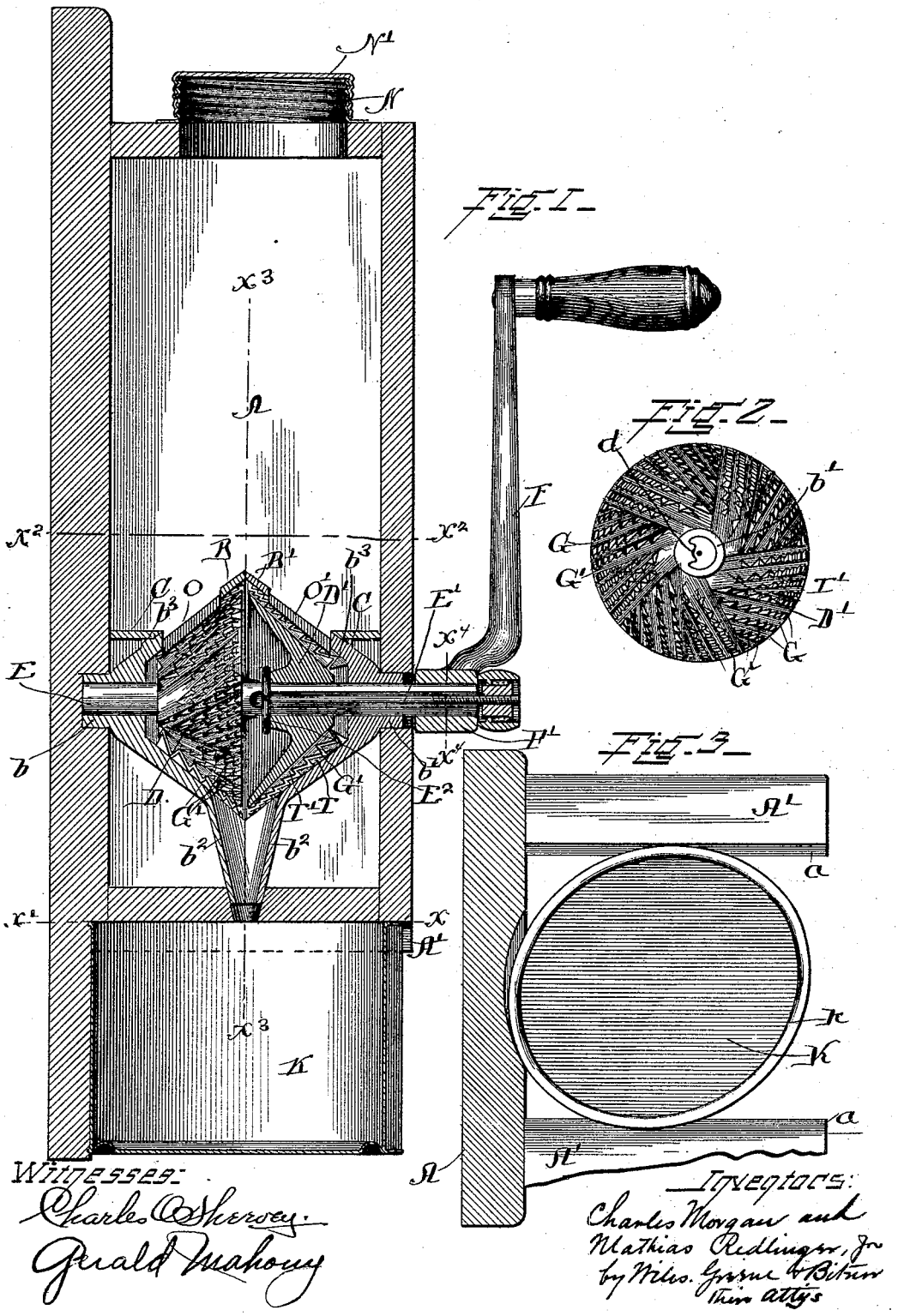
(No Model.) 2 Sheets—Sheet 1.

C. MORGAN & M. REDLINGER, Jr.

COFFEE MILL.

No. 495,099. Patented Apr. 11, 1893.



