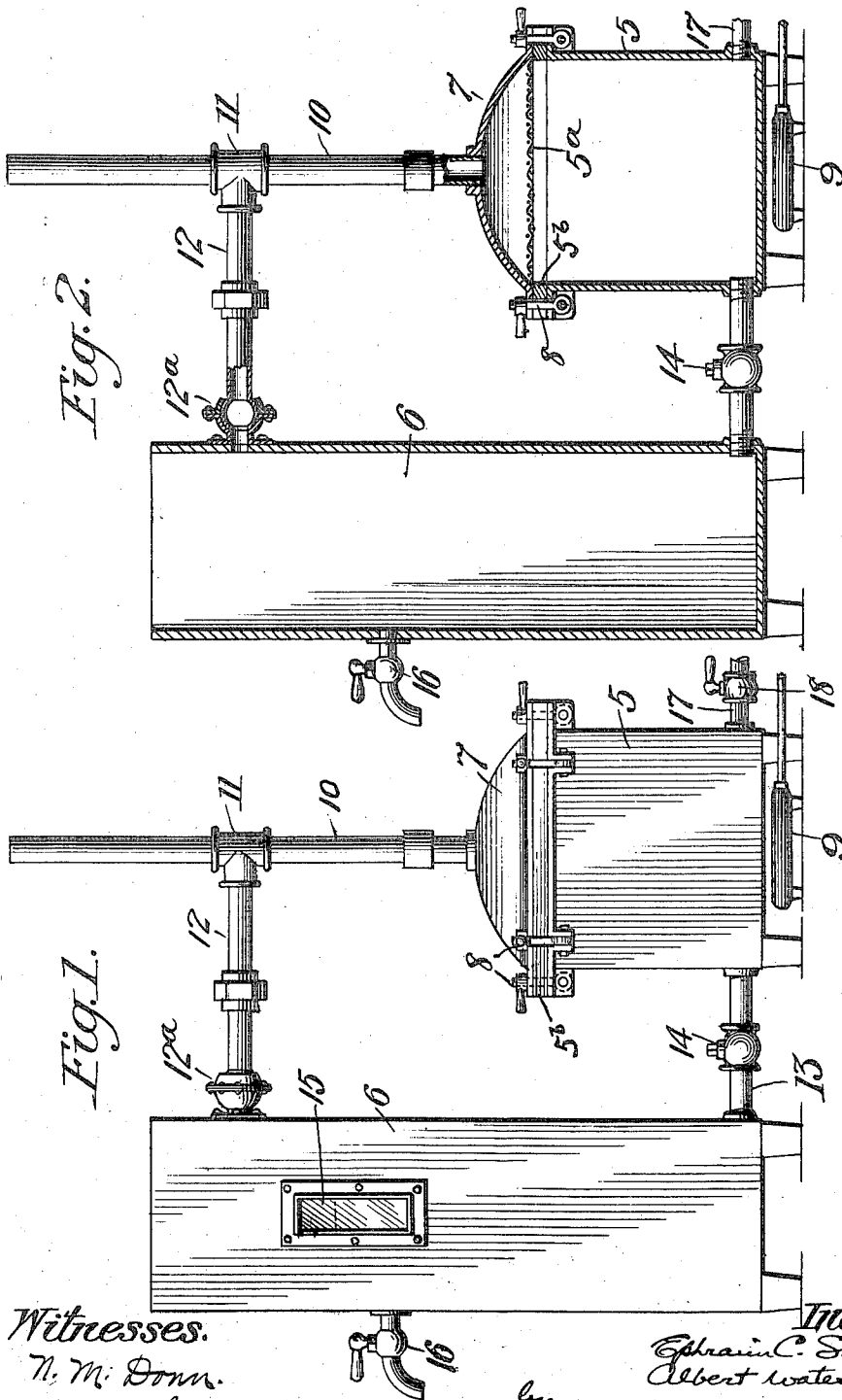


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 APPARATUS FOR THE EXTRACTION OF WAX.
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1,036,738.

Patented Aug. 27, 1912.



Witnesses.
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UNITED STATES PATENT OFFICE.

EPHRAIM C. SMITH AND ALBERT WATERHOUSE, OF PEARL CITY, TERRITORY OF HAWAII.

APPARATUS FOR THE EXTRACTION OF WAX.

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Specification of Letters Patent.

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Application filed March 29, 1910. Serial No. 552,267.

To all whom it may concern:

Be it known that we, EPHRAIM C. SMITH and ALBERT WATERHOUSE, citizens of the United States, and residents of Pearl City, county of Honolulu, Territory of Hawaii, have invented certain new and useful Improvements in Apparatus for the Extraction of Wax; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the extraction of wax, that is to say, its separation from the dirt and slum gum with which it is associated when the beeswax is extracted from honeycombs, and the object of the invention is to provide an improved apparatus for producing a circulation of hot water between the container in which the material to be treated is placed, and in which the impurities are retained, and the receiver or trap into which the pure wax, entrained by the circulating water, is discharged.

