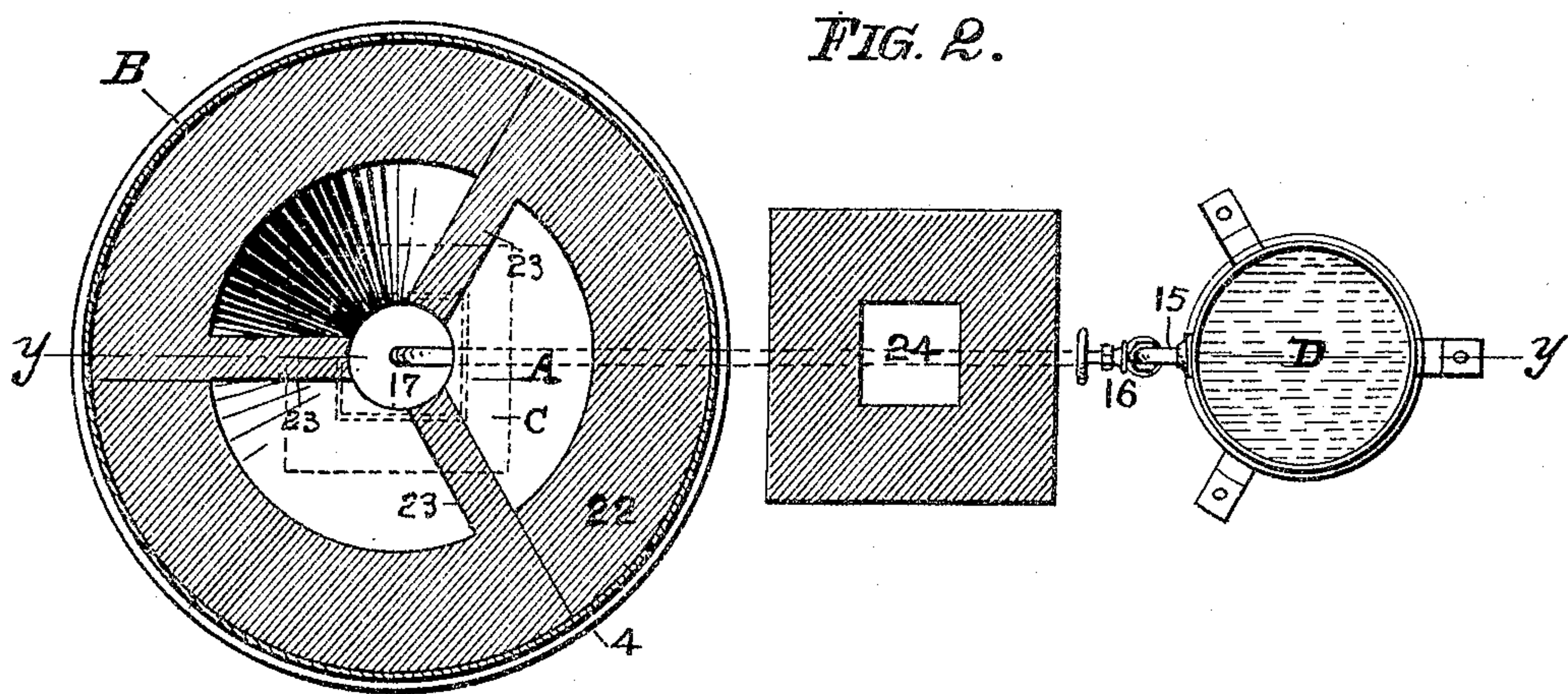
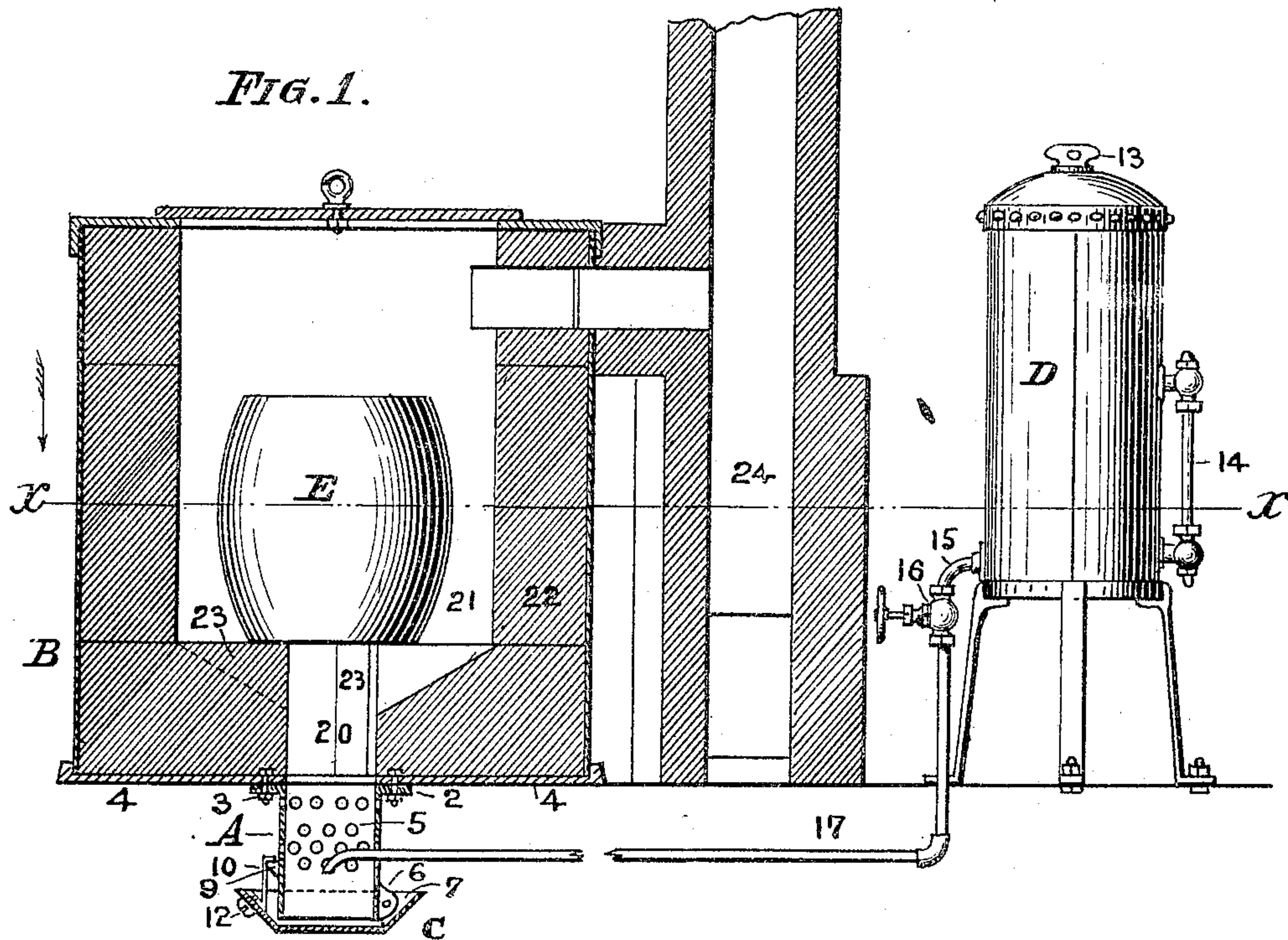


