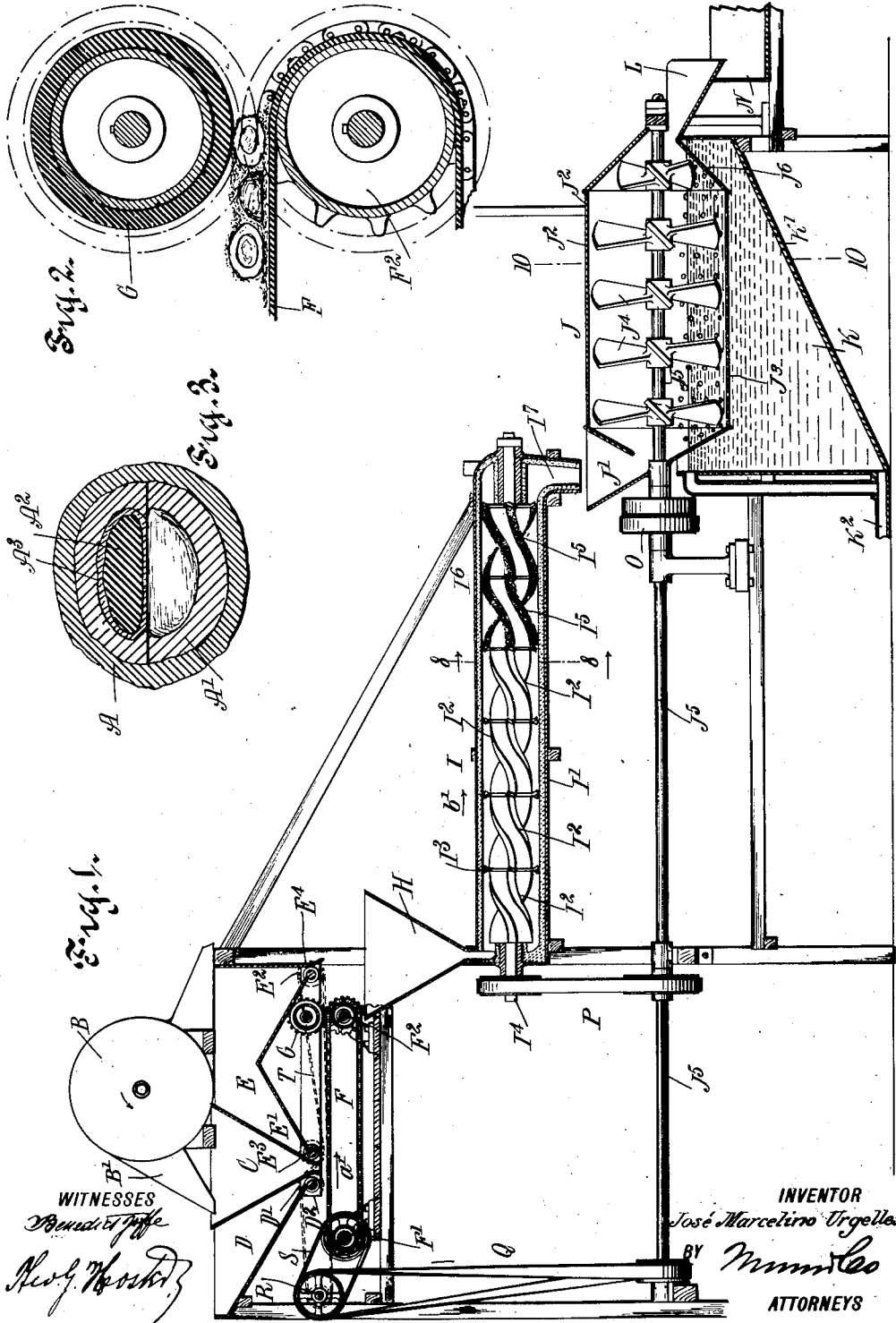


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 METHOD FOR TREATING COFFEE BERRIES.
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Patented Sept. 10, 1912.



WITNESSES
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UNITED STATES PATENT OFFICE.

JOSÉ MARCELINO URGELLÉS, OF BARACOA, CUBA.

METHOD FOR TREATING COFFEE-BERRIES.

1,038,032.

