J. R. HUGHES.
Nutmeg-Graters.

No. 198,730. Patented Dec. 25, 1877.

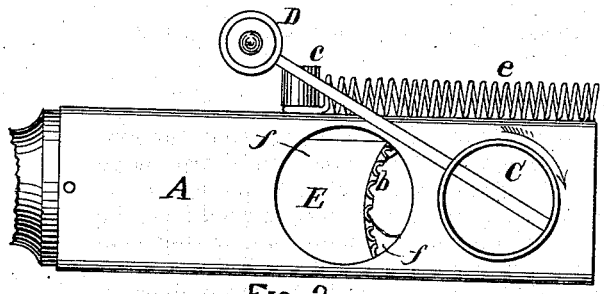

FIG. 3.

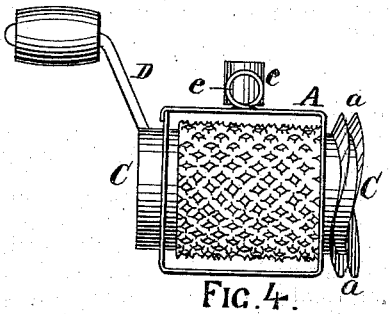

FIG. 4.

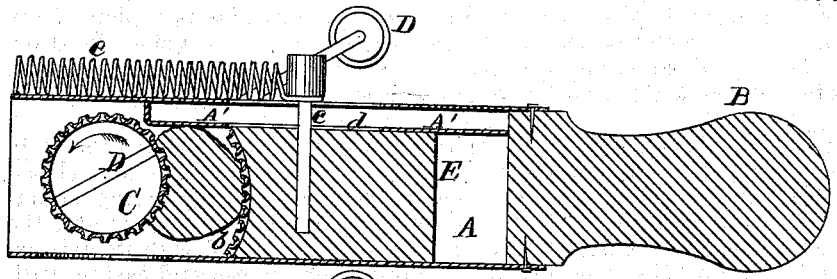

FIG. 5.

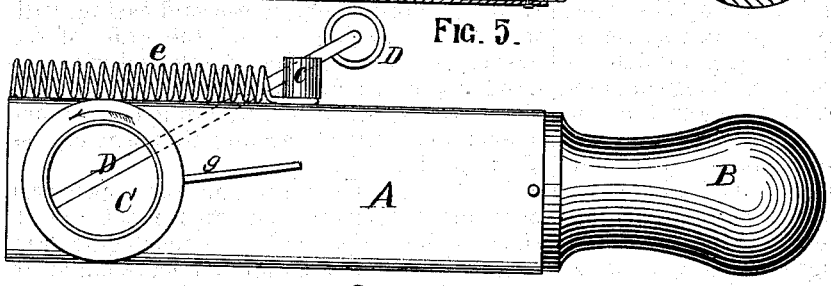

FIG. 2.

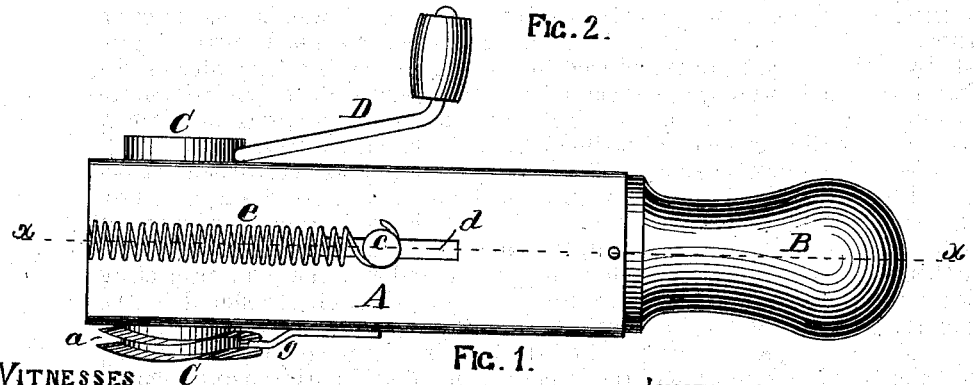

FIG. 1.

WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES R. HUGHES, OF SAUGUS, MASSACHUSETTS.

IMPROVEMENT IN NUTMEG-GRATERS.

