No. 654,965. Patented July 31, 1900.

A. H. FRANKE.

OIL SEPARATOR.

(Application filed Apr. 11, 1900.)

(No Model.)

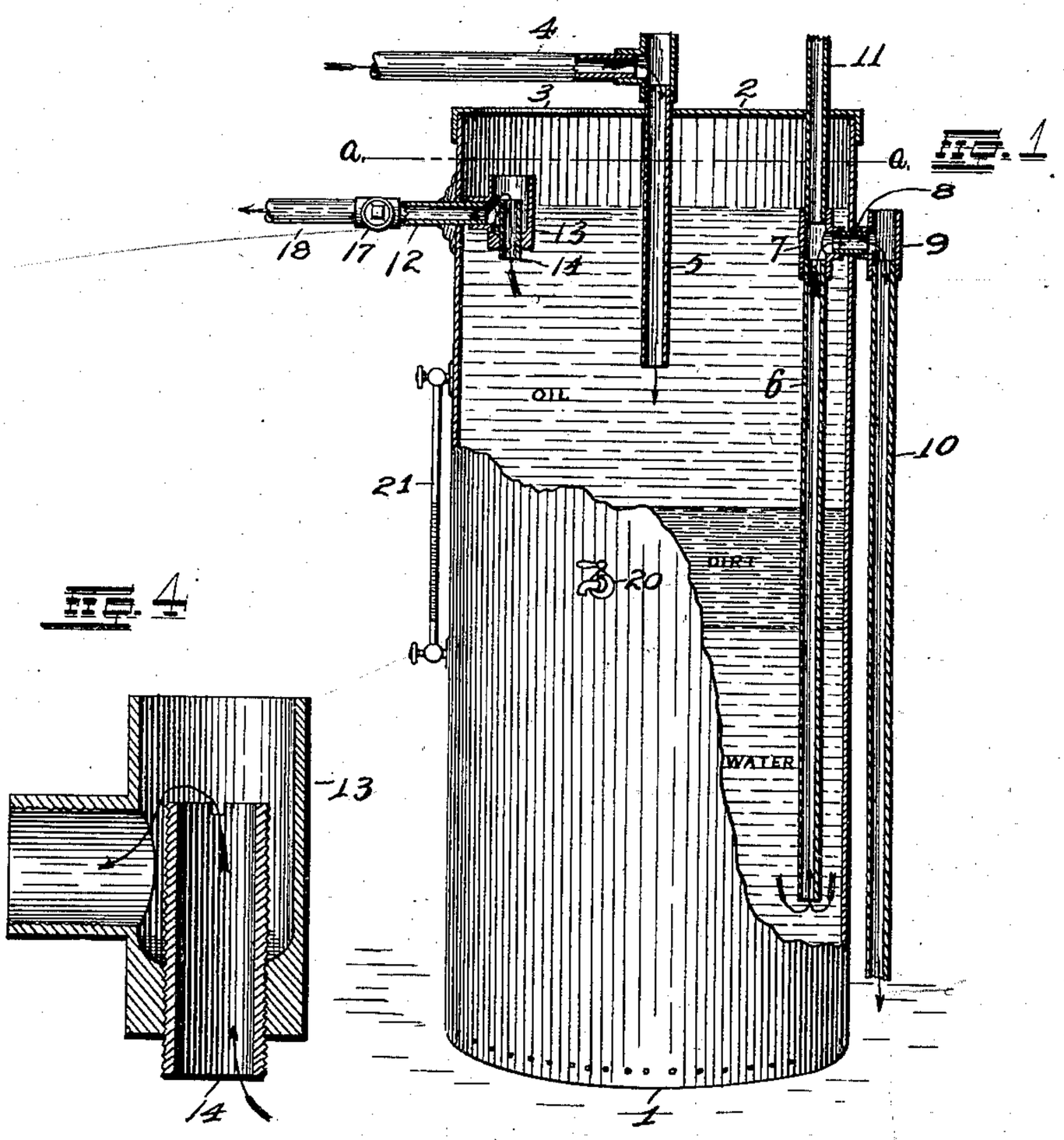


FIG. 4

FIG. 2

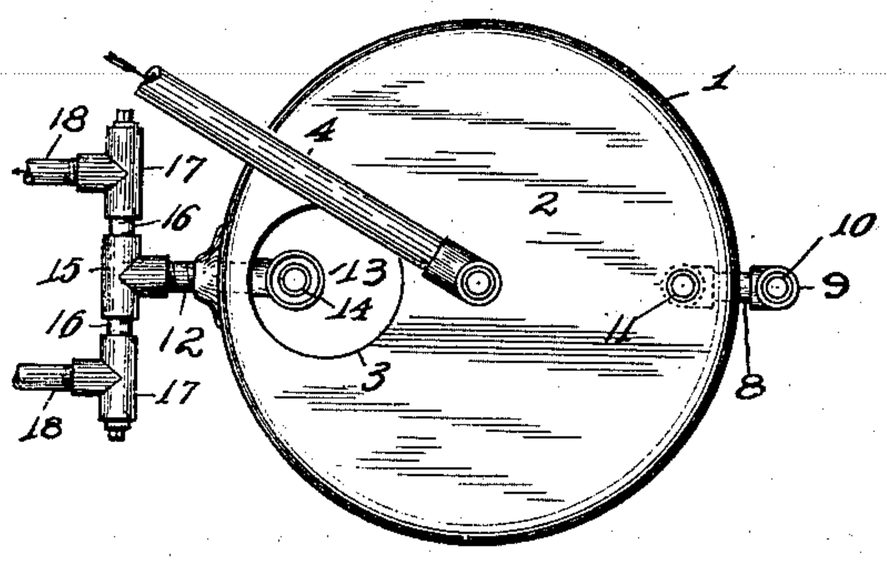
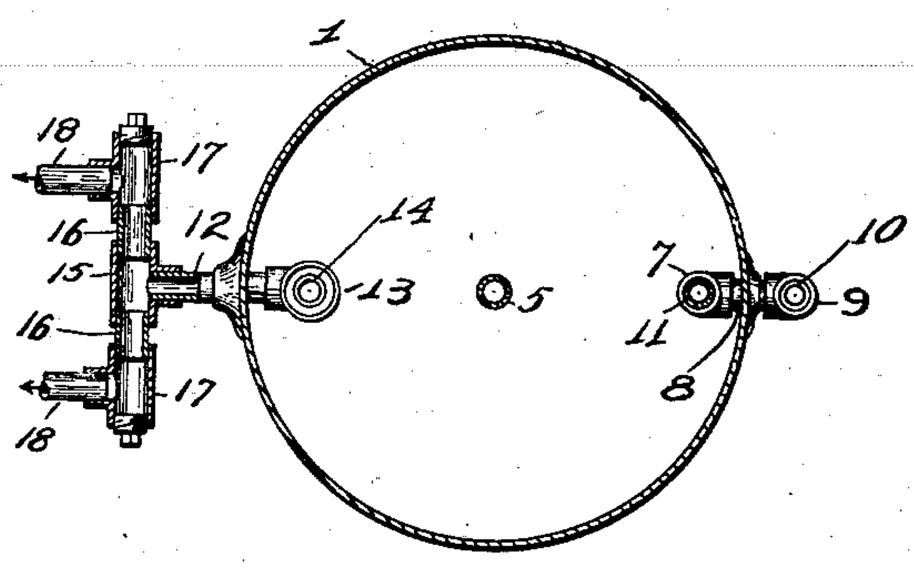


FIG. 3



Witnesses
Alfred V. Eicker
J. D. Rippey

Inventor.
August H. Franke.
By Higdon & Longan, Atty's.

UNITED STATES PATENT OFFICE.

AUGUST H. FRANKE, OF ST. LOUIS, MISSOURI.

OIL-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 654,965, dated July 31, 1900.

Application filed April 11, 1900. Serial No. 12,462. (No model.)

To all whom it may concern:

Be it known that I, AUGUST H. FRANKE, of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Separators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to oil-separators for separating oil from the heavier impurities, water, &c., and automatically discharging the excess water through one outlet and also automatically discharging the excess oil through another and separate outlet and providing means for withdrawing the impurities that have accumulated on top of the water. This separator is used in connection with an oil-filter.

Figure 1 is a side elevation of my improved separator with parts shown in section. Fig. 2 is a plan view. Fig. 3 is a view taken approximately on the line *a a* of Fig. 1. Fig. 4 is a detail sectional view of an adjusting device made use of in carrying out my invention.

