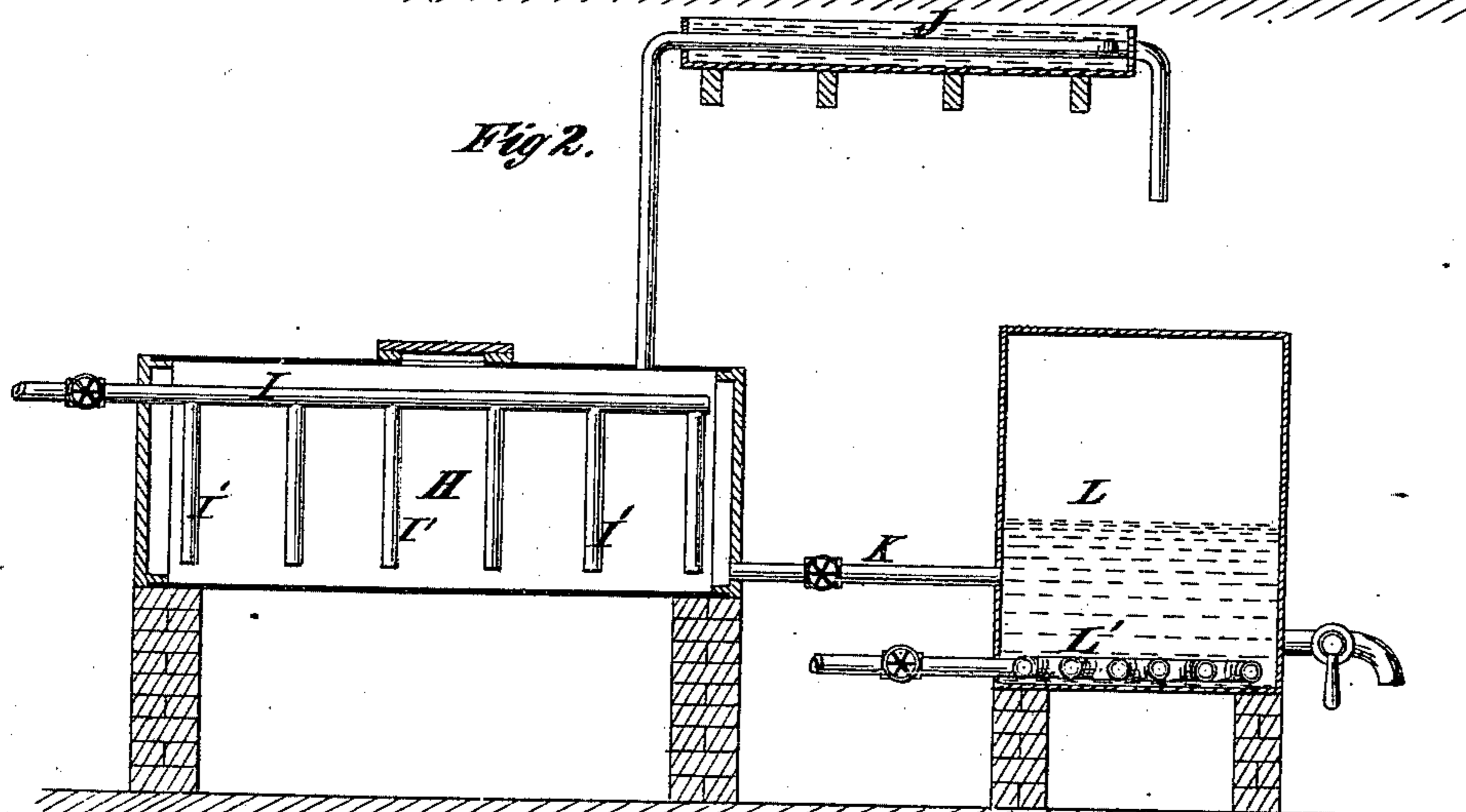
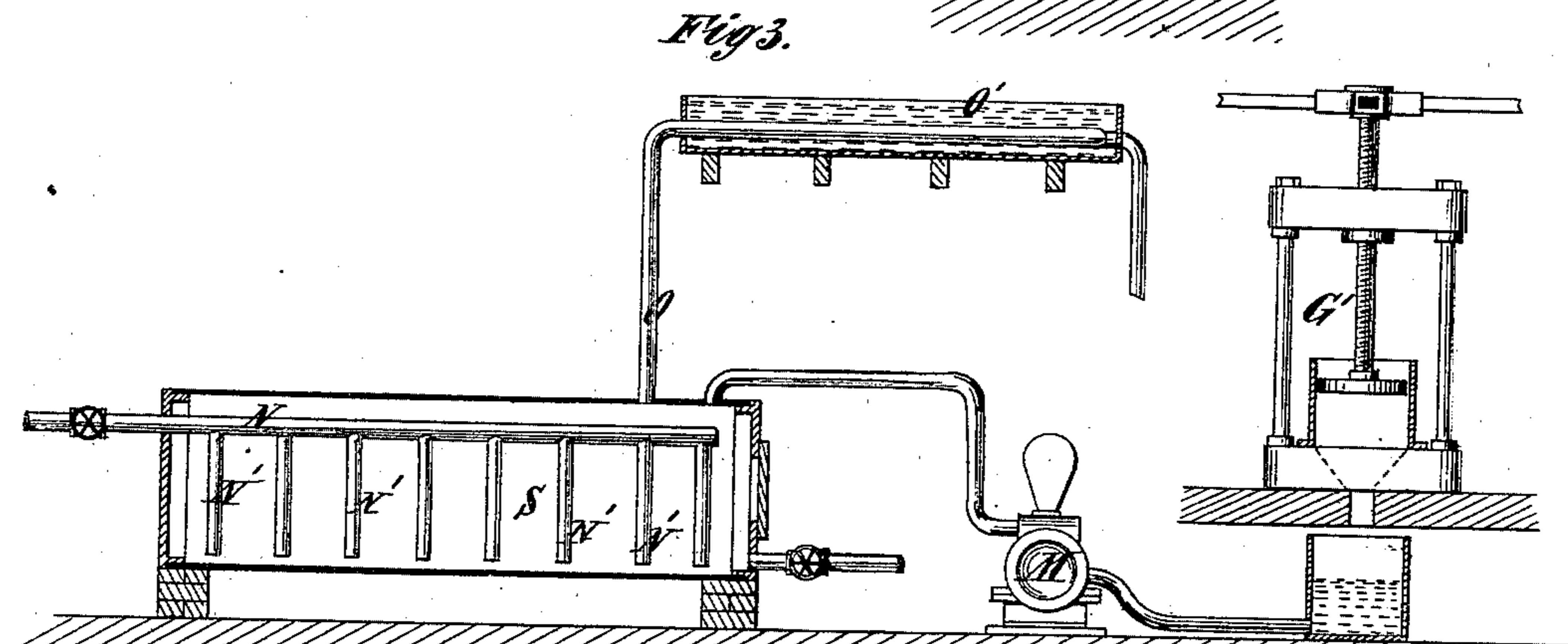