Witnesses:
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by Niles, Greene & Bitner
their attys

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

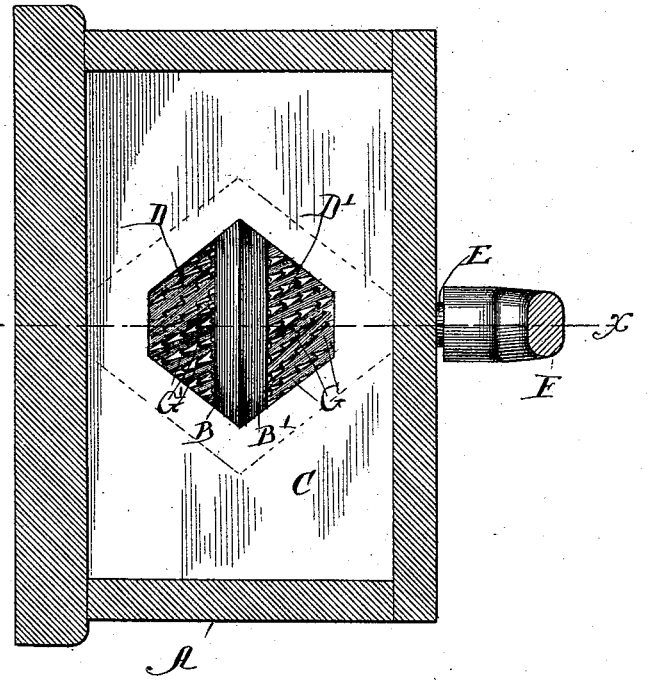


Fig. 5.

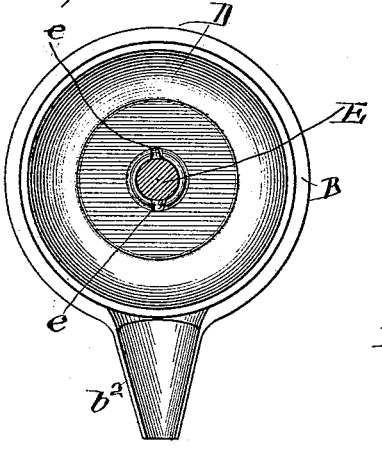


Fig. 7.

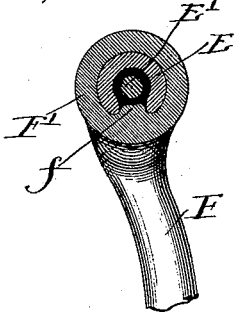
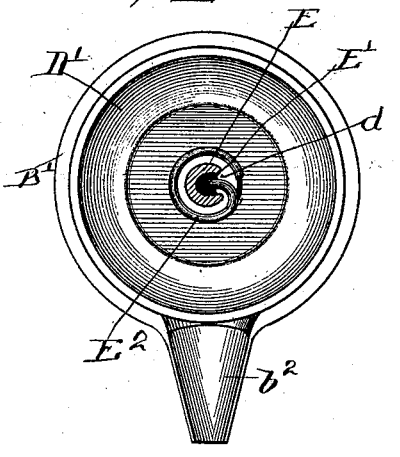


Fig. 6.



Witnesses:
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Gerald Mahony

Inventors:
Charles Morgan and
Mathias Redlinger Jr.
by Miles, Gram & Bitner
their attys.

UNITED STATES PATENT OFFICE.

CHARLES MORGAN AND MATHIAS REDLINGER, JR., OF FREEPORT, ILLINOIS, ASSIGNORS TO SAID MORGAN, EDGAR H. MORGAN, AND ALBERT BAUMGARTEN, OF SAME PLACE.

COFFEE-MILL.

SPECIFICATION forming part of Letters Patent No. 495,099, dated April 11, 1893.

Application filed February 20, 1892. Serial No. 422,250. (No model.)

To all whom it may concern:

Be it known that we, CHARLES MORGAN and MATHIAS REDLINGER, Jr., both citizens of the United States of America, residing at Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Coffee-Mills, of which the following is a specification.

Our invention relates to improvements in coffee mills and particularly in mills of the class known as "side mills" which are adapted to be fastened against the wall or other vertical support.

The invention is fully described and explained in this specification and shown in the accompanying drawings, in which

Figure 1 is a central vertical section of a mill embodying our improvements, the plane of section being through the line, x—x, Fig. 4. Fig. 2 is an elevation of one of the grinding cones of the mill. Fig. 3 is a horizontal section through the line x'—x', Fig. 1, the view being downward. Fig. 4 is a horizontal section through the line x^2—x^2, Fig. 1, the view being downward. Figs. 5 and 6 are vertical sections through the line x^3—x^3, Fig. 1, the views being in opposite directions and showing the inner faces of the grinding cones; and Fig. 7 is a vertical section through the line x^4—x^4, Fig. 1, showing the connection of the crank with the shaft of the mill and the regulating screw.

