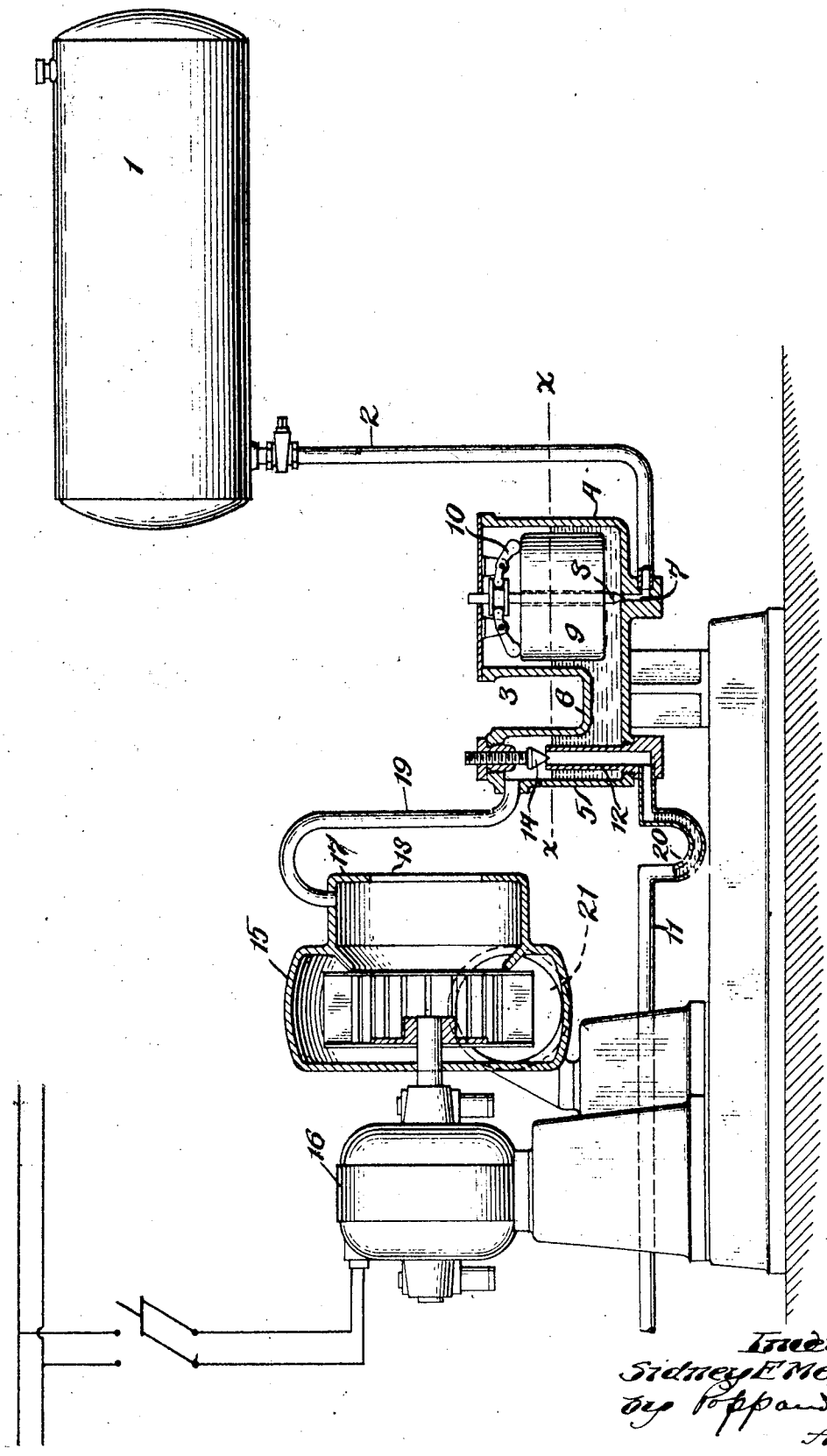
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APPARATUS FOR BURNING OIL

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR BURNING OIL.

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This invention relates to improvements in apparatus for burning fuel oil and more particularly to the oil feed mechanism of such apparatus, proposing a construction which is intended primarily for domestic or house heating burners but which may also be employed to advantage in connection with any hydrocarbon installation in which the fuel is not required to be fed under pressure or in which but a slight degree of pressure may be required.

The principal objects of the invention are to provide an apparatus which may be produced and installed at low cost, which is simple in construction and certain and safe in operation and which is substantially free from liability to derangement.

With the above objects in view the invention consists generally in a construction wherein the inlet end of the oil supply pipe projects above the normal level of a maintained body of oil which during the operation of the burner is subject to a pressure influence by which the oil level is raised to a point above said inlet end, thereby permitting the oil to flow into and through the burner supply pipe; the invention also consists in various novel features of structure and combination employed in connection with the instrumentalities for producing the operations above described.

An embodiment of the invention is illustrated in the accompanying drawing in which the single figure is a view partly in side elevation and partly in section.

