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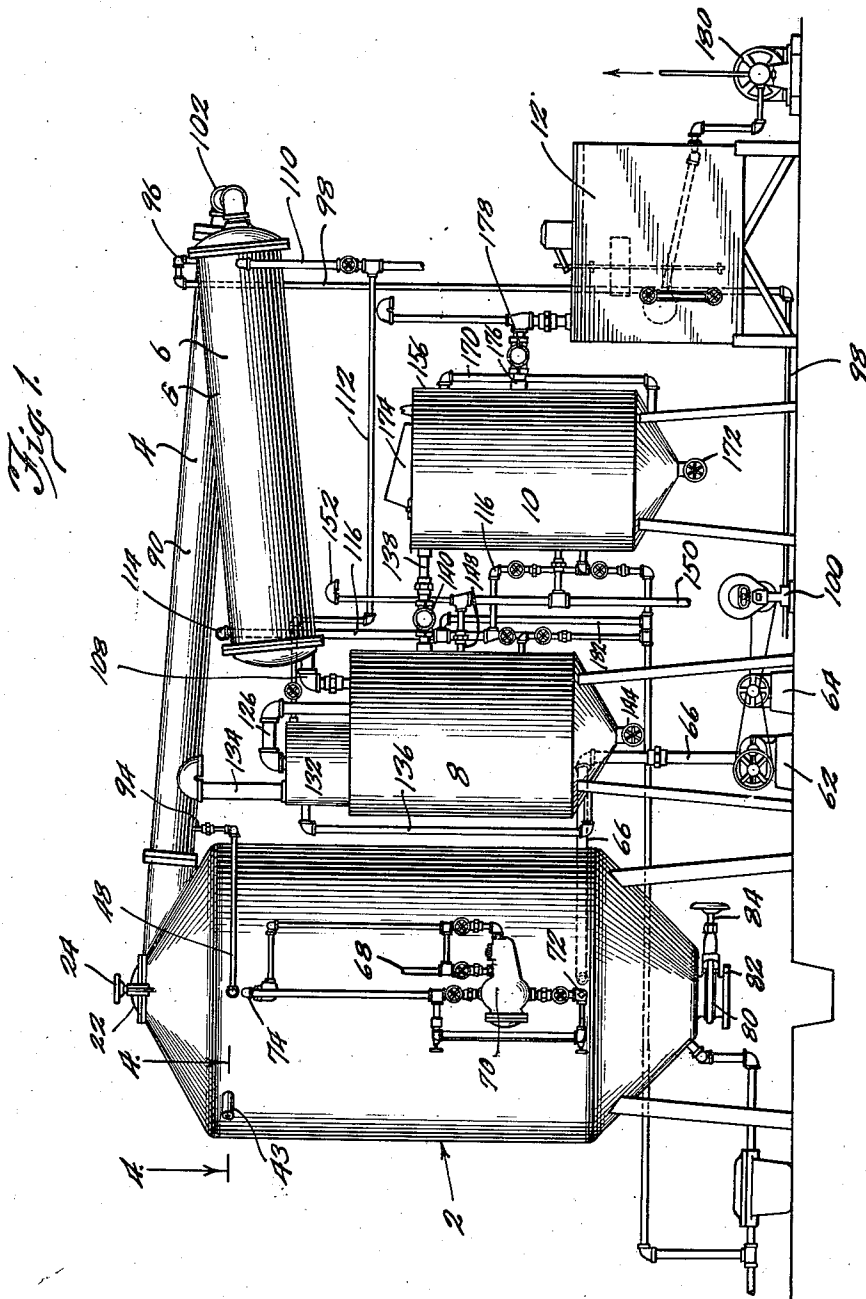
P. B. RENFREW ET AL