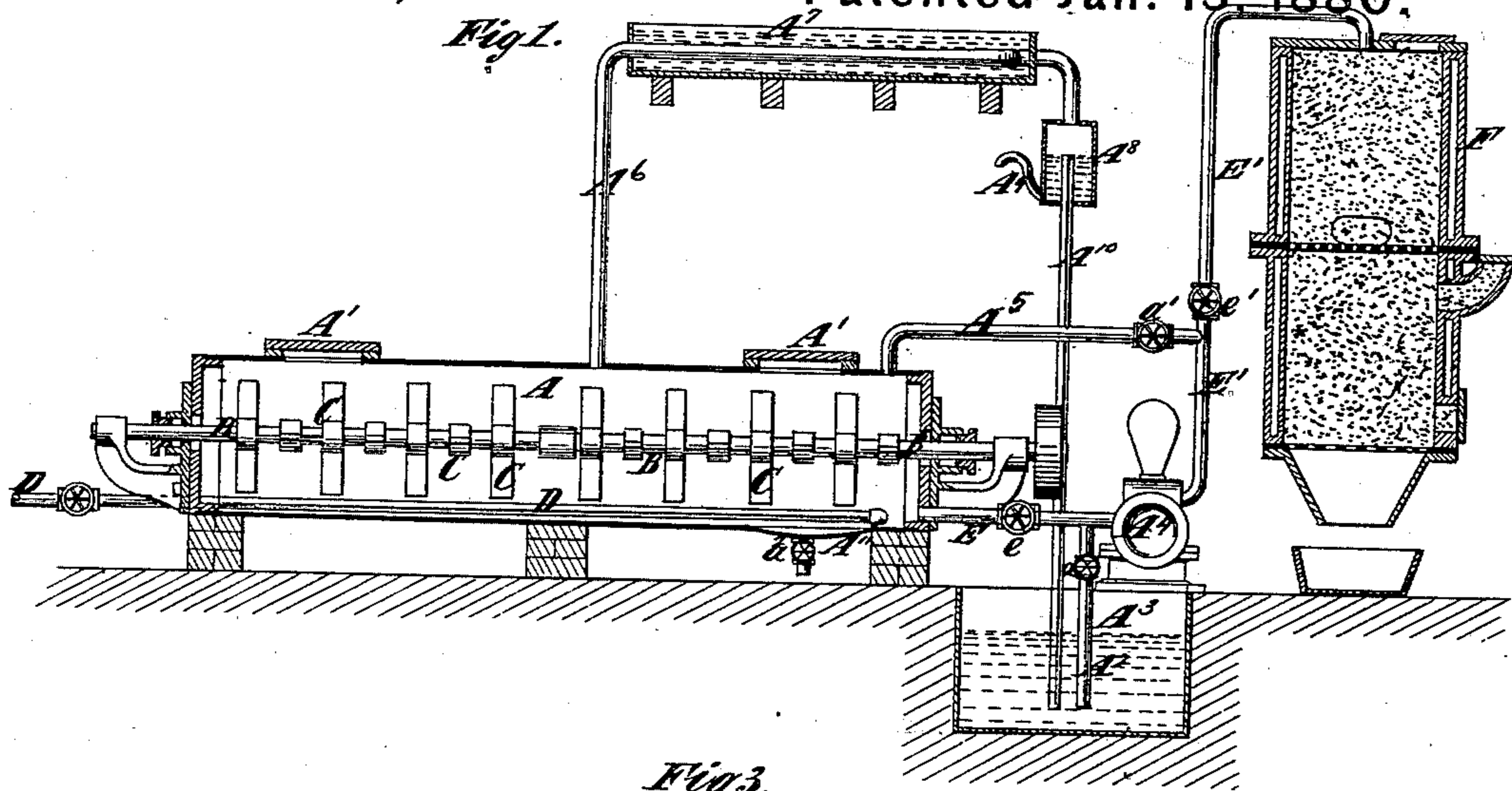