In these views, A is a preferably rectangular box provided with an opening at its top for the admission of coffee, and having a back piece whose edges extend above and below the body of the box and are formed with screw holes for the attachment of the box to a wall or other vertical support. In the lower part of the box are secured two conical grinding shells, B, B′, provided respectively with hubs, b, b', which enter corresponding holes in the front and rear walls of the box. The edges of the bases of the shells are in close contact, and each of them is provided at its lowermost point with a downward projection, the two projections, b^2, b^2, forming together a discharge spout, whose end lies in a suitable opening in the bottom of the box, the shells being held securely in place by the engagement of the hubs, b, b', and spout, b^2, with the walls of the box. Within the shells B, B′, are two conical grinding cones, D, D′, mounted on a horizontal shaft, E, which is journaled in the hubs, b, b'. In the upper surfaces of the shells, B, B′, are formed openings, O, O′, for the admission of coffee to the spaces between the cones and shells, and a horizontal partition, C, lies within the box and is so formed and placed as to fit closely about the outer margins of these openings in the manner illustrated in Fig. 4. The space above the partition, C, is intended to be filled with coffee, admitted through the opening at the top of the box, and the supply thus afforded may be ground as required.

For the purpose of keeping the coffee in the box in as good condition as possible, we prefer to provide the box with a screw threaded neck, N, and a cap, N′, also screw threaded to engage the neck.

The grinding cones are provided with a dress, such as is illustrated in Fig. 2, the grinding teeth being formed by means of annular grooves G′, and approximately radial grooves, G, placed at suitable intervals and of such comparative depths as to form the largest teeth near the apex, and the finer ones near the base thereof. The radial grooves are at every point slightly deeper than the corresponding annular grooves, so that the ground material has constant opportunity for escape toward the base or margin of each of the cones. The shells are dressed to correspond with the dress of the cones, the teeth of the inner surfaces of the shells being so placed that the teeth of the cones pass between them in the manner illustrated in section, Fig. 1. The two grinding cones are so formed with relation to the horizontal shaft, E, on which they are mounted as to rotate therewith, the shaft being provided with lugs, e, e, Fig. 5, entering corresponding notches in the inner face of the shell, D, and the cone, D′, being provided with a lug, d, entering a longitudinal groove in the shaft, E, as shown in Figs. 2 and 6.

In the longitudinal groove in the shaft, E,

lies a rod, E′, formed at its inner end into a flat coil encircling the shaft and lying in contact with the inner end of a hub formed on the inner face of the cone, D′. The outer end of the rod, E′, is screw threaded and provided with a nut by means of which the rod may be drawn outward, and between the nut and the face of the box, the shaft is encircled by the hub, F′, of a crank, F, adapted to turn the shaft and the cones, B, B′, the hub being provided with a lug, *f*, Fig. 7, entering the longitudinal groove in the shaft. The nut is provided with a locking device adapted to prevent its accidental rotation with reference to the shaft, but this locking device forms no part of our present invention. It is evident, that if the rod, E′, and the coil, E^3, on its inner end be drawn outward by the rotation of the nut, the cone, D′, must be correspondingly drawn outward and the space between the two cones increased, thereby decreasing the spaces between the cones and the shells. The fineness to which material is ground by the mill may thus be regulated at will by means extremely simple and not liable to get out of order.

On the lower surface of the bottom of the box are parallel cleats, A′, A′, formed with recesses in their upper inner margins, and between these cleats is securely held the upper end of a cup, K, provided with an outward marginal flange adapted to enter the recesses in the cleats. The cup is made oval in form, as shown in Fig. 3, so that when in one position, it may be readily entered between the cleats, but when rotated about ninety degrees so as to bring its longer axis at right angles to the cleats, it is pressed firmly between them, and its flange is pressed closely against the lower face of the bottom of the box. This cup forms a receptacle for the ground coffee, discharged by means of the spout, b^2, through the bottom of the box, and it may evidently be readily put into place or detached, and when in place is perfectly secure. We have found in practice that if the cup, K, be made of tin or other elastic sheet metal and be of a diameter slightly greater than the space between the cleats, it may be pressed directly inward between the cleats, the slight compression of the mouth of the cup being sufficient to give the necessary tension for holding it in place. Our invention in this regard may therefore be stated broadly as the combination with the cleats, of a sheet metal cup having a diameter slightly greater than the space between the cleats. The elliptical cup evidently has but one diameter or axis meeting this requirement, while the circular cup has every diameter of the required length, but both forms come within the statement of this paragraph.

Having now described and explained our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with the box and the grinding shells mounted therein, of the shaft, E, formed with a longitudinal groove, the cones, D, D′, mounted on the shaft and rotating therewith, the rod, E′, lying within the groove in the shaft and formed at its inner end with a ring in contact with the inner face of the cone, D′, and a nut engaging the screw threaded outer end of the rod, E′, and adapted to regulate the space between the cones and thereby to increase or decrease the space between the cones and the shells.

2. The combination with the box, A, and the grinding mechanism mounted therein and adapted to discharge through the bottom of the box, of the cleats, A′, fastened to the bottom of the box and the elliptical cup, K, formed with an outward flange at its upper margin, the cup being adapted when in one position to readily enter the space between the cleats and when rotated to be pressed firmly between the cleats and held securely in position.

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