

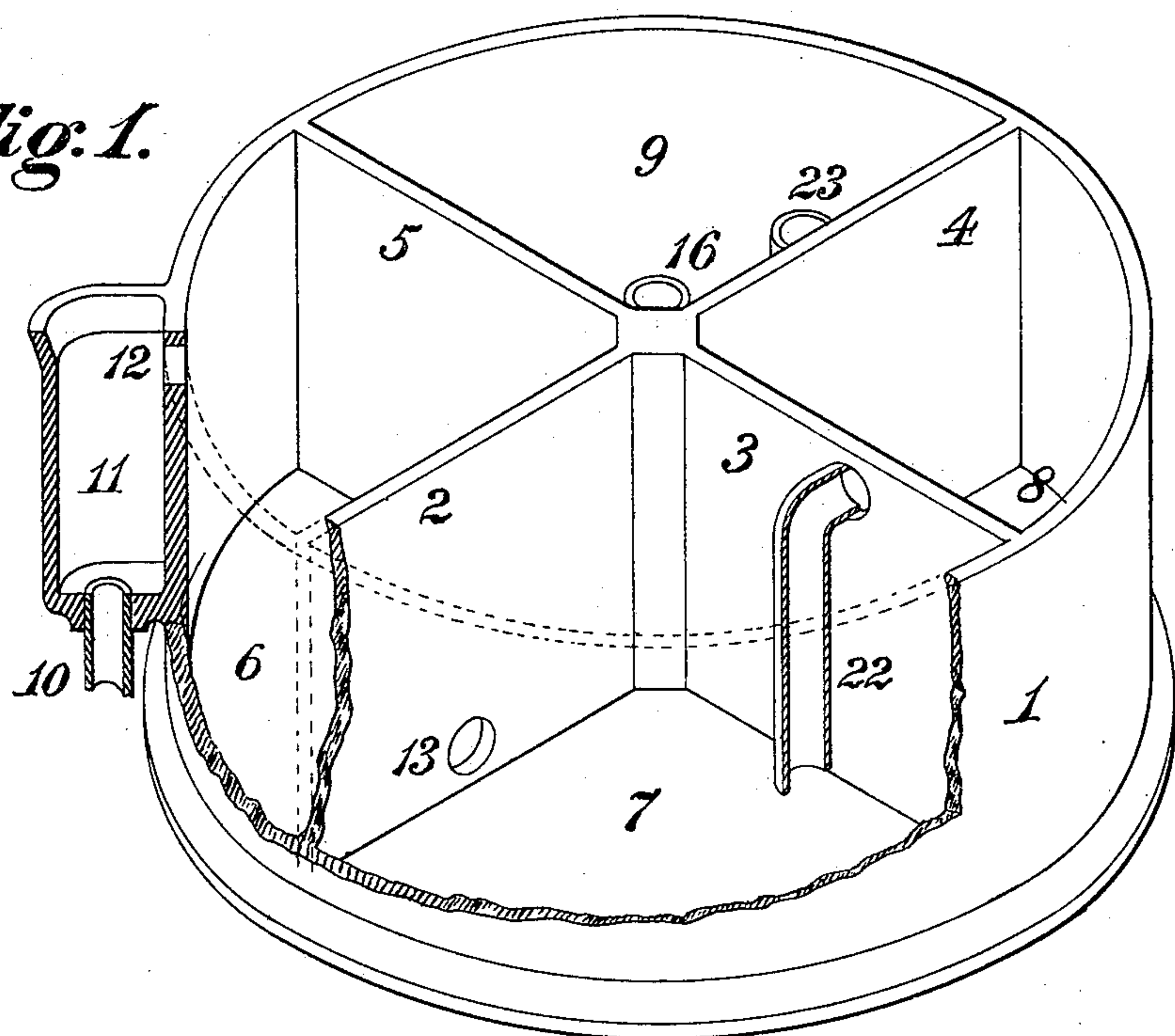
(No Model.)

