

G. E. B. BARNARD.
MACHINE FOR OPERATING UPON CACAO BEANS.
APPLICATION FILED JULY 24, 1909.

953,504.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 1.

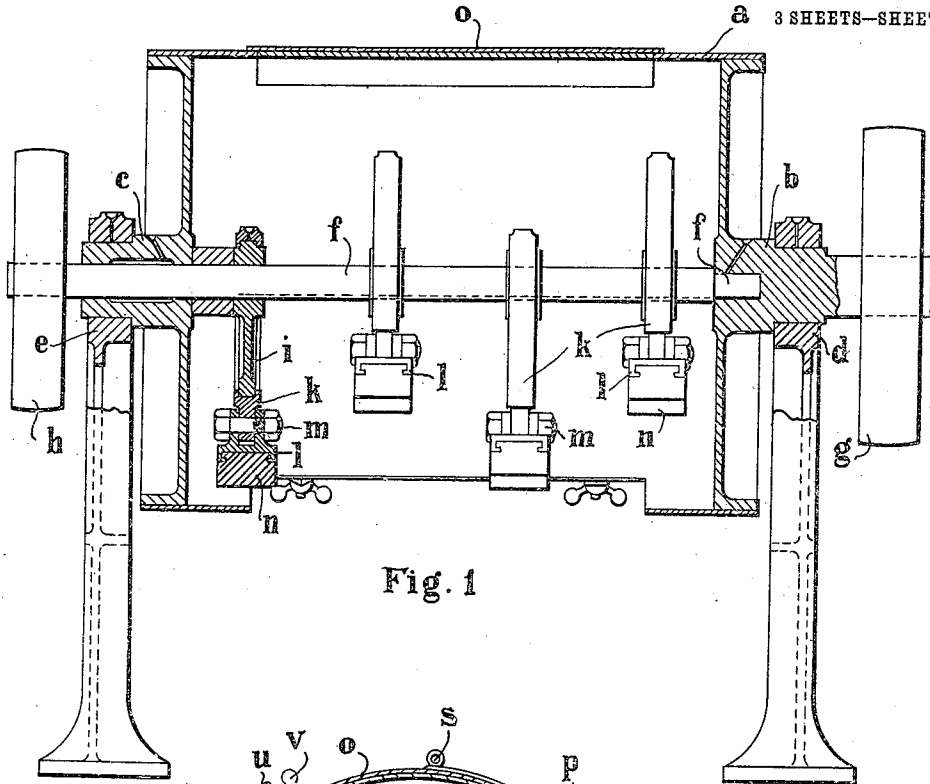


Fig. 1

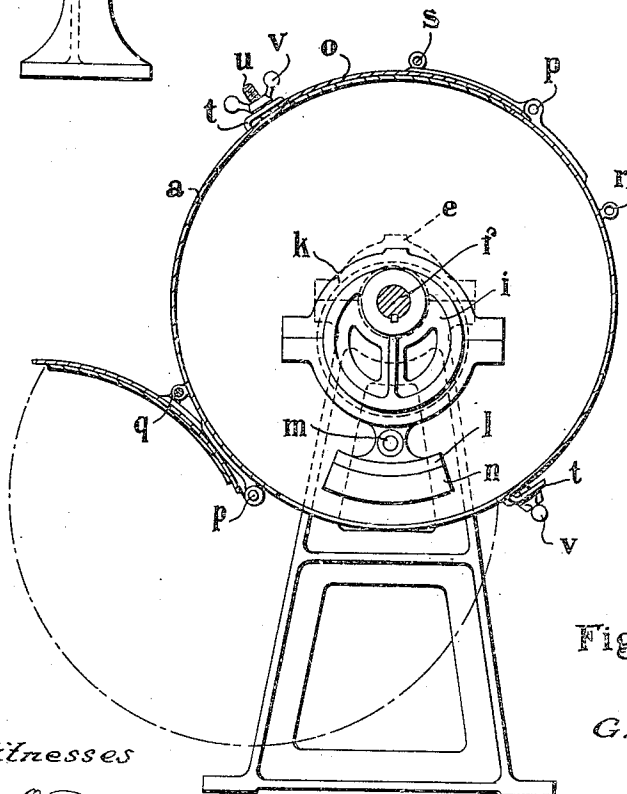


Fig. 2