Specification of Letters Patent. Patented Sept. 10, 1912.

Application filed December 11, 1911. Serial No. 664,928.

To all whom it may concern:

Be it known that I, JOSÉ MARCELINO URGELLÉS, a citizen of the United States, and a resident of Baracoa, Cuba, have invented a new and Improved Method for Treating Coffee-Berries, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved method for treating coffee berries, whereby the pulp is removed from the berries in a very simple, effective and economical manner and without danger of injury to the beans.

The method consists essentially in embedding sand, sawdust or other abrading material in the pulp of the berry, then subjecting the berry to a grinding, tumbling and brushing action with a view to cause the abrading material to loosen and detach the pulp from the berry, and finally separating the berry from the removed pulp and abrading material.

In order to carry the method into effect, use is made of a machine such, for instance, as shown in the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal central section of the machine; Fig. 2 is an enlarged sectional side elevation of the embedding device; and Fig. 3 is an enlarged section of the berry.

Coffee berries as harvested (see Fig. 3) have an outer skin A, next to that a layer of pulp A', which incloses usually two beans A² each inclosed in a shell A³. The berry is first treated in a skin remover to remove the outer skin from the berry and to cleave the remaining portion, so that practically two berries are formed each having a bean A², a shell A³ and pulp A' surrounding the shell. The pulp A' is a sweet, mucilaginous substance of a light color and clings very tenaciously to the shell A³, and the object of the invention presently to be described in detail is to remove this pulp in a simple, effective and economical manner.

The outer skin A of the berry is removed and the berry is cleft in a skin remover B of any approved construction, and the berries with the skin A removed are discharged from the said skin remover B by way of a spout B' into a central hopper C flanked by hoppers D and E adapted to contain sand, sawdust or a like material to

be used as a grinding material for loosening or removing the pulp from the berries, as hereinafter more fully described. The hoppers C and D discharge onto an endless belt F mounted to travel in the direction of the arrow a', so that the abrading material is discharged from the hopper D by way of its spout D' onto the upper run of the belt F in a thin layer onto which pass the berries from the hopper C, and the berries are covered up by another layer of abrading material discharged through the spout E' of the hopper E, which latter is preferably provided with a second spout E² arranged beyond the endless belt F, as plainly indicated in Fig. 1. The spouts D' and E' are provided with transversely extending grooved distributing rollers D², E³ to cause an even distribution of the abrading material on the upper run of the belt F. By the arrangement described the coffee berries are interposed between the bottom and top layers of abrading material and this abrading material is pressed into the pulp A' by the use of a presser roller G arranged over the discharge end of the belt F so as to embed the abrading material in the pulp A'. The endless belt F passes over drums F', F², of which the drum F' is driven, and the presser roller G is located directly above the drum F². The berries with the abrading material embedded therein drop off the forward end of the belt F into a hopper H into which discharges the spout E² of the hopper E so as to supply an additional amount of abrading material to the hopper H, the spout E² being provided with a distributing or a feeding roller E⁴ similar to the rollers D² and E³. The hopper H delivers the berries with the abrading material embedded therein and the additional abrading material received from the spout E² to a horizontally disposed casing I' of a grinding, tumbling and brushing device I containing a series of grinding rollers I², one in front of the other, and provided with spiral ribs and separated from each other by feed wheels I³, and the said grinding rollers I² and the feed wheels I³ are secured on a shaft I⁴ extending centrally through the casing I' and journaled in the ends therein. On the shaft I⁴ in front of the last grinding roller I² are arranged spiral brushes I⁵ secured on the shaft I⁴ and also separated from each other by feed wheels I⁶. When the machine is

running and a rotary motion is given to the shaft I⁴ then the rollers I² subject the berries with the abrading material therein and the additional abrading material to a grinding and tumbling action whereby the pulp is loosened and more or less detached from the berries, and the berries and the abrading material are fed forward by the action of the spiral ribs of the rollers I² and by the feed wheels I³, and the said berries and abrading material are finally subjected to the action of the brushes I⁶ to detach as much as possible the pulp from the berries, the berries, pulp and sand being finally discharged through a spout I⁷ on the forward end of the casing I⁷ to drop into a hopper J⁷ of a washing and agitating device J. This washing and agitating device J is provided with a fixed casing J² having its lower portion J³ perforated and extending within a tank K containing water or other washing liquid. The tank K is provided with an inclined bottom K⁷ leading to a discharge spout K² for discharging the abrading material and pulp from the tank to a suitable place of discharge.

