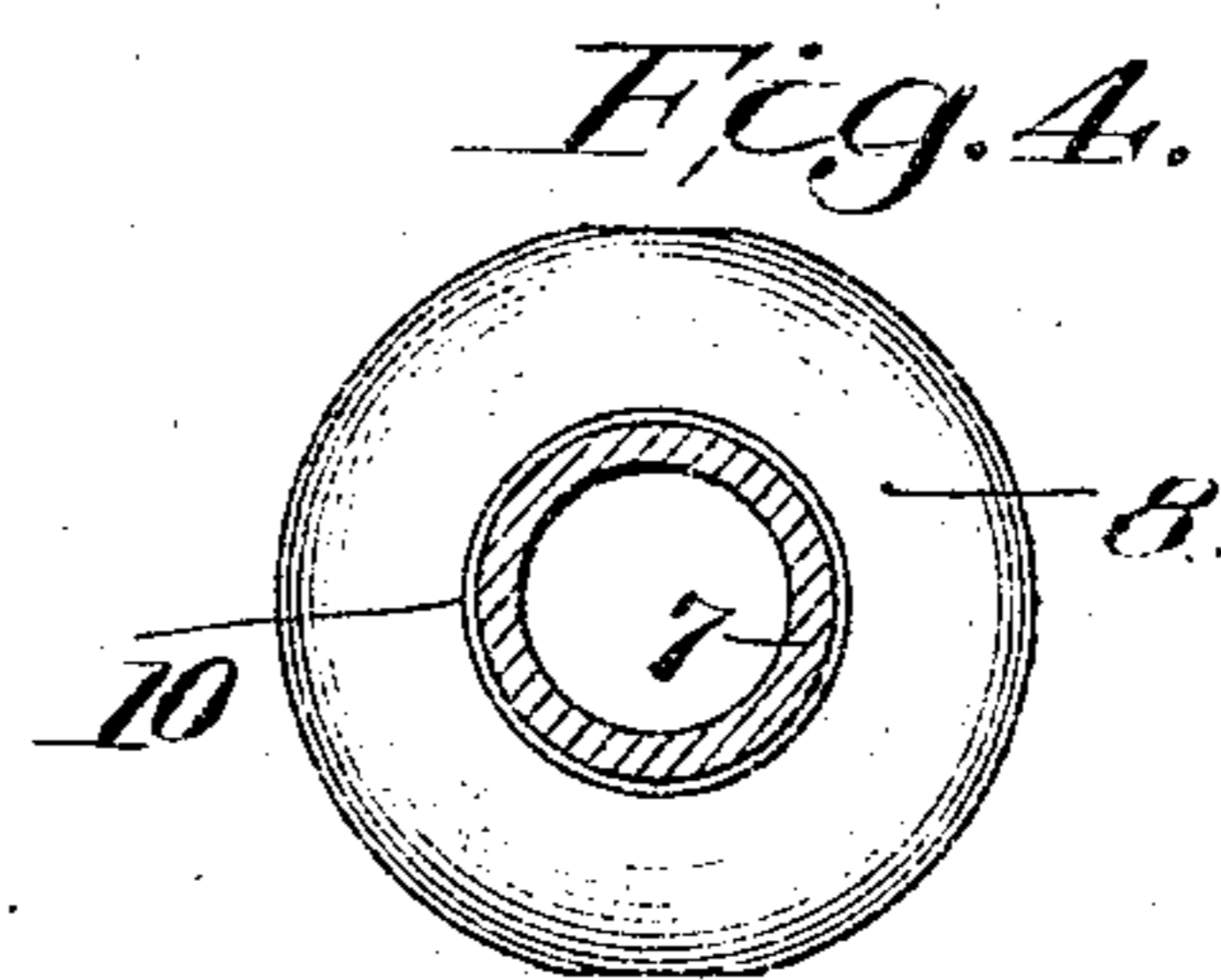