2,048,140

METHOD FOR RECLAMATION OF ABSORPTION OIL

Filed Nov. 16, 1931

7 Sheets-Sheet 1



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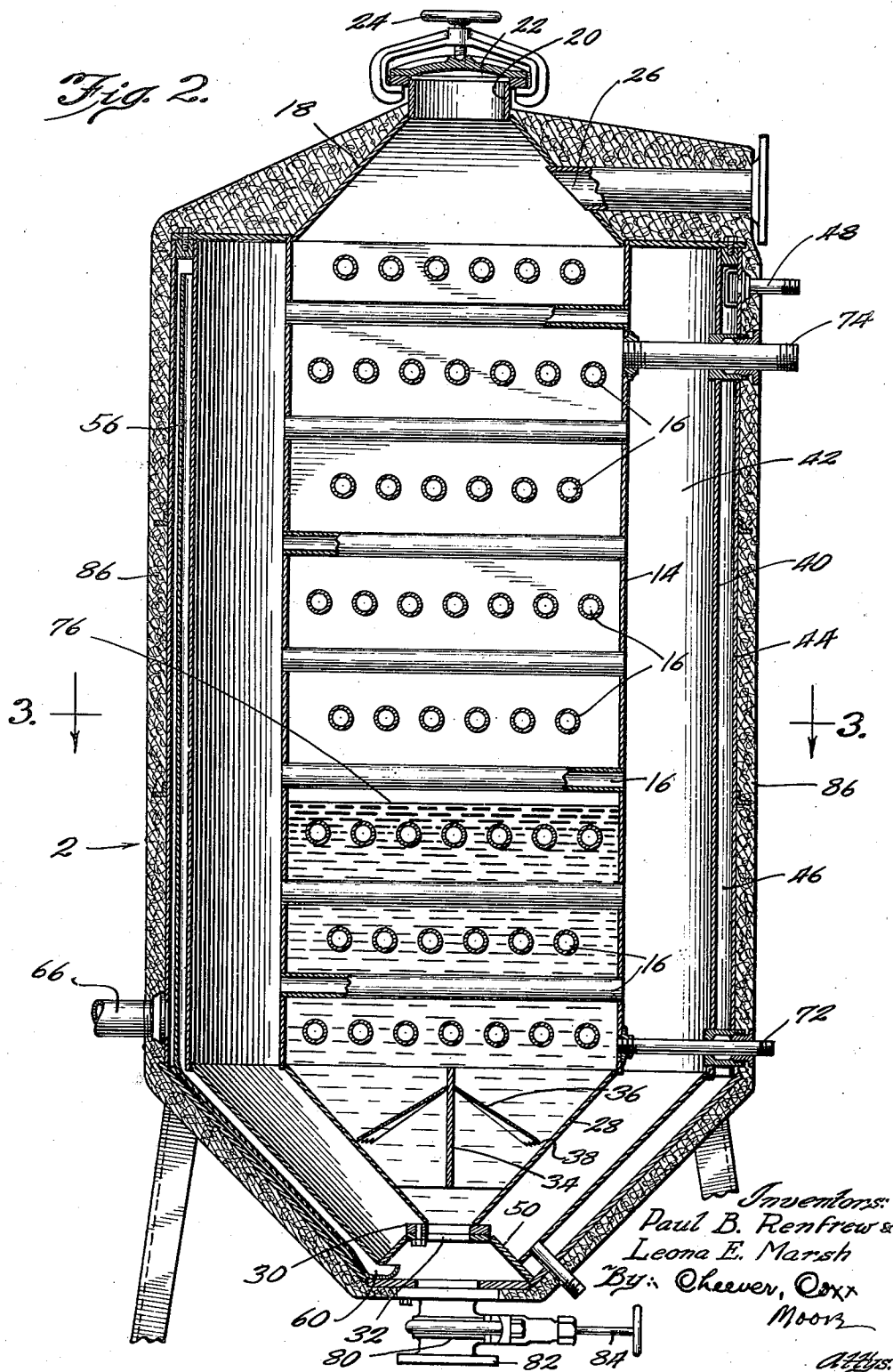
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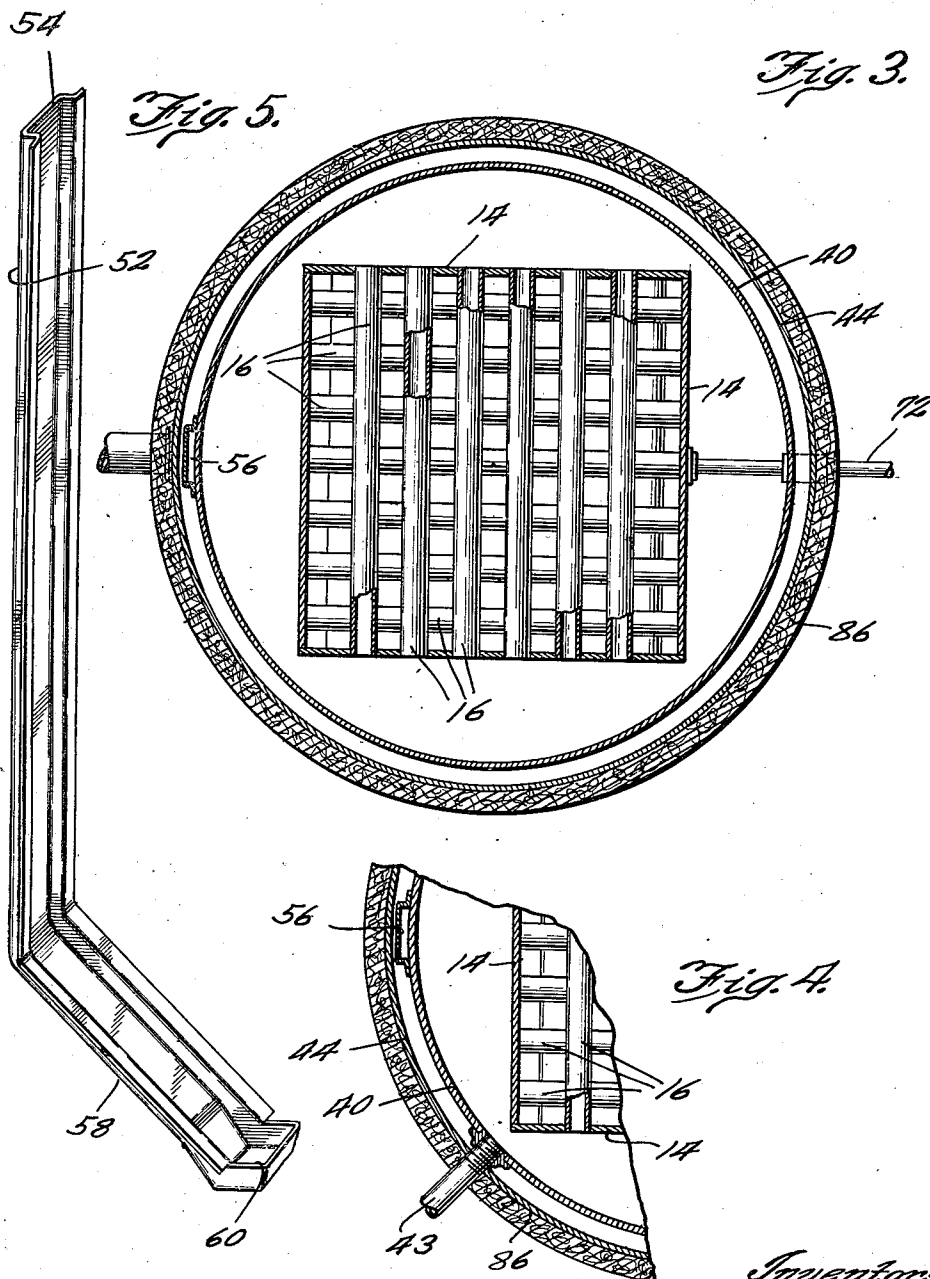
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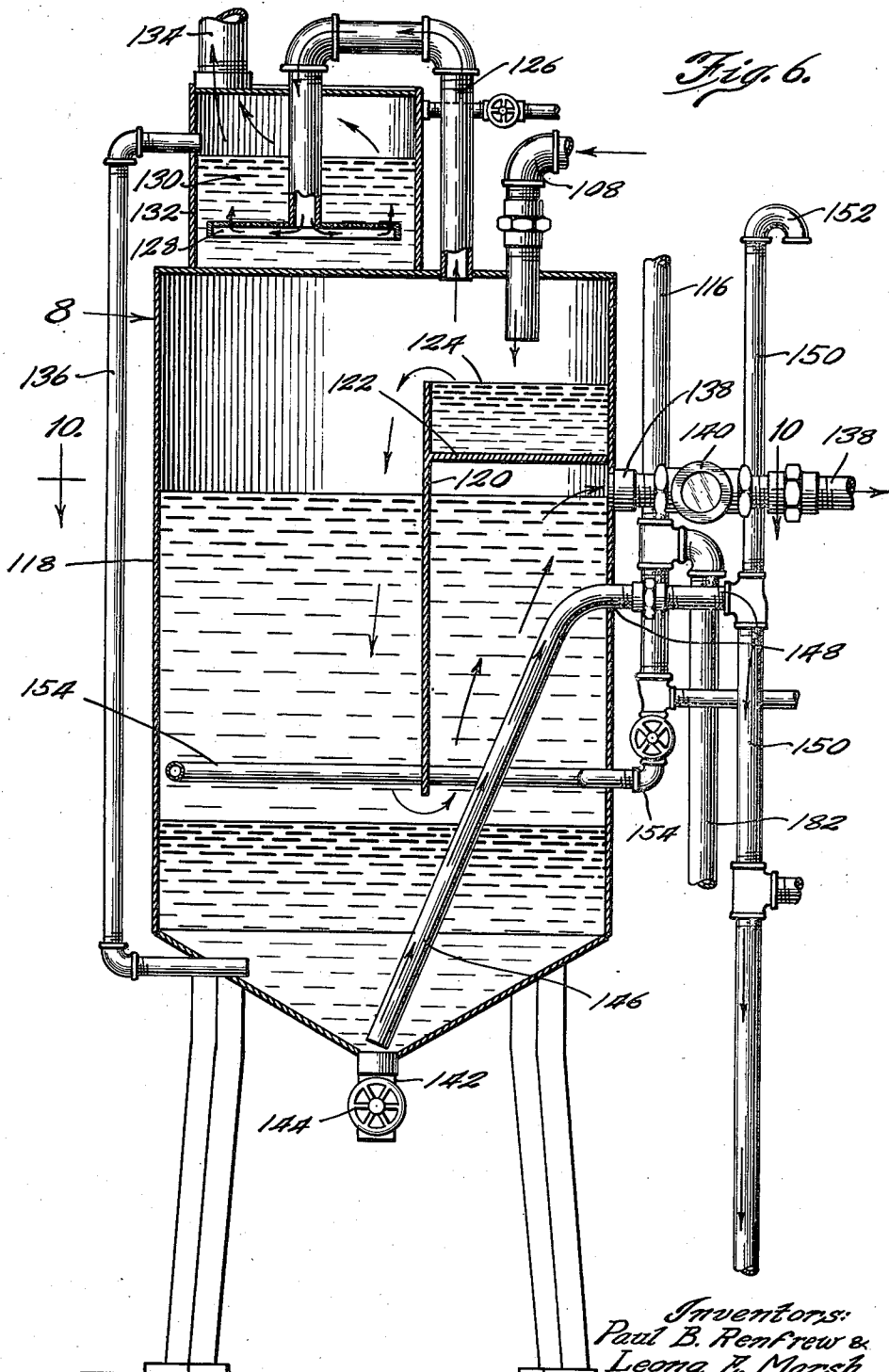
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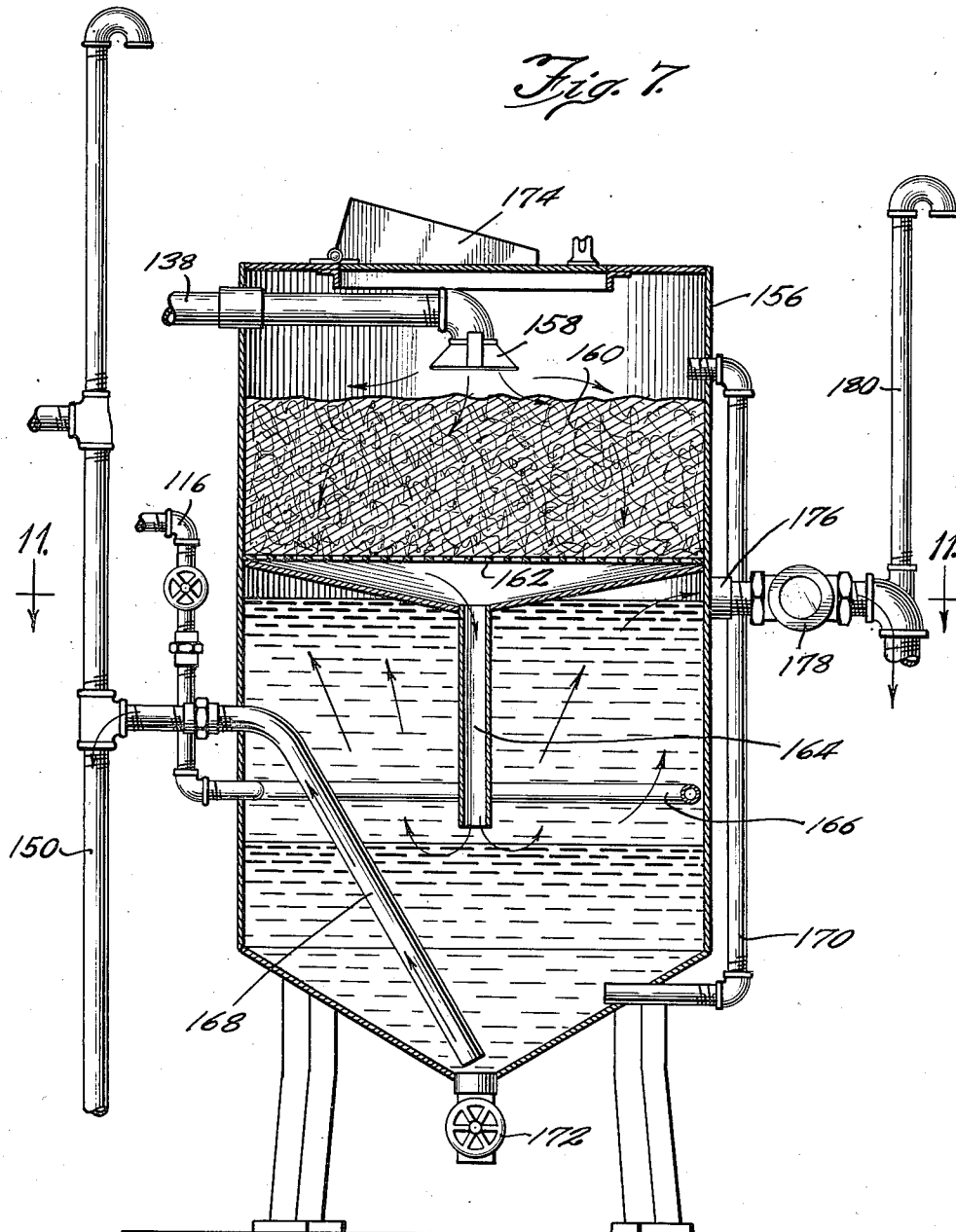
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7 Sheets-Sheet 5



