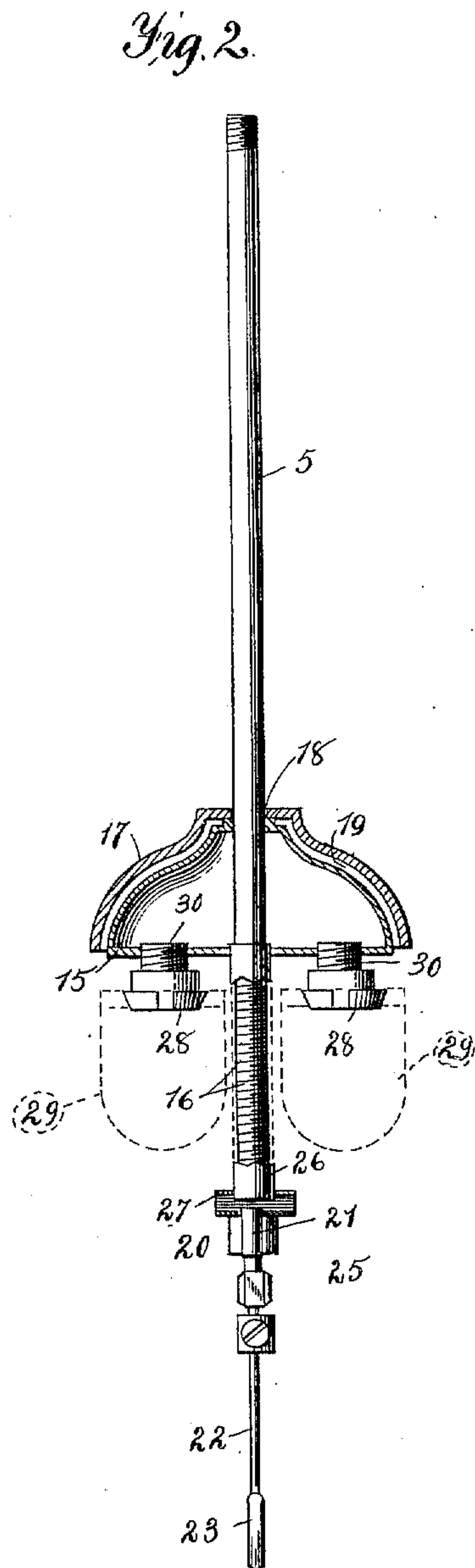
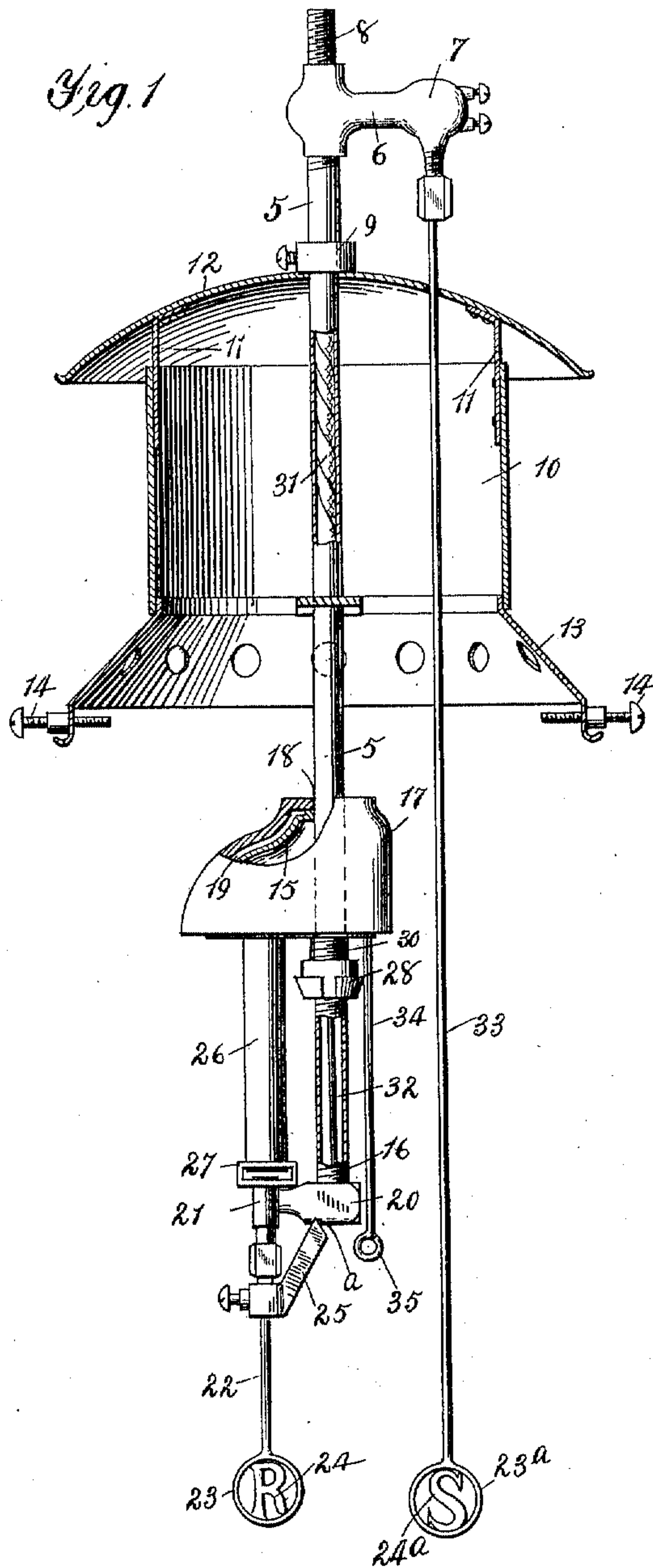