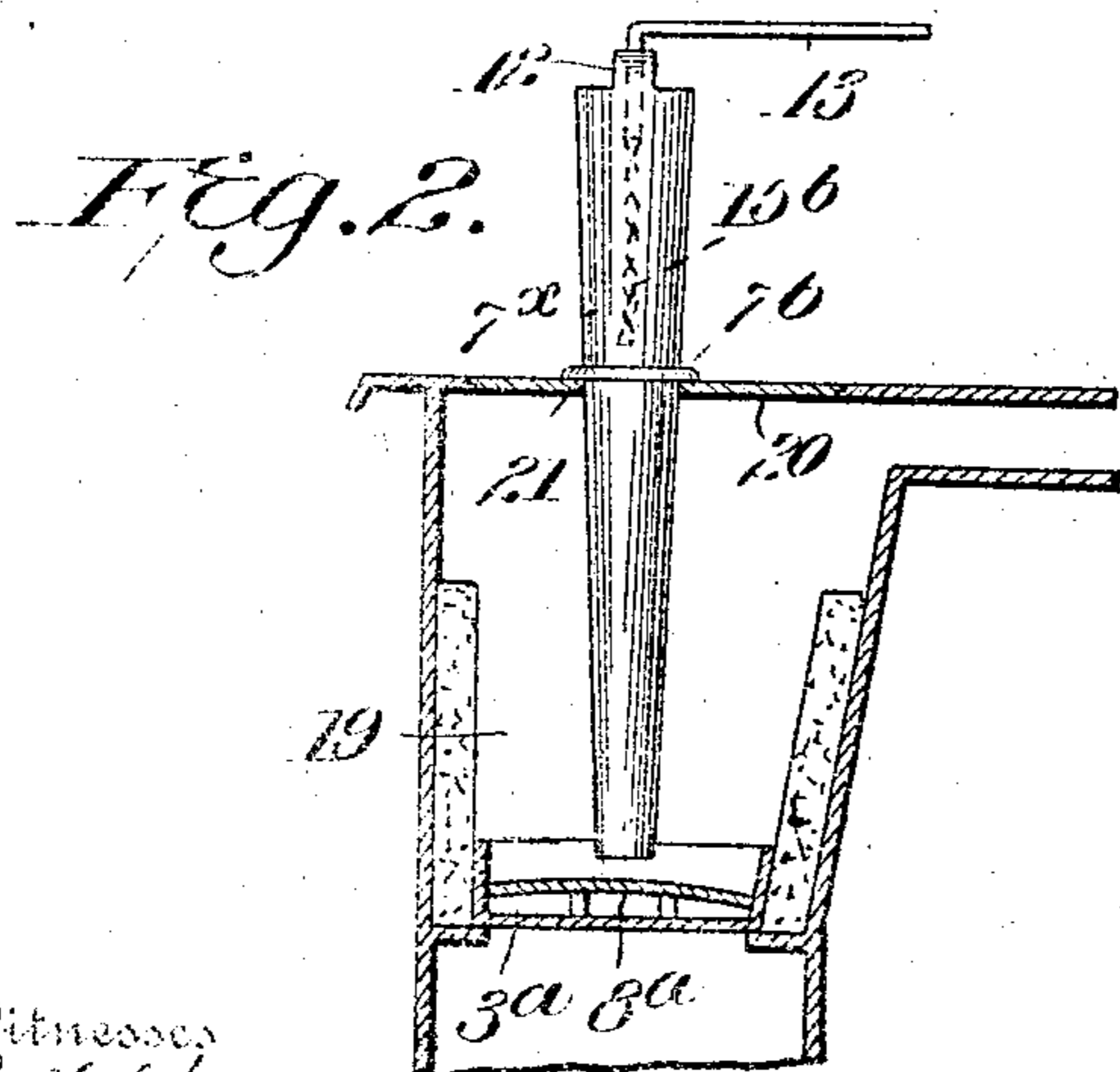
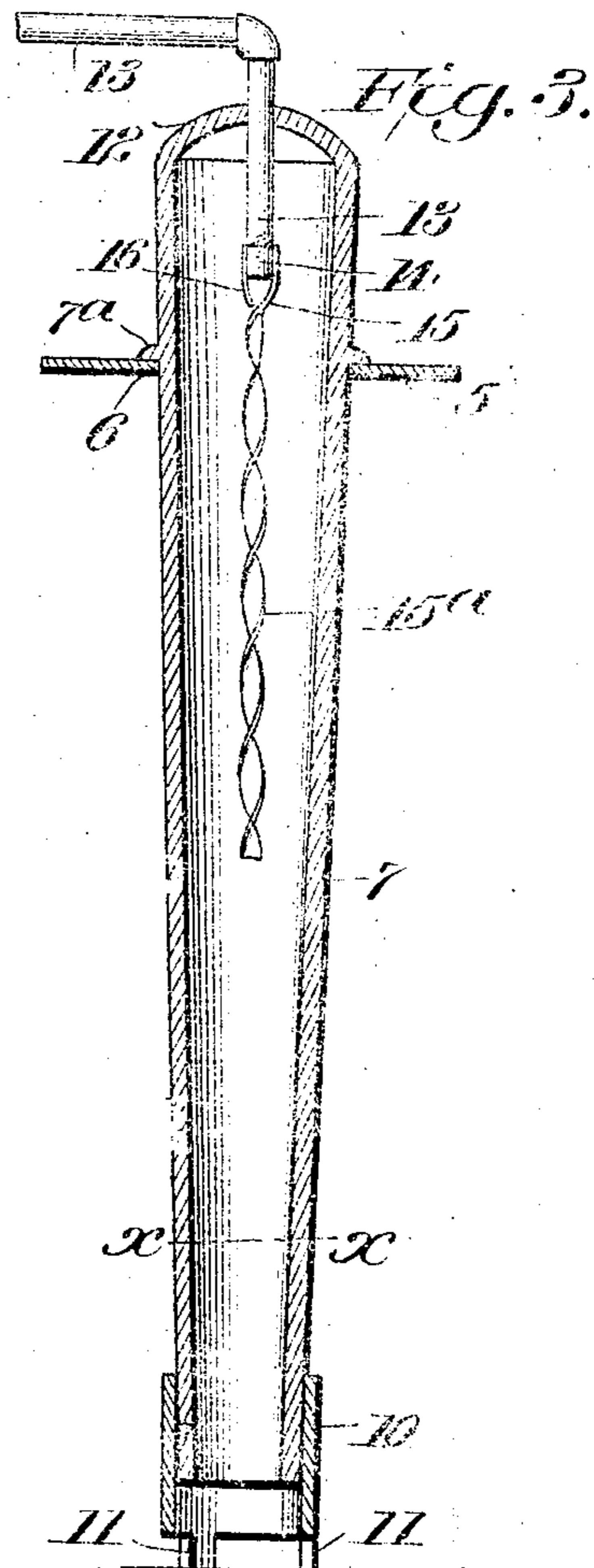