Process and Apparatus for Manufacturing Paraffine Wax.

No. 223,549.

Patented Jan. 13, 1880.



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UNITED STATES PATENT OFFICE.

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PROCESS AND APPARATUS FOR MANUFACTURING PARAFFINE-WAX.

SPECIFICATION forming part of Letters Patent No. 223,549, dated January 13, 1880.

Application filed October 9, 1879.

To all whom it may concern:

Be it known that we, WILLIAM M. SLOANE, of the city, county, and State of New York, and ROBERT M. POTTER, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in the Process of Purifying, Cleaning, and Refining Paraffine-Wax and other waxes and fatty matters, and apparatus therefor, of which the following is a specification.

These improvements consist in the process of purifying, cleaning, and refining paraffine-wax and other wax and fatty matters, consisting in introducing the wax or fatty matter and naphtha into a cylinder, heating the same by means which do not allow the contact of the heating agent with the wax or fatty matter and naphtha, agitating the said wax or fatty matter and naphtha until thoroughly combined, then passing the compound into a filter without allowing it to cool, keeping it heated as it passes through the filter, and subsequently separating the wax or fatty matter from the remainder of the compound.

The improvements also consist in certain apparatus to be used in carrying out the above-described process.

In the accompanying drawings, Figure 1 is a partly longitudinal section and partly a side view of that portion of the apparatus wherein the wax or fatty matter and naphtha are combined and filtered. Fig. 2 is a similar view of that portion of the apparatus wherein the wax or fatty matter, after cooling, is reheated, the naphtha evaporated, and the wax or fatty matter washed; and Fig. 3 is a similar view of that portion of the apparatus wherein the oil is rendered marketable.

In carrying out the above-described process a given quantity of paraffine-wax or other wax or fatty matter—say, for example, one ton—is introduced into a cylinder, A, which is provided with an agitator consisting of a rotary shaft, B, carrying a number of radial arms or blades, C, and a suitable quantity of naphtha, preferably petroleum-naphtha or its chemical equivalent—say, for example, an amount equaling twice in volume the volume of the wax or fatty matter—is introduced into said cylinder. The two are mixed by the agitator and heated

by means of a steam pipe or coil, D, which extends into the cylinder A, until they are thoroughly liquefied and combined, the steam or other heating agent being prevented from coming in contact with the contents of the cylinder.

We will here remark that the proportion of naphtha employed will vary slightly with the character of the wax or fatty matter with which it is to be combined, the object being always to employ such proportion that the mass will congeal in cooling, and no more.

The wax or fatty matter may be introduced into the cylinder A through man-holes A' and the naphtha through a pipe, A², from an underground tank, A³, to a pump, A⁴, and thence, by pipes E' and A⁵, to the cylinder, suitable valves *a* and *a'* in the pipes A² and A⁵ being employed to control the flow through these pipes.

