No. 658,267. Patented Sept. 18, 1900.

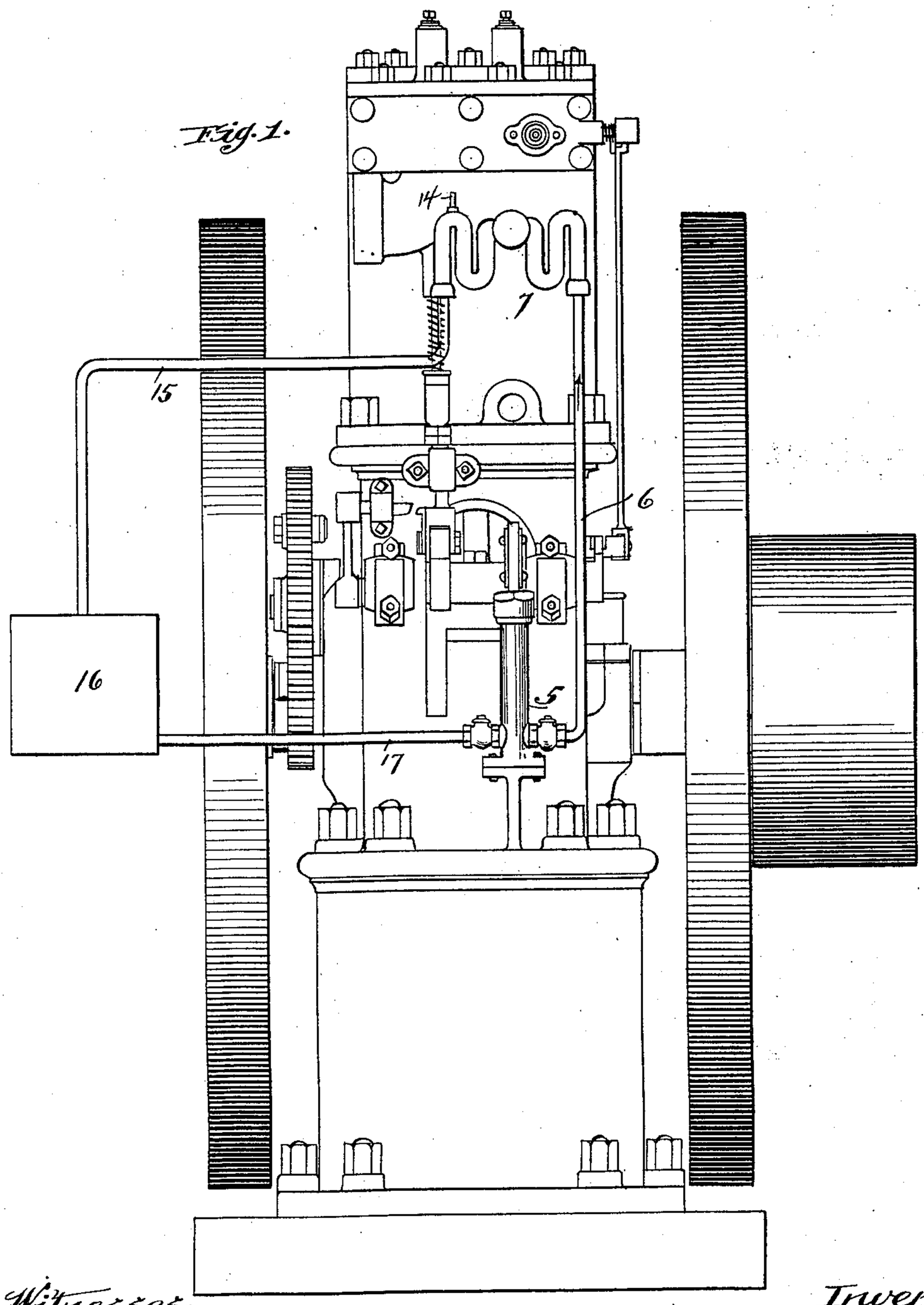
T. C. KENNEDY.

GASOLENE ENGINE FUEL OIL FEEDER.

