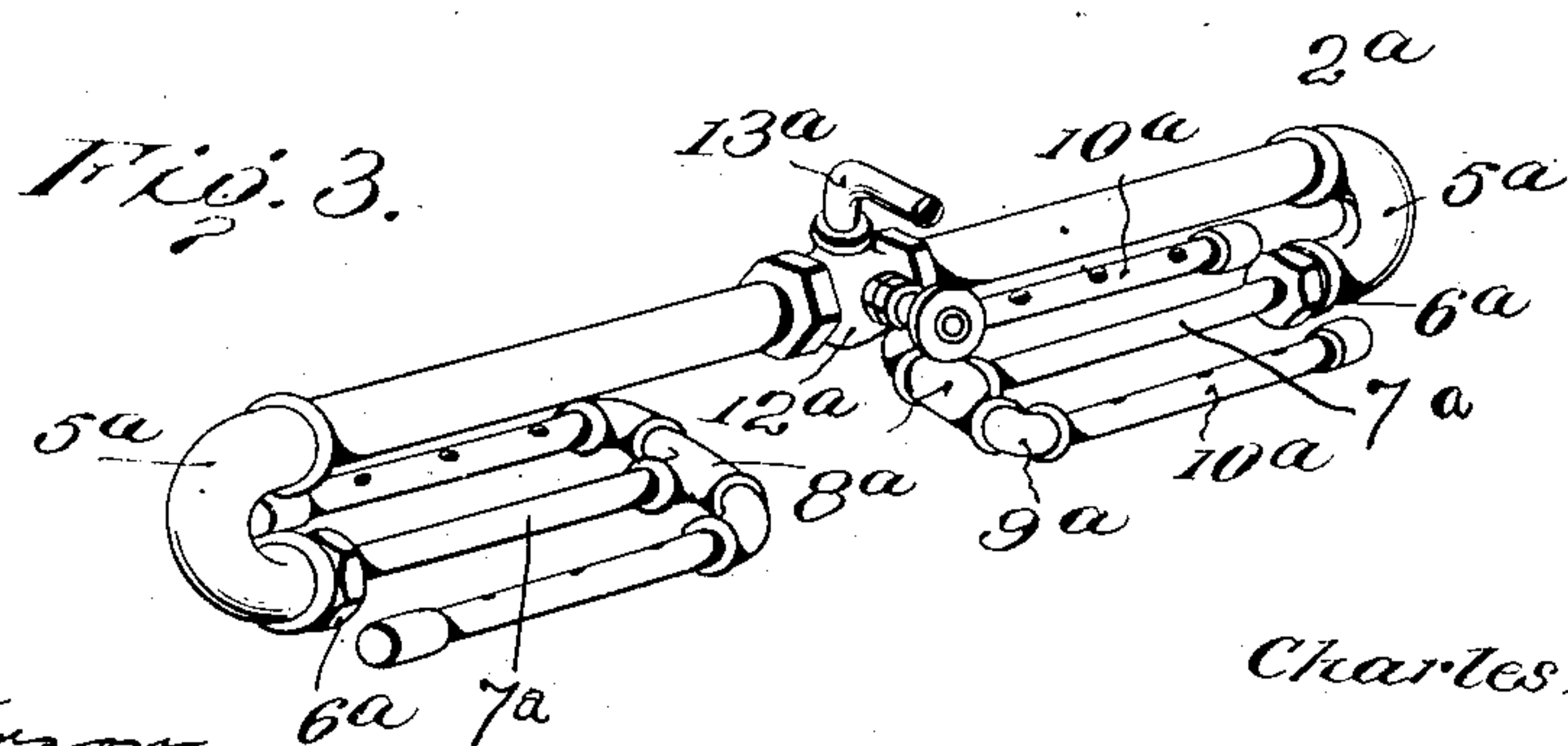