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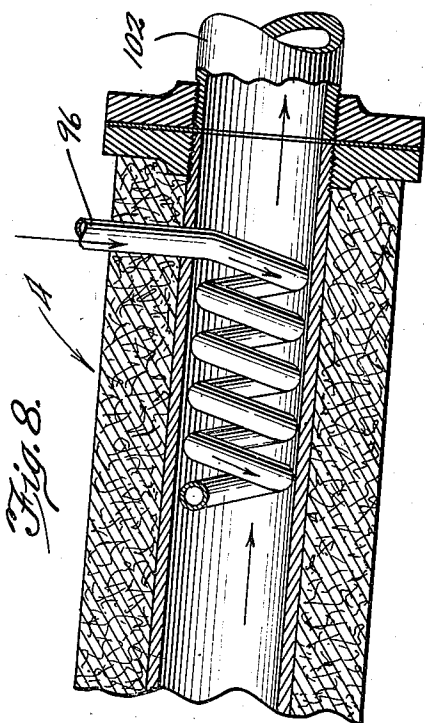
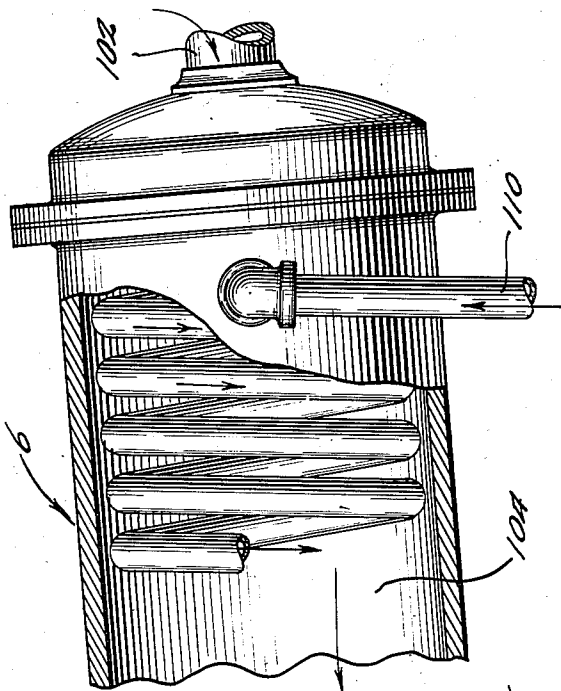
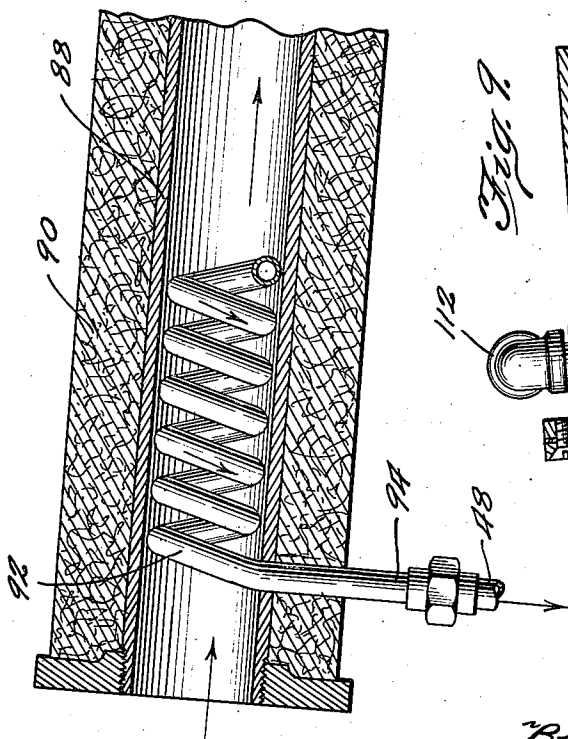
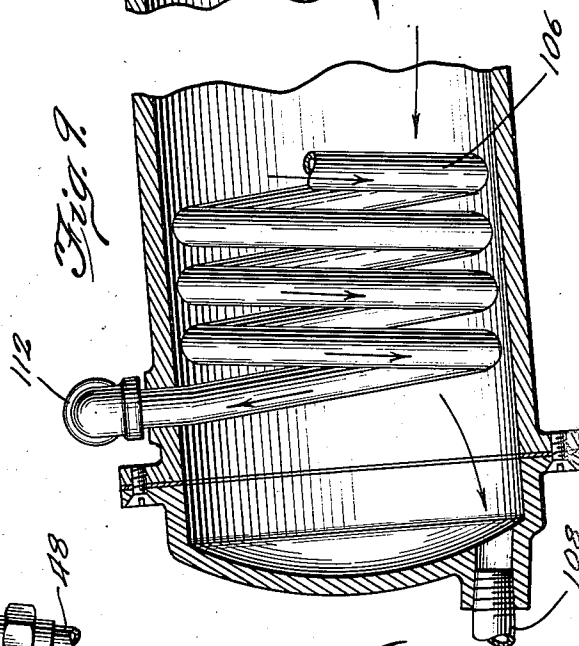
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7 Sheets-Sheet 6



