

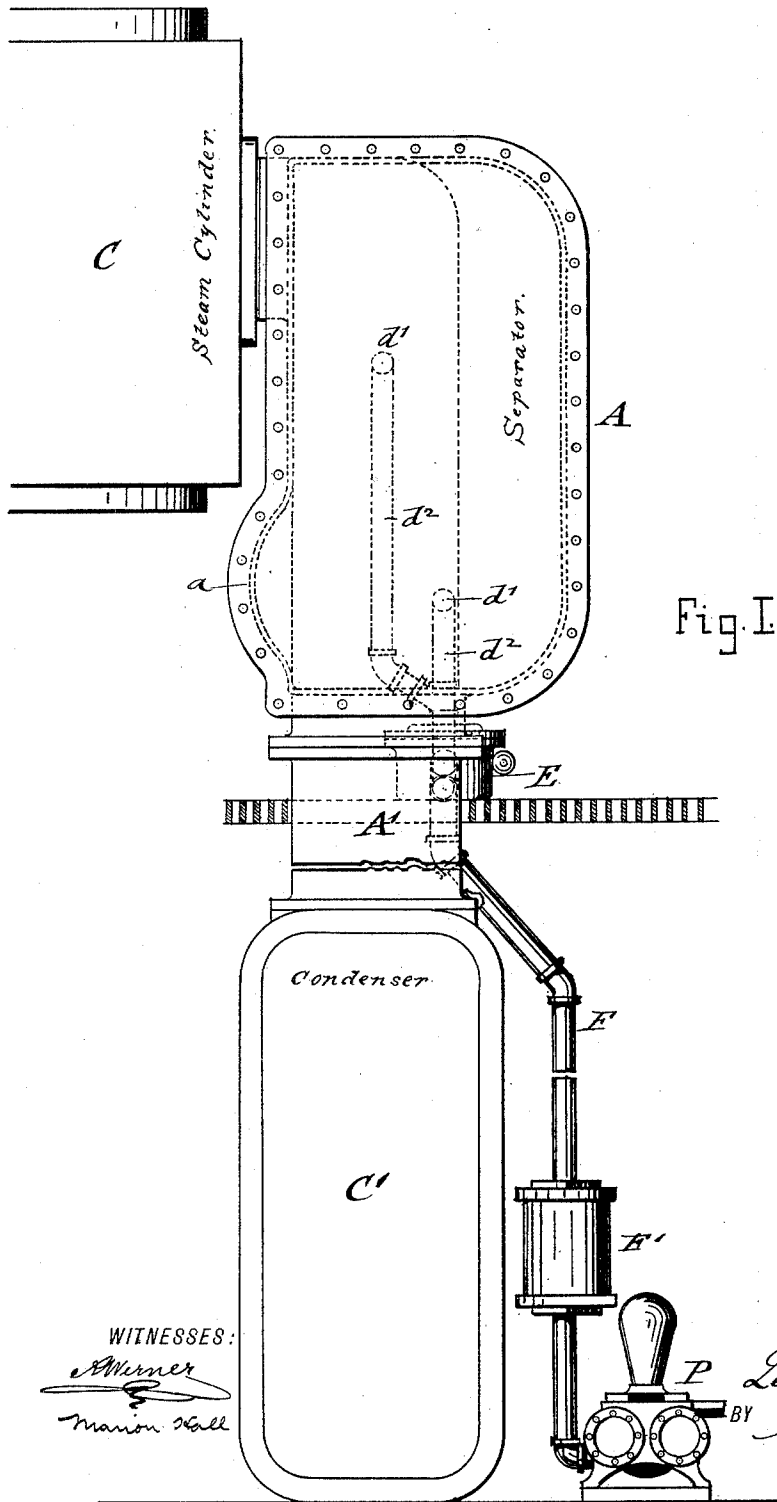
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4 Sheets—Sheet 1.

L. HUSSEY & E. McCANN.
GREASE EXTRACTOR.

No. 468,345.

Patented Feb. 9, 1892.