L. T. KUEHL.
KEROSENE BURNER.
APPLICATION FILED OCT. 26, 1908.

917,460.

Patented Apr. 6, 1909.
2 SHEETS—SHEET 1.



Witnesses:

C. B. Knudsen.
A. G. Peterson.

Inventor:

Ludwig T. Kuehl.
By Michael Stark & Sons,
Attorneys.

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2 SHEETS—SHEET 2.

FIG. 3.

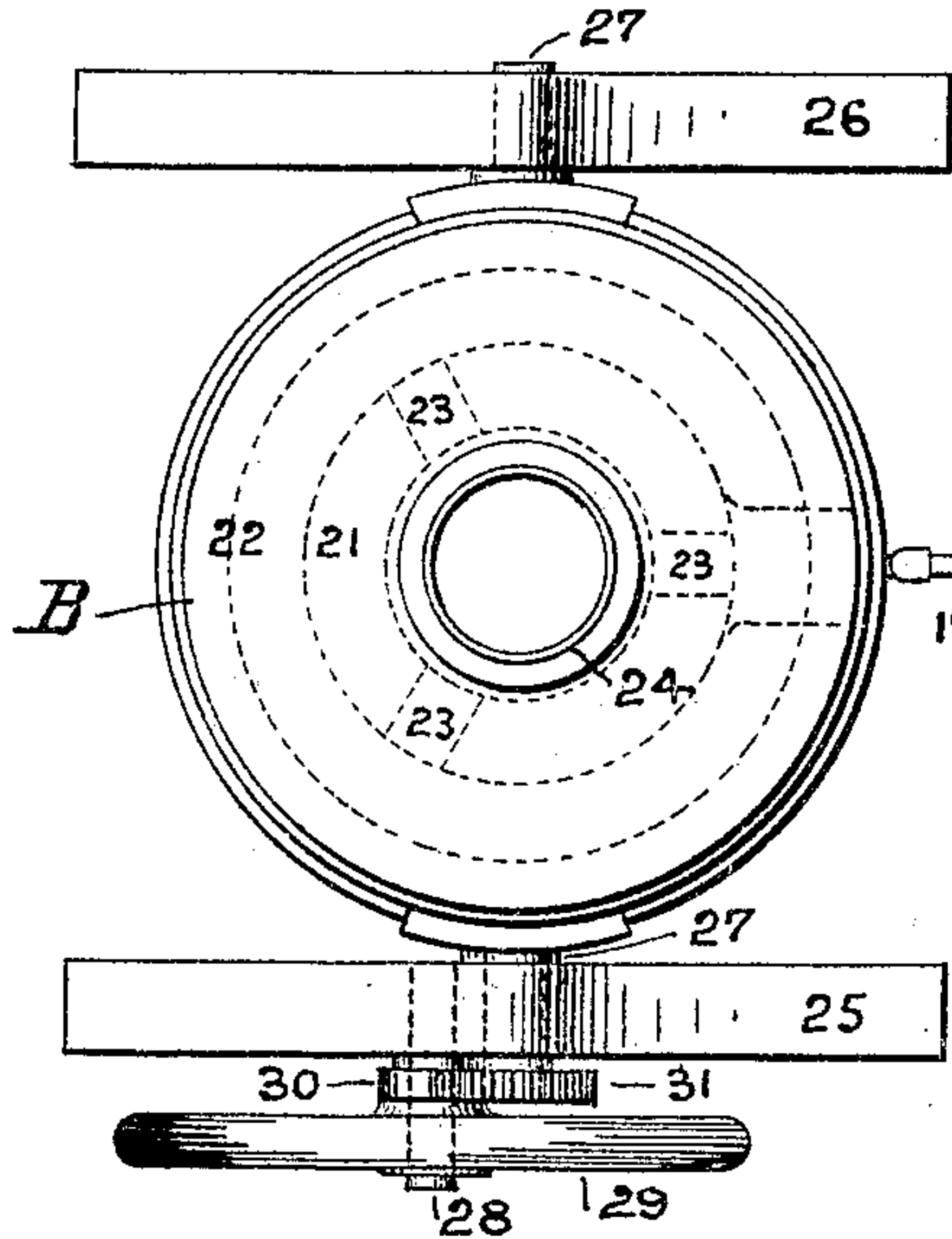


FIG. 6.

