

(No Model.)

C. F. HOOD.

PROCESS OF AND APPARATUS FOR CLEANING WASTE.

No. 567,316.

Patented Sept. 8, 1896.

FIG. 1.

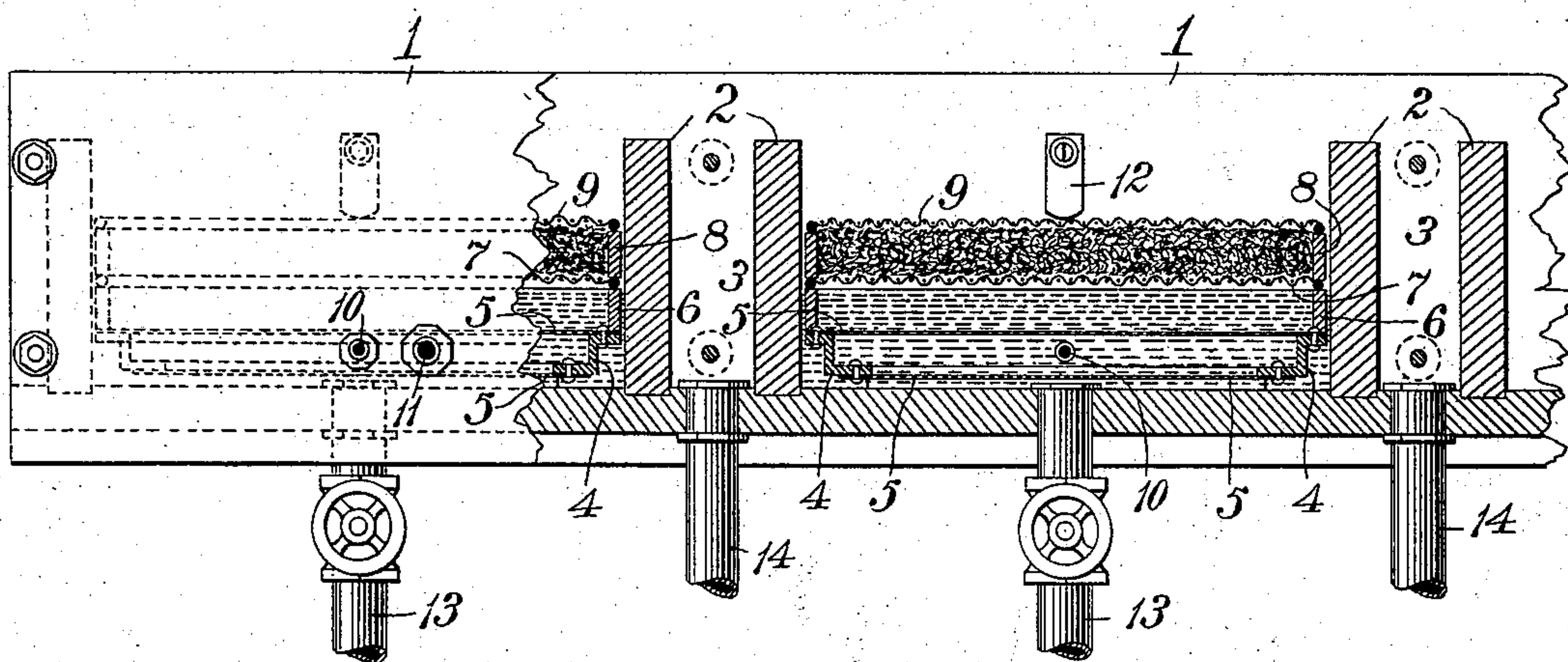
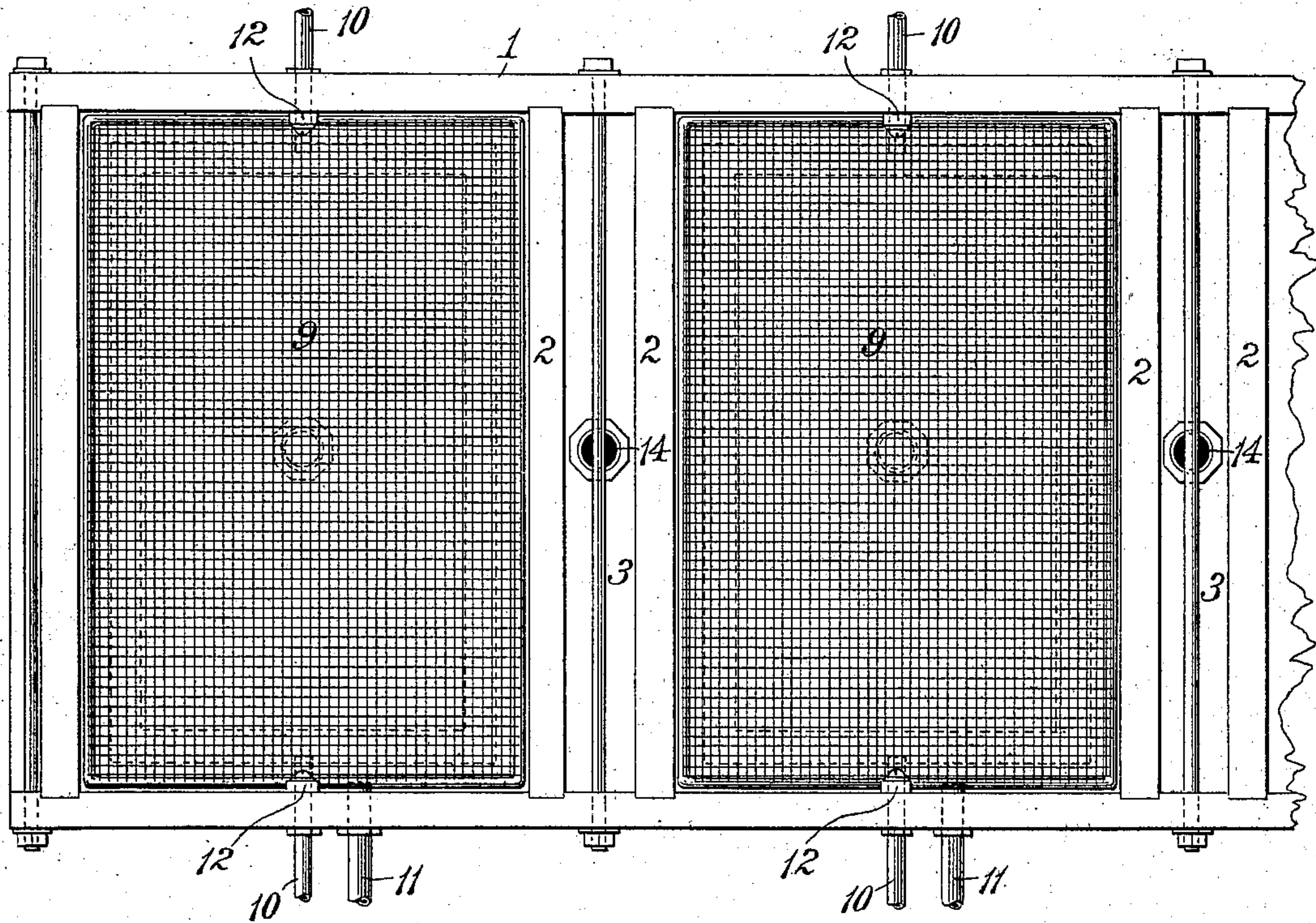