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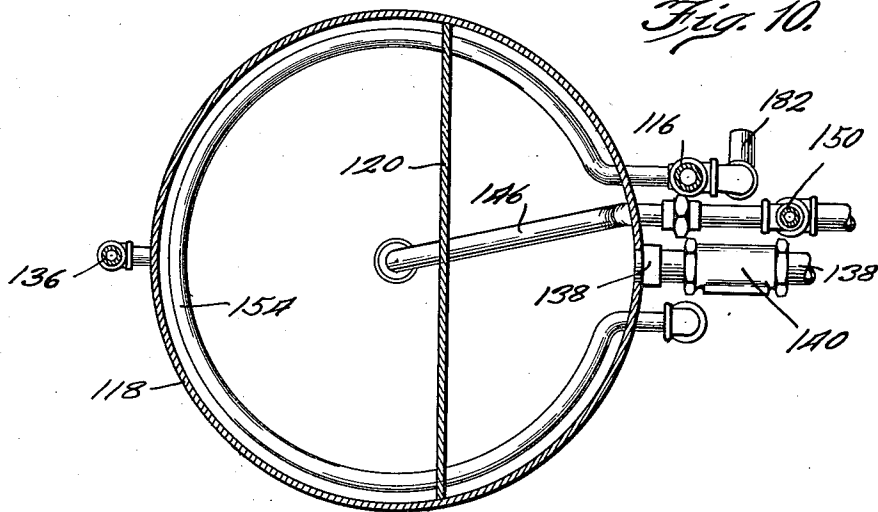
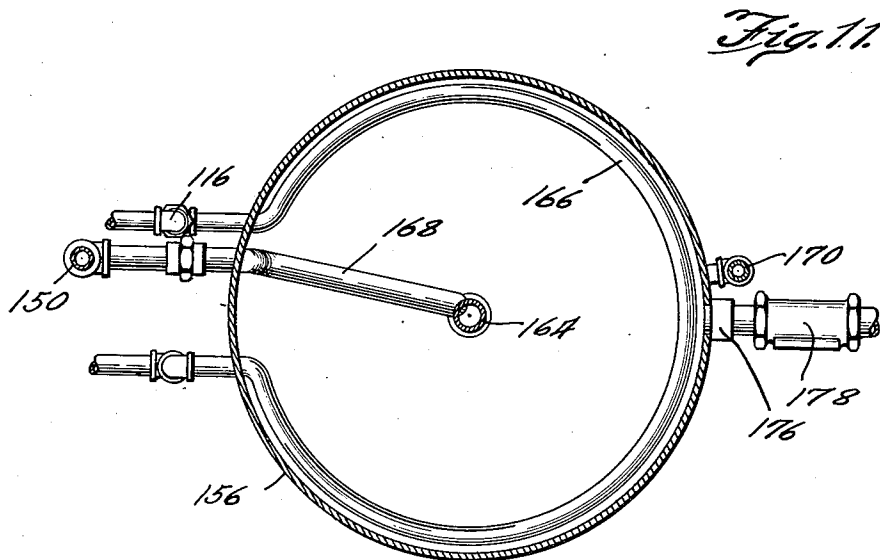
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METHOD FOR RECLAMATION OF ABSORPTION OIL

