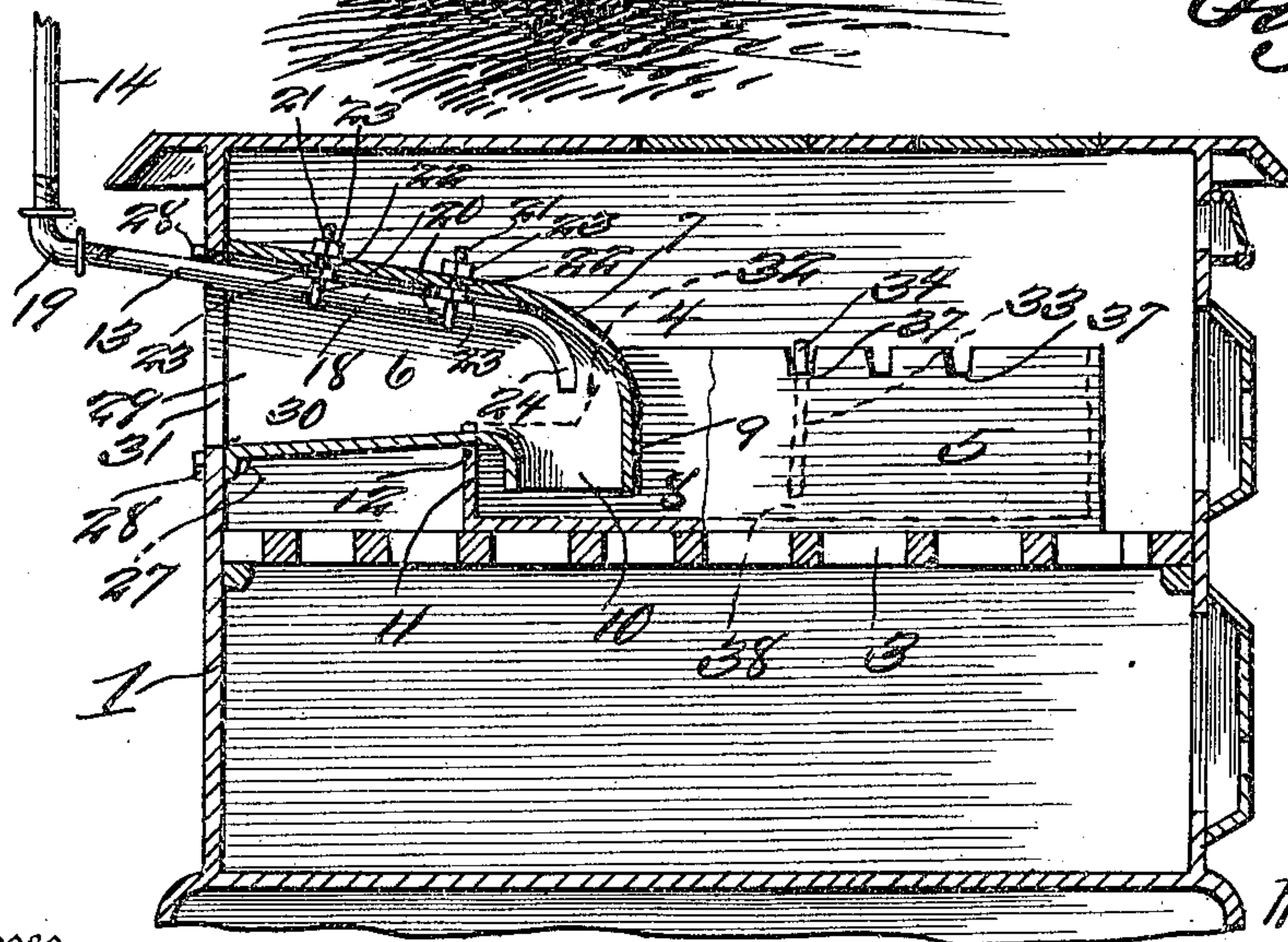
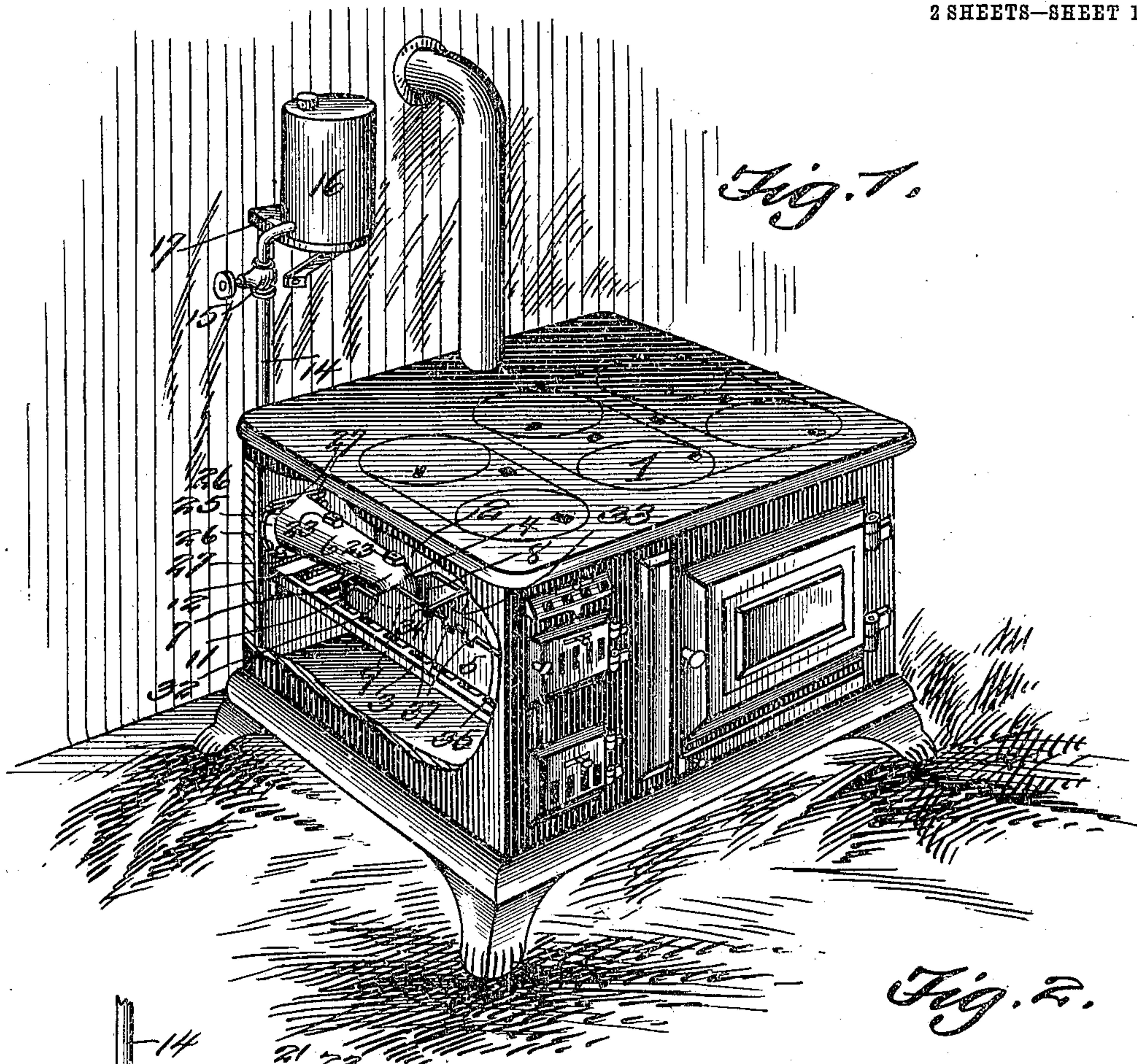


