

A. WAKEMAN, Jr.
Coffee-Cleaner.

No. 219,420.

Patented Sept. 9, 1879.

Fig. 1.

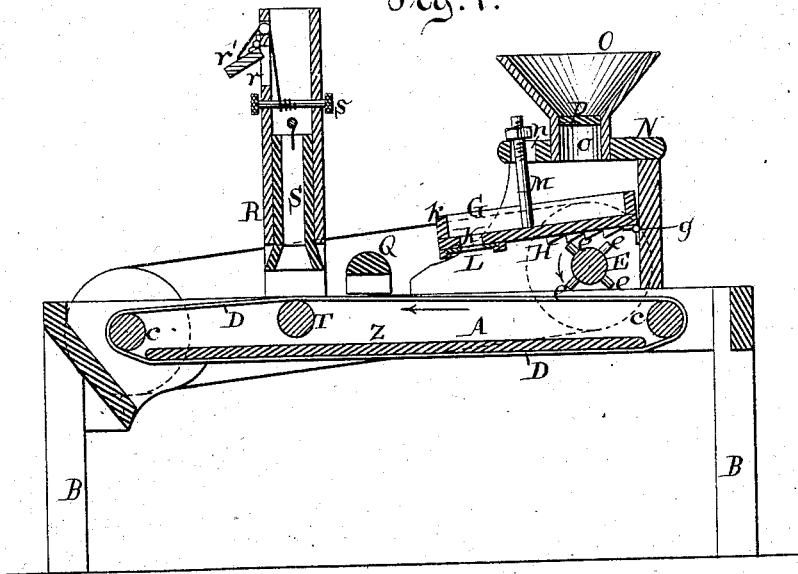


Fig. 2.

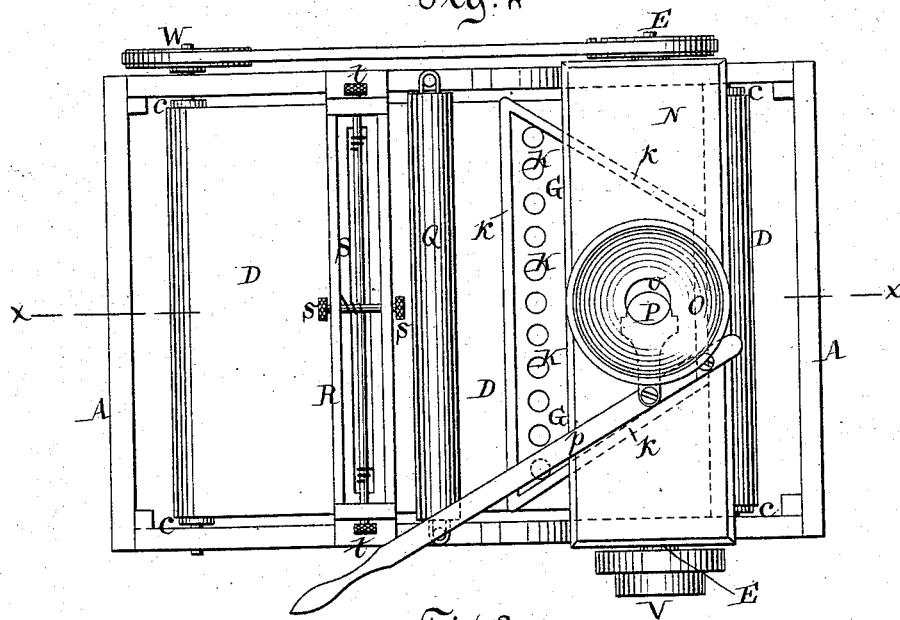


Fig. 3.



Witnesses.
Henry Wells
Joseph M. Alexander.

Inventor:
Abram Wakeman Jr.
by Bruce Wells & Daniel
his atty.

UNITED STATES PATENT OFFICE.

ABRAM WAKEMAN, JR., OF NEW YORK, N. Y.

IMPROVEMENT IN COFFEE-CLEANERS.

Specification forming part of Letters Patent No. 219,420, dated September 9, 1879; application filed April 14, 1879.

To all whom it may concern:

Be it known that I, ABRAM WAKEMAN, JR., of New York city, in the county of New York and State of New York, have invented a new and useful Improvement in Coffee-Cleaners, of which the following is a specification, reference being had to the accompanying drawings.