More particularly, the invention is designed to avoid the use of a separate water heater and to effect the circulation of hot water by applying heat to the container, said container being connected with the receiver at suitable points to enable the water to move through a complete circuit; and in heating the container in this way, steam is caused to pass out from the same through an open pipe that has a branch leading off to the receiver, the steam rising in said pipe acting in a very effective manner to cause a sort of upward pumping action on the water containing the pure wax, so that such water will be conducted into the receiver and an effective circulation throughout the entire apparatus maintained. The container is provided with a screen of any appropriate kind to retain the impurities, and the wax floating on the surface of the water in the trap or receiver can be drawn off by means of a suitable valve or in any other convenient way.

In the accompanying drawing:—Figure 1 is a side elevation of an apparatus constructed in accordance with the invention. Fig. 2 is a vertical longitudinal section through the apparatus.

In the drawing, the container into which the wax containing material is introduced is indicated at 5, and the receiver or trap

that serves as a separator for the pure wax is indicated at 6. The container 5 may be of any appropriate form, but we find it advisable to construct the cover 7 in the shape of an arch, and said cover, which is freely removable from the body of the container, may be locked on said body by means of locking devices 8 of any suitable character. Interposed between the body of the container and the cover is a screen 5^a which may be removed when the cover is taken off, in order that the wax containing material may be deposited in the container. The container is heated in any convenient way, as by the gas burner 9 located beneath the bottom of the same, such gas burner being illustrated merely by way of example.

Leading upward from the arched cover 7 of the container is an upright pipe 10, which is connected to the cover at the center of the latter, and said pipe extends above the container to a relatively considerable distance. Intermediate of the ends of said pipe, the same is connected by means of a union 11 with a branch pipe 12 which leads into the upper part of the receiver or separator 6. The pipe 12 is secured to the receiver by means of a swivel connection 12^a in order to permit the raising of the cover of the container. The lower part of the separator is connected with the lower part of the container by means of a pipe 13 controlled by a valve 14. In the embodiment illustrated, the separator 6 consists merely of a cylindrical vessel provided with a sight window 15 by means of which the level of the liquid therein can be observed. A draw-off valve 16 is placed in the wall of the receiver at a point midway of the height of the same, for a purpose which will presently appear. The container is provided at its lower part with a drain pipe 17 equipped with a draw-off plug or valve 18.

The operation of the improved apparatus is substantially as follows: The cover 7 and screen 5^a of the container 5 are removed by unlocking the clamping devices 8, whereupon the wax containing material is placed in the container. The screen and cover are then replaced and water is poured into the receiver 6 until it is at about the level indicated in Fig. 1, such level being easily visible through the window 15. The container 5 is then subjected to heat by means of the heating device 9, with the result that

if the valve 14 in the connecting pipe 13 is open a continuous circulation of water will be produced between the container and receiver. The water in the container is brought to a boil to the end that the wax in the mass will be melted, after which such wax is carried upward through the pipe 10 by the circulating water, the impurities being retained in the container because of their inability to pass through the screen 5^a, as will be understood. The boiling of the water in the container will cause bubbles and steam to pass upward through the pipe 10 and these will produce an effective upward pumping action on the water that enters the lower end of the pipe 10, whereupon such water will be raised and carried off to the receiver through the upper connecting pipe 12. At the same time, the water will circulate downward in the receiver or separator and the pure wax discharged into the same will float at the surface so that it is not carried back to the container by means of the lower or return pipe 13. In this way, the water is returned from the bottom of the receiver to the bottom of the container, without returning the wax, and a steady and effective circulation is produced by the pumping or jet action in the pipe 10. The wax floating on the surface of the water in the receiver or separator can be readily drawn off at any time by means of the valve 16.

In the embodiment shown, the screen 5^a is provided with a frame 5^b of soft wood or other absorbent expansive material that is interposed between the container and its cover, and such frame absorbs moisture and swells, thereby forming a tight joint at the point indicated and preventing leakage. The expansion of the frame under the influence of moisture is, of course, resisted by the locking or clamping devices 8.

It is to be understood that the apparatus shown in the drawing is but one embodiment of our inventive idea and that we have

not attempted to describe the various modifications that may be adopted without digressing from the invention.

What we claim is:—

1. An apparatus for extracting wax comprising a container, a pipe extending upward from the top of said container and open to the atmosphere, a receiver or separator independent of said container, a pipe connecting said first named pipe with the upper portion of the receiver or separator, and means to connect the lower portion of the receiver to the lower part of the container.

2. An apparatus for extracting wax comprising a container to receive the material to be treated, heating means in connection therewith, a separator independent of said container, a connection between said container and said separator comprising a pipe rising from the former and communicating with the atmosphere and a branch pipe leading from said first named pipe to the receiver, and a return pipe connecting the receiver and container.

3. An apparatus for extracting wax, comprising a container, means to heat the same, a pipe directed upwardly from the container and communicating therewith, said pipe being freely open to the atmosphere at the top, a separator independent of said container, and a pipe leading from the intermediate portion of said first named pipe to said separator.

In testimony whereof we affix our signatures, in the presence of two witnesses.

EPHRAIM C. SMITH.

ALBERT WATERHOUSE.

Witnesses to the signature of Ephraim C. Smith:

HOWARD M. CHANDLER,

ROBT. J. PRATT.

Witnesses to the signature of Albert Waterhouse:

JOHN C. PENNIE,

L. H. BARLOW.