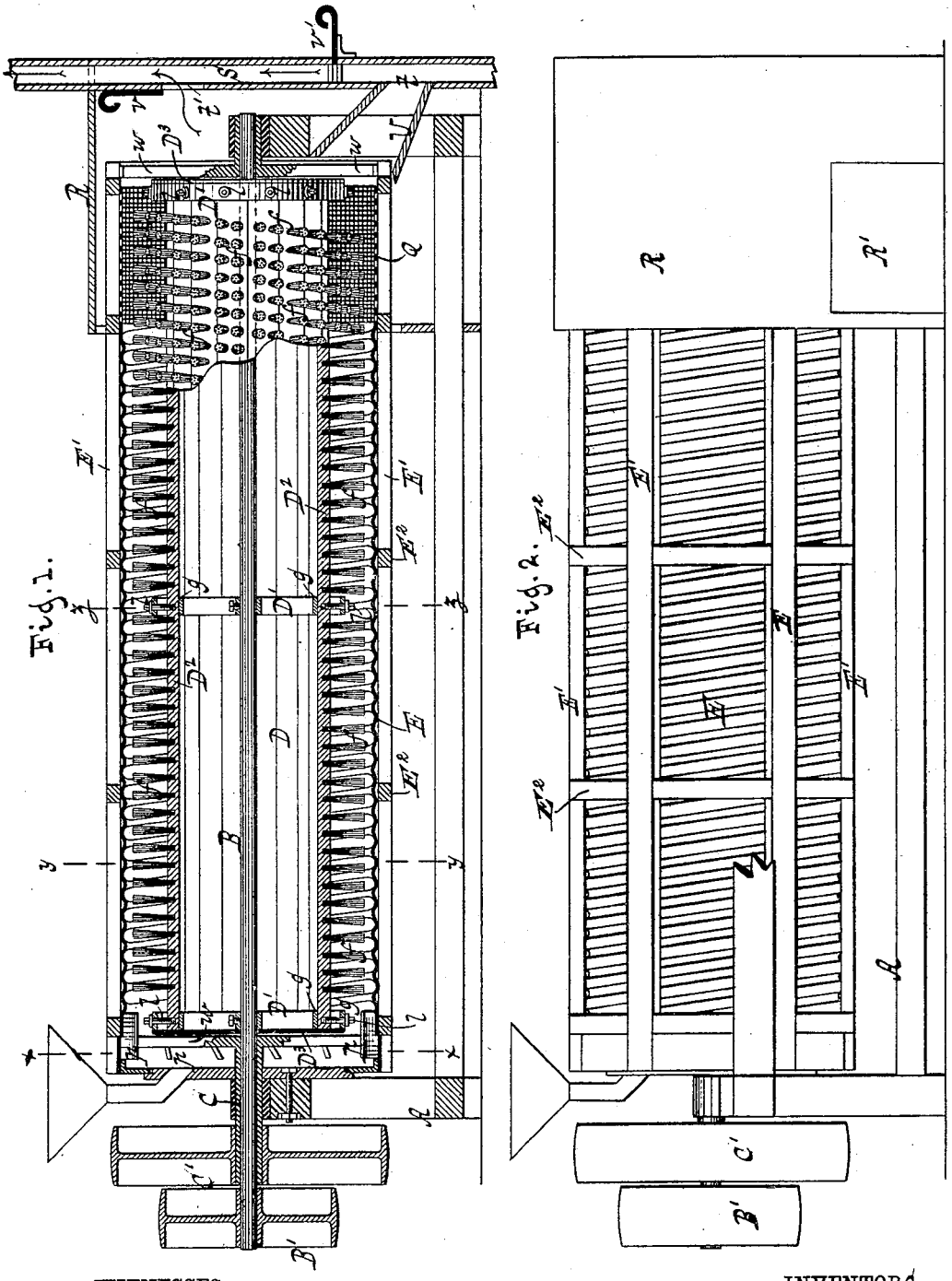
(No Model.) 2 Sheets—Sheet 1.

