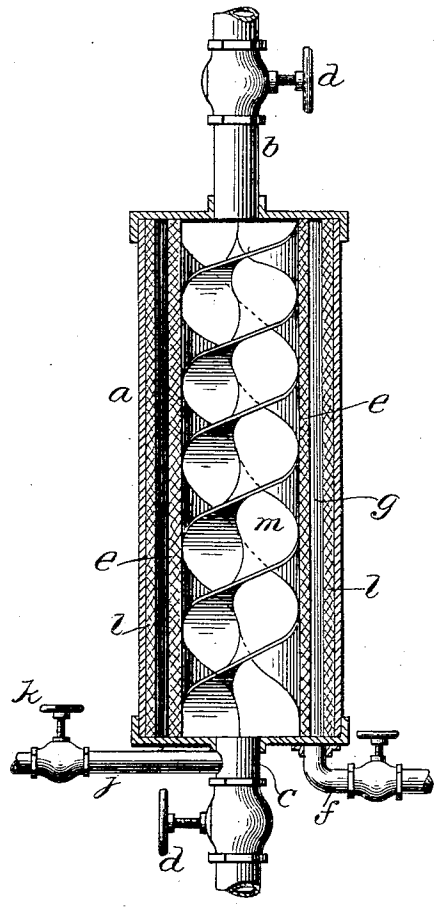
No. 735,192. PATENTED AUG. 4, 1903.

R. ALLERT.

GREASE SEPARATOR.

APPLICATION FILED MAR. 10, 1903.

NO MODEL.



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No. 735,192. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

RUDOLF ALLERT, OF PHILADELPHIA, PENNSYLVANIA.

GREASE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 735,192, dated August 4, 1903.

Application filed March 10, 1903. Serial No. 147,189. (No model.)

To all whom it may concern:

Be it known that I, RUDOLF ALLERT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Grease-Separators, of which the following is a specification.

My invention relates to separators for removing oil or grease from fluids, such as exhaust-steam, in which they are carried in suspension, and has for its object to provide improved means whereby to accomplish this purpose by bringing the grease-laden fluid into contact with porous material and then draining the porous material of the absorbed oleaginous substances, whereby fresh surfaces are constantly presented to the action of the passing fluid.

With this object in view the invention consists in an apparatus of this character, the improved construction, arrangement, and combination of the parts of which will be hereinafter fully described and afterward specifically claimed.

The single figure in the drawing represents a separator embodying my invention in central longitudinal section.

Referring to the drawing by letters, *a* is a chamber, in this instance in the form of an upright cylinder, made of any suitable size and material and provided with a suitable steam-inlet pipe *b* and outlet-pipe *c*, each pipe being controlled by valves, as at *d*.

At *e* is shown a baffle-plate in the form of an upright cylinder, and the drainage-chamber *g* is an annular chamber surrounding the same and drained from a suitable point at the bottom. The steam is guided along the inside of the cylindrical baffle-plate *e* by spiral guides, as at *m*, the rotary motion imparted to the grease-laden fluid by said guides tending to throw out the minute particles of oil or grease and bring them into contact with the cylindrical baffle-plate.

The outlet-pipe *c* is provided with a side-track pipe *j*, having valve *k*. The walls of the chamber may also when deemed desirable be provided with a non-conducting lining *l*, for instance, of asbestos.

The operation of my device is as follows: The grease-laden steam is let into the chamber *a* through the pipe *b*, its valve being open for that purpose. The outlet-pipe *c* is closed, and the valve *k* of the side-track pipe *j* is opened. This draws a current of steam through the apparatus for the purpose of heating the cylinder of porous material to prevent the subsequent condensation of moisture thereon. After this operation has continued until the cylinder of porous material is sufficiently heated the valve *k* is closed and the valve of the outlet-pipe and the valve *h* of the drainage-pipe are opened.

The drainage-pipe, it will be observed, communicates with the outer air. The pressure on the outer side of the porous material will be lower on this account than that on the inner side, against which the steam impinges. This difference in pressure insures the constant passage of the absorbed oil through the cylindrical baffle-plate. If, however, this difference in pressure should not be sufficient, the pipe *f* may be connected with a vacuum-pump or similar means for lessening the pressure within the drainage-chambers.

The grease or oil on the cylindrical baffle-plate of porous material is absorbed thereby, is forced through the plate by the difference of pressure, collects within the drainage-chamber, and is subsequently removed through the pipe *f*.

In its passage through the porous material the oil is filtered and purified and can again be used for many purposes, the operation of the separator thus accomplishing the manifold result of clearing the exhaust-steam of oily substances and purifying and saving such oily substances, which might otherwise be wasted.

I do not care to limit myself specifically to the use of a porous material like earthenware. Any material having similar properties—as, for instance, charcoal, coke, asbestos, felt, &c.—may be employed, with results depending upon the efficiency of the particular absorbing medium used. This device is very efficient and takes out practically all of the oil from exhaust-steam and may be used for the removal of oily material from ammonia or other fluid with equal success.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a grease-separator for exhaust-steam and the like, a steam-chamber formed as an upright cylinder, in combination with a cylinder of porous material mounted in the upright cylinder forming an inner steam-chamber and an outer grease-chamber, an inlet and outlet steam-pipe communicating with the inner steam-chamber, and a grease-drainage pipe communicating with the grease-chamber, substantially as described.

2. In a grease-separator for exhaust-steam and the like, a steam-chamber formed as an upright cylinder, in combination with a cylinder of porous material mounted in the upright cylinder forming an inner steam-chamber and outer grease-chamber, an inlet and an outlet steam-pipe communicating with the inner steam-chamber, and a spirally-twisted guide-piece in the inner steam-chamber, substantially as described.

Witness my hand this 5th day of March, 1903, at Philadelphia, State of Pennsylvania.

RUDOLF ALLERT.

In presence of—
JOSIE ALLERT,
JOHN H. ROYER.