

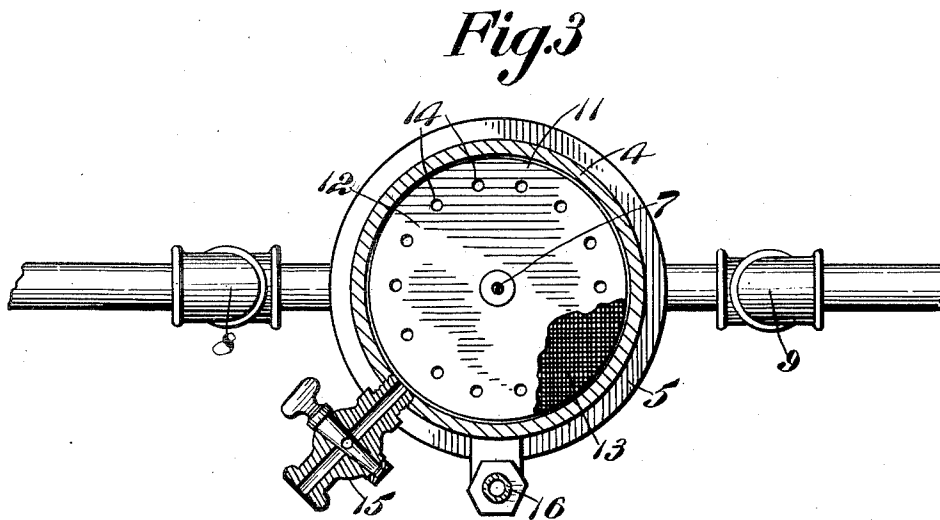
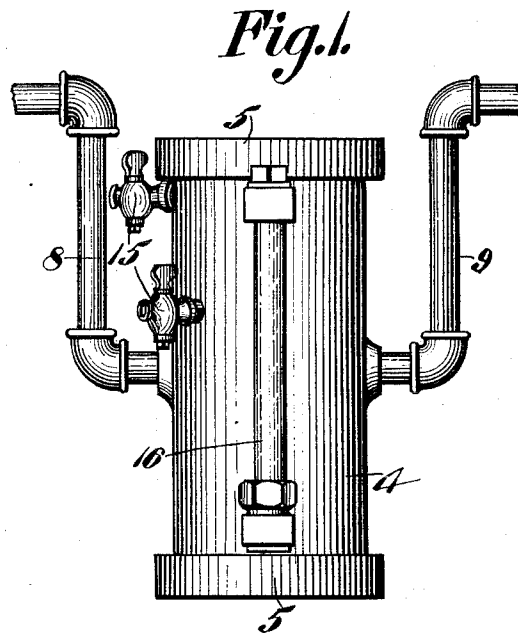
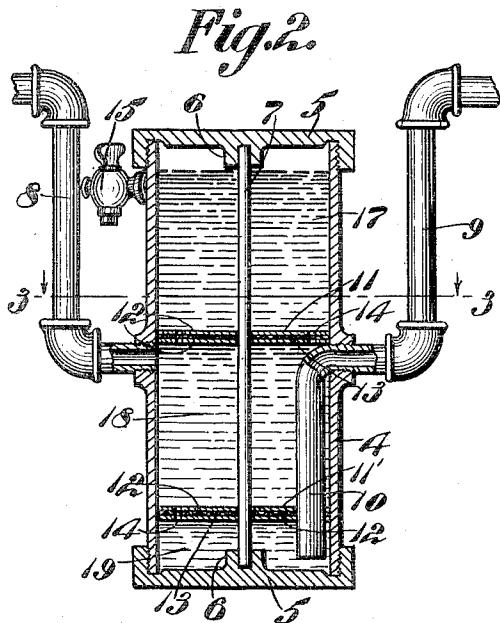
F. M. STRAUSS & L. PESHA.

OIL SEPARATOR.

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1,049,547.

Patented Jan. 7, 1913.



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UNITED STATES PATENT OFFICE.

FREDERICK M. STRAUSS AND LOUIS PESHA, OF MARINE CITY, MICHIGAN.

OIL-SEPARATOR.

1,049,547.

Specification of Letters Patent.

Patented Jan. 7, 1913.

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To all whom it may concern:

Be it known that we, FREDERICK M. STRAUSS and LOUIS PESHA, citizens of the United States, residing at Marine City, in the county of St. Clair, State of Michigan, have invented a new and useful Oil-Separator, of which the following is a specification.

This invention relates to oil separators, and has for its object to provide a simple and efficient device of this character adapted to be interposed in a water line for separating the oil from the water passing there-through.

With the foregoing and other objects in view which will be apparent as the invention is better understood, this invention resides in the novel construction and combination of parts hereinafter described and particularly pointed out in the appended claims, reference being had to the accompanying drawings wherein the invention is illustrated, and wherein,—

Figure 1 is an elevation of the oil separator. Fig. 2 is a vertical central section thereof. Fig. 3 is an enlarged sectional view taken on the line 3—3 of Fig. 2, parts being broken away.

Referring in detail to the drawings, wherein similar reference characters have been employed to designate corresponding parts, the numeral 4 designates a cylindrical casing, which has the ends thereof open, and which has caps 5 screw-threaded on the ends thereof. These caps 5 have the inner concentric bosses 6, which bosses are provided with sockets, and a rod 7 extends axially through the casing 4 and has the ends thereof engaged in the sockets of the caps or ends 5.

