No. 787,143. PATENTED APR. 11, 1905.

F. DE S. BARROS.

MACHINE FOR POLISHING AND FINISHING COFFEE BEANS.

APPLICATION FILED OCT. 10, 1904.

Fig. 1.

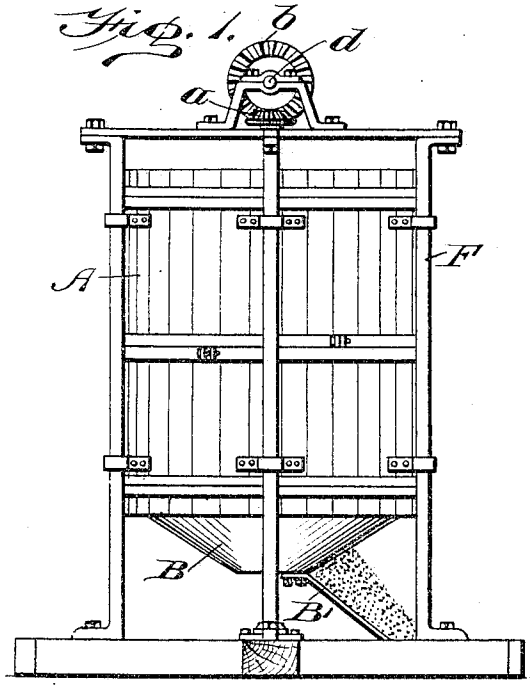



Fig. 2.

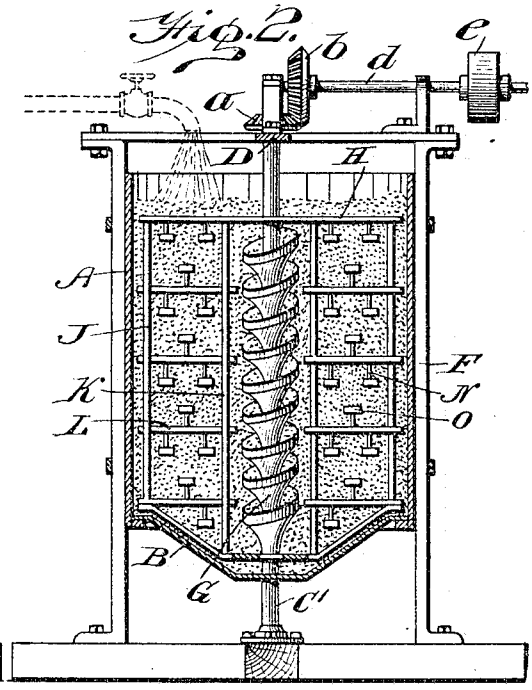



Fig. 3.

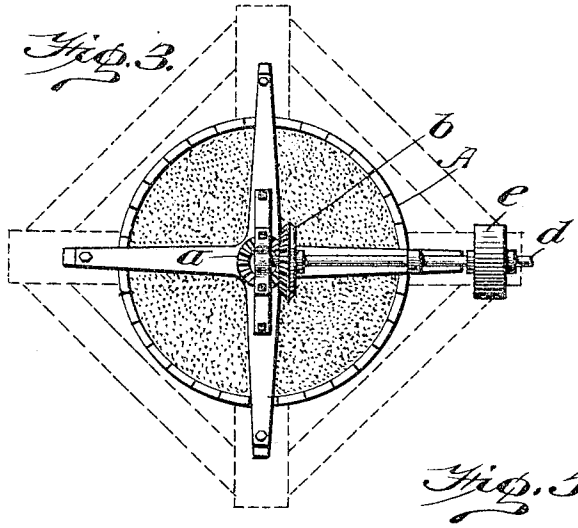



Fig. 4.

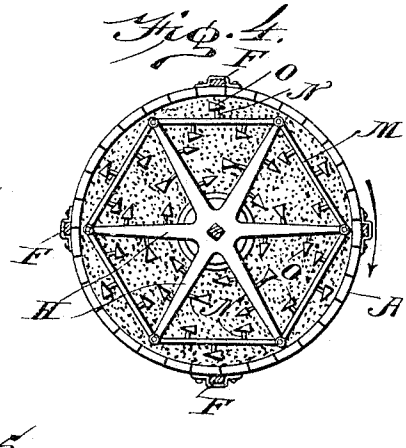
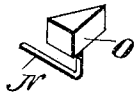



Fig. 5.




WITNESSES:

H. C. Dieterich

S. Mueller

INVENTOR.

F. de Sampaio Barros

BY Edwin Cruse

Asso: Attorney

No. 787,143. Patented April 11, 1905.

# UNITED STATES PATENT OFFICE.

FRANCISCO DE SAMPAIO BARROS, OF SÃO PAULO, BRAZIL.

## MACHINE FOR POLISHING AND FINISHING COFFEE-BEANS.

SPECIFICATION forming part of Letters Patent No. 787,143, dated April 11, 1905.