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7 Sheets-Sheet 7



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UNITED STATES PATENT OFFICE

2,048,140

METHOD FOR RECLAMATION OF
ABSORPTION OIL

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Application November 16, 1931, Serial No. 575,198

8 Claims. (Cl. 196—15)

This invention relates to the reclamation of oils such as absorption oils, also any other petroleum (hydrocarbon) oils contaminated with impurities such as paraffin wax, carbon, sludge and the like, dry cleaners' solvent, and solvents containing greases whose boiling points are within the boiling range of the solvent and other petroleum hydrocarbon oils.

One of the objects of our present invention is to provide a process and apparatus for the reclamation of the hereinbefore described oils and solvents for effectively removing therefrom carbon, coke, paraffin wax, dust, crude oil, dirt, grease, acids, acid compound, moisture, sludge, unstable compounds, heavy fractions and undesirable foreign constituents, and whereby the reclaimed oils and solvents will be more stable, or more resistant to heat, light and oxidation, and will be as good as, if not better than such oils or solvents when new and uncontaminated.

Yet another object of our invention is to provide an improved process and apparatus for the economical reclamation and reconditioning of absorption oils and particularly in the adaptation of the process to the reclamation of absorption oils used in the process of extracting gasoline from natural gas whereby a practically continuous process is produced, not only for the reclamation of the absorption oil itself, but also in the use of the reconditioned or reclaimed absorption oil in the gasoline absorption process.

Yet another object of our invention resides in an improved process and apparatus for the reclamation of solvents used in dry cleaning plants and solvents used in the washing of metal parts.

Yet another object of our invention resides in the improved process and apparatus for the reclamation of any petroleum oil which is contaminated with impurities such as paraffin wax, carbon, sludge and the like.

Yet another object of our invention resides in the provision of an improved process and apparatus for the reclamation of solvents containing greases whose boiling points are within the boiling range of the solvent itself.

Yet another object of our invention resides in providing a reclamation process and apparatus for oils and solvents which comprises heating the oil or solvent body to a temperature whereby to distill off the desired fractions while converting the undesirable constituents into compounds which are not soluble in the oil body and which will not distill off at the selected distillation temperature of the desired hydrocarbons.

These and other objects of our invention will

be apparent from a perusal of the following specification when taken in connection with the following drawings which show a preferred form of apparatus for carrying out our process and wherein:

Fig. 1 illustrates one form of our improved apparatus for carrying out the process of our invention;

Fig. 2 is a sectional view of the evaporator used in such apparatus;

Fig. 3 is a section on line 3—3 of Fig. 2;

Fig. 4 is a section on line 4—4 of the evaporator shown in Fig. 1;

Fig. 5 is a perspective view of the member for directing the steam and heated air into the evaporation chamber of the evaporator;

Fig. 6 is a sectional view of the water separator;

Fig. 7 is a similar view of the entrained moisture separator;

Fig. 8 is a sectional view of the heat exchanger;

Fig. 9 is a similar view of the condenser;

Fig. 10 is a section on line 10—10 of Fig. 6, and

Fig. 11 is a section on line 11—11 of Fig. 7.

In carrying out our process, we project heated air and steam (the air being in comparatively large volumes) through the body of oil or solvent heated to the proper working temperature and containing a desired quantity of monobasic alkali, such as NaOH, KOH, LiOH, RbOH, CsOH and other equivalents. By means of this treatment, the desired fractions of the oil or solvent are evaporated and thereafter recovered by condensation. The heated air and steam keep the oil or solvent body in a constant state of agitation, increase the surface exposed and thus increase the rate of evaporation. In addition, the air and steam rising out of the oil or solvent body with desired velocity, act as carriers for the hydrocarbon vapors to carry them over into the condenser for further treatment. So, also, the pressure of the heated air and steam in the evaporation chamber above the oil or solvent body acting in accordance with Dalton's law of partial pressure, lowers the evaporation point of the heated oil or solvent so that the evaporation can be carried out under more moderate temperatures with the consequent elimination of the vaporization of the paraffin waxes and heavy ends.

The heated air oxidizes certain constituents of the oil, resulting in some polymerization. The caustic soda wet or moistened by the steam forms sodium compounds. The caustic soda

tends to promote oxidation. It also tends to saponify certain oxidation products resulting from the air oxidation of the waxes, heavy ends and other unstable compounds oxidized to the acid stage. The sodium compounds thus formed are water soluble and not oil soluble. The bi-valent and higher-valent metals such as calcium, magnesium and iron hydroxides produce oil soluble products. These products thus formed are not vaporized at the working temperatures which carry over the desirable constituents.

The steam keeps the caustic soda in a soluble, reactive condition. In addition, the steam is a good carrier of hydrocarbon vapors and the heat of solution of caustic soda is exothermic. The steam also reduces the boiling points and thus eliminates the possibility of cracking.

The air is a good carrier of hydrocarbon vapor and gives velocity to the hydrocarbon vapor stream. Air has a direct chemical action on the oil. It oxidizes certain constituents of the oil or solvent increasing their molecular weight, thereby retaining them in the evaporation chamber and preventing them passing over with the desired hydrocarbon vapors. The air reduces the amount of steam required to produce the evaporation and reduces the amount of steam required to give velocity to the vapor stream. This function is decidedly advantageous because the air is considerably less expensive to heat to the required working temperature than is water to produce steam for the same purposes. In addition, the air assists in oxidizing the paraffin wax.