M. W. GOTTSCHALL.
CRUDE OIL BURNER.
APPLICATION FILED OCT. 21, 1909.

953,380.

Patented Mar. 29, 1910.

2 SHEETS—SHEET 1.



Witnesses

Francis J. Powell.
M. M. Miller.

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D. Swift & Co.

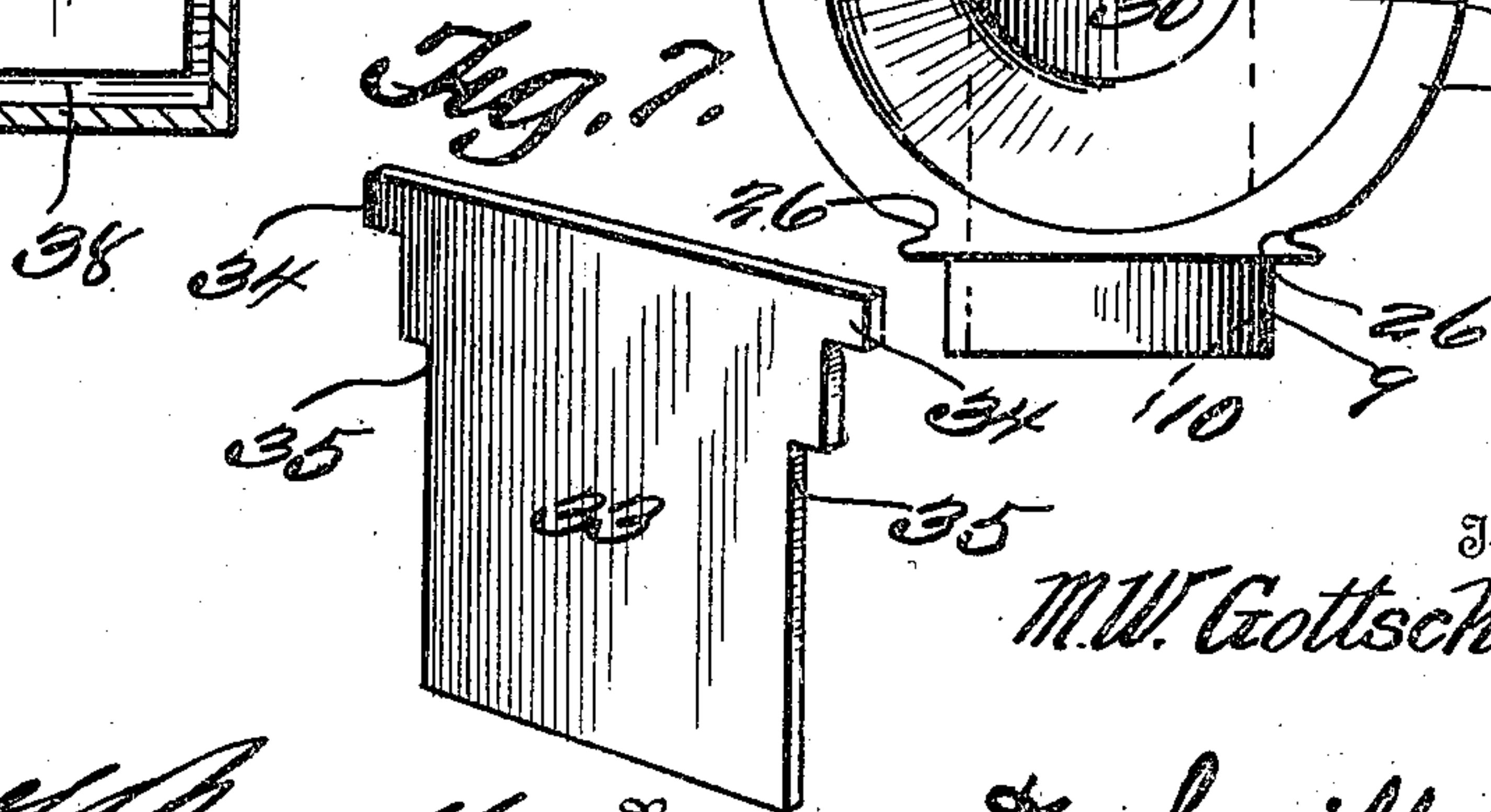
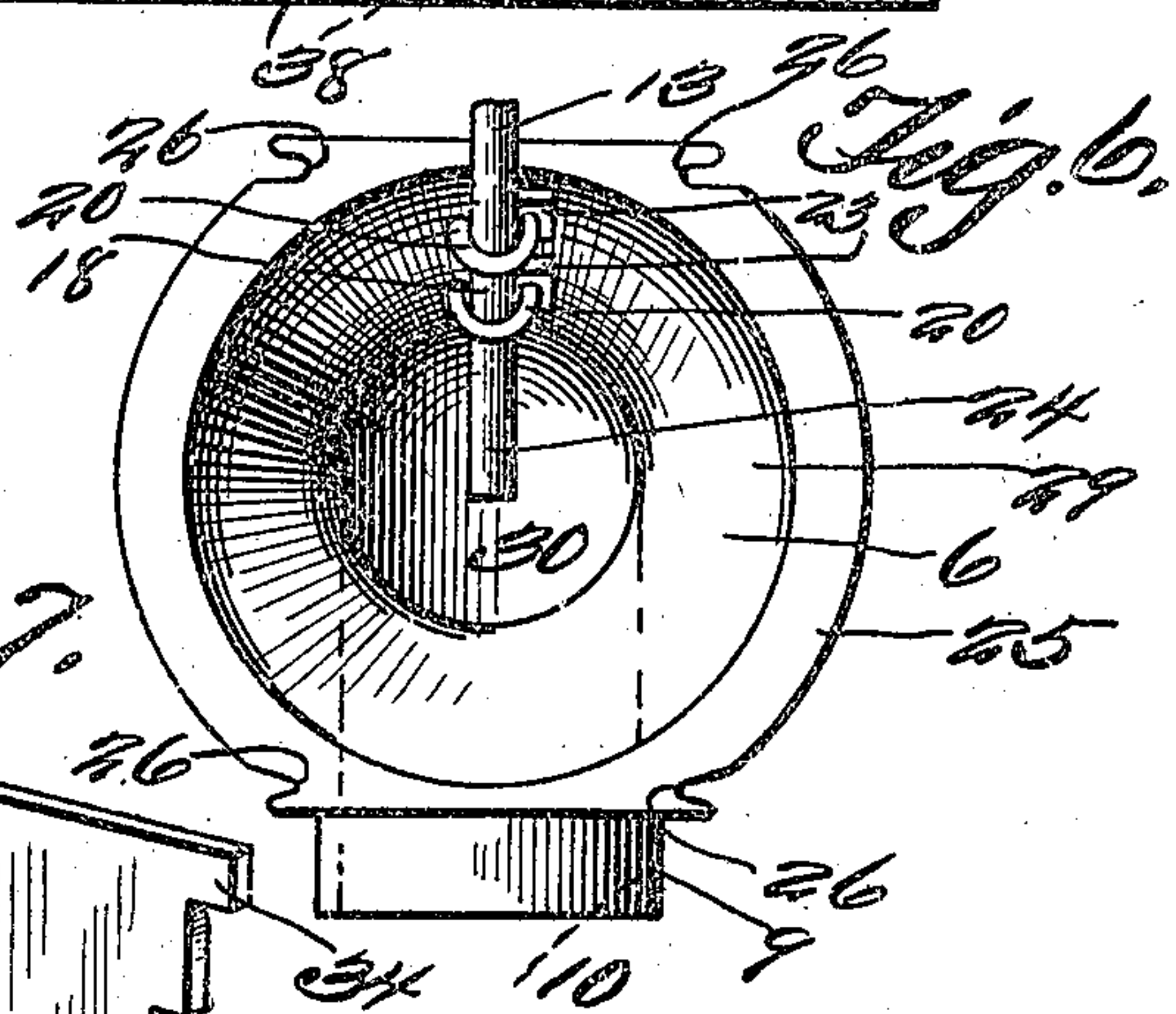
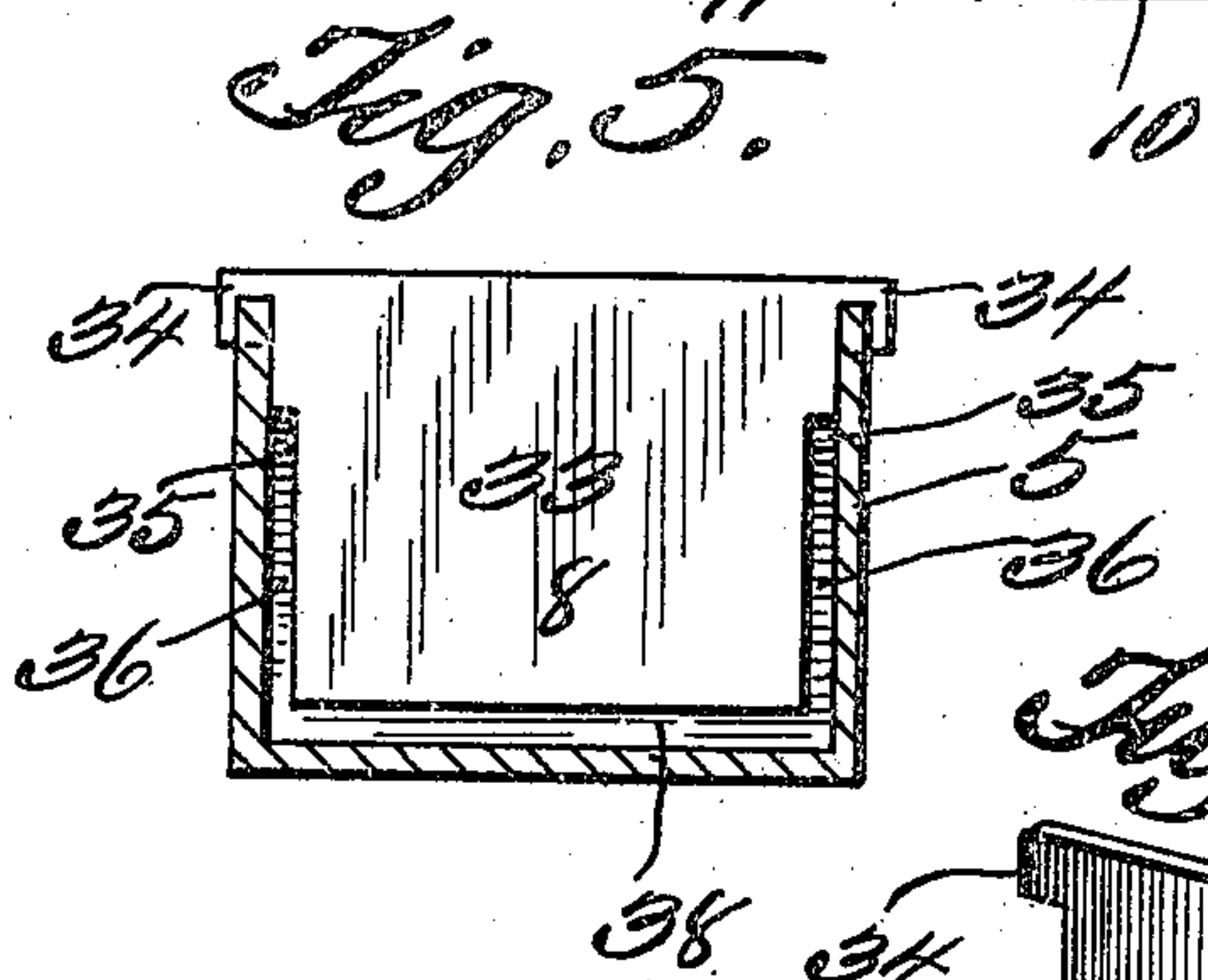