Within the casing J² are arranged feeding and agitating wheels J⁴ secured on a shaft J⁵ extending centrally through the casing J² and journaled in suitable bearings arranged on the ends of the said casing. When the machine is running the wheels J⁴ agitate the berries in the water so that the berries are thoroughly washed and any pulp that may adhere to the berries is removed therefrom especially as the sand facilitates the final removal of any particles of the pulp that may adhere to the berries.

The forward end J⁶ of the casing J² extends to within a short distance of the shaft J⁵ and leads to a spout L discharging into a suitable receptacle N for receiving the berries, it being understood that the berries are carried forward in the casing J² by the wheels J⁴ and finally pass over the end J⁶ into the hopper L while the sand and pulp pass through the perforations in the lower portion of the casing J² and into the tank K to be discharged therefrom through the spout K².

On the shaft J⁵ are secured fast and loose pulleys O connected by belt with other machinery for imparting a continuous rotary motion to the shaft J⁵, and the latter is connected by a suitable driving gear P such as belt and pulleys with the shaft I⁴ to rotate the latter in unison with the shaft J⁵, and the latter is also connected by a driving mechanism Q, such as a belt and pulleys, with a countershaft R connected by belts and pulleys S with the drum F⁷ and by a driving mechanism T with the feed rollers D², E³ and E⁴, whereby a traveling motion is given to the belt F and a rotary motion to the said feed rollers D², E³ and E⁴.

It is understood that when the machine is running the berries are placed between two layers of abrading material and then the latter is pressed into the pulp of the berries by the presser roller G, after which the berries with the abrading material embedded therein are subjected to a grinding, tumbling and brushing action in the device I to loosen the pulp and separate the same from the berries. It is further understood that the embedded abrading material and the loose additional abrading material tends to cut up the pulp in the device I and by subjecting the berries, pulp and abrading material to a subsequent washing and agitating operation in the device J the berries are cleaned of the pulp and the latter and the abrading material are separated and separately discharged from the machine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The herein described method for removing the pulp of coffee berries, consisting in embedding an abrading material in the pulp of the berry, then subjecting the berry to a grinding action to cause the abrading material to remove the pulp from the berry, and then separating the berry from the removed pulp and abrading material.

2. The herein described method for removing the pulp of coffee berries, consisting in pressing an abrading material into the pulp of the berry, then subjecting the berry with the abrading material thereon to a grinding action, and subsequently to a cleaning action to detach the pulp and abrading material from the berry, and finally separating the berry from the detached pulp and abrading material.

3. The herein described method for removing the pulp of coffee berries, consisting in pressing an abrading material into the pulp of the berry, then subjecting the berry with the abrading material thereon to a grinding action, then to a polishing action, then washing the berry and separating the berry from the removed pulp and abrading material.

4. The herein described method for removing the pulp of coffee berries, consisting in feeding the berries onto a layer of an abrading material, then covering the berries with another layer of abrading material, then subjecting the berries and layers of abrading material to pressure to embed the abrading material in the pulp of the berries, then subjecting the berries with the abrading material to a grinding action and tumbling action to loosen and detach the pulp from the berries, then subjecting the berries to a brushing action to completely detach the pulp and abrading material from the berries, then washing the berries and separating the berries from the pulp and abrading material.

5. The herein described method for re-

moving the pulp of coffee berries, consisting
in feeding the berries onto a layer of an
abrading material, then covering the berries
with another layer of abrading material,
5 then subjecting the berries and layers of
abrading material to pressure to embed the
abrading material in the pulp of the berries,
then adding abrading material to the berries,
then subjecting the berries with the abrading
10 material to a grinding action and tumbling
action to loosen and detach the pulp from
the berries, then subjecting the berries to a

brushing action to completely detach the
pulp and abrading material from the ber-
ries, then washing the berries and separating 15
the berries from the pulp and abrading
material.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

JOSÉ MARCELINO URGELLÉS.

Witnesses:

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PHILIP D. ROLLHAUS.