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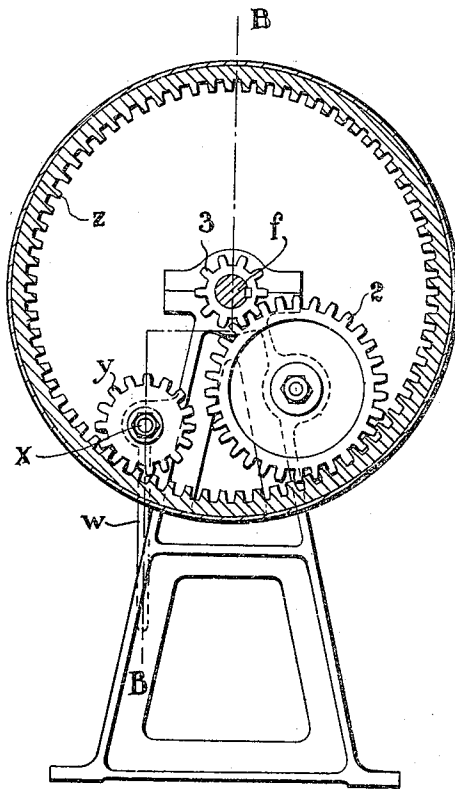


Fig. 3

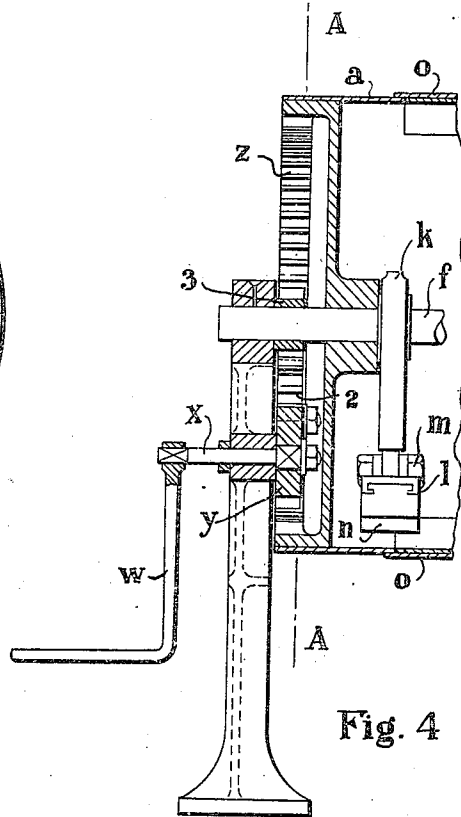


Fig. 4

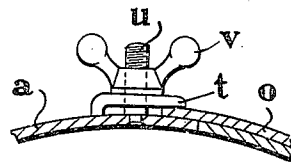


Fig. 5

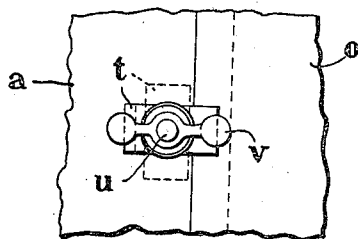


Fig. 6

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3 SHEETS—SHEET 3.