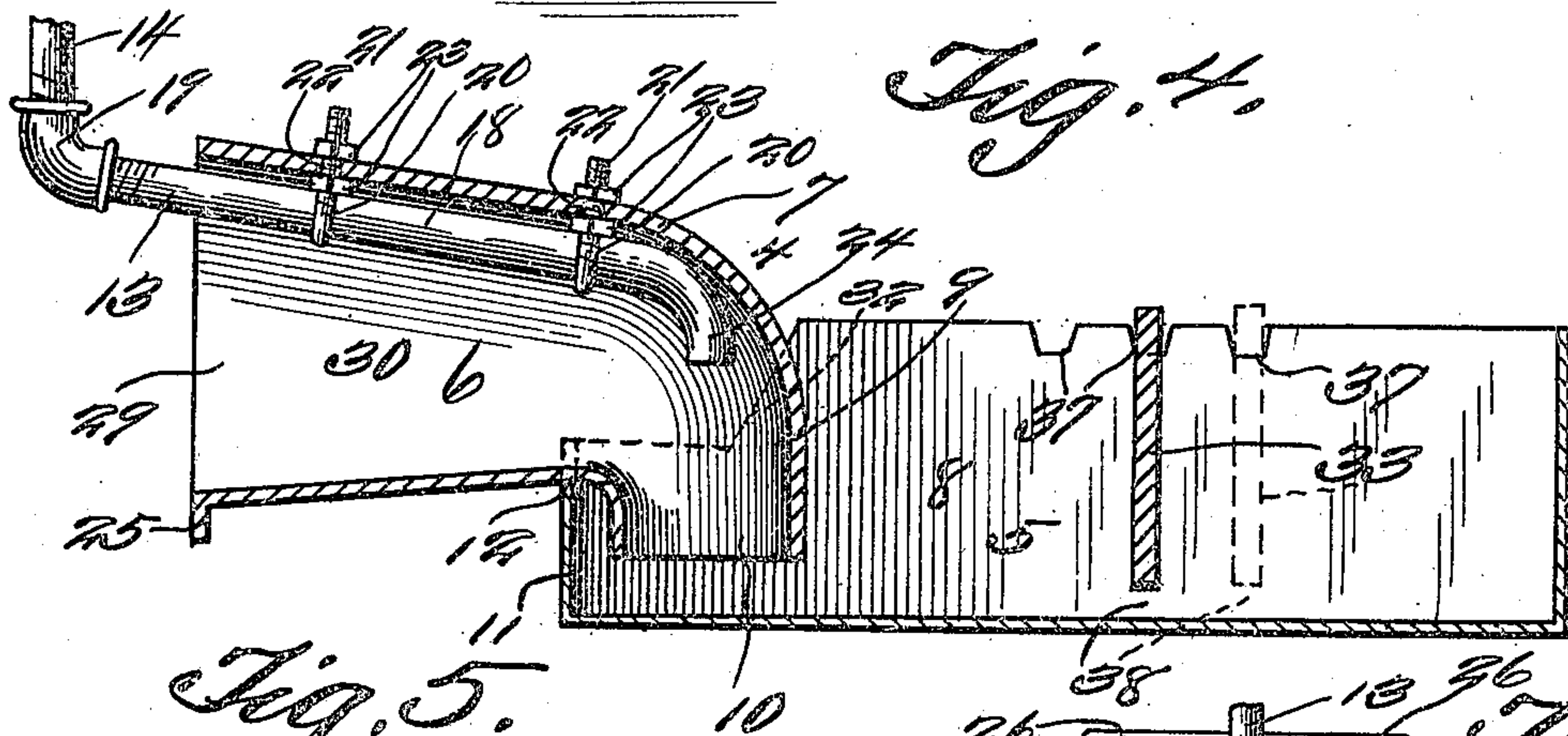
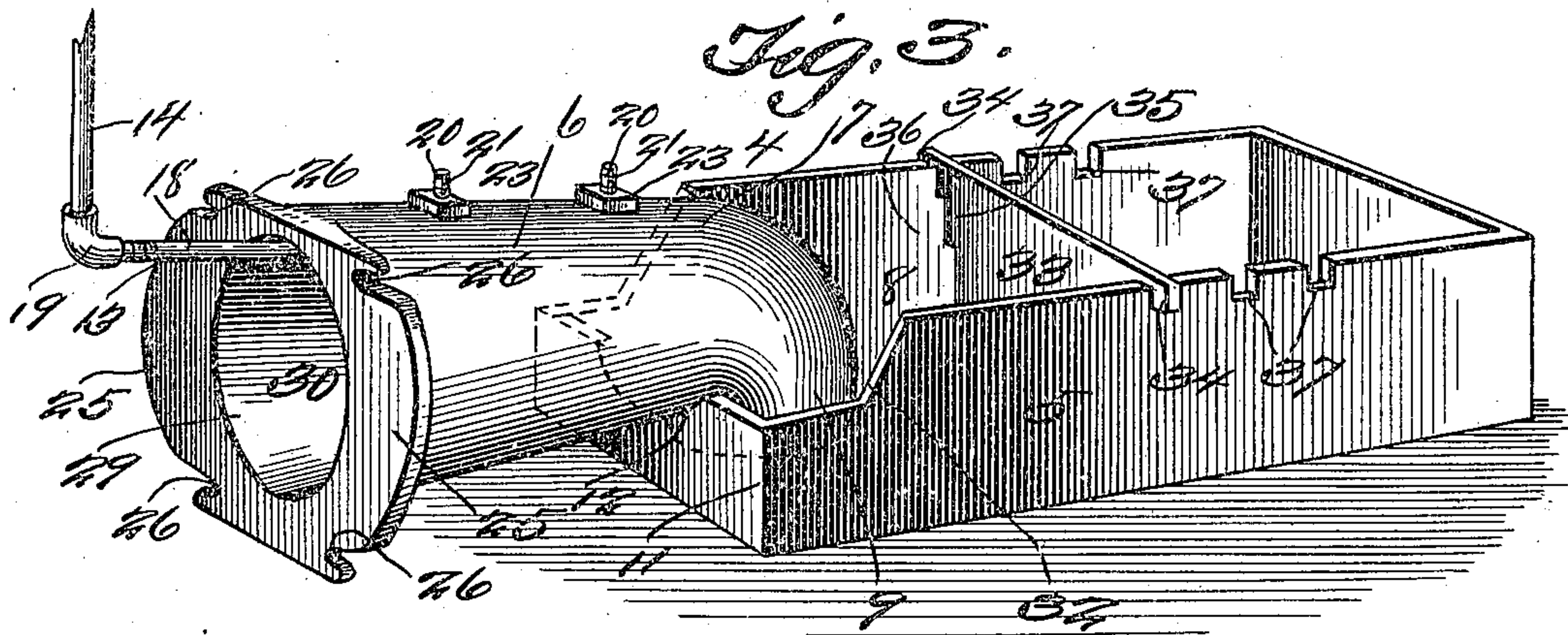
Attorneys.