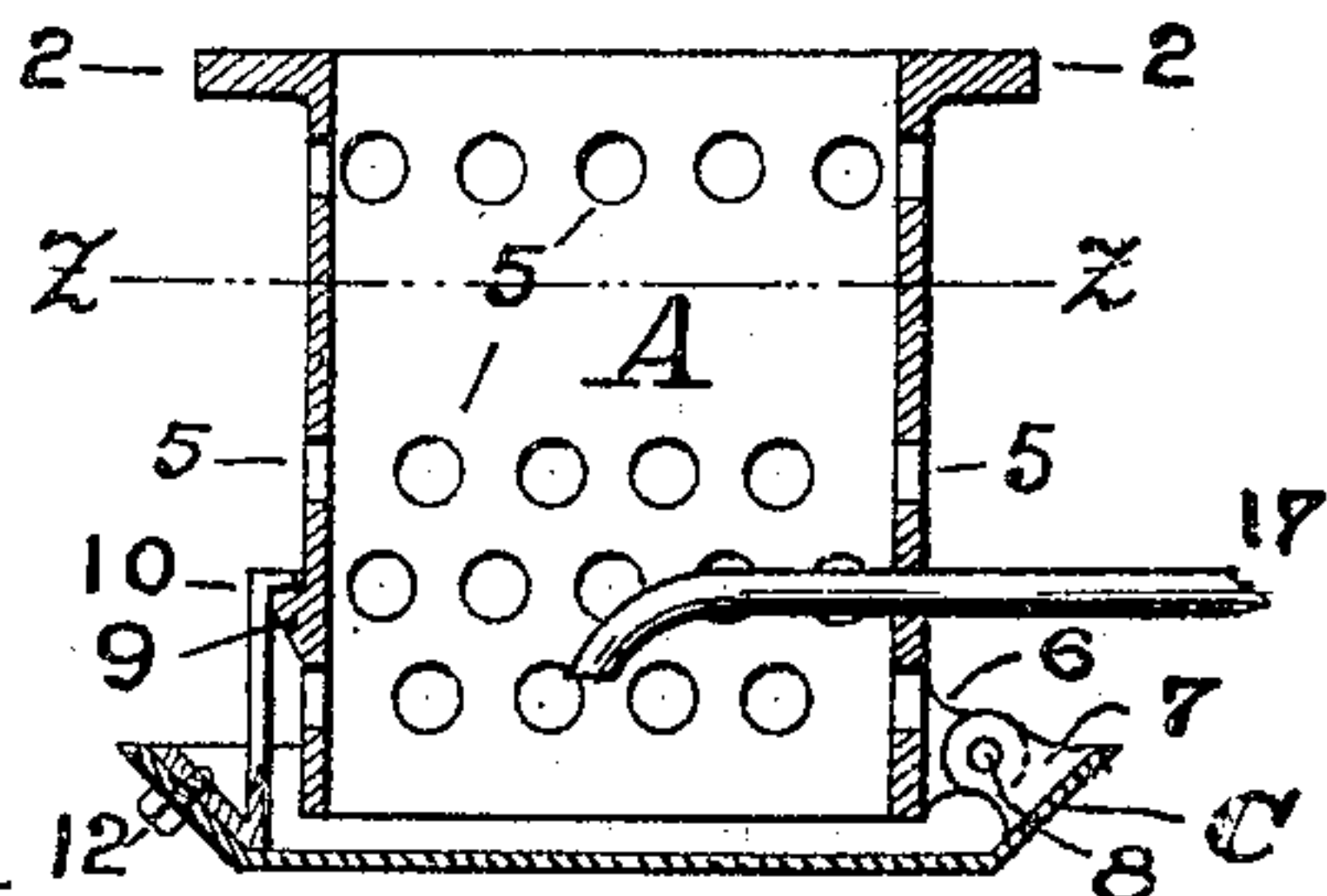


FIG. 7.