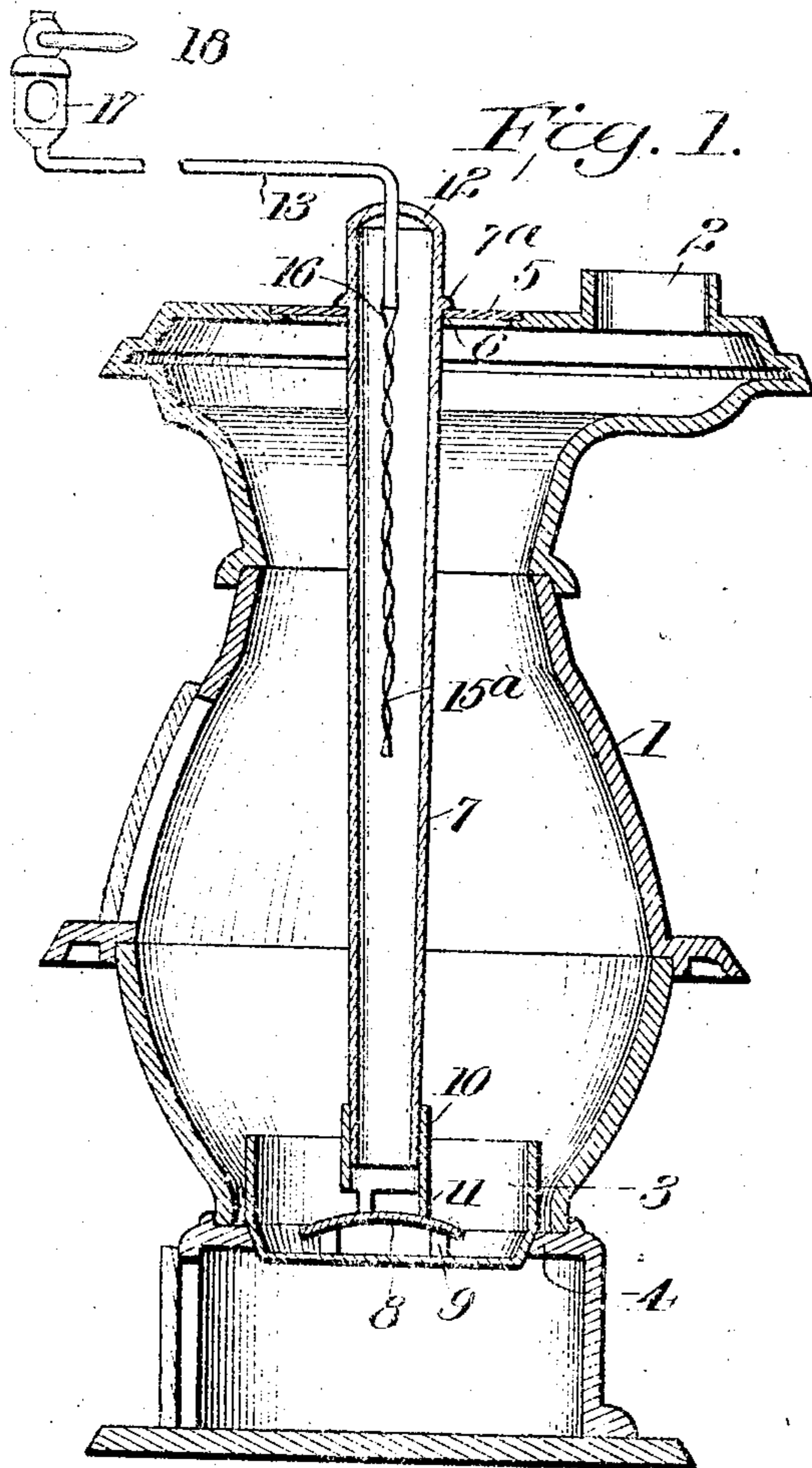