Such naphtha as is evaporated in the cylinder A is carried off by a pipe, A⁶, to a condenser-coil, A⁷, and thence to a separator, consisting of a chamber, A⁸, provided with a siphon, A⁹, for carrying off the water formed from condensed steam, and a pipe, A¹⁰, leading from the chamber above the water-level and conducting back to the underground tank A³. The cylinder may advantageously be inclined or have an inclined bottom communicating with a chamber, A¹¹, wherein may collect sediment and dirt evolved or separated from the compound in the cylinder, and the passage to this chamber may be provided with a valve, *a*², controlling it, so that such sediment and dirt may be withdrawn without stopping the work in the cylinder.

The compound, at the proper time, may be drawn off from the cylinder A, by the pump A⁴, through a pipe, E, and forced thence through a pipe, E', to and through a filter, F, the pipes E and E' being provided with valves *e* and *e'* to control their use, and being external to the filter.

It will be understood that the pump A⁴ serves the double purpose of pumping naphtha into the cylinder A and of pumping the contents of said cylinder through the filter.

The filter F as shown, is divided into two compartments having suitable inlets and outlets, the upper being filled with sea-sand or

other suitable filtering material, and the lower with animal-charcoal or other bleaching material, and the compound from the cylinder A is forced in at the top and escapes out at the bottom into pans, wherein it is allowed to cool and congeal. A steam-jacket surrounding the filter keeps the compound heated and liquefied.

When the compound is sufficiently cooled it is, in bags or otherwise, subjected to a press, 10 G', Fig. 3, and the compound of oil and naphtha expressed from it; then it is broken up, and through a man-hole or opening introduced into a cylinder, H, Fig. 2, into which steam is injected through a main pipe, I, and branch 15 pipes I', the whole being heated, the remaining naphtha evaporated and driven off, condensed in a condenser, J, and separated, as from the cylinder A. The wax or fatty matter is washed and purified and run off through a 20 pipe, K, into a settling-tank, L, heated by a steam-coil, L', so that any water it may hold in suspension may be separated by specific gravity, after which the wax or fatty matter may be run off into molds, and will then be 25 ready for the market.

The compound of oil and naphtha expressed by the press G', Fig. 3, may be forced by a pump, M, directly into a cylinder, S, heated by a steam-pipe, N, and branch pipes N', and 30 the naphtha remaining in it evaporated and driven off through a pipe, O, to a condenser, O', and separated as before. The oil may then be drawn off in marketable condition.

It will be seen that by our improvements 35 we provide for very effectively purifying, cleaning, and refining wax and fatty matters, because of combining the same with naphtha through heat and filtering them while heated, and that we economize the naphtha by using 40 less of it and reclaiming what is used for further use.

The apparatus illustrated and described, though advantageous, is not the only kind we can employ, and may be varied in its details 45 in many respects without departing from my invention.

In treating certain waxes or fatty matter—such as bees-wax—having little or no oil, the compound taken from the mixing-cylinder need 50 not be subjected to the press; but the naphtha

may be evaporated, as above described, and the wax or fatty matter will then be ready for the market; also, in some cases, the bleaching material in the filter may be dispensed with.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The process of purifying, cleaning, and refining paraffine-wax and other wax or fatty matters, consisting in introducing the wax or fatty matter and naphtha into a cylinder, heating the same by means which do not allow the contact of the heating agent with the wax or fatty matter and naphtha, agitating the said wax or fatty matter and naphtha until thoroughly 60 combined, then passing the compound into a filter without allowing it to cool, keeping it heated as it passes through the filter, and subsequently separating the wax or fatty matter from the remainder of the compound, substantially 65 as and for the purpose specified.

2. In an apparatus for purifying, cleaning, and refining paraffine-wax and other wax and fatty matter, the combination of the cylinder A, the agitating-blade C revolving therein, 75 means for heating the contents of said cylinder, the filter F, with its steam-jacket, the pump A⁴, the pipe E, leading from the cylinder to the pump, and the pipe E', leading from the pump to the filter, substantially as specified. 80

3. In an apparatus for purifying, cleaning, and refining paraffine-wax and other wax and fatty matter, the combination of the cylinder A, means for heating the contents thereof, 85 the tank A³, for containing naphtha, the filter F, provided with a steam-jacket, the pump A⁴, and pipes connecting the said pump with the cylinder, tank, and filter, provided with suitable valves, whereby the pump may be used 90 to supply naphtha to the cylinder from the tank, or to pump the contents of said cylinder therefrom into the filter, substantially as specified.

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