My invention consists of a device for cleaning coffee-beans and the like.

With few exceptions, all coffee-beans, rice-seeds, dried berries, &c., come to the market more or less mixed with imperfect grains, cheaper and different kinds of grains, gravel-stones, and various other valueless or foreign matters.

Coffee is now usually cleaned by being thrown, a quart or two at a time, upon a table, and the impurities picked out by hand. To thus clean one bag of one hundred and thirty pounds is about an average day's work for an expert.

Rice and other articles aforesaid are either not cleaned at all or are treated in like rude or expensive ways. My device is intended to facilitate these processes.

Figure 1 represents a sectional view through line *x x*. Fig. 2 represents a plan view of my invention. Fig. 3 is a guide forming a part of the machine.

For convenience of description, I denominate that end at which the hopper O is placed the "rear" and its opposite end the "front" of my machine.

It consists of a frame, A, raised at the rear end, as shown, Fig. 1, to carry the roller E, shaking-table G, and hopper O, and is supported on four legs, B.

Two rollers, C C, of about five or six inches in diameter, are supported by and revolve in the frame A, as shown. Over these rollers is smoothly stretched an endless band of strong cloth, D, sufficiently tight to move with the rollers. The band of cloth should be of such width that one at the front of the machine and opposite the middle of the cloth, as the upper surface moves toward him, can conveniently pick up anything near that end of the machine—say between three and four feet.

When the exhaust, hereinafter described, is used, the cloth D should be of open texture, like a fine sieve.

Above the band of cloth D, and at such a height as not to touch it, a third roller, E, is placed near the rear end of the machine in any suitable support. The middle of this roller is provided with four pegs, *e*, set perpendicular to its surface. The roller E revolves in the direction of the arrow.

A shaking-table, G, is suspended on a hinge, *g*, as shown, above the roller E. It is provided with a rack, H, on its under side, with which the pegs *e* come in contact as the roller E revolves, thus raising the table when a peg comes in contact with the rack, and suffering the table to drop as the peg escapes, thus imparting a shaking motion to it.

I am aware shaking-tables have been used before in manufacture, and that motion has been imparted to the table in many different ways. I do not, therefore, confine myself to the method here described. Anything which gives a vertical vibration to the shaking-table will answer.

The shaking-table G has the form of a trapezoid, and is hinged on its shortest side, as shown. It is surrounded by a ledge, K, about one and one-half inch high. Its bottom, near the longest edge, is perforated with a number of holes, K K. These holes are covered on the lower side of the shaking-table with a strip, L, of metal or wood, also perforated with holes of like size and number. L is set in guides, and may be moved like the damper of a stove, so as to close the holes in the shaking-table altogether, or leave them wholly or partly open.

A post, M, terminating in a screw and nut, is erected from the upper side of the shaking-table M, passes through a hole, *n*, in the superstructure N, and the nut is then screwed on. The hole *n* should considerably exceed the diameter of the post M, so as to permit it to vibrate with the shaking-table. The office of the post M is to regulate, by the screw and nut, the amount of drop, and consequently the vibration, of the shaking-table.

A hopper, O, is erected on the superstructure N, through which a discharge, *o*, opens above the shaking-table.

A slide, P, regulates, by means of the lever *p*, the size of the opening *o*, as shown in Fig. 2.

In front of the shaking-table G is placed the

guide Q. (Shown by itself in Fig. 3.) Its position and the manner in which it is secured appear clearly in Fig. 2.

Q is provided with teeth, similar to a comb, as shown in Fig. 3. The interstices between the teeth should be a little larger than the bean, grain, or berry to be cleaned with the machine. When in use the ends of the teeth should lightly touch the surface of the endless band D.

In front of Q, and near it, the trunk R is erected, as shown.

R is provided with an opening, *r*, on its front side and near its upper edge. This opening extends the whole width of the trunk, and is, at will, altogether or partly closed by the shutter *r'*. The position of the shutter *r'*, and consequently the width of the opening *r*, is controlled by the shaft, cord, and pulley *s*, as shown in Fig. 1, or in any other convenient manner. The lower mouth of the trunk R opens about nine or ten inches above the endless band D.

