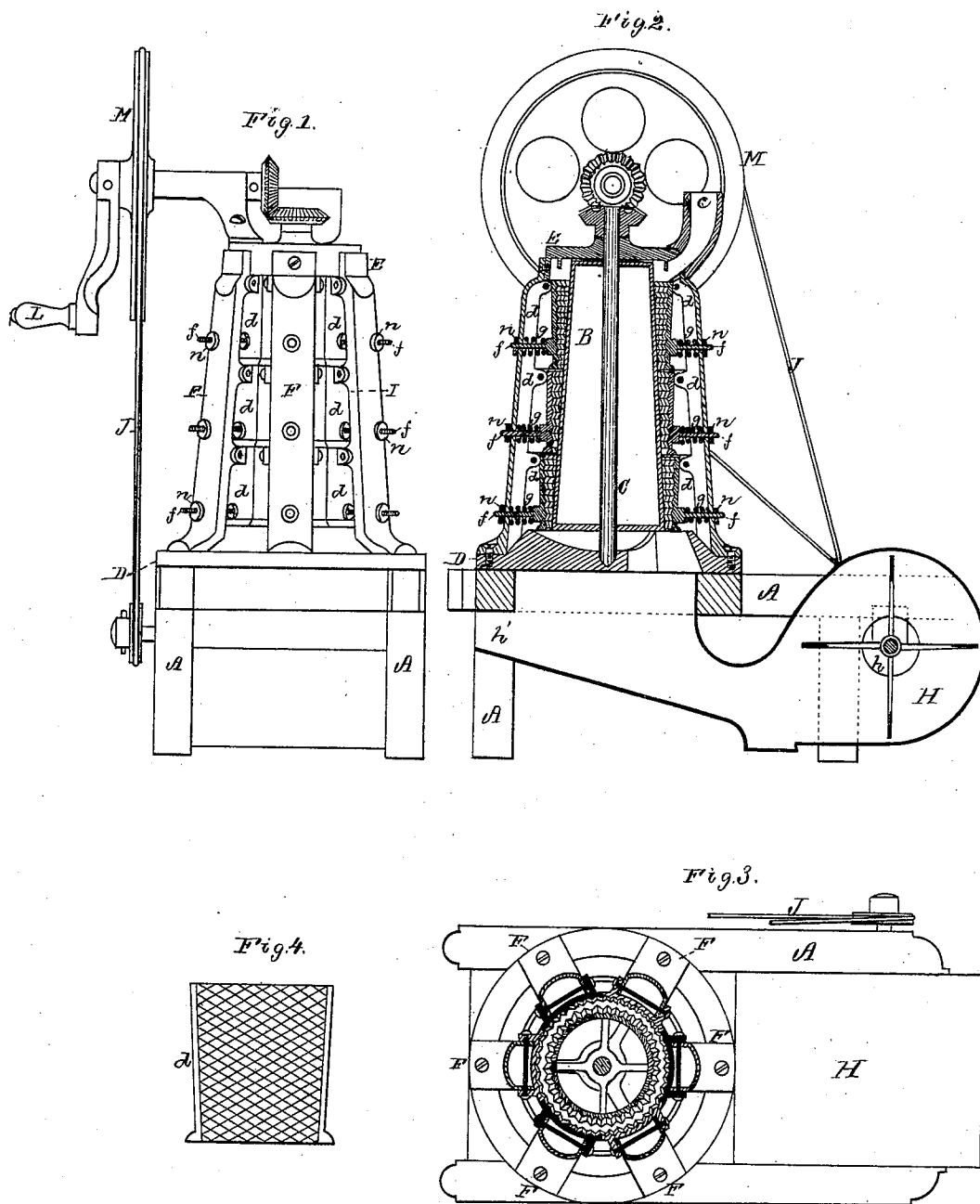


D. LOMBARD.
COFFEE-HULLER.

No. 170,383.

Patented Nov. 23, 1875.



Witnesses.

Geo Gray
H. W. Hale

Daniel Lombard

by his attorney
S. P. Hale

UNITED STATES PATENT OFFICE.

DANIEL LOMBARD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF
AND LIVERUS HULL, OF SAME PLACE.

IMPROVEMENT IN COFFEE-HULLERS.

Specification forming part of Letters Patent No. **170,383**, dated November 23, 1875; application filed
September 30, 1875.

To all whom it may concern:

Be it known that I, DANIEL LOMBARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machine for Removing the Integument or Shells from Coffee-Berries, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

In the said drawing, Figure 1 denotes a front-end view of a machine constructed in accordance with my invention; Fig. 2, a central and vertical section thereof, and Fig. 3 a horizontal section taken on line *x x* of Figs. 1 and 2. Fig. 4 is an inside view of one of the segmental jacket-plates, to be hereinafter described.

Similar letters denote like parts in all the figures.