J. A. BRABHAM.  
CRUDE OIL BURNER.  
APPLICATION FILED OCT. 18, 1909.

951,722.

Patented Mar. 8, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## CRUDE-OIL BURNER.

951,722.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed October 18, 1909. Serial No. 523,159.

*To all whom it may concern:*

Be it known that I, JOHN A. BRABHAM, a citizen of the United States, residing at Frederick, in the county of Tillman and State of Oklahoma, have invented certain new and useful Improvements in Crude-Oil Burners; 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 relates to liquid fuel burners designed for burning crude oil.

It has for its objects, among others, to simplify the construction of this class of burners, to reduce the cost of manufacture thereof, and to produce such a burner which may be used with equal success in a cooking or in a heating stove and which may be readily and quickly applied to either of these types of stoves by the substitution of a pan of the burner for the grate and a special construction of lid supporting the feeding mechanism of the burner for the top lid of the stove.

Another and very important object is to produce a burner which will have the maximum heating capacity at the smallest possible cost for fuel and maintenance. In other words, it is my aim to place on the market a crude oil burner which cannot become clogged up or get out of repair in any of the other various ways which have been found so objectionable in this type of burner.

The invention contemplates the substitution for the grate of a stove of a pan in which there is placed a table having a crown-shaped or convex top and situated immediately below a vertically disposed tube supported from the top or cover plate of the stove. The stove should be entirely closed or imperforate except at the outlet leading to the chimney whereby the only passage for the ingress of air is through said vertical tube. The oil is fed through the center of this tube in the manner to be hereinafter described, and falls upon the center of the crown-shaped table with considerable force causing it to separate in all directions into easily combustible particles which fall into the pan around said table and are there ignited to form the heating flame. The upright tube is flared or tapered, being larger at the top than at the bottom. A draft of

cold air down said tube is caused by its shape and the fact that there are no openings in the base or body of the stove.

The invention also consists in the features of construction and combinations of parts hereinafter described and specified in the claims.

In the accompanying drawings illustrating the preferred embodiments of my invention: Figure 1 is a central vertical section taken from front to back of an ordinary soft coal heating stove showing how my burner is arranged therein. Fig. 2 is a vertical sectional view through the fire box of a cooking stove or range illustrating how my burner is applied thereto. Fig. 3 is an enlarged detailed view of the burner, and Fig. 4 is a horizontal section of the same on the line *x-x* of Fig. 3.