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

MANSFORD W. GOTTSCHALL, OF FREDERICK, OKLAHOMA.

CRUDE-OIL BURNER.

953,380.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed October 21, 1909. Serial No. 523,901.

To all whom it may concern:

Be it known that I, MANSFORD W. GOTTSCHALL, a citizen of the United States, residing at Frederick, in the county of Tillman and State of Oklahoma, have invented a new and useful Crude-Oil Burner; 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.

The invention about to be set forth belongs to the art of burners, and specifically pertains to a new and useful hydrocarbon burner adapted mainly for use in connection with heating and cooking stoves, or furnaces, or in fact for any device or plant in which heat is necessary and employing crude petroleum or oil as the heating medium.

The principal object of the invention is the provision and the combination of a funnel-shaped member and an open top oil receptacle, so arranged relatively with one another, that the crude petroleum or oil fed through a suspended conduit or tube within the funnel-shaped member may be ignited upon the bottom of the receptacle.

A further object of the invention is to dispose the funnel-shaped member (which has a downwardly directed curved portion) and the oil receptacle in a horizontal position within the heating or cooking stove or furnace, and having the extremity of the downwardly directed curved portion arranged a slight distance above the bottom of the oil receptacle. The purpose of this funnel-shaped member is to allow a draft of air or oxygen to enter therethrough, in order to provide the proper combustion when the oil is ignited.

A further object of the invention is the production of an adjustable draft-plate or damper having laterally extending projections to be received by notches in the sides of the oil receptacle or combustion chamber, whereby the draft may be readily regulated.