WITNESSES:

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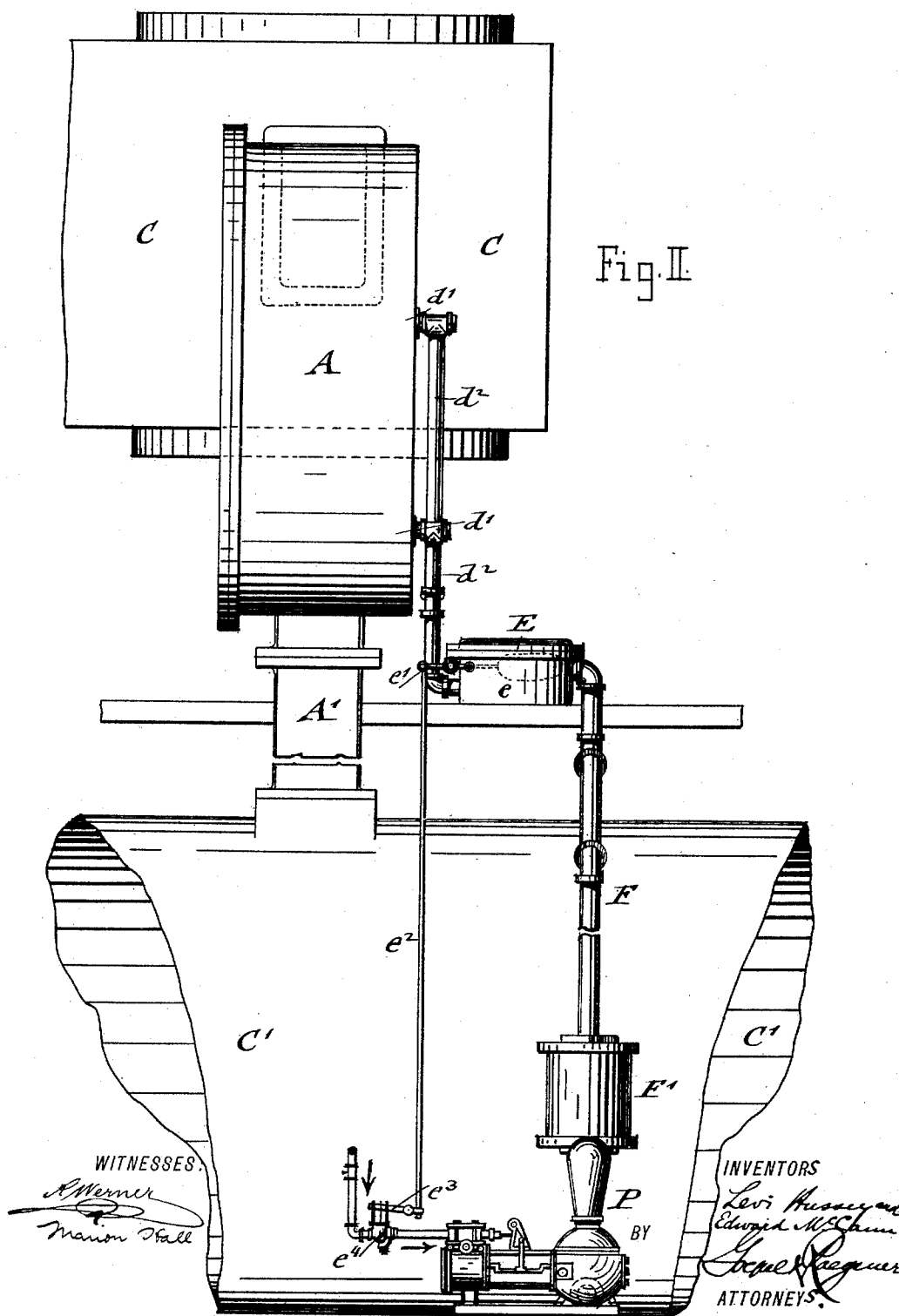
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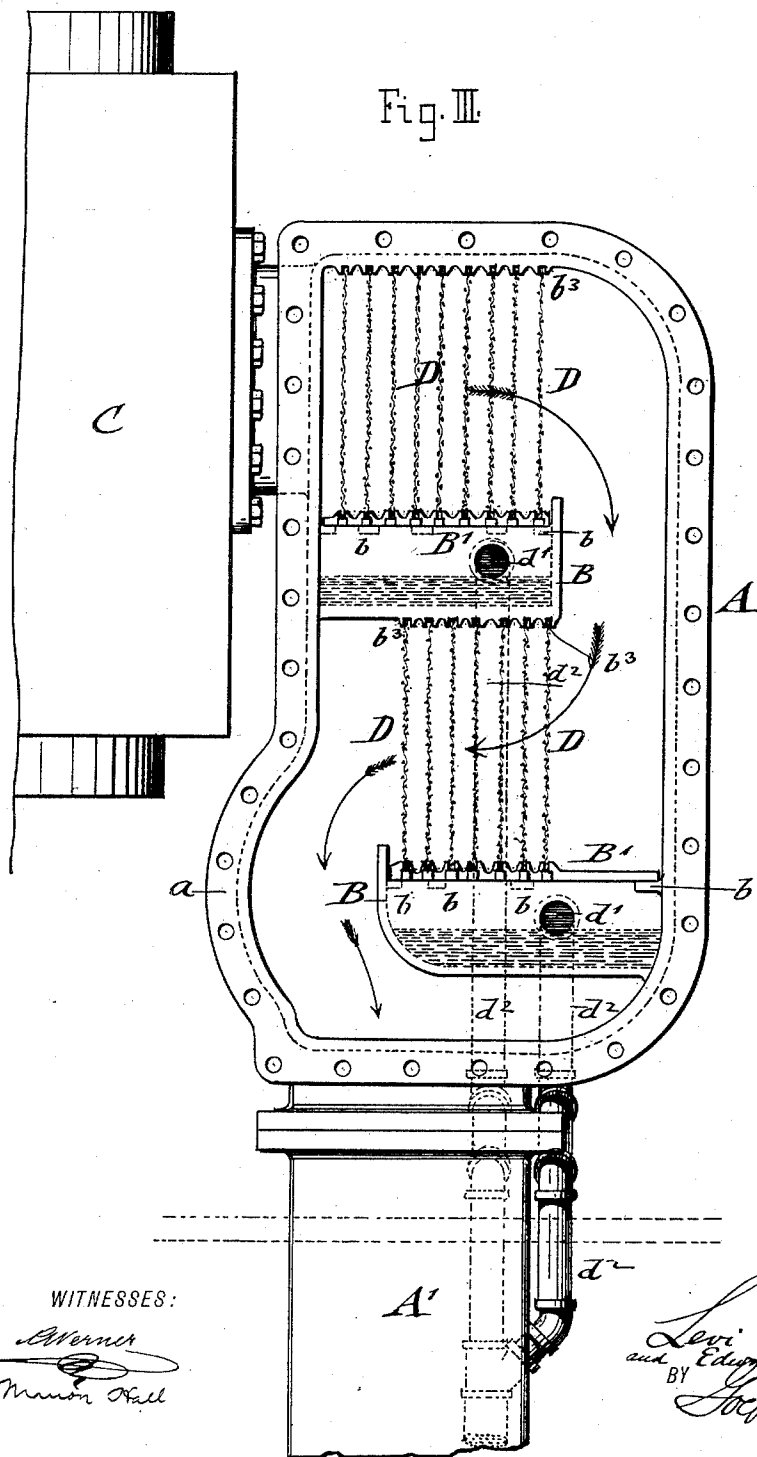
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No. 468,345.