H. H. WESTINGHOUSE & H. H. GARRETT.  
SEPARATOR FOR MINGLED OIL AND WATER.

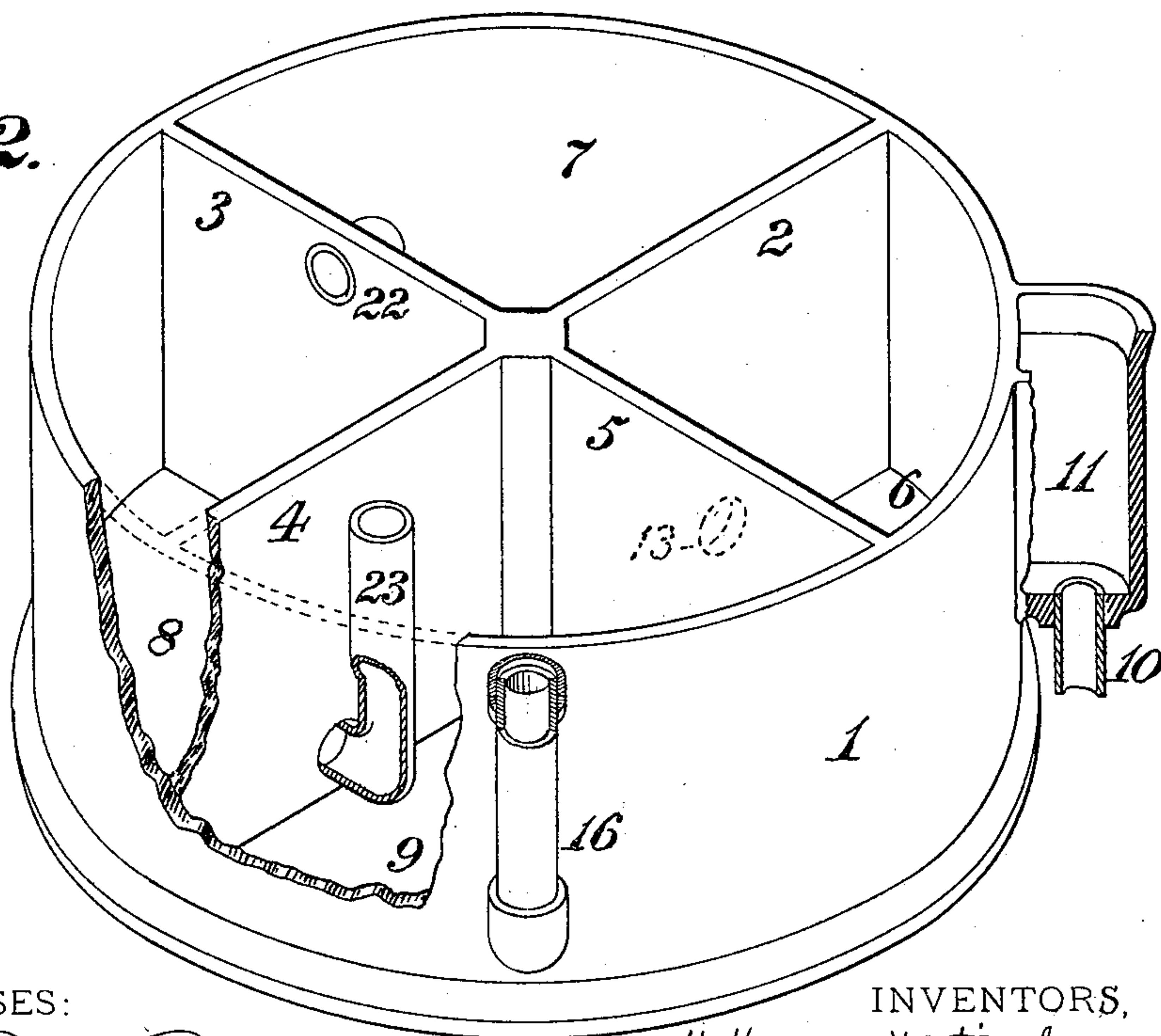
No. 329,791.

Patented Nov. 3, 1885.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*J. Snowden Bell.*  
*R. A. Whittlesey*

INVENTORS,

*H. Herman Westinghouse,*  
*Henry H. Garrett.*

BY *George H. Christy*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

H. HERMAN WESTINGHOUSE, OF NEW YORK, N. Y., AND HENRY H. GARRETT, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO THE WESTINGHOUSE MACHINE COMPANY, OF PITTSBURG, PENNSYLVANIA.

## SEPARATOR FOR MINGLED OIL AND WATER.

SPECIFICATION forming part of Letters Patent No. 329,791, dated November 3, 1885.

Application filed September 24, 1885. Serial No. 177,978. (No model.)

*To all whom it may concern:*

Be it known that we, H. HERMAN WESTINGHOUSE, residing at New York, in the county and State of New York, and HENRY H. GARRETT, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, both citizens of the United States, have jointly invented or discovered a certain new and useful Improvement in Separators for Mingled Oil and Water, of which improvement the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view in perspective, partly in section and partially broken away, of a separator embodying our invention; and Fig. 2, a similar view of the same as seen from the opposite side.