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HYDROCARBON BURNER.
APPLICATION FILED MAY 5, 1910.

983,634.

Patented Feb. 7, 1911.



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HYDROCARBON-BURNER.

983,634.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH J. MEYER, 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 Hydrocarbon-Burners, of which the following is a specification.

My invention relates to hydrocarbon burners, and has especial reference to devices of this class that are designed particularly for illuminating purposes, the specific kind of burner being that commonly known as instantaneous, and designed for the consumption of the lighter hydrocarbon oils, of which gasolene is a type, although heavier oils, such as kerosene, may be used with like efficiency, owing to certain novel features embodied in my device.

The chief objects of the improvements which constitute the subject matter of this application for patent are:—to provide a burner of the class stated that will give a light of high efficiency with an economical expenditure of fuel, and to produce an illuminating apparatus in which hydrocarbon oils of varying specific gravity may be efficiently burned.

Referring specifically to the various advantages due to the novel construction of the device hereinafter described, it should be noted that provision is made for retaining the heat in the burner body when the flame is turned low, thus insuring a sufficient local temperature to prevent the extinguishing of the flame from radiation under the given conditions, the retained heat being adapted to produce a constant reserve supply of gas as may be necessary for the production of an illuminating flame.

Other objects of importance are:—the introduction of a mixer of novel form that will insure a proper commingling of the air with the fuel gas, and to furnish a construction that will safeguard the oil filtering material by confining it to a portion of the oil passage that is not materially affected by the heat convection, thus prolonging the efficiency of the burner, and avoiding deterioration which may result by the slow combustion of the substance used for filtering or straining when subjected to long continued heat.

Another object of considerable moment is to produce an arrangement whereby the stem of the regulating valve may be given

more than one complete turn, thus permitting the use of a finer adjustment of the said valve than when limited to the fraction of a turn. As a further improvement, I have brought the stem of the stop-valve to a position where it may be within easy reach of the operator's hand.

I accomplish the desired results by means of the apparatus illustrated in the accompanying drawing which forms a part of this application, the important details of the construction and manner of assembling the co-operating parts being disclosed in the following views:—

Figure 1 is a side elevation, partly in section, of an instantaneous lamp embodying my improvements; and:—Fig. 2 is a fragmentary view showing the body of the burner and attachments, the said burner and hood and also the mixer being in section.

Referring to the details of the drawing, the numeral 5 indicates a supply pipe for the fuel oil, having threaded connection with one end of a coupling 6, the opposite end of the latter comprising a valve casing 7, in which is a shut-off valve of usual construction, not shown, since it forms no part of the present invention. The said coupling is provided with a nipple 8, threaded so as to adapt it to be attached to any convenient source of fuel supply. Immediately below the coupling 6, surrounding the said supply pipe 5 and adjustably supported thereon by a collar 9, is a globe support consisting of a cylindrical body 10, suspended by hangers 11 from a concave top plate 12 secured to said collar, and having a flaring skirt 13 provided with the usual globe holding screws 14. Upon the supply pipe, a suitable distance below the said globe holder, is mounted a burner, comprising a hollow body 15 bell shaped and preferably cast with comparatively thin walls and forming a shell. The supply pipe passes entirely through this burner or shell, suitably threaded holes being provided for this purpose in the shell walls, and the lower portion of the pipe is correspondingly threaded as indicated at 16.

The burner body 15 is provided with a hood 17, having a contour corresponding to that of the body, and is provided with an aperture 18 to permit it to be slipped over the supply pipe 5, and when in position, the hood is supported upon the upper end of the body with its walls spaced away from the

outer surface of the burner thus leaving an interval 19 between said hood and body to provide an air space.