FIG. 2.



WITNESSES:

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INVENTOR,

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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES F. HOOD, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO MARIA L. HOOD, OF SAME PLACE.

PROCESS OF AND APPARATUS FOR CLEANING WASTE.

SPECIFICATION forming part of Letters Patent No. 567,316, dated September 8, 1896.

Application filed May 21, 1896. Serial No. 592,389. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. HOOD, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Processes of and Apparatus for Cleaning Waste, &c., of which improvement the following is a specification.

The invention described herein relates to certain improvements in removing oil or grease and dirt from waste or other solid material and in saving the oil which is removed from the waste. It has heretofore been customary to employ benzin for this purpose, the waste being soaked in the benzin and then washed. This process, while effective to clean the waste, is expensive on account of the apparatus and labor employed not only in cleaning the waste, but also in saving the oil and benzin.

The object of the present invention is to provide for the easy and quick and efficient removal of the oil from the waste and the subsequent separation of the oil without any material loss of either the waste or oil.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view, partly in elevation and partly in section, of my improved apparatus; and Fig. 2 is a top plan view of the same.

In the practice of my invention it is preferred to employ a long tank 1, which is divided into two or more receptacles, which, for convenience, will be termed "vats," by double transverse walls or partitions 2, which are of less height than the main walls of the tank and are arranged a short distance apart to form receptacles 3 for overflow from the vats. In the bottom of each vat is placed a distributor or jet device consisting of a frame 4, preferably formed of metal, and of diaphragms 5, formed of perforated metal and secured to the edges of the frame 4. On top of the distributor is placed a frame 6, formed of wood or other suitable material and having its upper end covered with wire-netting 7. On top of the frame 6 is placed a second similar frame 8, and on this is placed a second diaphragm

9, of wire-netting. These diaphragms 7 and 9 are preferably strengthened by a stiff wire at their edges.

Pipes 10, connected to a suitable steam-generator, are passed through the walls of the tank and are connected to the distributor, and pipes 11, for introducing hot water in the vats, are passed through the walls of the tank, but are not necessarily connected to the distributor.

The waste to be cleaned is placed loosely upon the diaphragm or wire-netting 7, within the frame 8, and then the diaphragm 9 is placed on the frame 8 and secured in position by turn-buttons 12 or other suitable lock. Hot water is then admitted until the vat is filled to or a little below the diaphragm 7. Steam under considerable pressure is next permitted to flow into the distributor, and passes through the diaphragms 5 and 7, and the waste finally escaping through the diaphragm 9 the steam expands in the distributor, and by reason of the perforations in the upper diaphragm 5 the steam is separated into a large number of small jets, in which form it passes up through the waste. In passing through the water in and above the distributor the steam becomes thoroughly saturated, and by reason of the velocity of the steam jets a considerable quantity of water is carried up thereby in the form of small jets in addition to that contained in the saturated steam.

The action of the hot steam and water permeating the whole mass of waste loosens the oil, &c., and the mechanical action of the quick-moving jets of steam and water removes the oil, &c., from the waste and forces them above the diaphragm, where they are held by the action of the jets. It is characteristic of my improved method of cleaning that the waste is held while being cleaned entirely above the water contained in the vat, as, if surrounded or partially immersed in water, the latter would deaden the velocity of the jets and thereby lessen the effective mechanical action of the jets on the waste. After the oil, &c., have been removed from the waste and forced above the diaphragm water is admitted, so as to fill the vats and flow over the partitions 2 into the receptacles 3. During this admission

of the hot water for the purpose of removing the oil, &c., the flow of steam is continued at least until the water has risen sufficiently high to lift the oil and scum from the diaphragm 9, so as to prevent the oil and scum from settling back upon the waste. It is preferred to continue the flow of steam until all the oily scum floated up by the water has passed into the receptacles 3, as the steam will agitate the water, thereby imparting a rinsing action. After the scum has been removed in the manner stated the valves in the steam and water supply pipes are closed and the valve in the escape-pipe 13 opened to allow the water in the vat to flow out, so as to permit of the removal of the cleaned waste and the placing of another quantity to be cleaned in position, as stated. The receptacles 3 are provided with suitable escape-pipes 14 for conducting the mixed water and oil to a suitable tank where they can be separated.

It is characteristic of my improvement that, while the waste is thoroughly cleansed, there is not any loss or tangling of the fiber of the waste, as it is so held that as a body it will not be beaten about by the steam-jets, and also all the oil contained in the waste is saved and can be utilized in the arts.

I claim herein as my invention—

30 1. As an improvement in the art of cleaning waste, the method herein described, which consists in confining the waste in a receptacle

having perforated walls above a water and steam supply, and then simultaneously forcing jets of steam and water through the confined waste in such manner as to force the dirt and oil out of and to one side of the material to be cleansed, substantially as set forth. 35

2. As an improvement in the art of cleaning waste, the method herein described, which consists in confining the waste in a receptacle having perforated walls and above a basin of water, forcing jets of steam and water into the confined waste, and then, by a further supply of water, floating off the oily scum removed by the action of the jets, substantially as set forth. 40 45

3. In an apparatus for cleaning waste, the combination of a vat, a steam-distributor arranged in the vat, a receptacle for confining the waste provided with perforated bottom and top and supported a suitable distance above the distributor, a steam-supply pipe connected to the distributor, and a water-supply pipe connected to the vat, substantially as set forth. 50 55

In testimony whereof I have hereunto set my hand.

CHARLES F. HOOD.

Witnesses:

DARWIN S. WOLCOTT,
M. S. MURPHY.