Our invention relates to means for separating mingled oil and water, and is an improvement upon that for which Letters Patent of the United States No. 322,817 were granted and issued to the Westinghouse Machine Company, as assignee of Henry H. Garrett, under date of July 21, 1885.

The object of our present invention is to perfect the operation of a separator of such character by enabling a continuous lower circulation of water to be maintained therein, so that each of the several compartments may be made effective for collecting and removing the separated oil.

To this end our invention, generally stated, consists in the combination of a case or chest divided into a series of compartments, an overflow or supply pipe leading into one compartment, a water-delivery pipe leading out of another compartment, and circulating pipes establishing communication from the bottom of one compartment to the top of an adjacent compartment.

The improvements claimed are hereinafter fully set forth.

In the practice of our invention we provide a case or chest, 1, which is preferably of cylindrical form, and is divided by vertical partitions, as 2 3 4 5, extending from the bottom to or near the top of the case into a series of separate compartments, 6 7 8 9. The overflow-pipe 10, leading from the crank-case of an

engine or other source of supply of the mingled oil and water, opens into a receiving-box, 11, located on the side of the case 1, and communicating through an opening, 12, near its top with the primary or receiving compartment 6 of the case. The compartment 6 communicates through an opening, 13, in the partition 2, near the bottom of the latter, with the second compartment, 7, which in turn communicates with the third compartment, 8, through a circulating-pipe, 22, leading from a point near the bottom of the compartment 7 through the partition 3 to a point near the top of the compartment 8. Communication between the compartments 8 and 9 is established by a circulating-pipe, 23, leading from a point near the bottom of the compartment 8 through the partition 4 to a point near the top of the discharge-compartment 9. A waste or discharge pipe, 16, is connected to the discharge-compartment 9 near its bottom, and rises to or near the top of said compartment, said pipe serving to carry off the separated water to any suitable point of discharge.

The several compartments may be provided with vertical glass gage-tubes on their outer sides, or glass plates may be fitted over vertical openings in the compartments, in order to indicate the depth of the body of oil therein and enable the attendant to remove it from time to time without taking water with it. Oil-delivery cocks may also be fitted on the compartments where the oil which is received is sufficiently thin to pass readily through them; but where comparatively thick oil is dealt with, as is frequently the case, it can be more conveniently scooped or ladled out, and delivery-cocks can be dispensed with.

In operation the mingled oil and water enters the receiving-box 11, and thence passes through the opening 12 into the first compartment, 6, which it fills nearly to the top, the surplus passing from the bottom of the compartment 6 into the compartment 7 through the lower opening, 13. The liquid fills the compartment 7, and passes from the bottom thereof, through the circulating-pipe 22, into the compartment 8 near its top, and, also filling the compartment 8, passes from the bottom



thereof through the circulating-pipe 23 into the discharge-compartment 9 near its top, and after filling said compartment the overflow of water escapes near the bottom through the discharge-pipe 16.

In the passage of the mixture through the several compartments the oil is separated by gravity from the quiescent portions standing therein and rises to the top of the water, gradually increasing in depth and being removed at proper intervals by the attendant as required. The clear water escapes from the discharge-pipe 16 after the separation of the oil proportionately to the supply, and, if desired, a cock may be located near the bottom of the discharge-chamber to enable the water to be entirely drawn off. It will be seen that a continuous lower circulation of water is maintained throughout the separator, and each compartment thereof consequently acts as a separating and oil-collecting chamber, correspondingly increasing the capacity of the apparatus relatively to a given compass.

We claim herein as our invention—

1. The combination of a case or chest, partitions forming two or more oil-collecting compartments therein, a supply-pipe leading into one of said compartments, a discharge-pipe leading out of another compartment, and

a circulating-pipe leading from the lower portion of one compartment to the upper portion of the adjacent compartment, substantially as set forth.

2. The combination of a case or chest, partitions forming a series of oil-collecting compartments therein, a supply-pipe leading into the upper portion of the primary compartment thereof, a lower port or opening establishing communication between the primary compartment and the second compartment, a series of circulating-pipes each establishing communication through a partition between the lower portion of one compartment and the upper portion of the next succeeding compartment, and a discharge-pipe connected to the final or discharge compartment near its bottom and extending upwardly toward the top of said compartment, substantially as set forth.

In testimony whereof we have hereunto set our hands.

H. HERMAN WESTINGHOUSE.

HENRY H. GARRETT.

Witnesses as to H. H. Westinghouse:

C. M. CLARKE,

M. S. MURPHY.

Witnesses as to Henry H. Garrett:

J. SNOWDEN BELL,

W. B. CORWIN.