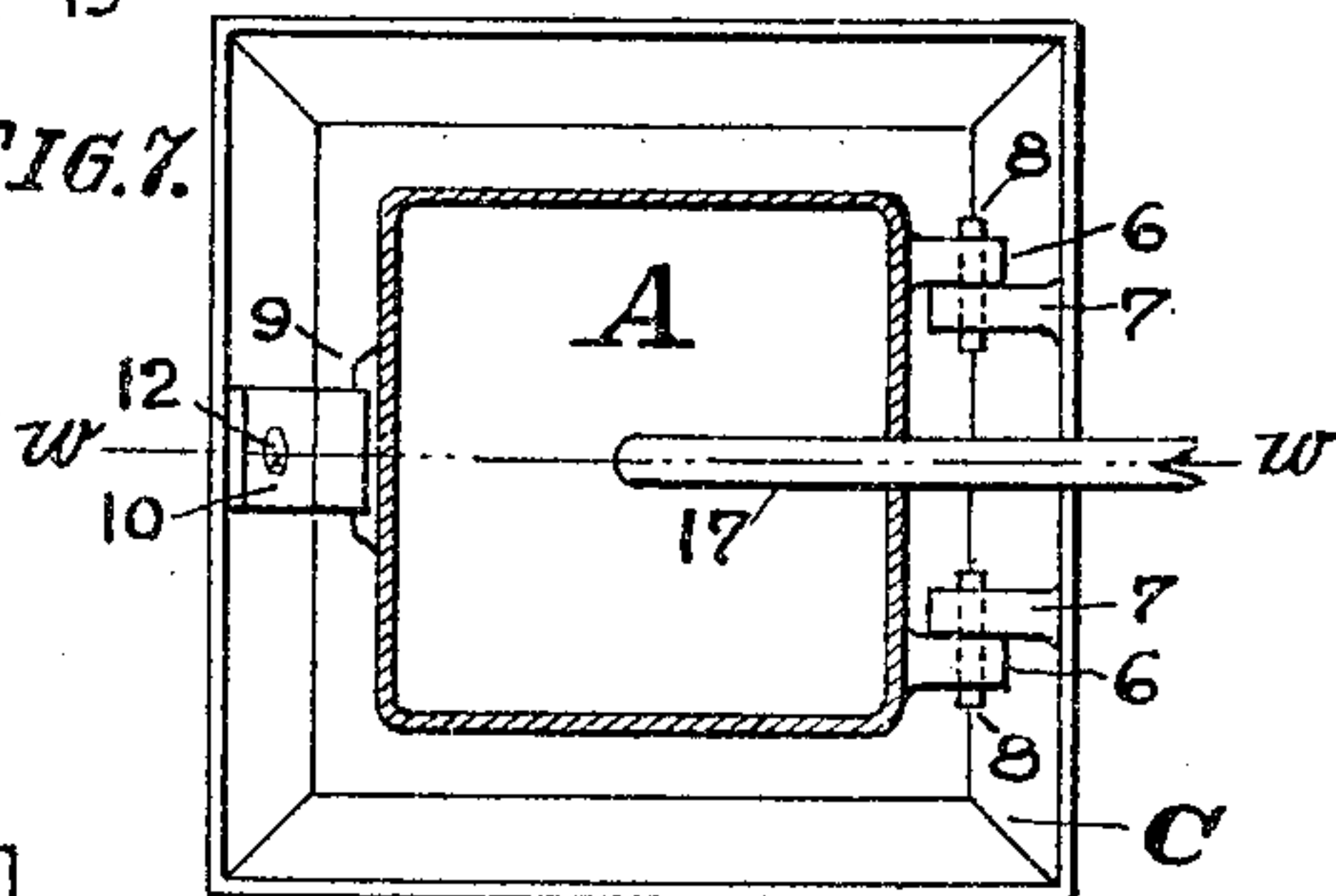


FIG. 4.