Specification forming part of Letters Patent No. **198,730**, dated December 25, 1877; application filed October 15, 1877.

To all whom it may concern:

Be it known that I, JAMES R. HUGHES, of Saugus, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Nutmeg-Graters, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of graters in which the grating-surface is formed upon the periphery of a cylinder adapted to revolve past the side of the nutmeg, and by constant and successive action of its teeth thereon reduce it to a fine powder.

I have found that in the use of such cylinders as heretofore constructed, with the teeth in regular rows and the article to be grated held in a fixed position, the teeth of the cylinder cut grooves into the nutmeg or other article in parallel lines, leaving a ridge between each two of said grooves, which bears against the smooth portion of the cylinders, and thereby retards the feeding of the nutmeg, and renders the process of grating slower than it should otherwise be.

To obviate this objection is the object of my present invention, which results in applying to the grating-cylinder, in addition to its rotary motion, a short reciprocating motion in the direction of the length of its axis, so as to break up the continuous cutting of the teeth in the same ruts.

This I accomplish by making the cylinder somewhat longer than usual, and forming upon its periphery, near one end and outside of the supporting-casing, a serpentine groove or cam-path, which extends entirely around said cylinder, and engages with a fixed pin secured to the side of the supporting-casing, as will be hereinafter described.

My invention further consists in so constructing the interior of the supporting-casing that the upper side of that portion of the interior of said casing which is in the rear of the cylinder, and in which is placed the nutmeg or other article to be grated, and the follower which presses said article against the cylinder, shall be somewhat below the extreme upper side of the cylinder, so as to render the angle formed between said upper interior surface and the rear portion of the periphery of the cylinder comparatively obtuse, the object of which construction is to prevent the nutmeg being ground away to a thin, sharp wedge form, and then broken off in lumps by the action of the grating-cylinder, as would be the case were the upper side of said casing constructed like the lower side, it being understood that the cylinder is to be revolved in the direction indicated by the arrow.

Figure 1 of the drawings is a plan of my improved grater. Fig. 2 is a side elevation. Fig. 3 is an elevation of the opposite side. Fig. 4 is an end view, and Fig. 5 a longitudinal section on line *x x* on Fig. 1.

A is the supporting-casing, made preferably in the form of a rectangular tube, and closed at one end by the handle B, and having mounted in suitable bearings in its other end the grating-cylinder C, arranged with its axis extending transversely across said casing, with its ends projecting beyond the walls of the casing A, and provided at one end with the crank D, by which it may be revolved, and at the other end with the serpentine cam-groove *a*, extending entirely around its periphery, as shown in Figs. 1 and 4.

A′ is a partition, placed in the upper part of casing A to contract its area in the rear of the cylinder, to prevent the article being grated from being wedged into an acute angle by the revolutions of the cylinder in the direction of the arrow. The same result may be produced by making the casing A smaller in the rear of the cylinder on its upper side, or to conform to the shape of the partition-plate A without the outside plate at that part.

E is the follower, placed in the casing A between the cylinder C and handle B, and provided with a roughened surface, *b*, at its front end, to engage with the nutmeg or other article to be grated, and with the pin *c*, projecting upward therefrom through the slot *d* in the casing A, to the upper end of which pin one end of the spring *e* is removably connected, the opposite end of said spring being secured to the front end of the casing A.

The casing A has formed in its right-hand side the opening *f*, through which the nutmeg is supplied to the grater, and upon its opposite side has secured thereto the pin *g*, the outer end of which enters the cam-groove *a*, in such a manner that as the cylinder C is re-

volved about its axis the serpentine or cam-shaped groove *a*, acting upon said fixed pin *g*, will cause said cylinder to be moved endwise, alternately in opposite directions, a distance corresponding to the throw of said cam-path.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a grater, of a cylinder having a grating-surface upon the central portion of its periphery, and mounted and adapted to revolve in bearings outside of said grating-surface, and a device for imparting to said cylinder a reciprocating motion, substantially as and for the purposes described.

2. In combination with a revolving grating-cylinder, the holder-tube A, arranged with its center line at one side of or eccentrically to the plane of the axis of the cylinder, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 11th day of October, A. D. 1877.

JAMES R. HUGHES.

Witnesses:

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