An inlet pipe 8 is attached to one side of the casing 4 intermediate its ends and communicates through the casing, and an outlet pipe 9 passes through the opposite side of the casing and has the inner end thereof depending in a close relation to the corresponding side of the casing and terminating short of the lower cap 5, as designated by the numeral 10.

A diaphragm 11 is arranged on the rod 7 within the casing directly above the inlet, or at a point slightly above the inlet, and a second diaphragm 11' is arranged on the rod 7 below the inlet and at a point slightly above the lower end of the outlet pipe 9, or at a point between the inlet and outlet

of the casing. Each of the diaphragms comprises a pair of disks 12, which are provided with an annular series of perforations or apertures 14, and a screen 13 interposed between the disk. The diaphragms are therefore foraminous or porous.

A pair of pet cocks 15 are attached to the casing 4 above the upper diaphragm 11 at different vertical points, and a gage 16 is provided for the casing, this gage having its ends communicating with the ends of the casing.

The upper diaphragm 11 forms an oil collecting or accumulating chamber 17 above same and a circulating chamber below same, this circulating chamber being partitioned off by the diaphragm 11' into the upper portion 18 and a lower portion 19. The inlet communicates with the upper portion 18 of the circulating chamber and the outlet communicates with the lower portion 19 of the circulating chamber, so that the water in passing through the separator from the inlet to the outlet is required to pass through the lower foraminous or porous diaphragm 11'.

In use, the separator is interposed in the water line, such as the water line for feeding a boiler, and the water passes into the casing 4 through the pipe 8, and is delivered therefrom through the discharge pipe 9. The water in entering the casing 4 below the diaphragm 11 will cause the oil and other lighter liquid to rise through the upper diaphragm 11 into the chamber 17, and as the diaphragm 11 separates the chamber 17 from the circulating chamber, the oil and other liquids contained in the chamber 17 will be prevented from circulating, thereby preventing the mixture of the oil with the outflowing water after the oil has ascended through the upper diaphragm. The water in passing through the lower diaphragm 11' will be strained so as to exclude foreign objects from the outflowing water, and the lower diaphragm also serves to divide the circulating chamber into the upper and lower portions communicating respectively with the inlet and outlet, so that the circulation of the water between the inlet and outlet is modified in order to insure the effective operation of the separator. The oil may be permitted to flow from the chamber 17 by opening the pet cock 15, the said pet cock being arranged at various vertical points permitting the oil

to be removed from the various vertical points.

This separator may be employed for various purposes, such as removing oil from 5 water supplied to the boilers of steam vessels, mills and the like, or where feed water is taken from the discharge of a condenser. This device serves to effectively separate the oil from the water flowing through the device, and permits the oil to be completely 10 separated from the water circulating from the inlet to the outlet, so that the accumulated or collected oil will not be disturbed by the circulation of the water and may remain 15 in quietude. The various pet cocks also permit the oil of various densities to be removed, the oils of various densities forming into stratas within the chamber 17, as will be readily understood. The oil caught within the chamber 17 may be utilized for various 20 purposes if desired, or may be discarded as waste.

This device may be readily taken apart for repair or cleansing by removing the caps 25 5 from the ends of the casing 4, in which event, the rod 7 and the diaphragms may be removed.

This separator consists of but comparatively few parts, and may be constructed at 30 a small cost, and in its use is both convenient and efficient.

It is understood that the number of diaphragms may be multiplied as is deemed necessary or essential, and this device is 35 otherwise susceptible of alterations or deviations in its details, such as changes in size, proportions, materials and the like, within the scope of the appended claims without departing from the spirit of the invention.

40 Having described the invention, what is claimed as new is:—

1. An oil separator adapted to be interposed in a water line and embodying a casing having an inlet at an intermediate point 45 and a lower outlet, the inlet and outlet being designed for the attachment of the sections of the piping of a water line so that the water flows through the casing, and a foraminous diaphragm fitting in the casing 50 above the inlet and forming an oil collecting

chamber above the same in order that any oil mixed with the water flowing through the casing will rise through the diaphragm and into the oil collecting chamber, the oil being collected in the said chamber and being removable therefrom.

2. An oil separator adapted to be interposed in water lines embodying a casing having a lower inlet at an intermediate point and an outlet, a foraminous diaphragm 60 fitting in the casing above the inlet and forming an oil collecting chamber and circulating chamber above and below same, respectively, and a foraminous diaphragm fitting in the casing between the inlet and 65 outlet.

3. An oil separator adapted to be interposed in water lines, embodying a cylindrical casing having an inlet in one side at an intermediate point, an outlet pipe passing 70 through the other side of the casing and depending to the lower end along the same side, foraminous diaphragms fitting in the casing at points directly above the inlet and slightly above the lower end of the said pipe, 75 and the casing being provided with an oil outlet above the upper diaphragm.

4. An oil separator embodying a cylindrical casing having an inlet in one side, caps engaged on the ends of the casing and having 80 inner sockets, an outlet pipe passing through another side of the casing and depending to the lower end along the same side, a rod having its ends fitting in the sockets, diaphragms on the rod at points 85 slightly above the inlet and slightly above the lower end of the said pipe, each diaphragm comprising a pair of perforated disks and an interposed screen, and a plurality of pet cocks attached to the casing above 90 the upper diaphragm at differential vertical points.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

FREDERICK M. STRAUSS.
LOUIS PESHA.

Witnesses:

J. L. CARMAN,
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