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Fig. IV.

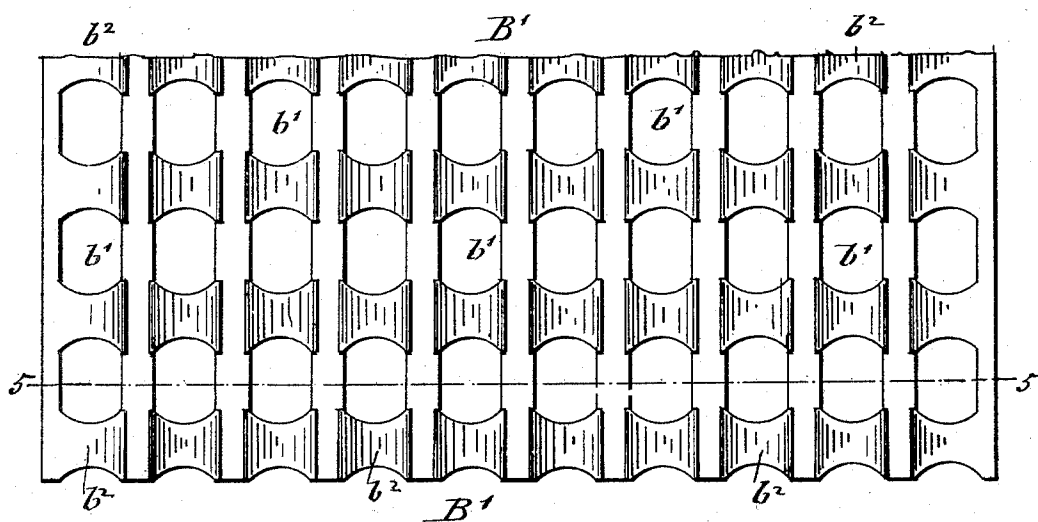
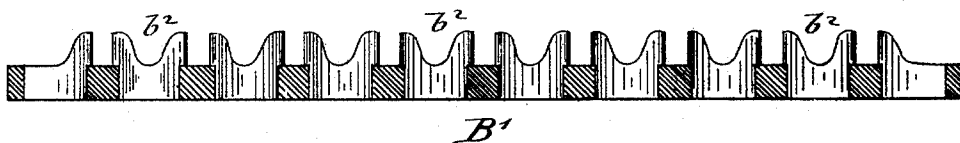