Application filed October 10, 1904. Serial No. 227,835.

*To all whom it may concern:*

Be it known that I, FRANCISCO DE SAMPAIO BARROS, a citizen of Brazil, residing at São Paulo, State of São Paulo, Republic of Brazil, have invented certain new and useful Improvements in Machines for Polishing and Finishing Coffee-Beans, (for which I have obtained Letters Patent No. 4,016 of the Republic of Brazil, dated January 14, 1904,) of which the following is a specification.

This invention relates to improvements in machines for polishing and finishing coffee-beans, which machine is simple in construction, rapid in operation, and by means of which the beans can be polished to any desired degree and at the same time finished to have any desired shade or color.

In the accompanying drawings, in which like letters of reference indicate like parts in all the figures, Figure 1 is a side elevation of my improved machine for polishing and finishing coffee-beans. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a plan view. Fig. 4 is a horizontal sectional view. Fig. 5 is a detail perspective view of one of the plows.

The machine is constructed with a vertical cylindrical vessel A, preferably open at the top and having a suitable hopper-bottom B, which latter is provided with an opening that can be closed by means of a door or other suitable closing device B'. A vertical shaft C extends concentrically through said vessel from top to bottom, and this shaft C preferably has a step-bearing C' on the foundation or support on which the apparatus is supported, and at its upper end this shaft has a suitable bearing in the cross-pieces D, uniting the uprights F, which serve to support the vessel A. A helical or conveyer screw G is formed on said shaft C within the vessel A, and a series of arms H extend radially from said shaft at the top and bottom of the vessel, which radial arms are united by vertical rods J at the outer ends of said arms and by intermediate vertical rods K adjacent to the conveyer-screw. The vertical rods J and K are united by a series of horizontal rods L, and the outer vertical rods J are united by additional horizontal rods M. From the several horizontal rods and from the top arms H a series of short arms N project laterally and upward and downward, which arms each carry small plow-shaped pieces or shovels O, all of which plows or shovels O extend in the same direction. The convolutions of the conveyer-screw are so arranged that when the central shaft C is so rotated that the several shovels O move in the direction from their wider toward their narrower ends the helix or screw G is moved in such a manner as to feed the contents of the cylindrical vessel upward, as indicated by the arrows in the drawings—that is, carry the beans from the bottom to the top of the vessel.

Suitable means are provided for rotating the shaft C and the conveyer-screw and frame thereon. For example, a beveled cog-wheel *a* is secured on the upper end of the shaft C, and this beveled cog-wheel engages another beveled wheel, *b*, on a horizontal shaft *d*, having a belt-pulley *e*.

The operation is as follows: The dried coffee-beans are filled into the vessel A, and when the same is full the central shaft C is rotated, whereby the several shovels or plows O are forced through and between the mass of coffee-beans, and at the same time the conveyer-screw carries the beans from the bottom part or hopper to the top of the vessel, thus keeping the entire contents of the vessel in motion. The plows O passing through the mass of beans cause them to grind one against the other, as does also the upward and downward movement of the beans caused by the conveyer-shaft, but without crushing, breaking, or bruising the beans. By the friction between the beans and the frame the small plows or shovels, the sides of the vessel, and the friction between the several beans themselves causes a greater or less part of the outer cover of the bean to be rubbed off, thus giving the beans a more or less polished surface. It is evident that if this agitation of the beans is kept up a greater or less length of time the surface of the bean will be finished to a greater or less extent. The color of the bean depends upon the extent of this surface finish or polishing and gradually becomes more brilliant as the coarser parts of the covering are worn off by friction. This process can be carried on in a dry state or

more or less water can be added for the purpose of obtaining a still higher degree of polish and finish or a more desirable or finer shade or color.

The coffee can be subjected to the above-described operation in a series of apparatuses like the one described successively, and while the beans are passed from one such apparatus to the other the chaff can be blown off, or the beans may be screened, or other well-known means may be used for separating the chaff from the beans.

Any suitable means may be used for admitting water in greater or less quantity into the receptacle. For example, a water-supply pipe S may be provided, as shown in dotted lines.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a coffee polisher and finisher, the combination with a vertical cylindrical vessel, open at the top and closed at the bottom, of a central vertical shaft in the same, a conveying-screw on said shaft within the vessel, a frame projecting from said shaft and a series of tapering shovels on said frame, and means for rotating said shaft, substantially as set forth.

2. In a coffee polisher and finisher, the combination with a vertical cylindrical vessel, open at the top and closed at the bottom, of a central vertical shaft mounted in the same, a conveying-screw on said shaft, within the vessel, radial arms on said shaft at different elevations, vertical rods connecting the radial arms, horizontal arms connecting the vertical rods, and a series of shovels secured on the frame formed by the radial arms and the vertical and horizontal rods, and means for rotating said shaft, substantially as set forth.

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

FRANCISCO DE SAMPAIO BARROS

Witnesses:
OSCAR T. GUNZ,
OCTAVIANO DE SAMPAIO LUO.