The combined action of the air and steam on the heated oil or solvent body thus has many advantages and desirable results not inherent in the use of air alone, or steam alone. The process of the present invention is concerned with evaporation, and not true boiling. The steam heated air passing through the oil or solvent immensely increases the evaporation surface and the combined steam and hot air pressure in the evaporation chamber above the oil body reduces the evaporation point of the oil in accordance with Dalton's theory of partial pressure. Furthermore, the moisture due to the pressure of the steam in the evaporator, combined with the oxygen of the air, tends to promote oxidation. The rate of hydrocarbon vapor yield, i. e., the rate of yield of the reclaimed oil or solvent, is directly proportional to the vapor volume passed through the oil, other factors being equal.

By the utilization of the heated air and steam in the evaporation chamber in the manner aforesaid, the temperatures used can be moderated so as to oxidize and polymerize the paraffin waxes, the heavy ends, etc., without volatilizing them, and the products of reaction with the caustic soda will be retained in the evaporation chamber and will not be carried over with the hydrocarbon vapor stream. The hydrocarbon vapor stream passing from the evaporation chamber goes into the condenser where the steam is condensed into water and the hydrocarbon vapors into oil or solvent. The air passing on is washed to remove any entrained hydrocarbons and is thereafter free to atmosphere, while the combined oil and water is passed through a separator so that the oil is separated out and is then further treated to remove water and moisture therefrom. The resulting product is a moisture-free oil or solvent from which all undesirable impurities and contaminations which were present in the liquid before treatment have been removed, and which

reclaimed oil or solvent is equal to and in some instances, superior to the same solvent or oil prior to becoming contaminated. In the accompanying drawings we have illustrated an apparatus for carrying out our process. In general, this apparatus comprises an evaporator 2 wherein the body of oil or solvent is heated to the proper working temperature by any desired means, and wherein steam and heated air are forced through the body of oil or solvent into which has previously been introduced a predetermined quantity of mono-basic alkali of the character hereinbefore described. The reaction within this evaporator is such that the desired hydrocarbon vapors are carried off by the projected current of steam and heated air to a heat exchanger 4 hereinafter described, thence through a condenser 6 where the steam and hydrocarbon vapors are condensed. The water and condensed oil or solvent in intermixed state are then passed to the water separator 8 in which the oil or solvent is separated from the water, and then the oil or solvent is passed through an entrained moisture separator 10 for removing all water or moisture content therefrom, and finally the reclaimed solvent or oil is passed either to a storage tank 12, or is returned to the system in which it is to be used.

With particular reference to Figs. 1 to 5, inclusive, the preferred form of our evaporator 2 comprises a tank-like inner member 14 provided with a criss-cross or lattice arrangement of open-ended pipes passing completely therethrough to provide heat exchange passageways through which steam, hot oil or other heating fluid may flow for the purpose of heating the dirty or contaminated oil or solvent in the tank to desired working temperature. The upper portion of this tank 14 is preferably provided with tapering walls 18 terminating in a rather wide throat 20 through which the chemical charge is added to the dirty oil or solvent. In the present instance, we prefer to use caustic soda. This throat 20 is normally closed by a cap 22 held in place by any desired clamping mechanism 24. In addition, the top of the tank 14 is provided with means forming an outlet 26 through which flows the hydrocarbon vapor stream resulting from the evaporation of the body of oil or solvent in the tank. As will be hereinafter described, this vapor stream is caused by the projection of heated air and steam under pressure through the oil or solvent body in the tank in such a manner that in passing through and out of the liquid body the moving column of steam and heated air acts as agitator, oxidizer and finally as a carrier to convey the desired hydrocarbon fractions out through the outlet 26. The bottom of the tank 14 terminates in conical or converging walls 28 ending in a throat 30 providing an aperture 32 at the bottom through which the contents of the evaporator tank 14 may be drained or through which the residual sludges and undesirable impurities within the tank may be discharged at proper intervals. The bottom of the tank opposite the mouth 32 is provided with means for dispersing and distributing the incoming stream of heated air and steam whereby to cause a substantially uniform agitation of the heated dirty oil in the tank for the purpose of augmenting the evaporation as hereinafter described and also for the purpose of preventing the oil or solvent body from being blown upwardly and into the hydrocarbon outlet 26. To this end the conical walls 28 enclose an up-standing partition 34 carrying a plurality of baffles

flies 36 which may be perforated or alternatively may be spaced as at 38 from the conical wall 28 for the above described purposes. Obviously any other type of baffle construction or any desired means for appropriately and effectively creating a uniform and effective agitation throughout the dirty oil or solvent body may be used.

Very effective means for economically heating the dirty oil or solvent body within the tank 14 to the required working temperature for effecting evaporation of the desired hydrocarbon fractions, may be provided by the use of a construction such as that shown in Fig. 2 of our drawings which show the details of one type of evaporator. In this construction the inner tank wall 14 is shown as surrounded by a wall member 40 to provide an inner jacket or heating chamber 42 surrounding and enclosing this central tank. We prefer to fill this inner jacket 42 with steam as the heating medium, through pipe 43 coming from any appropriate source and at a desired temperature. In the use of our device in connection with an absorption system for the extraction of natural gas from gasoline, the steam jacket may be connected to the steam plant of the absorption system, in which case the jacket will be heated to approximately 340° to 360° F. It must be obvious, however, that the temperature of this jacket is dependent upon the nature of the oil or solvent being reclaimed. For instance, where we are reclaiming heavier oils, the temperature of the steam might necessarily have to run as high as 370° F., or even more. It will also be apparent that instead of having the steam jacket 42 as shown, any desired means for heating the oil or solvent body may be utilized. Even heated oil itself may be used instead of the steam in the chamber 42, in which case the heated oil would have the desired hereinbefore stated range of temperature. In the construction illustrated, the steam within the jacket 42 is adapted to pass directly through the criss-cross open-ended pipe 16 whereby more effectively to heat the dirty oil or solvent within the central tank 14.

In certain instances we also provide the evaporator with an outer jacket. In this construction the jacket walls 40 are enclosed or surrounded by an outer wall 44 to provide an outer jacket or heating space 46 surrounding the inner jacket 42. In certain installations this jacket may be utilized to heat condensed water flowing from the condenser heat exchanger forming another part of this apparatus as is hereinafter described. Alternatively, this outer jacket may be eliminated and the steam to be utilized may be taken directly from the steam line or boiler. When this outer jacket 46 is used, it is adapted to be connected to an inlet pipe 48 connecting with the water coil from the heat exchanger hereinafter described so that heated water may be let into this jacket and subjected to the heat of the inner jacket 42 and thereby converted into steam. Alternatively the steam from any source may be led directly into this jacket 42. The bottom part of this outer jacket 46 as well as the bottom part of jacket 42, is closed by means of a wall 50 arranged at the bottom of the tank and surrounding the discharge nozzle 32. The evaporator is enclosed by suitable heat-insulated walls.