A further object of the invention is to provide this draft-plate or damper with cut-away portions which form a space between the sides of the draft-plate or damper and the sides of the receptacle, in order to insure the proper draft, whereby the proper combustion is obtained.

Another object of the invention resides in the provision of a space between the lower

portion of the draft-plate or damper and the bottom of the oil receptacle, the purpose of which being to further insure the proper draft. By the provision of this draft-plate or damper, the combustion chamber for the crude petroleum or oil may be restricted or enlarged in order that the intensity of the heat may be confined or allowed to expand, by the adjustment of the draft-plate or damper. In providing an oil receptacle or combustion chamber with a draft-plate or damper of the design shown, and the depth of the oil receptacle being sufficient to direct the flame upwardly and in contact with the under surface of the top of the heating or cooking stove or furnace, the soot is entirely consumed, and the face of the draft-plate or damper and the sides of the combustion chamber are left comparatively clean.

In practical fields, it is understood that this hydrocarbon burner apparatus may be constructed in various designs and shapes, and the various proportions or dimensions may be suitably varied as desired, in order to comply with the various requirements of any particular case.

A further object of the invention is to generally improve this particular class of apparatus, in order to increase their utility, durability and efficiency.

In this specification and the drawings annexed hereto, a particular design of device is adhered to, but the invention is not to be confined to this particular design.

The device in its actual reduction to practice may require changes and variations; the right thereto belongs to the applicant, provided such changes and variations are comprehended by the appended claims.

Further objects and combinations of parts will be hereinafter set forth and pointed out in the appended claims.

In the drawings:—Figure 1 is a perspective view of the ordinary form of cook stove, showing the side of the fire-box broken away in order to clearly illustrate the hydrocarbon burner disposed in its proper position therein. Fig. 2 is a vertical sectional view through the cook stove, showing the fire-box having the hydrocarbon burner shown particularly in section and elevation, illustrating the manner in which the oil is fed through the horizontally disposed funnel-shaped member and upon the bottom of the oil receptacle. Fig. 3 is a perspective view of the hydrocarbon burner apparatus removed

from the fire-box of the cook stove. Fig. 4 is a longitudinal vertical sectional view through the hydrocarbon burner, showing the draft-plate or damper arranged in a different position in full lines and another position in dotted lines. Fig. 5 is a transverse sectional view through the oil receptacle, showing the combustion chamber and disclosing the manner in which the draft-plate or damper is suspended therein, further showing the space between the sides and bottom of the combustion chamber and the draft-plate, in order to increase and insure the proper draft. Fig. 6 is a face view of one end of the funnel-shaped member, showing the construction thereof, whereby the same is secured to one of the inner faces of the fire-box of the stove by means of bolts and nuts. Fig. 7 is a detail perspective view of the draft-plate or damper.

In regard to the annexed illustrations, 1 denotes the ordinary cook stove, it being clearly understood, as before stated, that the invention is not to be confined in its adaptation to this particular design of stove, but other stoves may be employed in connection with this particular hydrocarbon burner device. This stove is provided with the usual fire-box 2 having the usual grate 3 upon which the hydrocarbon burner 4 is supported, especially the oil receptacle 5. This hydrocarbon burner device comprises a funnel-shaped member 6 and the oil receptacle 5, which are arranged horizontally within the fire-box, the smaller portion 7 of the funnel-shaped member being slightly extended within the oil receptacle (which is provided with a combustion chamber 8). The smaller portion 7 of the funnel-shaped member is provided with a downwardly directed portion 9 having an opening 10 through which the crude petroleum or oil drops upon the bottom of the oil receptacle, and within the combustion chamber, where it is ignited. The end 11 of the oil receptacle is provided with a cutaway portion 32, in order to admit of the conical portion of the funnel-shaped member 6, in order to obviate the necessity of having too long a downwardly directed portion 9 to the funnel-shaped member.

13 denotes an oil conduit or tube, the vertical portion 14 of which is provided with the usual valve 15, by which the flow of oil may be regulated, as it is supplied from the oil reservoir 16 (which, in the present instance, as shown in Fig. 1, is supported by a bracket 17 extending from the wall of the room in which the stove is arranged). The approximately horizontal portion 18 of the oil conduits or tube connects with the vertical portion by a suitable union or elbow 19, and is suspended within the funnel-shaped member and adjacent to the upper circumference thereof by means of J-shaped brackets or hooks 20 (which are provided with thread-

ed portions 21). These brackets penetrate openings or apertures 22 of the upper portion of the funnel-shaped member, and upon the threaded portions thereof nuts 23 are threaded, the purpose of which being to draw the J-shaped brackets or hooks closely to the inner circumference of the funnel-shaped member, whereby the horizontal portion 18 of the conduit or tube may be rigidly and properly held in its position, so that the downwardly extending curved portion 24 thereof may be held exactly concentric with the center of the downwardly curved portion 9 of the funnel-shaped member, so that the oil may be directed approximately through the center of the opening 10.