The object of my invention is to remove the shells, integuments, or outer coverings from coffee-berries, &c., in a cheap and expeditious manner; and my invention consists in the employment of an upright cylindrical or frusto-conic block or core, fluted or serrated longitudinally, and disposed and rotating within a hollow metallic casing or series of jackets surrounding the same, and composed of a series of segmental plates corrugated or serrated diagonally on their inner surfaces, and arranged in rows one above another, the said plates being so pivoted or hinged at their upper ends to their supporting-bars as to render each segment elastic or yielding, in order to act with equal effect upon a mass of coffee-berries of differing sizes, and thus facilitate the removal of the hulls or shells, as well as to prevent the breakage of the coffee-kernels, as would, to a greater or less extent, result were both the surfaces between which the coffee passed fixed or rigidly maintained, the said parts so constructed having a hopper and discharging-port applied thereto, or used therewith, as hereinafter described; and my invention further consists in the employment of a fan or blast wheel

in combination with the shell-removing devices, in manner and for the purpose hereinafter stated.

In the drawings, A A denote the frame for supporting the main operating parts. B is a hollow metallic frusto-conic or cylindrical core or center, disposed vertically, and having its outer surface fluted or serrated longitudinally, the said center being connected to a vertical shaft, C, extending axially through it, and supported at its lower end in a step or block affixed to the lower surface of the platform D, the upper end of the said shaft being supported in a suitable bearing or an annular cap-plate, E, through which the said shaft passes, the same surmounting the center B, and being provided with an opening or hopper, *c*, for receiving the coffee or substance to be treated. F F, &c., are a series of vertical standards or bars, which at their tops are securely bolted, or otherwise properly secured, to the said cap-plate, their lower parts being bolted or affixed to an annular base-plate, G, affixed to the platform or table D. To each of the bars F a series of curved segmental plates, *d d*, &c., is affixed, such series in its aggregate forming a complete casing or jacket, I, to the serrated center B. Each of the segmental plates is hinged or pivoted, by means of ears or lugs formed on their upper ends, to one of the said bars F, as shown in the drawing, its lower part being provided with a rod, *f*, which is affixed thereto, and slides through one of the bars F, and is secured thereto by means of an adjusting-nut, *n*, and washer. A spring, *g*, is coiled around each of the rods *f*, and is arranged between each segment and its supporting-bar, so that by their action they shall bring the lower parts of all the segments in closer contiguity with the center than are their upper ends, the requisite distance being determined by means of the adjusting-nut *n*. Each of the segmental plates has a flange extending laterally from its lower edge, the same impinging against the face of the bars F, such determining the extent of lateral or outward movement of the plates.

The object of so hanging and suspending the series of plates is to render them elastic and yielding, and thus maintain the berries

in elastic impingement with the rough surfaces of the center and their surrounding jackets, as well as to regulate the descent of the berries.

The number of segments constituting the casing I depends upon the length and diameter of the center B, which they surround, and they should be so fitted that, while they will play or move readily either outward or inward, there shall be little or no space between them, such as will permit the issue of coffee therefrom. Their distance from the center should be such as to enable the berries to pass between the two without being broken.

H is a fan-wheel, which is disposed near one end of the frame A, it being provided with air induction and eduction mouths *h h'*, the latter being so formed and arranged as to direct currents of air directly upon the mass of coffee and shells as they fall from the discharging-ports of the machine, and thereby separate or blow the shells from the berries. J is an endless band, which passes around a drum on the shaft of the fan, and another drum affixed to the driving-shaft K, which, by means of a bevel-wheel, *i*, connected with another bevel-wheel, *k*, imparts rotary motion to the center B. L is a crank applied to the driving-shaft, and M a balance-wheel affixed thereto.

Having described the construction of my machine, its operation is as follows: The center B having been put in rotation, the coffee-berries are to be poured into the hopper, from whence they will successively descend through the series of segments, where, by the abrading action of the center B and the serrated surfaces of the elastic plates *d*, and the friction of the berries against each other, the integuments or shells will be rapidly and completely removed from the berries. The mass of shells and the decorticated coffee falling through the

discharging gate or opening will, as they issue, be acted directly upon by the currents of air from the fan, whereby the shells will be blown out from the berries, which will fall upon the floor, or into a vessel disposed underneath the gate or gates.

What I claim is—

1. The combination of the rotary corrugated or fluted center B and the casing I, composed of the series of segmental elastic plates *d*, substantially as described.

2. The combination, with the bars F, of the series of plates *d*, hinged thereto, and provided with guide-rods *f*, springs *g*, and nuts *n*, substantially as shown and described.

3. The combination, with the corrugated center B and the series of elastic plates *d*, of the fan or blower, as and for the purpose set forth.

4. The improved coffee-hulling machine, as described, the same consisting of the corrugated core B, provided with the shaft C and means, substantially as described, for putting the latter in rotation, the series of elastic plates *d*, the bars F, the hopper *c*, arranged and operating together, substantially as set forth.

5. The improved coffee-hulling machine, consisting of the corrugated core B, provided with a driving-shaft, C, the series of elastic plates *d*, the bars F, hopper *c*, and fan or blower H, arranged and operated together, substantially as set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

DANL. LOMBARD.

Witnesses:

F. P. HALE,
F. C. HALE.