The lower extremity of the pipe 5 communicates with a horizontal connection 20, which in turn, connects with a short vertical pipe section 21 which is provided with a regulating needle valve (not shown in detail) of usual type. The stem of this regulating valve extends downward for a suitable distance where it terminates in a button 23, having a designating character 24 thereon. Upon the stem 22 of the regulating valve is adjustably mounted by a set screw, a stop finger 25 which is adapted to engage the connection 20 in the manner shown at *a*, the adjustment permitting the said stem to be given any number of back turns desired, since one revolution will suffice to retract the stem to such an extent that the finger will clear member 20. Above the connection 21, and in axial alinement therewith, is a pipe 26 of somewhat larger cross diameter than the said connection and same communicates at its upper end with the cavity of the body 15. The pipe 26 and the connection 21 are slightly separated at their adjacent ends, and between them is inserted a box forming a gas and air mixing chamber. This box consists of a short section of rectangular tubing open at the ends, and placed transversely to the pipes which it connects, the ends of the pipes 21 and 26 passing through suitable holes in opposite sides of same.

The body 15 is provided with ordinary pendent burner tips 28 adapted to receive standard mantles shown in dotted outlines 29, said tips being connected to the said shell or body 15 by suitable threaded nipples 30 communicating with the interior of the body.

To provide a suitable strainer or filter for the oil, to prevent foreign particles from being carried to the burner, the upper portion of the supply pipe is filled with a section of cylindrical wick 31. This wick extends from the vicinity of the coupling 6 to the upper part of the burner, and to maintain the same in position, a supporting wire or stop 32 is inserted in said tube below the wick.

The stop-valve located in the valve casing 7, is furnished with an elongated stem 33 which passes down through the globe holder parallel with the supply pipe 5, and terminates in a button or handle 23^a, as in the case of the regulating stem, and likewise has a designating character 24^a. Extending downwardly from the burner body 15 is a wire 34 terminating at the lower end in an eye 35, arranged a little below the level of the branch 20. The purpose of this wire is to serve as a support for a torch which is used to afford a preliminary heating of the branch and lower end of the supply tube

sufficient to produce gas for starting the apparatus, such torch not being shown as it is a common expedient in all lamps of this class.

The operation of the apparatus is as follows:—Connection having been made with a source of oil supply, the stop-valve in 7 is opened by turning the handle 23^a; the oil will then flow down the supply pipe 5, and after passing through the filtering material 31, will fill the branch 20 and section 21 and lighted torch is then applied so that it is below the branch 20. The regulating valve in 21 is then opened, and when ignited, the oil in the adjacent passage will become gasified and pass upwardly through the mixing chamber 27 into the pipe 26, from whence the commingled gas and air will enter the burner body 15 to be distributed to the communicating burner tips 28. After the lamp has been started in the manner described, the stop-valve is allowed to remain open and the flow of gas controlled entirely by means of the regulating handle 23. Thus, when it is desired to reduce the light, the regulating valve stem is turned to the right until contact is made by the stop finger at the point *a* on the connection 20. This is so arranged as to prevent the complete closure of the said regulating valve and will therefore permit a slight and constant flow of gas to the burner. The air within the space 19 between the burner and hood will be heated, and as it is partially confined by the overhanging hood walls, it will act, in conjunction with the adjacent members, to maintain the gas in the burner chamber at a proper degree of heat for combustion, though a very slight flame will be maintained at the burner tips. When it is desired to increase the illumination, it is only necessary to turn the regulating valve stem to the left to retract the valve and thus allow a larger amount of gas to flow to the burner body.

The limitation of the strainer to a position in the upper portion of the supply pipe will prevent undue heating of the wick and the consequent charring and deterioration of the substance composing same.

The heat in the burner body surrounding as it does the supply pipe 5 for an appreciable portion of its length, tends to gasify the fluid in said pipe more effectively than would be possible if said pipe was not thus located.

Having thus described my invention what I claim as new is:—

1. In a hydrocarbon lamp, the combination with a burner consisting of a shell, mantle-supporting means depending from said shell and a hood inclosing said shell on the top and sides and in close proximity thereto, means for conducting gas to said shell, said means comprising a fuel-supply

pipe, a mixing chamber communicating with said pipe and the atmosphere and arranged below said burner, a valve controlling said mixing chamber and a valve controlling said fuel-supply pipe.

2. In a hydrocarbon lamp, the combination with a fuel supply pipe, a valve controlling said pipe, a strainer arranged in the supply pipe, means for supporting the strainer in operative position in said pipe, a mixing chamber communicating with the supply pipe and a valve regulating the flow of oil to said chamber, a burner comprising

a hollow shell surrounding the said supply pipe and in communication with the mixing chamber, and a hood covering the top and sides of said shell and conforming to the shape thereof, the walls of the hood being spaced from the shell to form a restricted air space closed on the top and sides.

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

JOSEPH J. MEYER.

Witnesses:

H. DE LOS HIGMAN,
M. A. MILORD.