

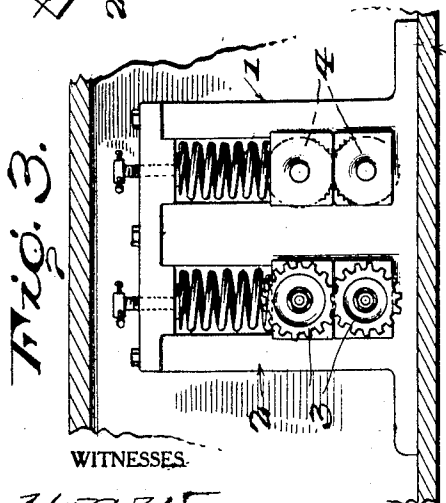
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METHOD OF EXTRACTING CANDELILLA WAX

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METHOD OF EXTRACTING CANDELILLA WAX.

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This invention aims to provide a novel apparatus and method for extracting candelilla wax in such manner as to reduce to a minimum the bulk of the material that must be carried through the process and yet be highly effective in the recovery of the wax content from the plant.

A further object resides in the provision of a method and apparatus of this character which is reliable and efficient in operation and adapted to be carried out at a comparatively slight expense by means of instrumentalities ordinarily available.

Other objects and advantages reside in certain novel features which will be hereinafter more fully described and particularly pointed out in the appended claim forming a part of this specification, and in which:—

Figure 1 is a diagrammatic view partly in elevation and partly in section illustrating the method and the apparatus employed for carrying out the method.

Figure 2 is a view in longitudinal section showing the decorticating machine employed as a unit of the apparatus, and

Figure 3 is a detail view of the adjustable bearing construction of the crusher mounted in the hopper of the decorticator.

Referring to the drawings, the numeral 1 designates the crushers mounted in the hoppers of the decorticator and in which the first step of the method is carried out. Each crusher comprises frame members 2 in which a series of pairs of co-acting crushing rolls are rotatably mounted, one pair of rolls being designated at 3 and the other pair of rolls being designated at 4. The first pair of rolls, that is the rolls 3, are driven at a slow rate of speed, preferably at the rate of one hundred and sixty revolutions per minute while the rolls 4 are preferably driven at a speed of four hundred revolutions per minute. The members of each pair of rolls have intermeshing corrugations. One member of each pair of rolls is rotatably mounted in fixed bearings while the other member of each pair is rotatably mounted in slidable bearings urged by means of coil springs toward the fixed bearings so that the rolls are yieldably held in co-operating relation.

The candelilla plant is passed through the rolls of the crusher and is thoroughly broken up so as to be prepared for the next step of the method which occurs in the decorticating machine, designated generally at 10. The

decorticating machine comprises a suitable frame 11 on which a fixed conical casing 12 is mounted. The casing 12 has an upper imperforate section 13 and a lower reticulated section constituted of wire mesh or the like. A dust and wax receiving chamber 14 is positioned below the reticulated section of the casing. An inner shell 16 of conical form and somewhat smaller than the outer shell is fixed on a shaft 17 extending axially through the outer shell whereby the inner shell rotates within the outer shell. A motor and suitable gearing is provided for driving the shaft 17. The inner and outer shells have co-acting decorticating teeth 18 and 19, respectively, the teeth 18 projecting radially outward from the inner shell and the teeth 19 projecting radially inward from the casing or outer shell. The material which has been crushed in the crusher is delivered from the hoppers 22 which enclose the crushers into the space between the co-acting shells of the decorticator. In the decorticator the wax and dust are separated from the fiber of the plant due to the tearing and beating action of the co-acting teeth. This action will be better appreciated when it is borne in mind that the inner shell rotates at a speed of from three hundred to four hundred revolutions per minute. The wax and non-waxy matter in finely divided form are carried through the reticulated lower section 13^a into the chamber 14 and the fiber is carried out through the discharge opening provided therefor at the large end of the machine.

The wax and finely divided non-waxy matter are taken from the chamber 14 at suitable intervals and deposited in a vat 26 wherein the wax and finely divided non-waxy matter are mixed with hot water and subjected to the action of steam in the well known manner for separating the waxy matter from the non-waxy matter. The method of separating the waxy matter from the non-waxy matter is well known in the art and since it forms no part of the present invention, need not be further explained. Since the melting point of the wax is between 60° and 80° F. the heat may approximate such a temperature or higher. When water is employed it is brought to the boiling point as is well known.

The chamber 14 is provided with suitable doors 30 to provide a closed chamber except when the finely divided non-waxy matter and

wax are being taken therefrom and carried to the vat.

One of the principal features of the invention resides in the manner in which the bulk of the plant is separated from the wax-bearing content prior to the steps taken to recover the wax. In other words instead of carrying the whole bulk of the plant into the vat and handling this bulk throughout the recovery process the bulk is eliminated in the decorticator and only the wax and finely divided non-waxy matter remain to be handled.

I claim:—

In the pre-treatment of the candelilla plant preparatory to the extraction of wax therefrom, the steps which comprise crushing said plant and thereafter subjecting the crushed plant to a tearing and beating action whereby wax and non-waxy matter in finely divided form are separated from the fibers of the plant, and screening the finely divided wax and non-waxy matter from the fibers.

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