A second trunk, S, provided with a flaring mouth, slides within R, so as to serve as an extension and adjust the distance of the mouth of the trunk from the endless band D.

The inner trunk, S, is raised or lowered by a shaft and cords, as shown at *t*, Fig. 2, or in any other convenient manner.

Immediately below the mouth of the inner trunk, S, is placed the roller T. Its center should be above the center of the rollers C C, so as to raise the upper surface of the endless band, which passes over T, and bring the highest point directly under the mouth of S.

Any form of exhaust-blower is attached to the upper opening of the trunk R.

A driving-pulley, V, to receive a belt from a steam-engine or other motor, is placed on one extremity of the shaft E, while a pulley on the other extremity carries a belt to the pulley W on the front roller.

My device is operated as follows: Suppose the article to be cleaned is coffee. The operator adjusts the holes K K in the shaking-table G, so as to pass one bean at a time freely, but not more, and selects from his stock of guides, Fig. 3, one the teeth of which are spaced so that one bean at a time may go through, and places it on the machine, as shown at Q, and as already described. The coffee is introduced into the hopper O. The driving-belt is slipped on the pulley V, and the machine set in motion.

The pegs in the roller E impart a vertical vibration to the shaking-table G, and as the coffee-beans fall from the hopper onto the upper surface, since the ledge *k* prevents them escaping elsewhere, they gradually find their way out of the holes K K and fall upon and are quite evenly distributed over the upper surface of the endless band D.

The operator watches and regulates the vigor of the vibration of the post M and its screw and nut, making it as lively as possible with-

out throwing the beans over the ledge of the shaking-table.

The endless band D is moving in the direction of the arrow in Fig. 1, (toward the front of the machine,) and brings the beans under the guide Q, which still further scatters and separates them. They then pass under the mouth of the trunk S, through which a strong current of air is passing, drawn by the exhaust-blower.

The operator carefully watches the effect of the current, increasing its force by bringing S nearer to the cloth and closing the shutter *r*, or lessening it by opening the shutter and moving S farther away, as the case may require.

The lighter particles are removed by the current and deposited in any of the forms of receptacle now employed with exhaust-blowers. The residue continues on the cloth until it turns the roller C at the front of the machine, when it drops off into a receiver.

The station of the operator is at the front of the machine—*i. e.*, the end farthest from the hopper O. By means of the lever *p*, Fig. 2, he regulates the flow from the hopper onto the shaking-table, and also removes by hand any bodies which may remain on the cloth after they have passed the exhaust, and whose removal is desired.

The exhaust will, of course, remove the lighter body only, and this may be either the article to be cleaned or the impurities to be removed.

Where the difference in gravity is slight the exhaust is useless, and the trunk R may and should be removed and the machine used without it. This may also be done where the power is insufficient, or from any other reason an exhaust-blower is not at hand. In such cases the roller T is also useless, and may be dispensed with.

The bottom boards, Z, Fig. 1, should also be moved upward till the upper part of the endless band D rests upon them, so that while picking the cloth may not be depressed so as to cause the beans, &c., to run together. The operator then stands in front of the machine—*i. e.*, at the end most distant from the hopper. As the cloth moves toward him the beans will be found evenly scattered upon it, and if the cloth is of a proper contrasting color (as should be the case) from the article to be cleaned, the impurities will be readily distinguished, and may be rapidly removed by hand.

It has been found by trial that one person can pick four times more coffee in this way in a given time than he could by the old method.

Having now described my invention and its use, what I claim as new, and desire to patent, is—

1. The combination of the shaking-table G, provided with holes, as aforesaid, the endless band or cloth D, and the guide Q, as and for the purposes specified.

2. The combination, in a coffee-cleaning ma-

chine, of the endless receiving-belt D, the shaking-table G, provided with a series of apertures for the escape of the berries, and the damper provided with corresponding apertures, and supported in ways secured to the lower part of said shaking-table, substantially as specified.

3. The combination, with the endless band D and the adjustable exhaust-trunk R S, of the shaking-table G, provided with holes, as shown, substantially as shown and set forth.

In testimony that I claim the foregoing improvement in coffee-cleaners, as above described, I have hereunto set my hand this 28th day of March, 1879.

ABRAM WAKEMAN, JR.

Witnesses:

JOSEPH M. ALEXANDER,
HENRY P. WELLS.