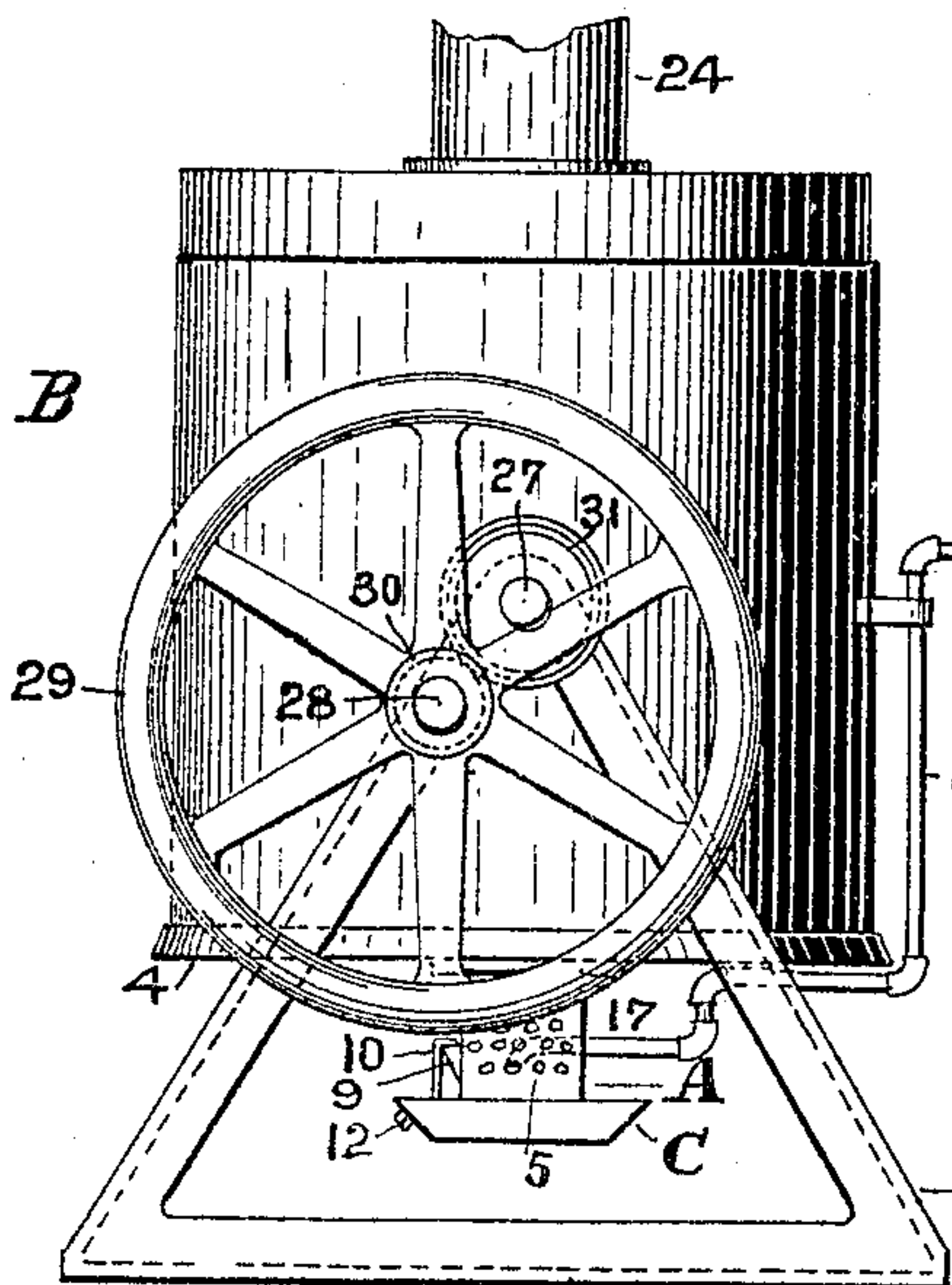