G. W. & G. S. HUNGERFORD.

MACHINE FOR RENOVATING COFFEE, &c.

No. 263,523. Patented Aug. 29, 1882.



WITNESSES:

Chas. Wahlers.

William Miller

INVENTORS

George W. Hungerford

George S. Hungerford

BY Van Santvoord & Hauff

ATTORNEYS

(No Model.) 2 Sheets—Sheet 2.

G. W. &. G. S. HUNGERFORD.

MACHINE FOR RENOVATING COFFEE, &c.

No. 263,523. Patented Aug. 29, 1882.

Fig. 5.

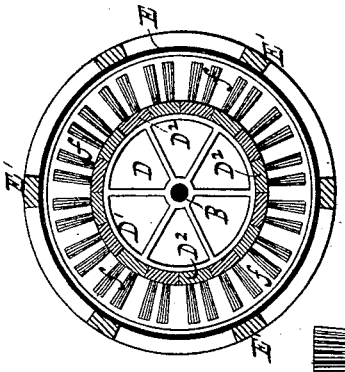


Fig. 8.

Fig. 4.

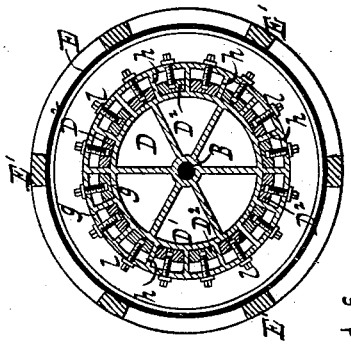


Fig. 6.

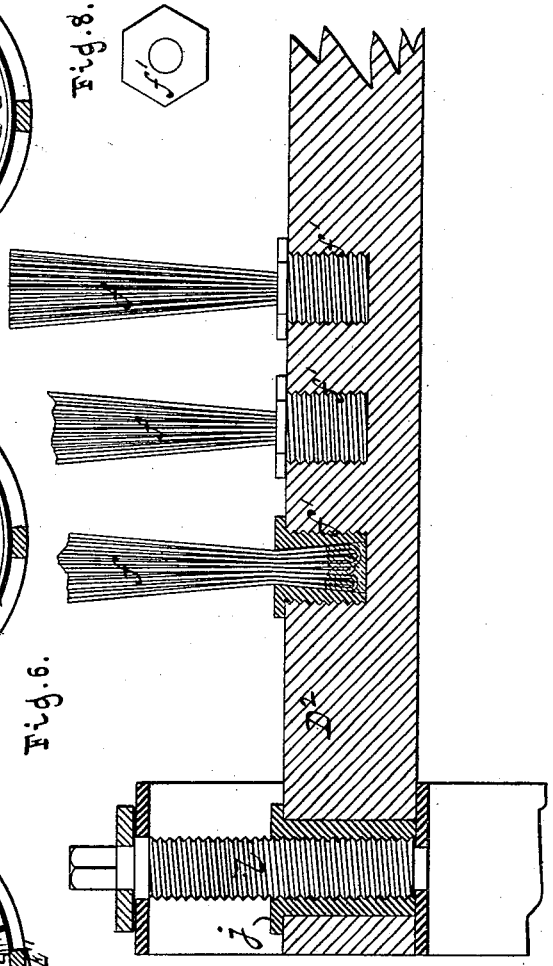


Fig. 3.

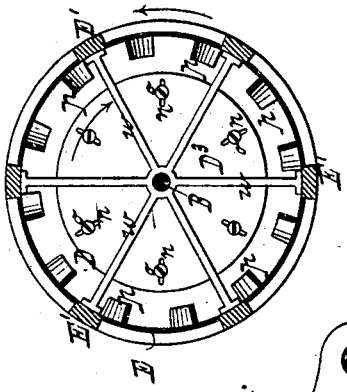
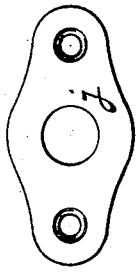


Fig. 7.



