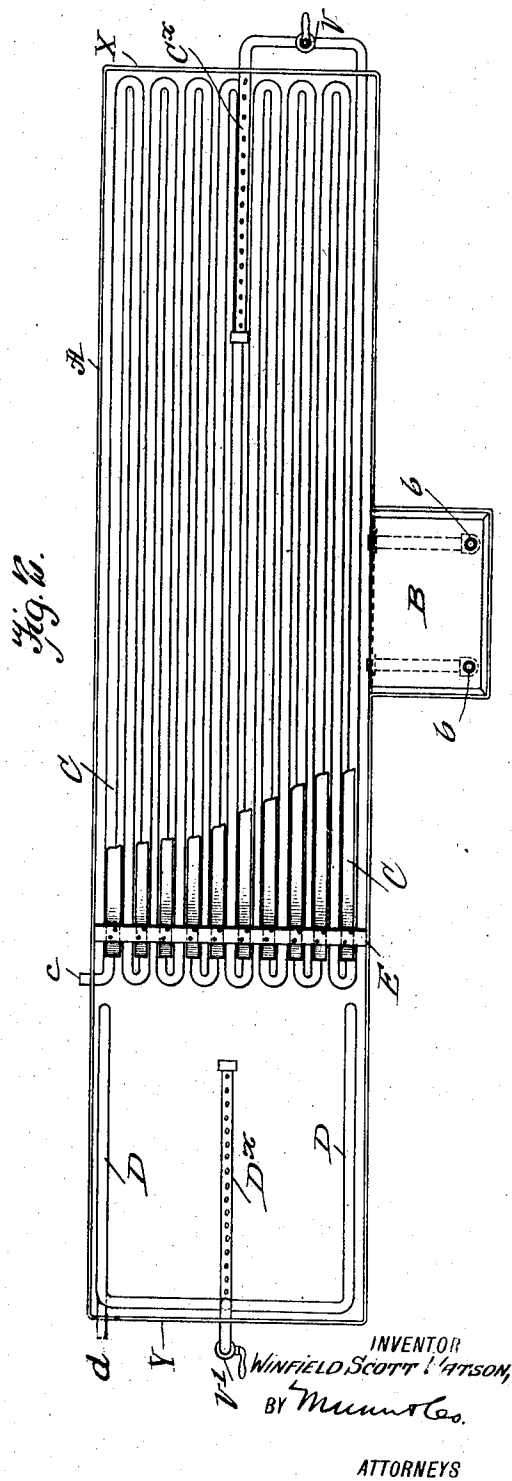
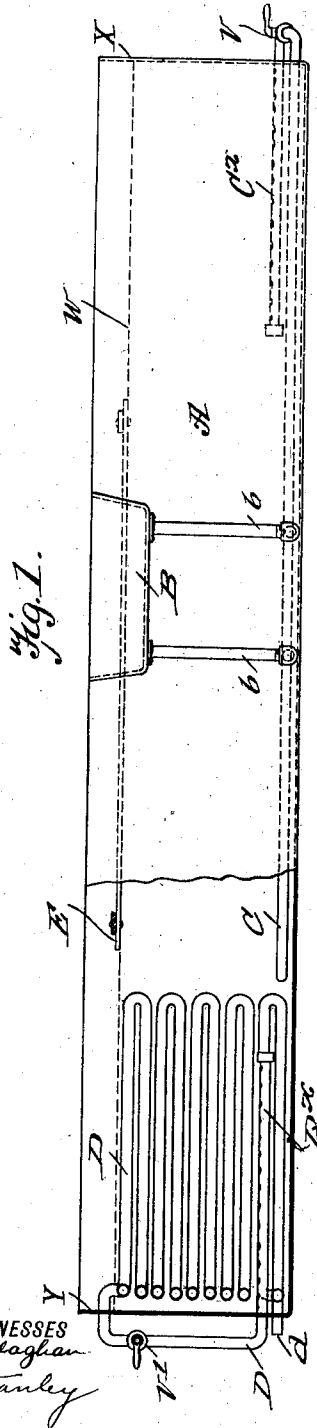


W. S. WATSON.
WAX EXTRACTING APPARATUS.
APPLICATION FILED APR. 3, 1912.

1,058,648.

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WINFIELD SCOTT WATSON, OF MEMPHIS, TENNESSEE.

WAX-EXTRACTING APPARATUS.

1,058,648.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed April 3, 1912. Serial No. 688,212.

To all whom it may concern:

Be it known that I, WINFIELD SCOTT WATSON, a citizen of the United States, and a resident of Memphis, in the county of Shelby and State of Tennessee, have invented a new and Improved Wax-Extracting Apparatus, of which the following is a specification.

My invention relates to improvements in devices for extracting wax.

The device is particularly applicable to the extraction of wax from the candelilla plant, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide a device in which the process of extraction may be carried on continuously, the shrubs being placed in at one end and being taken out from the other, while the wax is taken out at a different place.

A further object of my invention is to provide a tank which is heated in such a manner that the water used for extracting the wax is caused to flow so that the product is carried away from the discharging end, thereby insuring the complete extraction of the wax and obviating the danger or losing part of the wax through its adherence to the shrubs as they are taken out.

A further object of my invention is to provide an apparatus for extracting candelilla wax which is comparatively cheap, and yet which effectively accomplishes the purpose for which it is intended.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application, in which—

Figure 1 is a side view of the device, and Fig. 2 is a plan view of the device, certain portions being broken away for the sake of clearness.

In carrying out my invention I provide an elongated tank A which may be built of wood, or other suitable material. This tank is provided, on one side at its top, with an extension B. Communicating with the bottom portion of the extension B near the outer edge thereof are the pipes *b* which extend downwardly and then inwardly, where they communicate with the bottom part of the main tank A.