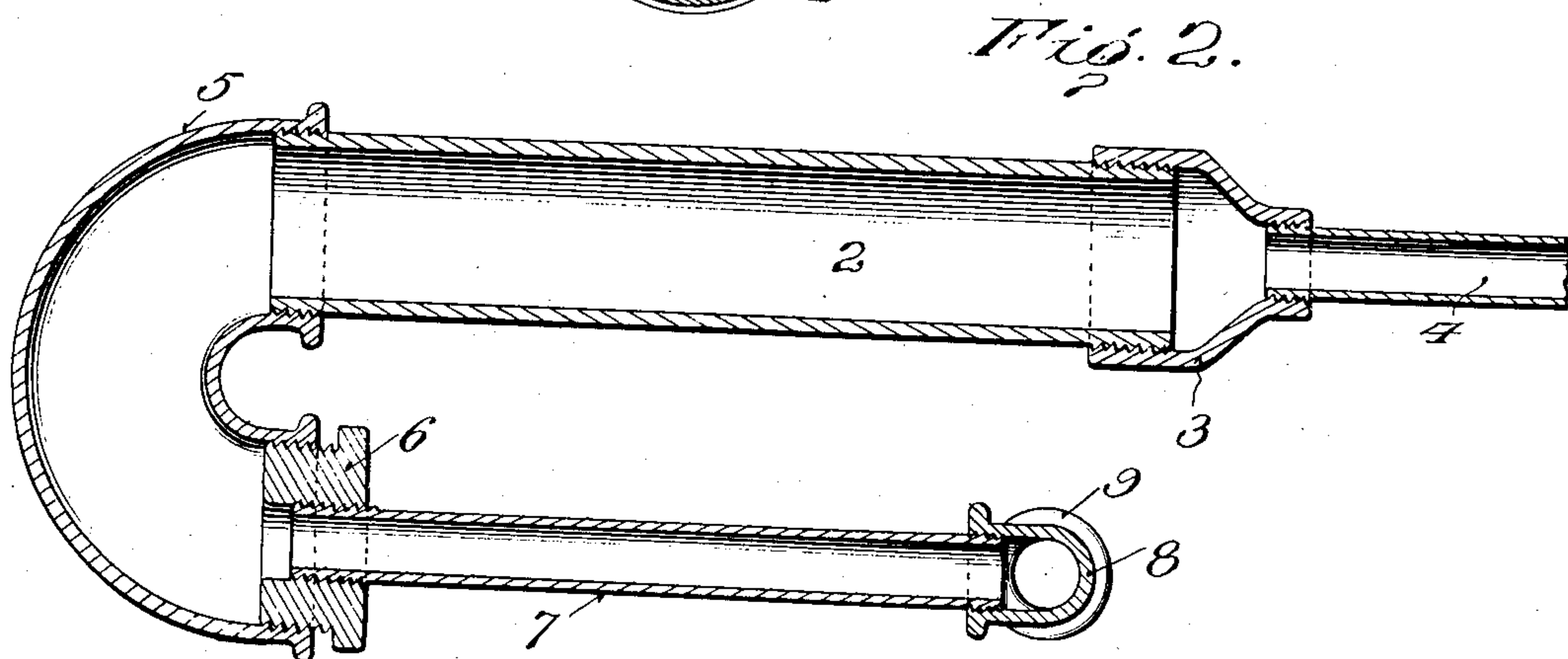