The oil is stored in an elevated tank 1 which is connected by a pipe 2 to an oil feed reservoir 3 in which the supply of oil is maintained at a normal level indicated by the broken line X. The reservoir 3 includes a feed chamber 4, a discharge chamber 5 and a connection 6 between the lower ends of the chambers 4 and 5. The chamber 4 is provided at its bottom with an inlet duct 7 with which the pipe 2 communicates, the duct 7 being opened and closed by a needle valve 8 which is controlled by a float 9 and float operated connecting mechanism 10 of any suitable construction whereby when the oil is at the level X the valve 8 is held closed and when it falls below such level the valve 8 is opened.

The oil is delivered to the burner (not shown) by a pipe 11 having a vertical inlet extension 12 arranged in the chamber 5 with its upper end suitably above the normal oil level X. The effective size of the upper or intake end of the extension 12 may be regulated by a suitable adjustable valve 14.

Air is supplied to the burner to promote combustion by a suitable blower or pump 15 which may be driven by an electric motor 16. As shown the pump 15 is formed with an intake chamber 17 having an air admission opening 18. The reservoir 3, by virtue of the chambers 4 and 5 and the connection 6 is, in effect, a U tube and is made operatively responsive to air velocity conditions in the chamber 17 by means of a pipe 19 extending between the chamber 17 and the upper portion of the chamber 5.

In operation the blower 15 draws air at high velocity into the chamber 17 and delivers it to the burner through a trunk 21. A reduction in pressure is thus effected at the fan end terminal of the pipe 19 and by said pipe is transmitted to the chamber 5. The suction influence thus created in the chamber 5 during the operation of the blower is sufficient to raise the level of the oil to a point above the upper end of the extension 6 and under such conditions the oil overflows into said extension and thence passes by the pipe 11 to the burner, the supply of oil in the reservoir 3 being automatically regulated and maintained by the float controlled valve 8 in the well known manner.

The pipe 11 is provided at a point near the reservoir 3 with a U-shaped trap 20, the purpose of which is to maintain a constant oil seal which is effective to prevent the escape of air through the pipe 11 into the chamber 5, thereby to avoid impairment of the suction influence maintained in said chamber during the operation of the blower and to provide for certainty in the operation of the burner.

When the operation of the blower is discontinued atmospheric pressure conditions are re-established in the pipe 19 and chamber 5 with the result that the oil returns to its normal level X and the flow of oil to the burner through the pipe 11 is discontinued, the oil seal, however, being maintained by the trap 20 whereby the operation may be resumed merely by starting the blower. The system is thus adapted either for the steady or intermittent operation of the burner, the

air and oil feed being so co-ordinated that danger is in any case avoided.

The system may of course have any desired capacity within a considerable range, the rate of flow of the oil being determined by the setting of the valve 14 and the air supply to the burner being variable according to the size of the opening 18.

Having fully described my invention, I claim:

1. In an oil burning apparatus, in combination, an oil feed pipe to conduct oil to the burner, an oil tank, an oil reservoir interposed between the feed pipe and the tank and comprising two chambers connected at their lower ends, the reservoir thereby functioning as a U-tube, means for maintaining the oil at a normal level in the reservoir, means for creating a suction influence in one of said chambers, thereby to change the oil level, an extension of the feed pipe into which oil flows from said last named chamber during the operation of said means, and a trap in the feed pipe to create an oil seal.

2. In an oil burning apparatus, in combination, an oil feed pipe to conduct oil to the burner, an oil tank, an oil reservoir interposed between the feed pipe and the tank and comprising two chambers connected at their lower ends, said reservoir thereby functioning as a U tube, means for maintaining the oil at a normal level in the reservoir, a blower to supply air to the burner, a connection between the blower and one of the chambers of the reservoir whereby the blower during its air supplying operation creates a suction influence in said chamber, the oil level being thereby changed, an extension of the feed pipe into which oil flows from said chamber during the operation of the blower, and a trap in the feed pipe to create an oil seal.

3. In an oil burning apparatus, in combination, an oil reservoir having two chambers connected at their lower ends, an oil tank connected to one of the chambers, float feed mechanism in said chamber to maintain the oil in the reservoir at a normal level, an oil feed pipe having an upward extension in the other chamber, said extension terminating at a point above the normal oil level, a blower to supply air to the burner, and a connection between the blower and the chamber with which the extension communicates to create a suction influence in said chamber and thereby raise the level of the oil to a point above said extension.

4. In an oil burning apparatus, in combination, an oil reservoir having two chambers connected at their lower ends, an oil tank connected to one of the chambers, float feed mechanism in said chamber to maintain the oil in the reservoir at a normal level, an oil feed pipe having an upward extension in the other chamber, said extension terminating at a point above the normal oil level, a blower to supply air to the burner, a connection between the blower and the chamber with which the extension communicates to create a suction influence in said chamber and thereby raise the level of the oil to a point above said extension, and a trap in the oil feed pipe to create an oil seal.

5. In an oil burning appartus, in combination, an oil tank, an oil reservoir supplied by the tank, automatic means for maintaining the oil at a normal level in the reservoir, an oil feed pipe communicating with the reservoir with its inlet end at a point above the normal oil level whereby upon the oil level being sufficiently raised oil may flow by gravity into and through said pipe, a blower to supply air to a burner, and a pipe connection between the intake side of the blower and the reservoir to transmit suction influence to the reservoir, thereby to raise the oil above the level determined by said automatic means and to a point where the oil flows by gravity into and through the oil feed pipe.

In testimony whereof I affix my signature.

SIDNEY E. MEYERS.