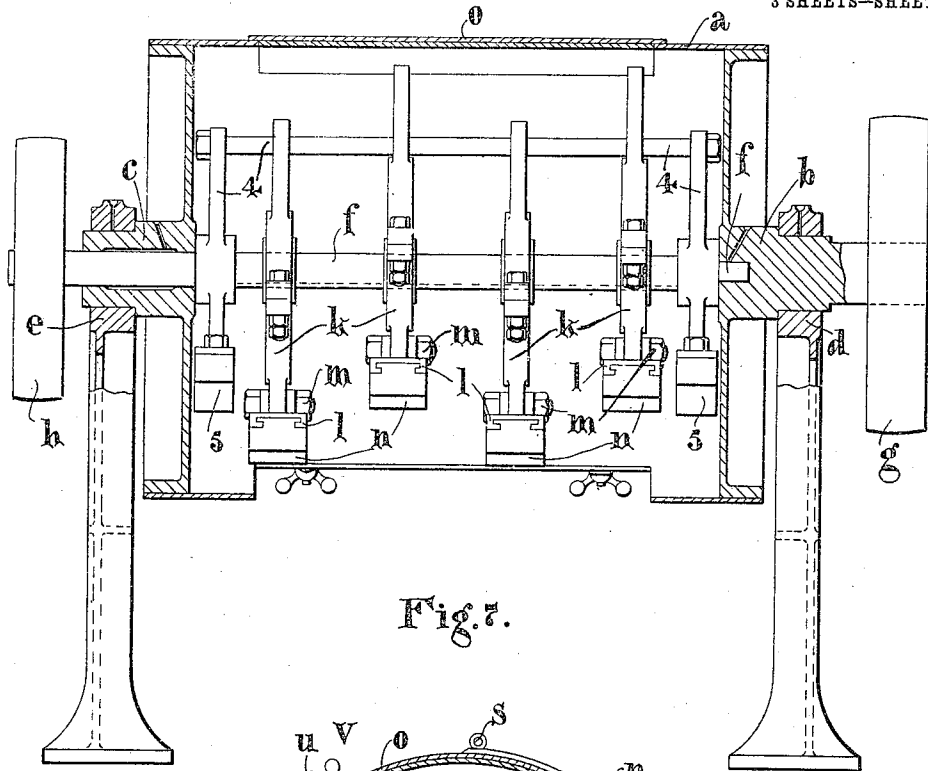


Fig. 7.

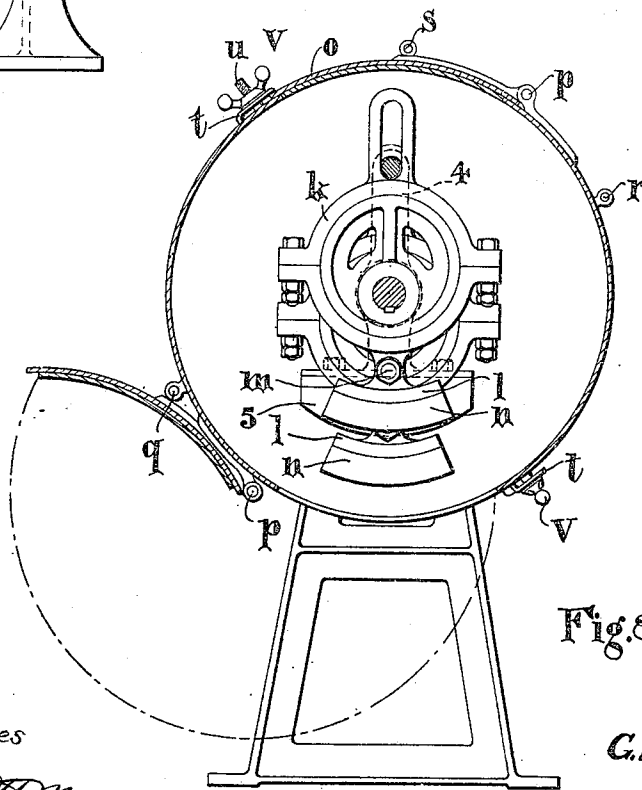


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE ERNEST BEAUSIRE BARNARD, OF ST. LUCIA, WEST INDIES.