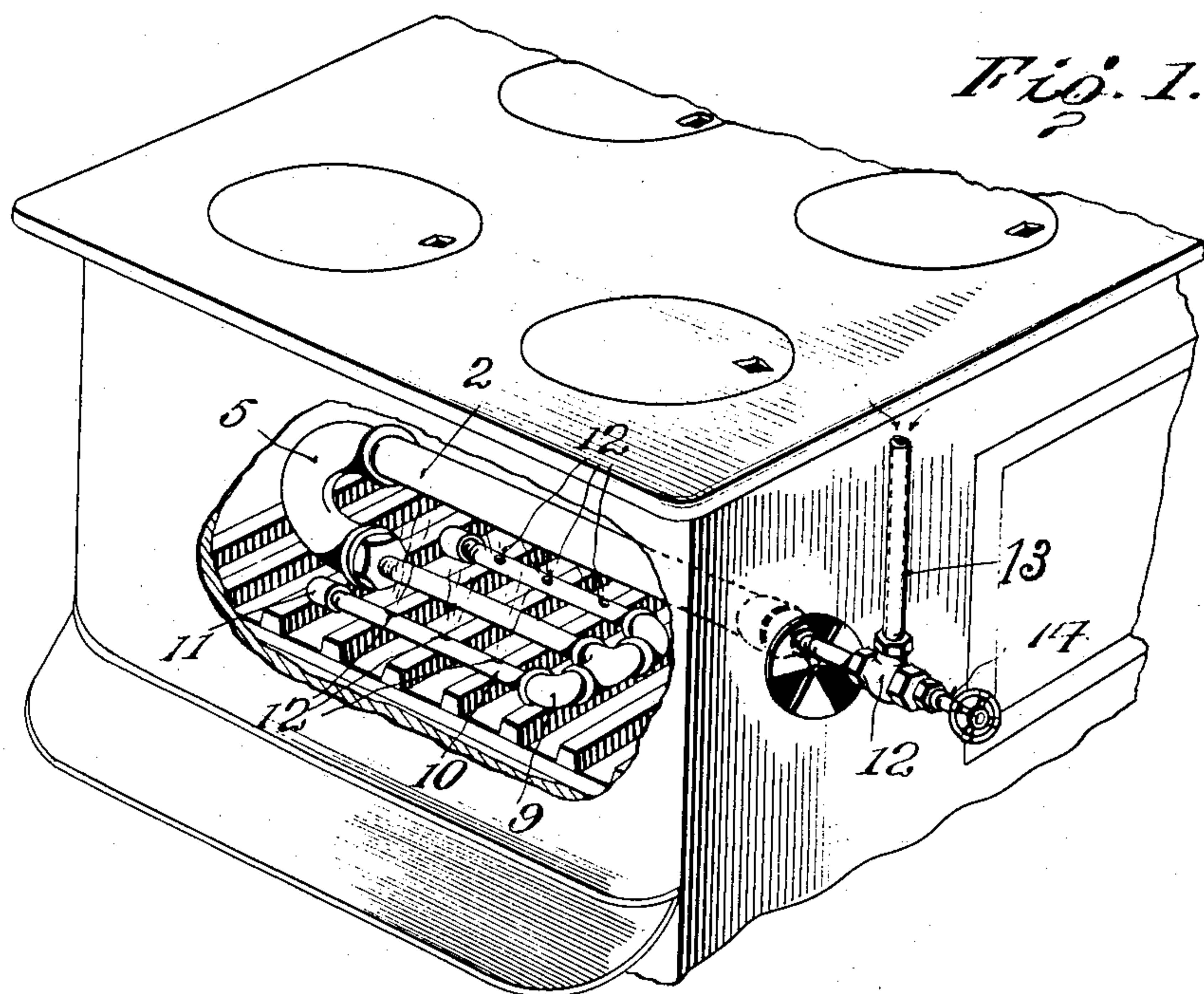