WITNESSES:

Chas. Wahlers.

William Miller

INVENTORS

George W. Hungerford

George S. Hungerford

BY Van Santvoord & Hauff

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE W. HUNGERFORD AND GEORGE S. HUNGERFORD, OF NEW YORK, N. Y.

MACHINE FOR RENOVATING COFFEE, &c.

SPECIFICATION forming part of Letters Patent No. 263,523, dated August 29, 1882.

Application filed July 1, 1882. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. HUNGERFORD and GEORGE S. HUNGERFORD, both citizens of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Machines for Renovating Coffee and other Materials, of which the following is a specification.

This invention relates to machines for cleaning or renovating coffee, rice, beans, or other materials of a similar nature, and especially that class of machines embodying two cylinders which are arranged one within the other to revolve in opposite directions, and are provided with devices for acting on the material as it passes between them.

This invention is illustrated in the accompanying drawings, in which Figure 1 represents a vertical longitudinal section. Fig. 2 is a side elevation. Fig. 3 is a vertical cross-section on the line *x x*, Fig. 1. Fig. 4 is a similar section on the line *y y*, Fig. 1. Fig. 5 is a similar section on the line *z z*, Fig. 1. Fig. 6 is a detail view, showing a portion of one of the heads, staves, &c., of the inner cylinder. Fig. 7 shows one of the screw-sockets of the staves. Fig. 8 shows one of the brush-stocks.

The same letters indicate the same or corresponding parts.

The letter A designates the machine-frame, forming the bearings for two shafts, B C, which carry the cylinders D E, the inner cylinder-shaft, B, being continuous, while the outer cylinder-shaft, C, is made in two sections, embracing the inner shaft. Both shafts B C, moreover, carry a pulley, B′ or C′, for imparting thereto and thence to the cylinders a revolving motion.

The inner cylinder, D, is provided with external brushes, *f*, of wire or other suitable material, which extend in a spiral direction from one to the other end thereof, and the body of the outer cylinder, E, is composed of sheet metal, which is corrugated at an oblique angle to the axis of said cylinder and in an opposite direction to the spiral plane of the above-named brushes, so that if the material to be treated is fed to the outer cylinder in the proper manner, and the required motion is given to the cylinders, the material is propelled between and from one to the other end of the cylinders by the brushes, due to their spiral arrangement, while the outer cylinder at the same time tends to retard the material, owing to its retreating corrugations, so that the material becomes subjected to the scouring action of the brushes.

The inner cylinder, D, is constructed of three (or more or fewer) heads, D′, one at each end and one at about the mid-length, and of staves D^2, the latter carrying the brushes. Each of the cylinder-heads D′ comprises a double rim, *g g*, (best seen in Fig. 4,) and radial equidistant webs *h* between the members of the rim forming an annular row or series of frames, into which the staves D^2 are inserted, the parts being so disposed that the depth or height of these frames is greater than the thickness of the staves, which allows a radial movement of the staves.

Through the outer rim, *g*, of each cylinder-head extend radially a series of set-screws, *l*, which engage the staves D^2, respectively, so that by turning these screws in the proper direction the staves can be adjusted outward to increase the diameter of the inner cylinder, and hence when the edges of the brushes become worn they can be set to compensate for such wear, and it is made practicable to preserve a fixed relation of the brushes to the outer cylinder.

Each of the staves D^2 is provided with nuts, one of which is shown at *j*, Figs. 6 and 7, to receive the screws concomitant therewith, and the brushes *f* are provided with threaded stocks *f′*, Fig. 6, which are screwed into the staves for attaching the brushes.