MACHINE FOR OPERATING UPON CACAO-BEANS.

953,504.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed July 24, 1909. Serial No. 509,433.

To all whom it may concern:

Be it known that I, GEORGE ERNEST BEAUSIRE BARNARD, a subject of the King of Great Britain and Ireland, and residing at Park Estate, St. Lucia, West Indies, formerly of 28 Gordon Place, Kensington, in the county of London, England, have invented certain new and useful Improvements in Connection with Machines for Operating upon Cacao-Beans, of which the following is a specification.

This invention relates to improvements in connection with machines for use in polishing and cleaning cacao beans, the object being to devise a mechanical apparatus which will work efficiently and will adequately obviate the present system of manual cleaning and polishing usually considered necessary.

The invention consists in mounting within a cylindrical or other casing a number of pressing feet or members which when the casing is revolved are adapted to rise and fall and so press or work upon the beans as to polish the latter without bruising them as set forth in the claims.

The invention also comprises various details in construction hereinafter referred to and claimed.

In the accompanying drawings, Figures 1 and 2 are respectively a longitudinal sectional elevation and a transverse sectional elevation of one form of machine according to the invention adapted to be driven by power. Figs. 3 and 4 illustrate hand driven mechanism for a similar type of machine, Fig. 3 being a section on A—A, Fig. 4, while Fig. 4 is a section on B—B, Fig. 3. Figs. 5 and 6 are detail views illustrating one form of catch, which may be employed for securing the doors of the machine. Figs. 7 and 8 are respectively a longitudinal elevation and a transverse section of a machine showing a weighted guide frame.

In carrying out the invention according to one mode a cylindrical casing *a* is provided with trunnions *b* and *c* carried in suitable standards *d* and *e*. A shaft *f* is adapted to pass through the hollow trunnion *c* and to bear at one end *f* in a suitable recess or bearing within the other trunnion *b*. The trunnion *b* is provided with a driving pulley *g* while the shaft *f* is provided with another driving pulley *h*. These driving pulleys are driven in opposite directions and at different speeds as hereinafter referred to. The

shaft *f* is fitted with a number of eccentric sheaves *i* carrying eccentric straps *k* to which heavily weighted feet *l* are pivoted as for instance upon bolts *m*, the feet *l* preferably having a curved or other suitably shaped shoe *n* of rubber or other suitable polishing material of a nature which will not bruise the surface of the beans. The eccentrics are mounted in such a manner upon the shaft *f* that the independent feet *l* act continuously upon the beans with a rising and falling motion, but sufficient clearance space beneath the lower ends of the feet and the inner surface, of the casing *a* is allowed to avoid crushing of the beans between the feet and the walls of the casing. The casing *a* is fitted preferably with two doors *o* arranged opposite to one another to facilitate cleaning, the doors being hinged as at *p* and being adapted to be secured in their open positions by any suitable device such as pins *q*, inserted through eyes *r* and *s* respectively provided upon the casing *a* and the doors *o*. The doors may be clamped in their closed positions by any suitable type of fastening, convenient forms of fastening being illustrated in Figs. 1, 2, 5, and 6, and consisting of loose clamping plates *t*, loosely mounted on pins *u* and adapted to be firmly secured by fly nuts *v*. Obviously these details as well as the shape of the casing *a* and the manner of suspending and reciprocating the feet *l*, may be variously modified to suit the size of machine and other special circumstances.

In a machine of the type illustrated in Figs. 1 and 2, it has been found in practice that very good results may be obtained by revolving the casing *a* at about 10 revolutions per minute and the shaft *f* at about 72 revolutions per minute although these relative speeds may be varied within considerable limits.