Referring more particularly to the drawings, 1 designates the casing of a well known form of heating stove designed for burning soft coal and which is entirely closed except for the opening 2 leading to the chimney. The pan 3 of my burner is beveled around the periphery of its bottom to fit in the correspondingly shaped ring or flange 4 in the stove which is intended to support the grate. For the ordinary top lid, I substitute a lid 5 having a round opening 6 therein through which is passed the tapered tube 7. Said tube is provided with a projecting flange 7<sup>a</sup> near its upper edge which rests upon the top of said lid and supports the tube in proper position. Below the lower end of said tube, there is placed a crown-shaped table 8 raised from the bottom of the pan on legs 9 to prevent the transmission of heat from one to the other. In order to adapt the tube to stoves of different heights, I provide a sleeve 10 fitted to slide around the lower end of said tube and having short legs or supports 11 which rest upon the top of the table leaving a space of suitable size between the lower extremity of said sleeve and the table for the particles of oil to pass into the pan.

Within the upper and larger end of the tapered tube, I form a cross bar 12 arranged diametrically thereof and provided with an opening in its center through which the end of the oil supply pipe 13 is passed. A ring 14 is screwed on to the extremity of said pipe 13 and from said ring depend two converging flat strips of metal. One of these

strips 15 extends some distance down through the center of the tube and is bent into spiral shape, as at 15<sup>a</sup>. The other strip 16 terminates near the upper end of the first strip leaving an opening between them below the center of said ring through which the oil coming from the supply pipe is fed. The oil then follows the coils 15<sup>a</sup> of the strip 15 and finally drops from the lower extremity of said strip upon the center of the table 8.

I preferably place a sight gage 17 at some convenient point in the supply pipe. Said gage is closed but provided with glass sides through which the dropping of the oil may be observed. The flow of the oil may be regulated by the valve 18 arranged just above the gage.

When my heater is applied to a cooking stove or range, as illustrated in Fig. 2, the pan 3<sup>a</sup> is made generally rectangular in shape to fit the fire box 19. The top 20 of the stove is formed with an opening 21 to receive the tapered tube 7<sup>x</sup> which in this case is somewhat reduced in length but still projects quite a distance above the top of the stove. The projecting ring or flange 7<sup>b</sup> is located farther down the tube than in the previously described application of the invention so as to support the lower end of said tube the proper distance above the crown-shaped table 8<sup>a</sup>. When the tapered tube is shortened, the spirals or coils 15<sup>b</sup> of the feeding strip are correspondingly shortened so that its lower end is spaced the same distance from the table as the strip 15, previously described.

It will be noted that the crown shape of the table 8 greatly increases the spreading of the particles of oil thus aiding combustion and producing a better and hotter fire. The use of the spiral or coiled feeding strip is designed to reduce the friction of the air upon the drops of oil as they pass down said strip, so that when each drop leaves the lower end of the strip, it will fall with greater force upon the table with the result that it will be separated into very small and easily combustible particles whereby a perfect combustion is obtained without the accumulation of soot. The difficulty in former crude oil burners has been to feed the oil with sufficient force to cause it to scatter or separate into small enough particles to be completely consumed without using a compressed air or other force feed. If the oil supply pipe were extended far enough down to drop the oil directly therefrom upon the

table, the end of said pipe would become corroded by reason of the heat to which it would be subjected. The provision of the spiral or coiled strip which I have described overcomes all of these objections.

Other variations may be made in the details of construction so as to make the burner fit different forms and sizes of stoves, as suggested by the two applications of the invention which I have herein shown and described. I, therefore, do not limit myself to the exact constructions illustrated herein, but reserve the right to make such changes therein as may fairly fall within the scope of the appended claims.

The following claims do not cover all of the patentable features of my invention as hereinbefore described, one branch of the invention being made the subject matter of a divisional application which is to be filed before the present case goes to issue.

I claim:—

1. In a device of the character described, the combination, with a pan, of a tube supported with its lower end above said pan, an oil supply pipe terminating in the upper end of said tube, and two strips secured to the extremity of said supply pipe and extending downward in converging lines, one of said strips projecting below the other and formed into a spiral coil adapted to feed the oil from said pipe and drop it into the pan, the other strip terminating near to the first strip but spaced away from it leaving an opening between them for the purpose specified.

2. In a device of the character described, the combination, with a pan and a crown-shaped table arranged therein, of a tube supported with its lower end above said table, an oil supply pipe terminating in the upper end of said tube, and two strips secured to the extremity of said supply pipe and extending downward in converging lines, one of said strips projecting below the other and formed into a spiral coil adapted to feed the oil from said pipe and drop it upon the center of the table, the other strip terminating near to the first strip but leaving an opening between them arranged below the center of the discharge end of said supply pipe.

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

JOHN A. BRABHAM.

Witnesses:

GEO. A. HUTCHINSON,  
A. M. PARKING.