(Application filed June 3, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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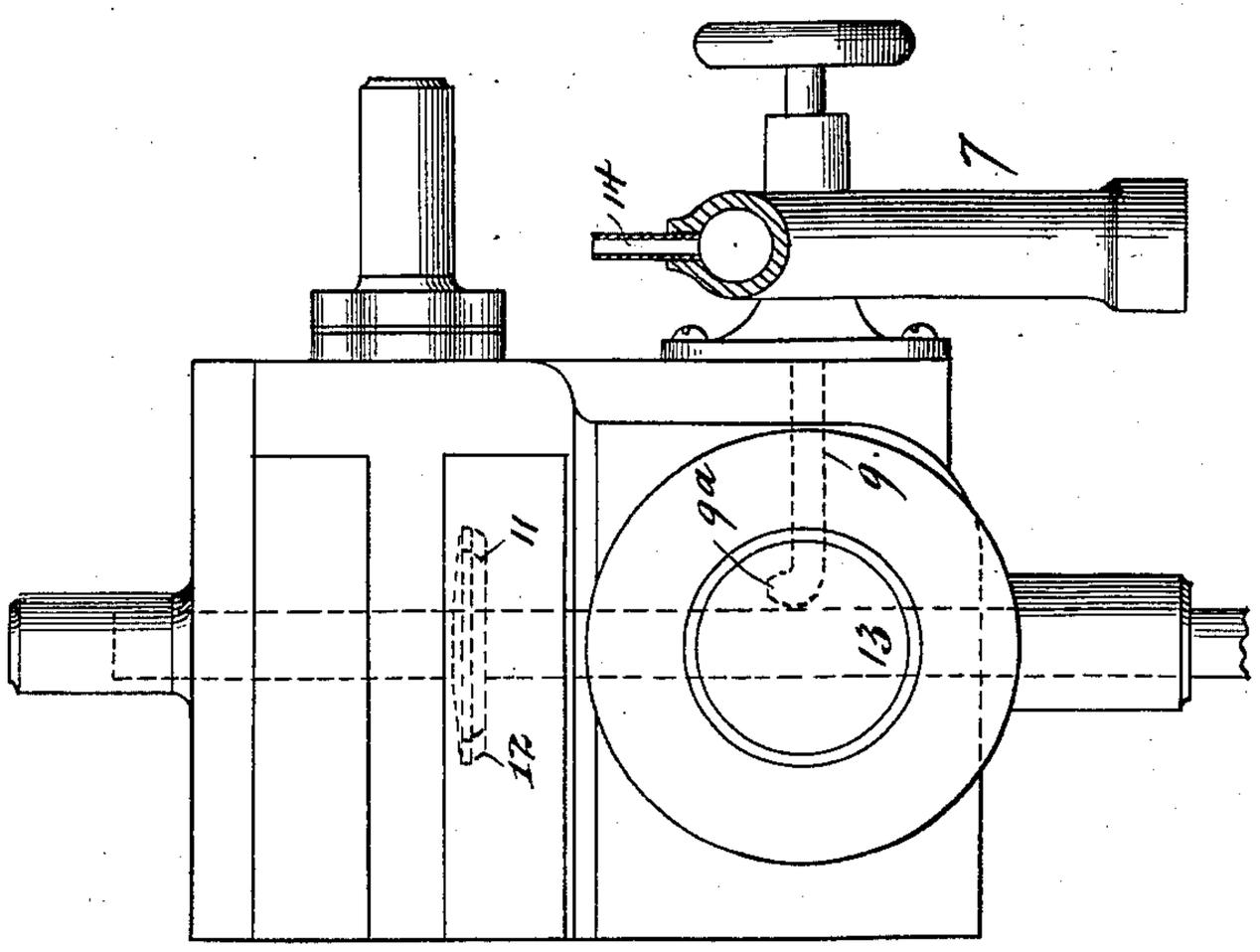

Fig. 2.

