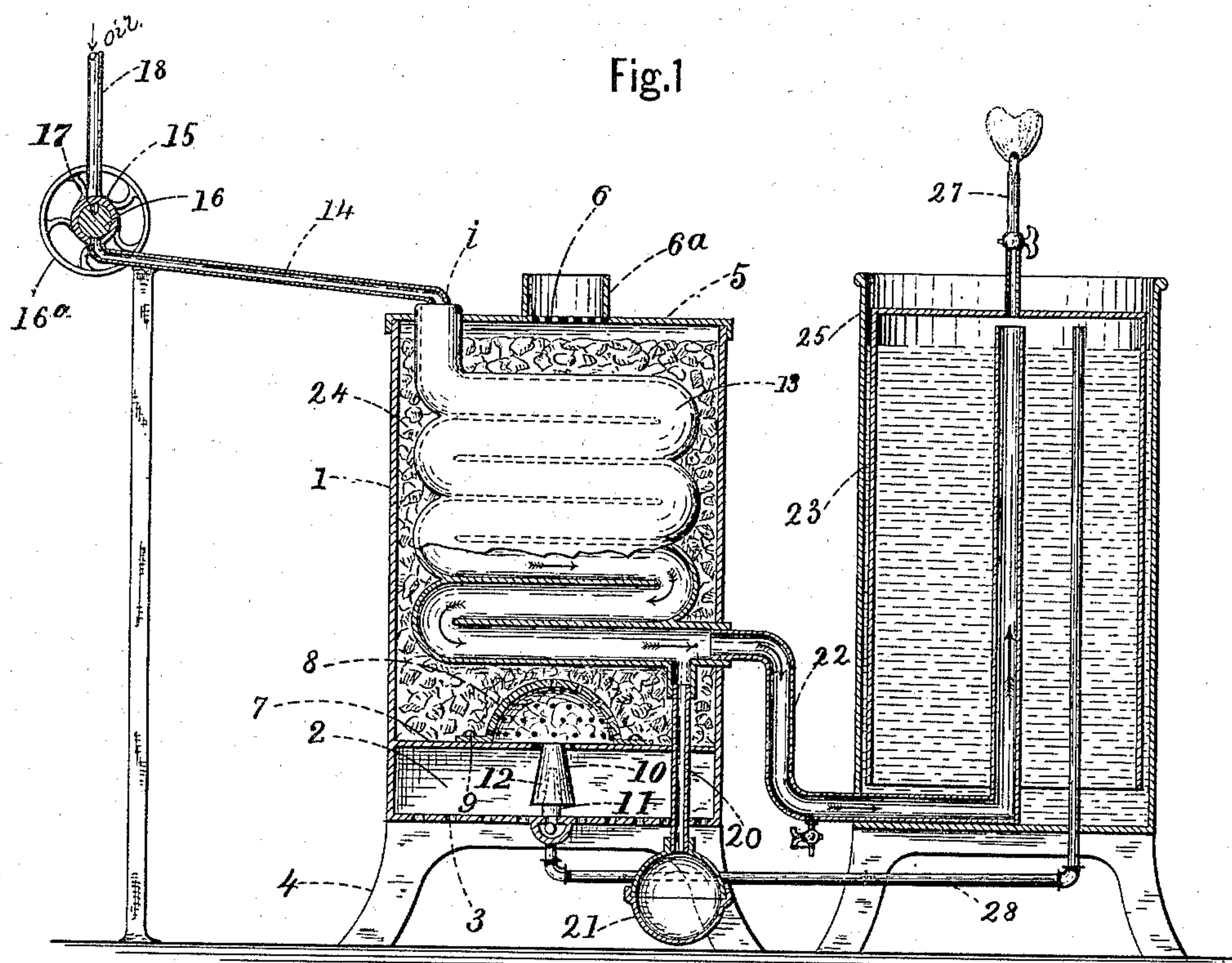
(No Model.)

A. T. BENNETT.

APPARATUS FOR THE MANUFACTURE OF GAS.

No. 493,855.

Patented Mar. 21, 1893.



Witnesses.

Jennie M. Caldwell.
Henry C. Ashbery

Allen T. Bennett, Inventor.

By James Sangster
Attorney.

UNITED STATES PATENT OFFICE.

ALLAN T. BENNETT, OF CHICAGO, ILLINOIS.

APPARATUS FOR THE MANUFACTURE OF GAS.

SPECIFICATION forming part of Letters Patent No. 493,855, dated March 21, 1893.

Application filed April 29, 1892. Serial No. 431,128. (No model.)

To all whom it may concern:

Be it known that I, ALLAN T. BENNETT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for the Manufacture of Gas from Oil, of which the following is a specification.

My invention relates to a new and improved apparatus for the manufacture of gas from liquid hydrocarbons, and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation cutting centrally through the furnace or retort inclosing case in or about line *a a*, Fig. 2, a portion of the lower part of the retort being removed so as to expose the interior; a central section being also shown through the device for feeding the liquid hydrocarbon to the retort, showing also a central section through a gasometer of well known construction and the pipe for connecting the retort therewith. Fig. 2 is a plan view showing a series of connected retorts, the cover of the retort holding case being removed to show the interior and the retorts below it, a portion of the hydrocarbon feeding device being broken away to show the construction within the inclosing pipe. Fig. 3 is a detached sectional elevation through the rotative valve for measuring and feeding a given quantity of hydrocarbon liquid to the retort.