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HYDROCARBON VAPORIZER AND BURNER.  
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Patented Nov. 15, 1910.



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# UNITED STATES PATENT OFFICE.

CHARLES MENDELL, OF MORAN, KANSAS

HYDROCARBON VAPORIZER AND BURNER.

975,557.

Specification of Letters Patent.

Patented Nov. 15, 1910.

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*To all whom it may concern:*

Be it known that I, CHARLES MENDELL, citizen of the United States, residing at Moran, in the county of Allen and State of Kansas, have invented certain new and useful Improvements in Hydrocarbon Vaporizers and Burners, of which the following is a specification.

My invention relates to burners adapted to generate vapor from crude oil or kerosene, and to burn the same, and particularly to a burner of that class in which a generating chamber or retort is used, in which the gas is generated, burners being located immediately beneath the generator and having jets directed toward the generator so as to heat the oil and vaporize the same prior to its passage to the jets.

The object of my invention is to provide a burner of this character having an exceedingly simple and effective construction, which may be composed of ordinary pipe fittings, which does not require alteration of the ordinary stove for the placement of the burner, and in which the flame is directed most advantageously against the generating chamber or retort.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a perspective view of a portion of a stove showing my improved burner in place therein; Fig. 2 is a longitudinal section of the burner; and, Fig. 3 is a perspective view of a modified form of burner.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

Referring to these figures, 2 designates a cylindrical generating chamber, preferably composed of a short length of pipe, the ends thereof being screw-threaded, one end for engagement with a reducer cap 3 and the other for engagement with an elbow 5. The feed pipe 4 enters the smaller extremity of the reducing cap 3. The elbow 5 is provided at its under end with a reducing plug 6 which has screw-threaded engagement with a relatively small conducting pipe 7 which extends along immediately beneath and in alinement with the generating pipe 2 and at its extremity is screw-threaded into a tee 8 which in turn is connected to the opposed

elbows 9, these elbows having screw-threaded engagement with parallel burner pipes 10 which have caps at their ends, as at 11. These burner pipes are each provided with a plurality of openings 12 which are so disposed upon the pipes 10 that the flame jet from each of the openings is directed inwardly and upwardly toward the bottom of the generating pipe 2, the flames being directed inwardly at such an angle that the two flames will meet and will be spread by contact with the bottom of the generating pipe. The reducer cap 3, as before remarked, is connected to the feed pipe 4, which feed pipe is relatively small in proportion to the generating pipe 2 and is adapted to extend out through one of the side valves of a stove of any usual construction. The extremity of the pipe is connected with a globe valve 12 or other suitable valve having the valve spindle 14 whereby the valve may be operated. A conducting pipe 13 leads to an oil reservoir which may be located at any suitable point, but should be located from six to eight feet away from the stove and at a suitable height above the stove or burner to provide for a proper feeding of the oil. The valve 12 is to be so regulated that only a limited supply of oil will pass through the pipe 4 and into the generating chamber 2 so that the oil, when it reaches the generating chamber, will pass along the bottom thereof and in such a shallow stream that it will be vaporized before it passes into the pipe 7. It is to be noted that the pipe 7 has a relatively small diameter to the generating chamber 2 and the elbow 5.

The reducing plug 6 will act as a dam to prevent small quantities of unvaporized oil from passing into the pipe 7 and thence into the pipe 10, detaining said oil until it becomes vaporized. Any slight excess of oil not immediately vaporized will flow in the elbow 5 and will drip into the lower portion of the elbow 5 and be dammed by the plug 6. It will be seen that this form of my invention is extremely simple, may be cheaply made, and may be easily applied. It does not require any supporting base, nor does the burner have to be permanently fitted within the stove. The opposed pipes 10 act as a base for the support of the burner within the stove. These pipes may rest upon the grate of the stove, or the bottom grate may be removed and the pipe 4 extended into the stove at the point where the extremity



of the grate bar usually projects. The air from the usual draft slides of the stove gives a sufficient draft. It is also to be noted that the elbow 5 forms part of the generating chamber so that the oil, from the moment of its entrance into the reducer 3, to the time it passes out of the reducer 6, is subjected to vaporizing heat.

In Fig. 3 I show another form of my invention in which the arrangement is practically the same as that described, except that it is double. In this figure, 2<sup>a</sup> designates the generating chamber which, at its extremities has screw-threaded engagement with the returned bends or elbows 5<sup>a</sup> which at their extremities are provided with the reducer plug 6<sup>a</sup> from which pass the pipes 7<sup>a</sup>, to the extremities of which are attached the tees 8<sup>a</sup>, the elbows 9<sup>a</sup> and the parallel burner pipes 10<sup>a</sup>, these pipes having perforations in them, by which the jets of flame will be directed against the generator 2<sup>a</sup>. The generator is connected to a feed pipe 13<sup>a</sup> and is provided with the regulating valve 12<sup>a</sup>. The feed pipe in this case can pass out of the front of the stove. This construction differs from the other one in that it is much more effective because of the fact that it gives double the amount of heat, and thus makes the generating part of the apparatus still hotter than that shown in Fig. 1, and therefore generates a double amount of gas. This form of my invention is particularly applicable to cook stoves, though I do not wish to limit it to that.