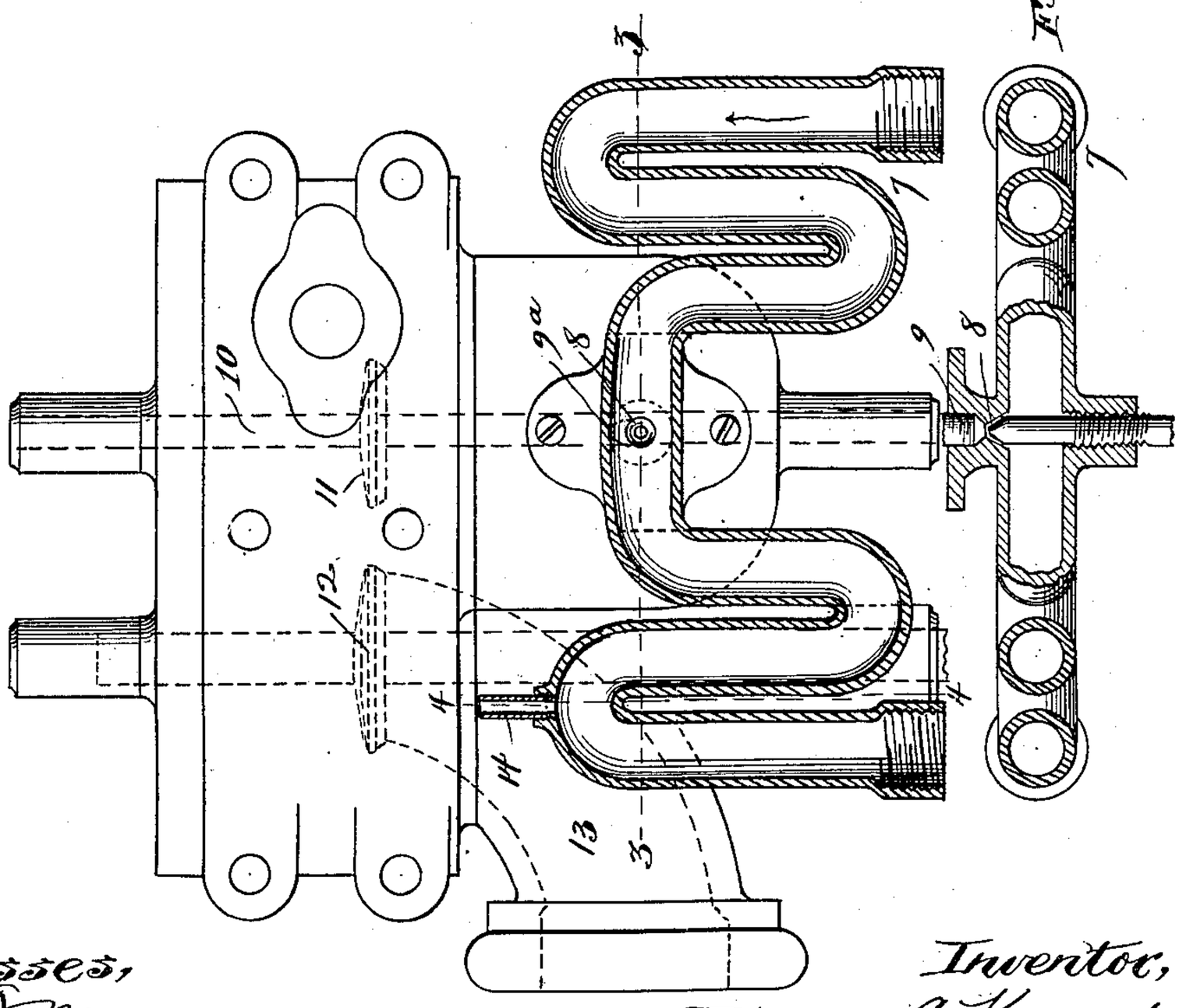

Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS C. KENNEDY, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CORNELL MACHINE COMPANY, OF SAME PLACE.

GASOLENE-ENGINE FUEL-OIL FEEDER.

SPECIFICATION forming part of Letters Patent No. 658,267, dated September 18, 1900.

Application filed June 3, 1899. Serial No. 719,238. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. KENNEDY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gasolene-Engine Oil-Feeders, of which the following is a specification.

This invention relates to certain improvements in the oil-feed for gasolene-engines; and the object of the invention is to provide a feed mechanism of simple construction which will be adequate to maintain a supply of oil ready to be turned into the engine as and when required, the apparatus including in the combination an oil-feed, a pump, a reservoir, and pipes connecting them, so that there is a constant circulation of the oil, which is maintained at a uniform level in the outlet and within the influence of the air-inlet, the excess of oil moved by the pump being returned to the reservoir without waste and without overflowing the supply-orifice.

The feeder proper is simple and inexpensive in construction, compact in its form, and can be readily attached to any style or type of engine.

In the accompanying drawings, Figure 1 is a front elevation of a gas or gasolene engine, being adapted in this case, by the addition of my oil-feed mechanism, to use oil. Fig. 2 is an enlarged view of a portion of the engine-front, showing the valve box or casing, the supply and exhaust valves in dotted lines, and the feeder in vertical section. Fig. 3 is a sectional plan of the feeder below the line 3 3 of Fig. 2; and Fig. 4 is a side elevation of the parts shown in Fig. 2, the feed-pipe being sectional on the line 4 4.