Means is provided for introducing heated air and steam under pressure into the bottom of the tank 14 in such a manner that the heated air and steam will be projected through the heated oil or solvent body for the purposes hereinbefore and hereinafter described. While this heated

air and steam may be injected into the oil or solvent body in any desired manner in the preferred form of my evaporator, it is introduced in the following manner: The outer jacket 45 is provided with means for conducting the steam which accumulates at the top of this jacket, downwardly to the bottom of the evaporator and it is associated with a connection from an air blower or other source of air pressure. In the construction illustrated, a sheet metal strip 52 shown in perspective in Fig. 5 and formed of any desired channel shape is soldered, welded, or otherwise affixed to the outer surface of the jacket wall 40. The top 54 of this channel member 52 is left open so that steam entering can readily flow down the passageway 56 formed thereby. The bottom portion of this channel member 52 is bent inwardly to lie parallel with the conical wall portion 28 of the tank as at 58, and at its lowermost edge is provided with a nozzle 60 which is arranged so as to deflect the steam upwardly into the mouth 32.

The blast of air associated with the steam is provided by an air blower 62 run by motor 64 and which blower connects by means of suitable piping 66 with the bottommost portion of jacket 46 and in such a manner that the entering air will join with the steam and will be heated by such steam and by the jackets 46 and 42. This co-mingled hot air and steam will then be forced under pressure through the channel member 56 out through the nozzle 60 and thence upwardly through the mouth 32 where it will be projected through the oil or solvent body, the baffles 36 effecting the even distribution of the steam and air through the body in the manner hereinbefore described.

The inner tank 14 contains the dirty oil or solvent to be reclaimed. The dirty oil or solvent enters the apparatus through a pipe 68 shown in Fig. 1 and will thence flow to the liquid level flow valve mechanism 70 of any well-known design and thence by means of pipe 72 to the bottom portion of the central tank 14. The top of the inner tank 14 is connected by a pipe 74 with the liquid level device and the arrangement is such that the oil is maintained at the desired level within the tank 14. Any desired means may be employed for delivering oil or solvent through pipe 68 to the evaporator. In addition there is provided a sludge valve 80 provided with a nozzle 82 and a control 84 for emptying the contents to the tank 14 when desired.

The oil or solvent may be introduced into the evaporation chamber 14 at any desired temperature. In some cases the oil or solvent being reclaimed will come into the evaporator at atmospheric temperature. In processing the heavier fractions, it is desirable to have the oils enter at an elevated temperature. These temperatures will vary according to the oil or solvent being reclaimed and in accordance with the local conditions where the equipment is being used. For instance, when the apparatus is used for the reclamation of absorption oils and in connection with absorption systems for the extraction of gasoline from natural gas, the commonly used temperature of such systems or plants is approximately 340° F. therefore in the reclamation of absorption oils the apparatus can be connected into the system at a point where the absorption oil approximates a temperature of 340° F. and therefore in such cases the dirty absorption oil will flow into pipe 68 and hence

into the evaporation chamber at an elevated temperature.

The hydrocarbon vapor, air and steam outlet 26 at the top of the tank 14 communicates with the heat exchanger 4 shown in detail in Fig. 8 of the drawings. This heat exchanger comprises a pipe 88 of suitable dimensions connecting with pipe 26 and enclosed within heat insulating walls 90. A coil pipe 92 extends practically the length of the heat exchange pipe 88 and the end 94 of this coil 92 connects with the liquid inlet pipe 48 so as to pass heated water to the outer jacket 46. The other end of coil 92 has a connection 96 with a pipe 98, (see Fig. 1,) which in turn connects with a water pump 100, whereby water is pumped through the coil of the heat exchanger 4 where the water is heated to high temperature and then passed into the outer jacket 46 where it is heated by jacket 42 and its evaporation is completed. The outer end of the heat exchange pipe 88 connects with an elbow 102 leading to the condenser 6. This condenser comprises a cylindrical housing forming the chamber 104 in which is located a coil 106 which constitutes the cooling coil for condensing the hydrocarbon vapors and steam to form the reclaimed oil and water and which flows out of the exhaust pipe 108 leading to the free water separator 8 shown in detail in Fig. 6 of the drawings. The coil 106 is connected to any suitable cold water supply. This pipe 110 has a branch connection 112 to the water sealed box of the free water separator shown in Fig. 6, for furnishing tank 132 with water as hereinafter described. The other end of coil 106 is provided with a connection 114 to a pipe 116 leading to heating coils which will be hereinafter described.

The condensed vapors from the condenser are delivered into the free water separator 8 as air, oil and water. By reference to Fig. 6 it will be seen that this free water separator comprises a tank 118 through the top of which enters pipe 108 through which pass the condensed hydrocarbon vapors and steam coming from the condenser. The chamber 118 is provided with internal partitions 120 and 122 providing a liquid receptacle 124 into which the entry oil, water and air flows from pipe 108 and also a separate outlet chamber. The air passes out of tank 118 through a pipe 126 which terminates in a perforated nozzle 128 adapted to be submerged in a body of water 130 in a water-wash tank 132 preferably mounted on top of tank 118. Any traces of mist in the air are removed by the body of water 142 before the air exhausts from pipe 134. A water leg 136 connects the water-wash tank with the bottom of the free water separator tank 118.

The oil and the water entering tank 118 settle therein and the free water precipitates to the bottom of the tank. The super-ambient oil or solvent flows under the baffle 120 and then rises to the pipe 138 which connects with the entrained moisture separator. A sight glass 140 is provided for this pipe 138. The bottommost portion of tank 118 has conical walls terminating in the nozzle 142 controlled by valve 144, for emptying the contents of this tank when desired. In addition, the tank is provided with an internal pipe 146 which opens near the bottom of the tank and rises upwardly therein to the point 148 where it passes through the walls of the tank 118 and connects with the vertical pipe 150 which pipe at its upper end has a vent outlet 152 to atmosphere and which at its bottom end connects to the drain system.

Pipe 146 is an overflow for maintaining water level in tank 118. As hereinbefore stated, tank 132 has a water leg 136 to maintain the water level. Tank 118 is provided with a hot water coil 154 connecting to pipe 116 whereby the water flowing through the coil 106 of the condenser is heated and passed through coil 154 for heating the oil therein. Coil 154 may receive hot water or steam direct from boiler or other source.