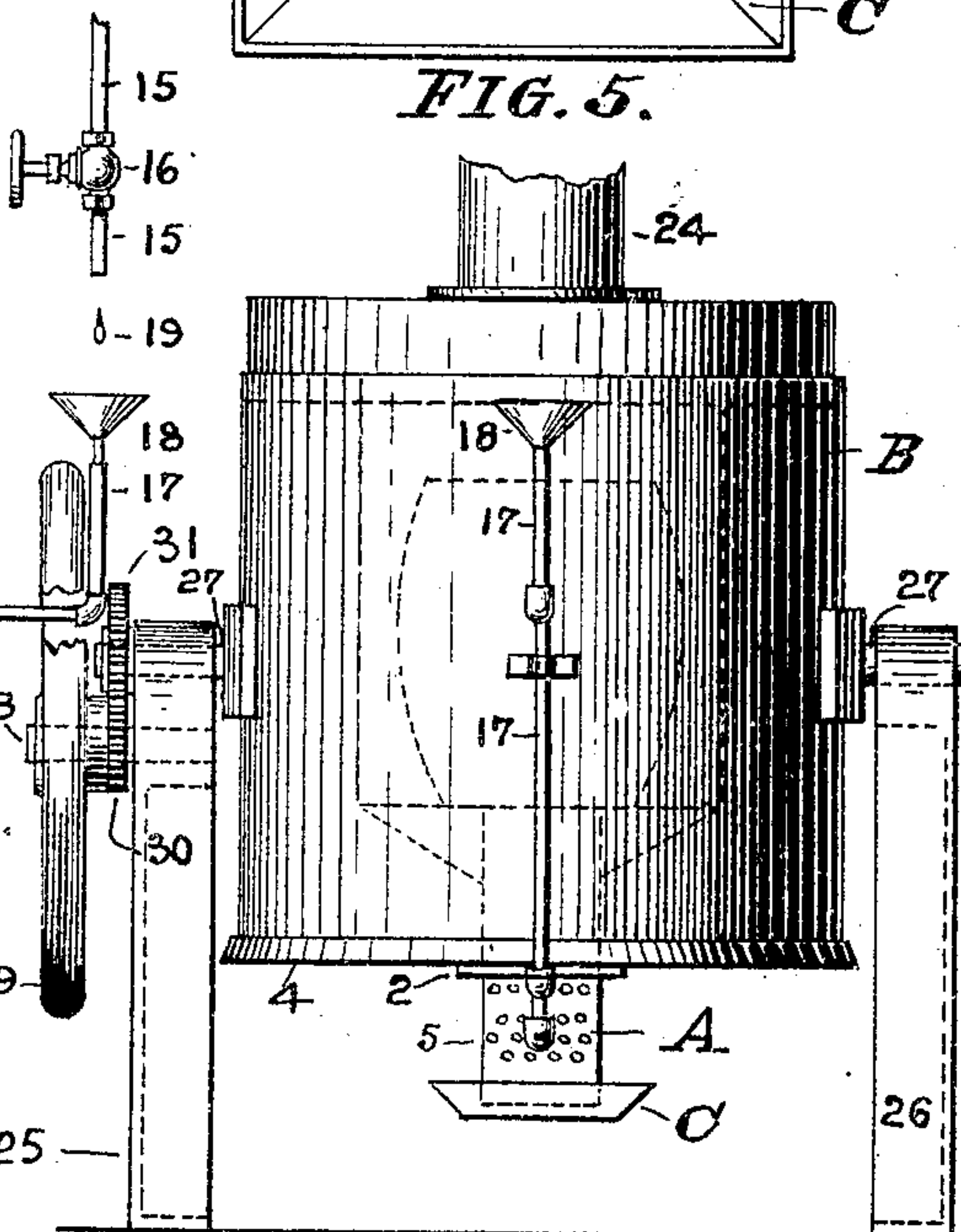