In the drawings, 5 represents a pump for supplying oil through the pipe 6 to the feeder 7, the latter consisting in the form shown of a bent pipe the bore of which affords a continuous and vertically-tortuous passage and the lower bends of which provide storage-chambers in which the oil will stand at a level corresponding to the height of the lower wall of the bend on the outlet side of the feeder. The central portion of the pipe is for convenience continued straight between the loops or bends, forming, respectively, the inlet and the outlet of the feeder, and this straight portion has an outlet-opening 8 connected with the feed-tube 9, the latter entering the mixing-chamber 10, which contains the air-supply valve 11 and the exhaust-valve 12. Air will be admitted to the mixing-chamber through the valve 11, and the exhaust will occur through the exhaust-pipe 13, which is controlled by the valve 12. The inner end of the feed-tube 9 is upturned, as shown at 9^a, and the orifice or mouth formed by the upturned end is on a level with the lower bend of the outlet portion of the bent tube forming the feeder, so that the oil will fill the body of the feed-tube and rise to or nearly to the level of its discharge-orifice, so that it may be drawn into the mixing-chamber with the air-current induced by the stroke of the piston. A vent 14 is provided in the top wall of the feeder-pipe near the outlet side, which will prevent the forcing of the oil out through the feed-tube by the pulsations of the pump. A return-pipe 15 connects the feeder with the reservoir 16, and a connecting-pipe 17 leads back to the receiving side of the pump.

Organized as above described and assuming the pump to be in constant operation oil will be caused to circulate through the system, passing upwardly to and through the feeder, filling the feed-tube thereof and maintaining a liquid-level practically in the plane of the discharge-orifice, the oil withdrawn and used in the engine being constantly supplied by the continuously-acting pump, while any excess escapes over the dam or partition of the feeder and is returned to the reservoir to be again drawn by the pump and passed to the feeder.

The bent pipe is of very simple construction. It may be cast in the form shown or bent to the desired form for providing a sinuous passage. The current of oil is slow, steady, and uniform, the pulsations of the pump being minimized or dissipated as the current flows through such passage. In addition to this the form of the feeder is such as to cause the current of oil to be deflected or turned sufficiently to further minimize the effect of the pulsating action, the bends in the pipe practically constituting incomplete diaphragms or partitions projecting from the top and bottom walls of the chamber on the

inlet side of the feeder, while on the outlet side of the feeder these bends in the pipe constitute diaphragms impeding the flow of the oil and the last bend serving as a dam to maintain the liquid-level. I have found this form of feed, however, superior to those operating somewhat upon the same principle, but employing a large chamber containing a considerable store or quantity of the oil having an extended unbroken surface, and I attribute this superiority of operation to the fact that by breaking up the body of oil by the provision of the series of compartments or chambers the pulsations of the pump do not produce waves or movements of the liquid body, which would cause it to overflow at the feed-tube orifice.

It will be obvious that in the operation of the device the upper part of the bend at the inlet side of the receptacle constitutes an air-chamber, within which the air will be alternately compressed and allowed to expand by the pulsations of the oil-supply, while the upper part of the bend at the overflow side will likewise constitute an air-chamber, which, however, will be open to the atmosphere through the vent therein. With this construction it will be obvious that the air-chamber at the inlet side will serve to minimize the pulsations of the oil-feed due to the pump and that the body of oil communicating with the supply-passage which leads to the vaporizer will be subject to the atmospheric pressure in one of said air-chambers and to the pressure of the compressed air contained in the other air-chamber, so that the response of flow to the vaporizer due to the aspirations of the engine will be prompt and free.

I claim—

1. An oil-feed for engines, comprising in combination an oil-supply receptacle having a tortuous interior passage, the return-bends whereof are located alternately above and below an intermediate level, a pump feeding oil into one side of said receptacle, an overflow leading out from the other side, and a supply-outlet leading from said receptacle to the vaporizer, whereby the upper bends of the tortuous passage constitute air-chambers acting to regulate the pulsatory movement of the oil-supply, substantially as described.

2. An oil-feed for engines, comprising in combination an oil-supply receptacle having a tortuous interior passage, the return-bends whereof are located alternately above and below an intermediate level, a pump feeding oil into one side of the receptacle, an overflow leading out from the other side thereof, a supply-outlet leading out from a point between the inlet and outlet passages, the exit end whereof is located substantially on a level with the overflow-outlet, whereby the upper bends constitute air-chambers above and in communication with the surface of the oil-supply, which act to minimize the pulsatory movement of the oil, substantially as described.

3. An oil-feed for engines, comprising in combination an oil-supply receptacle consisting of a pipe formed into three inverted-U bends in continuation with each other, the lower sides of the highest portions of the passage through the two outside U portions being located at or above the highest portion of the passage through the intermediate bend, a supply-passage leading out from the upper part of said intermediate bend, having its discharge end located approximately on a level with that portion of the receptacle constituting the overflow and which determines the level of the liquid therein, a vent-passage communicating with the upper part of the U-bend at the overflow side of the receptacle and a pump feeding into the opposite side of the receptacle, substantially as described.

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Witnesses:
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