Fig. V.



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UNITED STATES PATENT OFFICE.

LEVI HUSSEY AND EDWARD McCANN, OF NEW YORK, N. Y.

GREASE-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 468,345, dated February 9, 1892.

Application filed May 1, 1891. Serial No. 391,310. (No model.)

To all whom it may concern:

Be it known that we, LEVI HUSSEY and EDWARD McCANN, citizens of the United States, both of the city, county, and State of New York, have invented certain new and useful Improvements in Grease-Extractors, of which the following is a specification.

This invention relates to an improved grease-extractor for the exhaust-steam of condensing-engines, which extractor is so arranged that the lubricating material carried along by the steam is separated therefrom and collected in suitable receivers and tanks, from which it is automatically removed by a suitable pump; and the invention consists of a grease-extractor for exhaust-steam which comprises a casing having two or more horizontal receivers for the condensed steam and the oil separated from the steam, each receiver being provided with a detachable grooved screen-plate which supports a number of transverse screens, in connection with grooves at the top of the casing and at the under side of the upper receiver. The water of condensation and the oil collected in the receivers are conducted by suitable pipes to a tank outside of the extractor, which tank is connected with a pump and provided with a float that operates by a connecting-lever mechanism a valve for admitting live steam to the steam-cylinder of the pump for pumping off from time to time the oil and water of condensation collected in the tank.

In the accompanying drawings, Figure 1 represents a side elevation of our improved grease-extractor, showing the same in position between the steam-cylinder and the condenser. Fig. 2 is a front elevation of the same. Fig. 3 is also a side elevation of the extractor, drawn on a larger scale and with the side plate removed, so as to show the interior construction; and Figs. 4 and 5 are respectively a detail top view and a vertical longitudinal section on line 5 5, Fig. 4, of one of the screen-plates by which the baffle-screens are supported in the casing of the extractor.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the casing of our improved grease-extractor for the exhaust-steam of condensing steam-engines. The casing of the grease-extractor is

connected at its upper end to the exhaust-pipe of the steam-cylinder C and at its lower part by a pipe A' to the condenser C', as shown clearly in Figs. 1 and 2. The casing A of the grease-extractor is rounded off at its outer corners and provided with an outwardly-bulged portion at the lower part adjacent to the steam-cylinder for the free passage of the steam.

In the casing A are arranged two or more receivers B B, which extend alternately from opposite sides of the casing A, the receivers being either cast integrally with the casing or attached in any suitable manner to the same. The receivers B are provided with grooved detachable screen-plates B', which are supported horizontally on lugs b of the casing A. The screen-plates B' are provided with openings b' between the grooved portions b², as shown in Figs. 4 and 5, for permitting the free passage of the oil and water of condensation, which are arrested by a number of wire baffle-screens D, that are supported on the screen-plates B' above each receiver, and by transverse grooves b³, arranged, respectively, at the top of the casing and at the under side of the upper receiver B'. The screens D are made of rolled or pressed wire and serve to spread and baffle the steam as it passes through the different groups of screens. The screens of the first or upper group may be retained, in addition to the support given by the grooved screen-plates B' and grooves b³ of the casing and upper receiver B, by vertical grooves in the side walls of the casing A. The screens of the second group, which are located vertically below the first group, are supported at their lower parts by the screen-plate of the next receiver B and at their upper parts by transverse grooves at the under side of the first receiver B, as shown clearly in Fig. 3. In place of arranging the groups in the side walls and at the under side of the receiver the grooves can also be arranged on plates which are bolted onto the side walls and bottom of the receivers.