At C is a series of pipes having an inlet at *c*, these pipes forming one continuous passage for steam back and forth along the bottom of the tank, beginning at a point approximately one-fourth of the length of the tank from one end and extending to the other end. The pipe C extends through one end and is provided with a valve V. It is bent again and reenters the tank, the end portion C* being perforated on its upper side as shown in the drawings.

A second continuous pipe D has its inlet at *d* and forms a coil around the end portions of the two sides of the tank, beyond the pipes C, and also the end of the tank between these two side portions. The pipe D passes out of the end of the tank and is provided with a valve V'. The pipe D reenters the end of the tank and the end portion D* is perforated on its upper side as shown in the drawings.

In order to keep the shrubs or plants underneath the water I provide the series of sumps E. The manner in which this device E operates will be explained herein-after.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

The plants are fed into the end X of the open tank, the tank being filled with water, or with water charged with chemicals, the water line being shown at W in Fig. 1. Steam is admitted into the pipe C through the inlet *c* and heats the water into which the plants have been plunged. If it is desired the valve V may be opened far enough so as to permit the live steam to issue from the perforated portion C* thereby increasing the heat and also agitating the water. The heat of the water causes the wax to exude from the plant, and being lighter than the water it rises and floats on top. It will be observed that the hottest part of the coil of steam pipes C is toward that side of the tank which is opposite the extension V. On this side of the tank the water is in violent ebullition, while on the side of the tank containing the extension B the water is more nearly quiet. The wax is, therefore, washed toward the extension B. The movement of the water toward the extension B is facilitated by a downward current through the pipes *b*, this current being caused by the cooling of the water in the pipes *b*, which are outside of the main tank

and are therefore exposed to the cooler atmosphere. This extension, it will be observed, is above the water line and the wax tends to accumulate in it, but being lighter than the water floats on top of it, the movement of the water downwardly through the pipes *b* not being sufficient to carry the wax along with it.

As the wax is extracted from the plants, they are pushed along by means of poles toward the end containing the coil *D*. If there is any tendency for the shrubs to float or to be carried upwardly through the film of wax, I may use the presser device *E*. This device consists, as shown, of a series of slats which press the shrubs downwardly beneath the water while permitting them to be shoved along by means of the poles which can enter between the slats.

When the shrubs, or plants, reach the vicinity of the coil *D*, they are at the place where the movement of the water is most active. The coils, being on three sides, cause the water to boil violently, and the surface of the water tends to flow constantly toward the calmer parts of the tank, *i. e.*, toward the extension *B*. In order to insure the agitation of the water at this point so as to effectively wash all the wax from the shrubs before they are taken out of the tank, extension *D** is provided, so that live steam may be forced up through the water. It is at this end of the tank that the plants are removed, and as stated, the water tends to wash the wax backwardly toward the calmer parts of the tank. Moreover, the heat at this end is greater than at the other end, and this tends to make the wax more fluid.

The shrubs may be placed continuously in at one end and removed from the other. As the wax accumulates in the shallow extension *B* it may be dipped therefrom and taken away to be refined.

The device described above obviates the necessity of emptying the tank after each charge. It is not necessary to remove the wax at any stated period, but whenever it becomes thick enough it may be removed.

I claim:—

1. In an apparatus for extracting wax from the candelilla plant, a tank arranged to hold water, a steam pipe having an inlet near the bottom of the tank on one side thereof, said steam pipe being bent to extend back and forth along a portion of the tank over the bottom thereof, a shallow lateral extension of said main tank on the opposite side thereof from the inlet establishing communication with the bottom of said lateral extension and the bottom of the tank.

2. In an apparatus for extracting wax from the candelilla plant, an elongated tank arranged to hold water and having a shallow

extension on one side thereof, a steam pipe having an inlet near the bottom of the tank on the side opposite the extension, said pipe being bent to extend back and forth along a portion of the tank over the bottom thereof, a second steam pipe having an inlet at the opposite end of the tank, said second pipe being formed into a coil along said end, and along a portion of the two sides of the tank.

3. In an apparatus for extracting wax from the candelilla plant, an elongated tank arranged to hold water and having a shallow extension on one side thereof, a steam pipe having an inlet near the bottom of the tank on the side opposite the extension, said pipe being bent to extend back and forth along a portion of the tank over the bottom thereof, a second steam pipe having an inlet at the opposite end of the tank, said second pipe being formed into a coil along said end, and along a portion of the two sides of the tank, each of said steam pipes having a perforated end portion extending inwardly from the ends of said tank from the bottom thereof, and a valve for controlling said perforated end portions.

4. In an apparatus for extracting wax from the candelilla plant, an elongated tank arranged to hold water, a shallow extension on one side thereof, the bottom of said extension being below the normal level of the water, one end of said tank serving as a receiving end for the candelilla plants, and the other end serving as a discharging end, means for heating the water of the receiving end, and for causing a flow of the water toward the extension, and means for heating the water at the discharging end and for causing a flow of the top of the water backwardly toward the receiving end.

5. In an apparatus for extracting wax from the candelilla plant, an elongated tank arranged to hold water, a shallow extension on one side thereof, the bottom of said extension being below the normal level of the water, conduits connecting the bottom of said extension with the bottom portion of the main tank, said conduits being disposed exteriorly of said main tank, one end of said tank serving as a receiving end for the candelilla plants, and the other end serving as a discharging end, means for heating the water of the receiving end, and for causing a flow of the water toward the extension, and means for heating the water at the discharging end and for causing a flow of the top of the water backwardly toward the receiving end.

WINFIELD SCOTT WATSON.

Witnesses:

GEO. G. ALBAN,
ENOCH T. WALTON.