In carrying out this invention I provide a tank 1 of any suitable construction, and for the said tank I provide a detachable lid 2, the same being provided with an aperture 3.

4 denotes a pipe made use of to convey the mixture of water, dirty oil, &c., from any source to the tank, and to the forward end of said pipe is connected a downwardly-pending pipe 5, the same projecting through an aperture in the lid 2 and extending downwardly a suitable distance within the tank 1. 6 indicates a vertical pipe within said tank 1 and projecting downwardly, whose lower opening is near the bottom of said tank 1. This vertical pipe 6 is connected at its upper end to a T-casting 7. Threaded into one projection of the casting 7 is a short horizontal water-outlet tube 8, the same projecting through an aperture in and near the upper extremity of said tank 1. To the outer end of the tube 8 is connected a T-casting 9, and threaded into the lower projection of said casting is a vertical pipe 10, the purpose of which is to carry off the water which is forced out of the lower part of the tank 1 through the said pipe 6 and through the said T-castings 7 9 and outlet-tube 8 by the pressure of the oil riding on top of the water.

Connected to the upper opening of the T-casting 7 is a pipe 11, the said pipe projecting a suitable distance above the lid 2. The purpose of said pipe is to afford means for cleaning out the pipe 6 and also to prevent siphonic action through the said passages 6, 7, 8, 9, and 10.

Projecting into the tank 1 on the side opposite from the water-outlet 8 and at a suitable distance above the level of the said outlet 8 is the oil-outlet tube 12, to the inner end of which is connected an adjusting device 13. Into the lower end of said adjusting device is threaded a nipple 14, the said nipple being smaller than the vertical inner portion of the T-casting. This adjusting device 13 and nipple 14 are used for the purpose of raising or lowering the maintained water-level in the said tank 1 by lowering or raising the top edge of said nipple 14, and thereby decreasing or increasing the difference in height between the water-outlet and the oil-outlet levels by forcing the oil to flow up through said nipple 14 over the top of the same and then out through the oil-outlet tube 12. In this manner I arbitrarily bring the water-level even with the outlet-faucet 20 in order to bring the layer of impurities that rides on top of the water in direct communication with the said outlet 20 for the purpose of withdrawing the said impurities through the said faucet 20.

The fittings and pipes 15 16 17 18 are for the purpose of conveying the oil to one or more oil-filters.

21 denotes a gage for indicating the level of the water in the tank 1.

When installing this separator, the tank is first filled with water about three-fourths full, after which the oil and water to be treated are conveyed into the tank through the pipe 4 5, or, if preferred, may be poured directly into said tank through the aperture 3. The water mixed with the oil being the heavier gravitates to the bottom, and the oil being lighter is upheld by the water, as shown in Fig. 1. Every speck of the heavier impurities being separately inclosed by a coat of the oil are thereby made lighter than the water, and these impurities form a layer of slush on top of the water, whence they are withdrawn through the faucet 20. After the oil has reached the oil-outlet all excess amount of

water will be forced out by the pressure of the oil through the passages 6 7 8 9 10, while all excess of oil will overflow over the top of the nipple 14 and pass out through the outlet 12 and its connections.

I claim—

1. An oil and water separator of the class described, comprising a tank, means for maintaining automatically the height of the water-level and the dividing-line between the oil and water in said tank, means for adjusting the maintained height of the water-level and the dividing-line between the oil and the water in said tank, substantially as specified.

2. An improved oil and water separator, comprising a tank open from the bottom up to the oil-level, means for maintaining, automatically, a specific oil-level in said tank, and means for automatically maintaining a specific water-level in said tank solely by the difference in specific gravity of the oil and water contained within and supplied to said tank, substantially as specified.

3. An oil and water separator, means for removing the impurities, riding on top of the water, from the said tank, means for removing automatically all excess of water from said tank, means for removing automatically all excess of oil from said tank, means for indicating the water-level within said tank, substantially as specified.

4. An improved oil and water separator, comprising a tank open from the bottom up to the top, an oil-overflow passage leading from said tank, a water-discharge passage having its entrance-opening at a point below the water-level and extending upwardly within said tank above the water-level and thence passing outwardly through said tank, and an air-vent communicating with said water-discharge passage, substantially as specified.

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

AUGUST H. FRANKE.

Witnesses:
E. E. LONGAN,
JOHN D. RIPPEY.