Each receiver B is provided with an outlet d', which is arranged in the side wall of the casing and in such a position as to drain the oil from the surface of the water in each receiver. The outlets d' d' of the different receivers B are connected by pipes d² to a closed

tank E below the extractor. The tank E is provided with a balanced float e , which is raised or lowered according to the level of the water of condensation and oil collected in the same. The spindle of the float e is provided at its outer end with a lever-arm e' , which is connected by a pivot-rod e^2 with the lever e^3 of a valve e^4 in the steam-supply pipe of a pump P, as shown clearly in Figs. 1 and 2. The suction part of the pump P is connected by a suction-pipe F with the upper part of the tank E, a cylindrical collecting-chamber being interposed in the suction-pipe, which is filled before the float is actuated.

15 The operation of our improved grease-extractor is as follows: The wire baffle-screens D spread the exhaust-steam as it passes horizontally through the first group of screens. The steam is then passed around the upper end of the casing A in downward direction and then conducted through the second group of screens, which is located below the first group, through which second group the steam is also passed in a horizontal direction, and so on through the different groups of screens to the condenser. The water of condensation and the oil collected on the surface of the baffle-screens D drip from the latter into the receivers below the same and flow from the receivers through the connecting-pipes d^2 to the tank E, located below the extractor. From the tank E the oil and water of condensation are conducted by the pipe F to the collecting-chamber F' and the suction end of the pump, so that when the chamber F', pipe F, and tank E are filled the raising of the float takes place, so that live steam is admitted to the cylinder of the pump and the latter started, so as to pump off the oil and water collected in the chamber F', pipe F, and the upper part of the tank E. The float is thereby lowered again, so that the steam-supply valve is closed and the pump consequently stopped until a sufficient quantity of oil and water of condensation are collected, so as to raise the float again and produce the starting of the pump. The arrangement of the screens at different levels, one above the other, takes up but little space and permits the extractor to be located between the cylinder and condenser without taking up any unnecessary floor-space, it requiring but little more space than a steam-tube, which usually connects the cylinder with the condenser, and which is indicated in dotted lines in Fig. 1. The oil and water of condensation are pumped into a suitable storage-tank, where the oil is separated for further use.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A grease-extractor for exhaust-steam, consisting of a casing having receivers arranged alternately at opposite sides of the same and groups of transverse baffle-screens supported vertically below each other on said receivers, substantially as set forth.

2. A grease-extractor for exhaust-steam, consisting of a casing having receivers arranged alternately at opposite sides of the same, transverse baffle-screens arranged vertically below each other on said receivers, and means for supporting said baffle-screens in position, substantially as set forth.

3. A grease-extractor for exhaust-steam, consisting of a casing having receivers arranged alternately at opposite sides of the same, grooved screen-plates supported in said receivers, and groups of transverse baffle-screens supported by said screen-plates and by grooves of a casing and of the bottom of the receivers, respectively, substantially as set forth.

4. A grease-extractor for exhaust-steam, consisting of a casing having receivers arranged alternately at opposite sides of the same and groups of baffle-screens arranged vertically below each other and being supported, respectively, between the top of the casing and the upper receiver and between the upper and lower receivers, substantially as set forth.

5. A grease-extractor for exhaust-steam, consisting of a casing having an outward bulge at its lower part, receivers arranged alternately at opposite sides of the casing, grooved screen-plates supported on lugs of the casing in said receivers, and groups of transverse baffle-screens supported, respectively, between the top of the casing and the upper baffle-screen of the receiver and the bottom of the upper receiver and the baffle-screen of the lower receivers, substantially as set forth.

6. The combination of a grease-extractor composed of receivers extending alternately from opposite sides of said casing, groups of baffle-screens supported above said receivers, a collecting-tank for the oil and water of condensation, and pipes connecting the receivers with said tank, substantially as set forth.

7. The combination of a grease-extractor composed of receivers arranged at opposite sides in said extractor and groups of baffle-screens supported vertically below each other above said receivers, a collecting-tank for the oil and water of condensation, discharge-pipes connecting the receivers with said tank, a float in the collecting-tank, a steam-pump, a lever mechanism connecting the float with the steam-supply valve of the pump, a suction-pipe connecting the suction end of the pump with the tank, and a collecting-chamber in said suction-pipe, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

LEVI HUSSEY.
EDWARD MCCANN.

Witnesses:
PAUL GOEPEL,
CHARLES SCHROEDER.