The funnel-shaped member at its larger end is partially surrounded by a flange 25, in the upper and lower portions of which and adjacent to the lateral sides thereof notches or recesses 26 are formed. This flange is disposed in contact with the inner face of one of the sides of the fire-box, through which side bolts 27 penetrate, which are also received by the said notches or recesses 26, and upon their threaded ends nuts 28 are applied, by the manipulation of which the flange of the funnel-shaped member may be drawn closely in contact with the side of the fire-box.

The outlet 29 of the bore 30 of the funnel-shaped member is arranged concentric with an opening 31 of the side of the fire-box (through which the draft flows so that the proper combustion is obtained).

The end 11 of the oil receptacle (which is provided with a cut-away portion 32) is also provided with a segmental cut-away portion 12, which forms means for readily supporting the funnel-shaped member 6, in order to hold the downwardly directed portion 9 of the funnel-shaped member at a proper distance from the bottom of the combustion chamber.

As shown in the accompanying drawings, the oil receptacle is rectangular in contour (which has been found by experience to be the best form in order to obtain the best results) and is provided, as before stated, with the combustion chamber 8 (which may be restricted or enlarged by the draft-plate or damper 33). The draft-plate or damper is provided upon each side thereof with projections 34, and cutaway portions 35. These cutaway portions 35 form spaces 36 when the plate or damper is disposed in position within the oil receptacle. The projections of the draft-plate or damper are received by notches or recesses 37, there being a plurality of such notches or recesses shown, but it is to be understood that the number of recesses or notches may be increased or decreased as desired. The draft-plate or damper is of such a height that the lower extremity thereof is disposed a slight distance

above the bottom of the combustion chamber of the oil receptacle, in order to form the space 38, to further insure the proper draft, whereby the proper combustion is
5 obtained. It is evident upon an examination of the drawings that this draft-plate or damper may be adjusted in various positions, whereby the combustion chamber may be restricted or enlarged, in order to con-
10 fine or expand the combustion space, whereby the intensity of the heat may be increased or decreased as desired.

The crude petroleum or oil is fed from the reservoir 16 through the oil conduit or tube,
15 and emerges from the downwardly directed portion 24 thereof in order to drop upon the bottom of the combustion chamber, after which it is ignited by dropping a lighted match or other ignition medium within the
20 combustion chamber. After the oil (which is intermittently fed in small quantities) is first ignited, the combustion chamber becomes well heated and the flame is directed upwardly in contact with the under sur-
25 face of the stove, and the sides of the combustion chamber and the draft-plate or damper become red hot, whereby the soot is fully consumed, leaving the sides and the plate comparatively clean.

30 From the foregoing, the essential features, elements and the operation of the device, together with the simplicity thereof, will be clearly apparent.

Having thus fully set forth the invention,
35 what is claimed as new and useful is:—

1. In a hydrocarbon burner apparatus, an oil receptacle having a combustion chamber and provided upon either side thereof with notches or recesses, and a plate having pro-
40 jections received by said notches or recesses, whereby the combustion chamber may be restricted or enlarged so that the heat may be decreased or intensified.

2. In a hydrocarbon burner apparatus, an

oil receptacle having a combustion chamber 45 and provided upon its sides with notches or recesses so that the combustion chamber may be restricted or enlarged in order to decrease or intensify the heat therein, a plate in the receptacle having cutaway portions 50 forming spaces between the plate and the sides of the receptacle in order to insure a more proper draft for the combustion of the oil, said plate being adjustable on the notches or recesses. 55

3. In a hydrocarbon burner apparatus, an oil receptacle having a combustion chamber and provided upon its sides with notches or recesses so that the combustion chamber may be restricted or enlarged in order to de- 60 crease or intensify the heat therein, a plate adjustable on the recesses or notches having cutaway portions forming spaces between the plate and the sides of the receptacle in order to insure a more proper draft for the 65 combustion of the oil, said plate being of such a height in order to provide a space between its lower portion and the bottom of the combustion chamber so that the proper draft may be insured. 70

4. In a hydrocarbon burner apparatus, an oil receptacle having a combustion chamber, an adjustable rectangular plate arranged therein for restricting or enlarging the com- 75 bustion chamber whereby the heat may be decreased or intensified, said plate being of such dimensions as to form a space between its rectangular marginal edges and the sides and bottom of the receptacle, whereby the proper draft may be insured. 80

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

MANSFORD W. GOTTSCHALL.

Witnesses:

N. O. MILLER,
J. A. BABB.