In starting the burner, ashes, or other absorbent material upon the grate bars of the stove may be moistened with oil and then ignited so that a flame will be generated which will surround the vaporizing chamber and heat the same until the oil admitted thereto becomes vaporized, whereupon this oil will be ignited at the jets, as before described, and from that time on until the oil is burned off, there will be a constant generation of vapor in the vaporizing chamber and a constant supply of this vapor to the jets.

Having thus described the invention, what I claim is:—

1. A hydrocarbon burner including a relatively large cylindrical generating chamber connected at one end to a relatively small feed pipe, an elbow forming a continuation of the other end of the generating chamber and extending to a point below the same, an intermediate small pipe extending from the lower end of the elbow parallel to the generating chamber and beneath the same, a T on the extremity of the intermediate small pipe, and perforated burner pipes connected to the ends of the T and extending toward the other end of the intermediate small pipe and parallel to the same.

2. An oil burner of the class described,

comprising a generating chamber, a relatively small feed pipe entering said chamber, provided with a valve, a return bend connected to the end of the generating chamber and extending downward, the lower end of the return bend being stopped by a plug, a pipe extending parallel with the generator and screw threaded into the plug, and opposed parallel burner pipes connected to the outlet end of the first named pipe and formed with jet perforations directed toward the generator.

3. A hydrocarbon burner of the character described, comprising a cylindrical generating chamber, a relatively small feed pipe entering said chamber, provided with a valve, a return bend attached to the end of the generating chamber and having the same size as said chamber, said return bend extending downward to a point below the generating chamber, a plug closing the lower end of the return bend, a conducting pipe inserted into said plug and extending along beneath the generating chamber, a tee carried upon the end of said pipe, opposed elbows connected to the tee, and burner pipes extending toward the return bend from said elbows, said burner pipes being provided each with a plurality of perforations directed toward the generating chamber.

4. In a burner of the character described, a relatively large cylindrical generator, a supply pipe connected to said generator, opposed return bends attached to the opposite extremities of the generator and extending down therefrom to a point below the same, plugs closing the ends of the return bends, said return bends having the same size as the generator, a relatively small conducting pipe extending from the end of each of the return bends, in alinement with the generator, and reversely extending opposed parallel burner pipes connected to the end of each of the conducting pipes, said burner pipes being provided with perforations directed toward the generator.

5. A hydrocarbon burner, including a relatively large generating chamber, an inlet pipe leading directly into the end of the chamber, the inlet pipe being in alinement with said chamber, an elbow of approximately the same diameter as the generating chamber attached to the end of the generating chamber opposite to the inlet pipe and extending downward to a point below the generating chamber, a relatively small pipe connected to the elbow and extending parallel to the generating chamber, elbows on the end of said pipe, and parallel burner pipes attached to said last named elbow and extending toward the first named elbow and each provided with perforations along its whole extent directed toward the generating chamber, said burner pipes acting as supports for the burner.



6. A hydrocarbon burner including a generating chamber connected at one end to a feed pipe, an elbow forming a continuation of the other end of the generating chamber  
5 and extending downward to a point below the same, an intermediate pipe extending from the lower end of the elbow approximately parallel to the generating chamber underneath the same, a T on the extremity of  
10 the intermediate pipe, and perforated burner pipes connected to the ends of the T and ex-

tending toward the other end of the intermediate pipe and parallel to the same, said burner pipes being thereby adapted to support the burner.

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

CHARLES MENDELL. [L. S.]

Witnesses:

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