The opposite ends of the inner cylinder, D, are closed by means of disks D^3, of sheet metal or other suitable material, which are provided with radial slots *n*, (see Fig. 3,) and are fastened by means of screws *o*, passing through the slots into the ends of a portion of the staves, so that when the staves are adjusted, as before stated, the disk-fastening screws move in the slots, thus allowing such adjustment.

At its receiving end the outer cylinder, E, is provided with propelling-blades or conveyers *p*, which are fixed to the inner surface of the cylinder, so as to share its motion, and are inclined in the proper direction to carry or throw the material between the cylinders, said

blades extending inward beyond the leading end of the inner cylinder.

Extending inward from the delivery end of the outer cylinder, E, is a screen, Q, serving to allow the escape of dust, grit, and other like impurities separated from the material by the action of the brushes, and inclosing the delivery end of said cylinder, together with the screen, is a dust-box, R, in which the heavy particles of the impurities escaping through the screen accumulate, and whence they are removed by a door, R′.

Through the dust-box R extends vertically a suction-flue, S, the upper end of which is in practice connected to an exhaust-fan or the like, and which is provided with two mouths or openings, *t t′*, in the side facing the dust-box, one having connected thereto a spout, U, and the other provided with a gate, *v*, said spout being arranged to receive the material discharging from the outer cylinder, and serving to deposit the same in the flue.

Between the two mouths *t t′* in the suction-flue S is arranged a gate, *v′*, and when the latter, together with the gate *v*, is opened, any impurities escaping with the material into the suction-flue are carried off, while any dust suspended in the box R is carried off through the mouth *t′*. When, on the other hand, either gate *v* or *v′* is closed, the discharging material or the dust-box is cut off from the blast in the flue.

The corrugated body and the screen of the outer cylinder are supported by ribs E′, combined with sectional hoops E^2, and the sections of the outer cylinder-shaft, C, are provided with radial arms *w*, forming spiders, whereby they are connected to the cylinder-ribs.

It should be remarked that the sheet-metal body of the outer cylinder can be indented or roughened in any suitable manner, instead of being corrugated, without departure from our invention.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore set forth, of the inner cylinder having external brushes which extend spirally around it, and the outer cylinder having its body composed of sheet metal, which is corrugated at an oblique angle to the axis of said cylinder and in an opposite direction to the spiral plane of said brushes of the inner cylinder.

2. The combination, substantially as hereinbefore set forth, of the outer cylinder, the longitudinal inner cylinder, staves carrying brushes arranged in a spiral direction, the inner cylinder-heads provided with inner and outer connected rims, between which the ends of the staves are arranged and guided, and devices for radially adjusting the staves between the rims.

3. The combination, with the outer cylinder, of the inner cylinder consisting of longitudinal staves carrying brushes, the inner cylinder-heads having inner and outer connected rims, between which the ends of the staves are arranged and guided, and adjusting-screws passing through one of the rims of each head for radially adjusting the staves, substantially as described.

4. The combination, substantially as hereinbefore set forth, with the radially-adjustable staves of the inner cylinder carrying brushes, of the closing-disks at the opposite ends of said cylinder, having radial slots, and the fastening-screws passing through said slots into the ends of the staves.

5. The combination, substantially as herein set forth, of the inner cylinder, the outer cylinder, and the propelling-blades at the receiving end of the outer cylinder, adapted to throw the material between the cylinders.

6. The combination, substantially as hereinbefore set forth, of the outer cylinder having the screen at its delivery end, and the dust-box inclosing such end of the cylinder, together with the screen, with the suction-flue extending through the dust-box and having the two mouths, the delivery-spout connected to the lower of such mouths, the gate to the upper mouth, and the gate intermediate of the mouths.

In testimony whereof we have hereunto set our hands and seals in the presence of two subscribing witnesses.

GEORGE W. HUNGERFORD. [L. S.]
GEORGE S. HUNGERFORD. [L. S.]

Witnesses:
CHAS. WAHLERS,
WILLIAM MILLER.