The oil leaving the free water separator by means of the pipe 138 contains some entrained moisture and it is therefore necessary to further treat this oil to remove it. Accordingly the oil flowing through pipe 138 passes into the entrained moisture separator 10 which is shown in detail in Fig. 7. This comprises a casing 156 into which the pipe 138 projects. The pipe is provided with a distributing or spray nozzle 158 so that the oil is sprayed onto a body of waste 160 mounted on a foraminated support or screen 162. The oil passing through this waste discharges into a pipe 164 which terminates near the bottom of the tank 156. By passing this oil through the waste the finely divided particles of moisture are formed into relatively larger globules of moisture which precipitate and pass to the bottom of the tank. The oil rises and stratifies above the water level. Tank 156 is provided with a heating coil 166 likewise connecting with pipe 116 whereby heated water from the condenser is forced through this heating coil 166. A water discharge pipe 168 has its lower end open to the bottom of the tank 156. The upper end of the pipe 168 connects with the vertical water pipe 150 hereinbefore described. The heating coil in the tanks 8 and 10 assists in breaking up the formation of emulsions therein. Tank 156 is likewise provided with a water leg 170 for maintaining the proper water level, and with a valve control outlet 172. In addition the upper portion of the tank is provided with a hinged cover 174.

Tank 156 is provided with an oil discharge pipe 176 which communicates preferably with a storage tank 12. The pipe 156 is provided with a sight glass 178 with a riser leading to atmosphere. The storage tank 12 is preferably provided with a float control valve leading to a pumping unit 180 which leads back to the source of use. In instances where it is not necessary to force the reclaimed oil under pressure back to the system in which it is to be used, the oil can flow by gravity in which case the small storage plant 12, the float control valve and the pump 180 can be dispensed with.

By reference to Fig. 1 of the drawings it will be seen that the pipe 116 coming from the condenser coil 106 and the interconnected hot water coils 154 and 166 connect to a pipe 132 (see Figs. 1 and 6).

As hereinbefore stated, our process is particularly adaptable to the reclamation of absorption oils used in natural gasoline plants in the recovery and extraction of gasoline from natural gas, and we therefore will utilize this specific adaptation of our invention for the purpose of illustrating its advantageous features in connection with a specific industry. It is to be understood, however, that the hereinbefore described adaptation of our method to the reclamation of absorption oils is not by way of limitation or restriction of the invention to such specific use.

Absorption oils are used for the extraction of gasoline from natural gas and for the extraction of benzol from coal tar gas. In the case of gasoline extraction these absorption plants are gen-

erally located along the pipe line which conveys the natural gas from the field to the market. In these extraction systems the gas is passed through the absorption oil where a certain percentage of the gasoline in the gas is absorbed by the oil. The gasoline content is then removed from the absorption oil. The extracted gasoline is passed on to a separate container while the oil is re-used in the absorption system. Thus the absorption oil is being continually circulated through the system for the extraction of the gasoline from the gas. From this continuous use the absorption oil becomes contaminated with impurities such as carbon, coke, paraffin wax, dust, crude oil and other impurities to such an extent that eventually it can no longer be used. These absorption oils, while comparatively cheap, after becoming so contaminated are rendered unfit for further use in such absorption systems. Herebefore they have been thrown away.

In the utilization of our invention for the reclamation of absorption oils and particularly as applied to natural gasoline absorption plants, the present apparatus is preferably connected into the system in such a manner as to continuously receive absorption oil from the absorption system at elevated temperatures. This oil will, of course, have had the gasoline fractions removed therefrom in the natural gasoline absorption plant. In other words, our present apparatus, when used for reconditioning absorption oil used in natural gasoline absorption plants, is installed so as to receive oil after the gasoline has been removed. By our invention we recondition this oil and return it to the absorption system in the same or in better condition than new oil, and in such a way that the cost of reclamation is very small, being, in fact, from one fourth to one half below the cost of new oil which at the present market prices is the lowest in the history of the industry.

During operation there is an accumulation of heavy ends, sludge and other impurities in tank 14. At regular intervals, depending on conditions and degree of contamination of the oil being treated, this sludge will have to be drained out of tank 14.

During these cleaning periods it is necessary to close valve in line 68 and stop motor 64. Draining is accomplished by means of valve 82. After the draining is completed valve 82 is closed. Tank 14 is then filled to the proper level by opening a valve in line 68. A chemical charge hereinbefore described is then added to the oil in tank 14 through opening 20 by removing cover 22. After replacing cover 22 the motor 64 is started and the reconditioning system is again in operation.

Our process is advantageously adaptable to the reclamation of cleaners' solvents and/or solvents which carry in addition to the unstable petroleum compounds, quantities of greases, the boiling points of which are within the boiling

range of the solvent. So also it applies to the reclamation of solvents used in washing metal parts during the processing and to the reclamation of any petroleum hydrocarbon oil which is contaminated with impurities such as carbon, wax, heavy ends, dust, dirt, sludge and similar impurities.

It will be apparent that by the utilization of our improved process and apparatus we are enabled to economically reclaim and recondition various types of oils and solvents which have become contaminated and rendered impure during their use in various commercial plants and systems. By our process, these oils and solvents are treated at a very low cost to remove all such objectionable impurities such as dust, dirt, carbon, sludge, metal parts, acids and acid components, paraffin waxes, heavy ends and unstable unsaturates and moisture so that the reclaimed liquid is in most cases superior to and certainly the equal of the original solvent or oil prior to becoming contaminated and impure.

Having thus fully described our invention, what we desire to secure by Letters Patent is:

1. The process of reclaiming liquid petroleum hydrocarbon solvent having boiling points not above that of absorption oil which comprises mixing the liquid solvent with a mono-basic alkali, confining a body of said mixture in a treating and distillation zone, passing air and steam through the body, with sufficient volume and with sufficient speed to produce marked agitation of the mixture so that the steam, air and alkali come into intimate contact with the liquid solvent thereby to vaporize the desirable portion of the contaminated solvent, collecting and condensing the vapors and separating the condensed solvent from the water resulting from condensation of the steam.

2. The process according to claim 1 wherein the solvent being reclaimed has become contaminated through use in the recovery of natural gas gasoline by the absorption system.

3. The process according to claim 1 wherein the solvent being reclaimed has become contaminated through use in dry cleaning.

4. The process according to claim 1 wherein the solvent being reclaimed has become contaminated through use in cleaning metal parts.

5. The process according to claim 1 wherein the temperature is maintained around 340° to 370° F. in the distillation step.

6. The process according to claim 1 wherein the alkali is caustic soda.

7. The process according to claim 1 wherein the air is heated before injecting it into the solvent body.

8. The process according to claim 1 wherein the solvent to be reclaimed contains greases of boiling points within the boiling range of the solvent.

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