FIG. 5.



Witnesses:

C. B. Knudsen.
A. S. Peterson.

Inventor:

Ludwig T. Kuehl,
By Michael J. Stark & Sons.
Attorneys.

UNITED STATES PATENT OFFICE.

LUDWIG T. KUEHL, OF CHICAGO, ILLINOIS.

KEROSENE-BURNER.

No. 917,460.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed October 26, 1908. Serial No. 459,600.

To all whom it may concern:

Be it known that I, LUDWIG T. KUEHL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Kerosene-Burners; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to kerosene burners for melting furnaces, steam generators and steam and hot-water heaters, &c., and it consists, essentially, in the novel and peculiar combination of parts and details of construction as hereinafter first fully set forth and described and then pointed out in the claims.

In the drawings already referred to, which serve to illustrate this invention more fully, Figure 1 is a transverse-sectional elevation of a stationary melting furnace fitted with my improved burner, the figure being drawn on line *y y* of Fig. 2. Fig. 2 is a sectional plan of the same on line *x x* of Fig. 1, the melting crucible being removed therefrom. Fig. 3 is a plan. Fig. 4 is an end elevation of a tilting melting furnace fitted with my improved burner. Fig. 5 a side-elevation of a tilting melting furnace. Fig. 6 is a sectional-elevation, on line *w w* of Fig. 7 of the burner proper. Fig. 7 is a sectional plan on line *z z* of Fig. 6, of the kerosene burner detached.

Like parts are designated by corresponding characters of reference in all the figures.

The object of this invention is the production of a convenient, serviceable and effective burner for melting and assay furnaces, steam-generators, steam, and hot-water heating-furnaces and analogous uses, in which kerosene oil and similar heavy liquid hydrocarbons is the fuel employed for producing the necessary heat. To attain this object I construct this burner of a tube or body, A, having at its upper edge a laterally projecting flange 2, by means of which, and suitable bolts 3, this body is secured to the base-plate 4 of a furnace B, of any desirable construction. This body A is perforated in its walls by a series of apertures 5, through which air is admitted to the interior of said body and thereby to supply the necessary oxygen to sustain combustion.

At one side and near the lower end of the tube A there are formed, and projecting therefrom, hinge-lugs 6, which engage similar hinge-lugs 7, on a rectangular pan C, as clearly indicated in Figs. 6 and 7, pintles 8 in said hinge-lugs 6 and 7 facilitating the swinging of said pan C on its hinge-lugs. On the side of the tube A opposite to that where the hinge-lugs 6 are located, there is formed a projecting lug 9, wherewith engages a spring-catch 10, which catch is bolted to the pan C by a screw 12, so as to retain the pan C, normally, in a horizontal position. By pulling this catch 10 off the projecting lug 9, the pan C may be tilted to place an igniter (not shown) therein, which igniter may be cotton-waste, asbestos, fiber or other suitable substance which when saturated with kerosene oil and ignited will sustain combustion for a sufficient length of time to allow the burner being heated and then continue to function by the heat supplied by the continually-added liquid fuel. This fuel is contained in a suitable tank D, located anywhere above the level of the pan C and fitted with a filler plug 13, Fig. 1, and, if desired, with a liquid indicating-tube or so-called glass-gage 14. From this tank D leads a tube 15, which conducts the liquid fuel from the tank D into the tube A, a stop-valve 16, being provided to regulate the flow of liquid fuel.