Referring to said drawings—1 represents the furnace or gas retort holder. It is shown as made of sheet or cast metal but on a large scale it may be constructed of fire-brick. At the lower portion is a chamber or apartment, 2 in which the lower part of the gas burner is located. This apartment, 2, is provided with a series of perforations 3 at the bottom to supply a sufficient quantity of air to support the combustion. As represented in the drawings, the retort holder is supported on legs, 4, but the base may be made in any well known way. The retort holder is provided with a top, 5, which if desired may be made easily removable. Through this top is an opening or a series of perforations, 6, and a collar, 6^a, adapted to receive a chimney or

pipe to carry off the products of combustion. On the top of the plate, 7, which forms the upper portion of the apartment, 2, is a semi-spherical perforated burner cap, 8, secured to the plate, 7, by the usual bolts or screws, 9, below the perforated cap, 8, is the air and gas mixer tapering sleeve 10. Projecting up into this sleeve is the gas burner, 11, to which the sleeve is fastened by means of arms, 12, projecting radially from the interior of the sleeve to the burner, the burner and arms within the sleeve being shown by dotted lines.

The retort, 13, is made of cast iron but fire clay or other similar material may be used, and formed so that the oil passes from the pipe, 14, to the retort and then takes a zigzag course back and forth in passing through it (in the direction of the arrows shown in the sectional portion of the retort). The pipe, 14, is connected to the top end of the retort at or about the point, *i*, so as to be gas tight, and at the opposite end of the pipe is a valve case 15, for conducting oil to the pipe, 14, and from thence to the retort a given quantity of oil every time the valve key, 16, makes one revolution. This valve will be better understood by reference to Fig. 3. The valve key, 16, is provided with a recess, 17, which is made the size required for holding the proper measure of oil as it comes down from the pipe, 18, which may connect with any suitable vessel for holding the oil.

From the above construction it will be seen that when the valve key (which is fitted gas tight in the valve case, 15) is turned in the position shown in Fig. 3, the oil will drop into the recess, 17, and when the key is turned so that the recess 17, is down opposite the pipe, 14, substantially as shown by the dotted line recess, 19, the oil therein will drop down into said pipe and from thence to the retort. At the bottom of the retort is a pipe, 20, for conducting the dripping or waste products to the removable vessel, 21, and at the front of the retort is the outlet pipe, 22, for conducting the gas to the gasometer 23. This retort is set and secured in the retort holding case, 1, and is covered on all sides with what may be termed imitation fuel. It is usually made of a porous fire clay or other fire proof material and in the form in which I use it it is made

to imitate in size and shape pieces of anthracite coal, 24. This imitation fuel receives the heat from the gas and forms a solid bed resembling a coal fire, which may be controlled by the gas so as to be of a dark or light red heat and the retort being within this heat is kept at an even heat at all times which is very desirable in a gas retort and it can thus be kept at the exact temperature required to decompose the oil as it passes through the retort.

The gasometer tank, 25, to hold the water in which the gasometer operates is made in any well known way and may be of either sheet metal or wood. The gasometer, 23, is also made in the usual manner, and for illustration, is provided with a gas burner, 27.

The outlet pipe, 22, passes from the retort down to the bottom of the tank, 25, then through the side of the same and from thence vertically upward nearly to the top of the gasometer, substantially as shown in the drawings, Fig. 1.

When using a number of retorts located side by side as in Fig. 2, the valve key, 16, is made in the form of a key or shaft and is provided with a series of pockets or recesses, 17—17^a—19 and 17^b, (the recesses 17^a—19 and 17^b, being shown in dotted lines) each one being adapted to operate with the several pipes, 14, connected with the different retorts. It will be noticed that these recesses or pockets are arranged in a spiral around the key or shaft 16, so that when the first retort gets a charge of oil it receives nothing more until the second, third and fourth retort have received their charges of oil. By this construction each retort has a short rest so as to receive back the heat lost by the cold oil dropped into it. This is an important advantage in the manufacture of gas from oil (kerosene oil or

other oil) as it is necessary that the retort should be kept at an even or uniform temperature at all times.

The operation of this invention will be readily understood from the foregoing description and drawings. The valve key, 16, is turned by the pulley, 16^a, and a belt connected with any suitable source of power.

I claim as my invention—

1. In an apparatus for the manufacture of gas from oil, the combination with a furnace or retort holding receptacle, provided with a horizontal partition plate near the bottom, forming an apartment between it and the bottom, of a perforated cap secured to the upper surface of the partition, an oil mixer and gas burner in said apartment, a retort located in the receptacle having an inlet and outlet, a covering of imitation fuel in the receptacle around the retort, and a gasometer connected with the outlet, substantially as set forth.

2. In an apparatus for the manufacture of gas from oil, the combination with a furnace or retort holding receptacle, of a series of retorts arranged therein, each of which has an inlet and outlet pipe, a valve case connected with the inlet pipes and a gasometer connected with the outlet pipes, a rotary valve within the case in the form of a key shaft and having a series of pockets arranged spirally around the same, each one of the pockets being adapted to communicate with the oil supply pipe, and with one of the inlet pipes to the retorts, and means for rotating the valve and heating the retort, substantially as set forth.

ALLAN T. BENNETT.

Witnesses:

JENNIE M. CALDWELL,
JAMES SANGSTER.