When it is desired to treat smaller quantities of beans than is possible upon machines of the type above referred to, a machine of smaller dimensions or having a less number of beaters or feet may be used and may be driven by hand, in which case a suitable handle may be provided in place of the pulleys *g* and *h*, or said pulleys may be fitted with handles. It is preferred, however, to drive the casing *a* and shaft *f* through gearing, a convenient arrangement being illustrated by way of example in Figs. 3 and 4 wherein the handle *w* is mounted

upon a short shaft *x*, fitted with a pinion *y* meshing with an internal toothed ring *z* on the casing *a*, the toothed ring *z* also meshing with an intermediate pinion 2, which in turn drives a pinion 3 on the shaft *f*. By this arrangement, the shaft *f* and casing *a* are rotated in opposite directions and at adequate relative speeds, and suitable purchase is obtained for the operator.

It is preferred to rely upon the weight of the feet to maintain them in their correct positions without rotating about the shaft *f*, but should the weight of the feet not be sufficient for this purpose in any particular machine, a guide frame 4, Figs. 7 and 8 may be adopted to positively guide the feet, the frame being preferably suspended from the shaft *f*, and being weighted by weights 5 to insure its stationary position, while the shaft rotates.

The invention is not limited to any particular form of casing or arrangement of operating shaft within the same, or method of giving motion thereto as the arrangement and disposition of the parts may be varied to suit the size of machine that is to be constructed, the form of power that is to be employed and the extent or quantity of cacao beans that is to be operated upon.

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

1. A machine for polishing cacao beans or the like, comprising a casing, a shaft within said casing, eccentrics on said shaft, heavily weighted presser feet pivoted to said eccentrics, rubber shoes on said feet, and means for rotating said shaft and casing at different speeds, substantially as and for the purpose hereinbefore set forth.

2. A machine for polishing cacao beans or the like comprising a cylindrical casing having two hinged doors, trunnions for the casing standards adapted to support said trunnions, a shaft longitudinally supported by said trunnions, eccentrics on said shaft, heavily weighted pressing feet pivoted to said eccentrics, and means for rotating said shaft and casing, substantially as and for the purpose hereinbefore set forth.

3. In a machine for polishing cacao beans or the like, the combination of a revolving casing, a shaft passing through said casing, presser feet within the casing and means between the presser feet and shaft for reciprocating the presser feet toward and from the revolving walls of the casing.

4. In a machine for polishing cacao beans or the like, the combination of a revolving casing, a revolving shaft passing through said casing, eccentrics on said shaft, presser feet mounted on the eccentrics, and means for revolving the shaft to cause the eccentrics to reciprocate the presser feet toward and from the revolving walls of the casing.

5. In a machine for polishing cacao beans or the like, the combination of a revolving casing, a revolving shaft in the casing, presser feet in the casing and spaced from the walls thereof, means between the shaft and presser feet for reciprocating the latter toward and from the revolving wall of the casing and means for pivotally mounting the presser feet.

6. In a machine for polishing cacao beans or the like, the combination with a casing, a revolving shaft in the casing, presser feet within the casing, means between the shaft and presser feet for reciprocating the latter toward and from the casing and means for pivotally mounting the presser feet.

7. In a machine for polishing cacao beans or the like, the combination of a casing, a shaft within said casing, presser feet within the casing, means between the shaft and presser feet for reciprocating the latter toward and from the wall of the casing, and means for rotating the shaft and casing at different speeds.

8. In a machine for polishing cacao beans or the like, the combination of a revolving casing, a shaft within the casing, presser feet within the casing, means on the shaft for reciprocating the presser feet toward and from the walls of the casing, means for pivotally mounting the presser feet, and means for revolving the shaft and casing at different speeds.

9. In a machine for polishing cacao beans or the like, the combination with bearings, a casing having trunnions mounted in the bearings, each of said trunnions having a bearing for a shaft, a shaft mounted in the latter bearings, presser feet suspended from the shaft, means for reciprocating the presser feet toward and from the walls of the casing and means for revolving the casing and shaft at different speeds.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE ERNEST BEAUSIRE BARNARD.

Witnesses:

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J. A. M. SALMON.