In order to ascertain the amount of fuel supplied to the burner, I provide in the supply-tube a break or gap and fit the end of the supply-tube 17 with a funnel, 18, so that drops of the liquid fuel 19, as shown in Fig. 4, may be observed to fall from the supply-tube 15 into this funnel and their frequency regulated by the stop-valve 16.

The liquid fuel supply-tube 17 enters the burner-tube A at its side and it is downwardly bent therein so as to discharge the liquid into, approximately the center of, the pan C. When this fuel has heated the end of the supply-tube 17 and the tube A, the liquid-fuel will be heated as it enters the burner-tube A and being, in part, evaporated and converted into gas will produce the intense heat required for melting furnaces and steam generators, &c., a number of these burners and appliances being fitted up, when necessary, to afford the required amount of heat.

In metal-melting-furnaces, where a crucible E is employed to contain the metal, I

form therein a passage, 20, which is a continuation of the tube A, said passage 20 being flared to assume the size of the interior 21 of said furnace, and in order to provide a support for the crucible E therein, I form on the fire-brick lining 22, projections 23, as clearly illustrated in Figs. 1 and 2; the gases of combustion from the furnace passing into and through a chimney or stack 24 thereby producing a natural draft therein, in a manner readily comprehended:

When applied to a tilting furnace, I mount the furnace proper, B, upon two standards 25, 26, and furnish it with pivots 27, which revolve in bearings at the upper end of said standards. The standard 25 has also a projecting stud 28, upon which is mounted a hand-wheel 29, and a pinion 30, the latter meshing with a spur-wheel 31 secured to one of the trunnions or pivots 27. By revolving this hand-wheel 29 the furnace B is tilted in an obvious manner.

In Figs. 2, 6, and 7, I have shown the burner-tube A as being rectangular in transverse section, and the pan C similarly shaped, while in the remaining figures of the drawings these parts are assumed to be circular in cross section, and I have shown the pan as being considerably larger than the transverse dimensions of said tube A. It is obvious that the contour of the cross section of the burner-tube A is non-essential, as long as the pan below the tube projects therefrom a sufficient distance that the flame of the burning liquid fuel may impinge upon the outer surfaces of said burner tube to assist in the initially heating of the same to provide for the thorough conversion of the liquid fuel into the gaseous state.

Having thus fully described this invention I claim as new and desire to secure to me by Letters Patent of the United States—

1. As an improved article of manufacture, a burner for furnaces consisting of a perforated tube having an outwardly-projecting flange at its upper end; hinge-lugs on one side of said tube, and a projecting lug at the opposite side thereof; a pan below said tube, there being hinge-lugs in said pan adapted to engage the hinge-lugs on said tube; pintles in said hinge-lugs, and a catch on said pan adapted to engage the lug on said tube, as stated.

2. The combination, with a tank, of a supply-pipe leading therefrom; a stop-valve in said supply-pipe; a further supply-pipe, being a continuation of the first-mentioned supply-pipe; a funnel at the end of said supply-pipe below said stop-valve; a furnace; a burner in said furnace comprising a perforated tube; a base-plate in said furnace to which said burner-tube is attached; a pan below said burner-tube, said pan being larger than the transverse dimensions of said tube; means for hinging said pan to said burner-tube, and further means for locking said pan to said burner-tube; the supply-pipe entering the vertically-disposed burner-tube at its side and having its end downwardly bent to discharge the liquid fuel approximately in the center of said pan.

3. In a kerosene burner, a perforated tube, a supply-pipe in said tube; a pan below said tube and hinged thereto, a combustion chamber above said tube having a flared passage and projections in said passage, as stated.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two subscribing witnesses.

L. T. KUEHL.

Attest:

MICHAEL J. STARK,
A. G. PETERSON.