E. BRADY.

TRITURATOR.

No. 112,213. Patented Feb. 28, 1871.

Fig. 1.

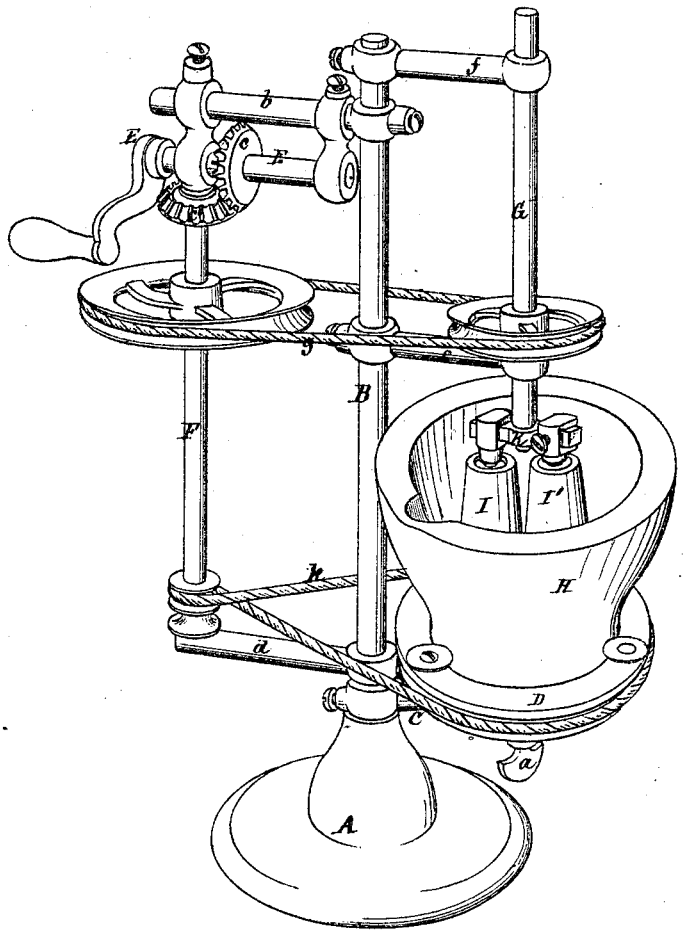
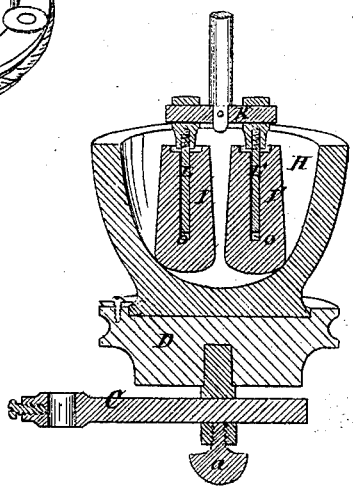


Fig. 2



Witnesses:

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ELIJAH BRADY, OF NEW YORK, N. Y.

Letters Patent No. 112,213, dated February 28, 1871.

IMPROVEMENT IN TRITURATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ELIJAH BRADY, of the city, county, and State of New York, have invented a certain new and useful Triturator for grinding, pulverizing, and mixing powders, pasty compounds, artists' colors, and for other similar purposes.

My invention consists in a novel construction and arrangement of the several parts, by which means the triturator is adapted to general uses, and is intended to supercede the use of the druggists' mortar and pestle in the grinding and mixing of pasty compounds, &c., when worked in masses sufficiently large to warrant it; and also the stone and spatula of the artist in the preparation of colors; and I do hereby declare that the following specification, taken in connection with the drawing furnished and forming a part of the same, is a true, clear, and exact description thereof.

Figure 1 represents one of my triturators in perspective.

Figure 2 represents the mortar and grinding-pestles in vertical section.

A is the base on which the apparatus is mounted.

B is a vertical standard.

C is an arm for supporting the mortar or vessel containing the matter to be ground.

D is a revolving bed-plate, to which the mortar is attached by clamps and readily adjusted. It is provided with a socket, through which the arm C passes, and to which it can be firmly attached at any angle desired by the thumb-screw *a*. The bed-plate has its periphery grooved, for the reception of a belt.

E is a crank-shaft, to which power is applied. It is supported by an arm, *b*, attached to standard B near its top.

For small machines a crank will serve for driving the machine by hand power. Should other power be desired, a belt-pulley can be placed on the shaft above the gear C.

F is a vertical shaft, which serves as a medium for transmitting power from the crank-shaft, by means of beveled gears *c* and *c'*, to the operative portion of the device.

This shaft F is supported in a step at the end of an arm, *d*, attached to the standard B near the bottom. Its upper end is kept in position by a recess in the bearing of outer end of crank-shaft E.

G is a vertical shaft, suspended in a journaled step in the arm *e*, and kept in position by arm *f*, attached to the standard B near its top. The upper bearing has no recessed journal, and, therefore, the shaft may be raised or lowered without moving the arm *f*. It can be raised or lowered at pleasure by moving the arm *e*, which is adjustable on the standard by means of a set-screw.

Power is communicated from the shaft F by means of belt *g* and suitable pulleys on each shaft.

Power is also communicated, by a cross-belt, *k*, to bed-plate D.

H is the mortar or vessel which contains the matter to be operated upon, and has no novel peculiarities.

I and I' are the grinding-pestles. Their exterior form is similar to those in common use. They are provided with a cylindrical recess, extending downward from their tops.

When in position the pestles rest with their full weight upon the bottom of the mortar, and when in operation by frictional contact with the mortar they revolve on their own axes. When a greater weight is desired than would naturally be afforded by the material of which these pestles are composed, it may be readily increased by the insertion of lead to fill a portion of the interior space.

K is a cross-head, attached to the lower end of the shaft G.

L and L' are spindles, arranged for attachment to the cross-head K, and adjustable longitudinally thereon. These spindles enter the recesses in the pestles I so loosely that the pestles are free to rise and fall as they revolve.

By having the spindles L adjustable longitudinally in the cross-bar K, the pestles can be separated more or less, as may be required, for operation with mortars of various sizes. Each of the arms are adjustable vertically on the standard, and are held in position by set-screws engaging therewith, so that mortars of various sizes and pestles of various lengths may be used.

The operation of the device is as follows:

The mortar and grinding-pestles being removed, the material is placed within the mortar, which is then placed upon the bed-plate D and secured in position. Simultaneously with the placing of the mortar the two pestles should be placed in proper relation to the spindle L. The turning of the crank-shaft E causes the pestles I to be turned at a certain speed in one direction within the mortar, while the mortar itself is revolving in an opposite direction at a lesser rate of speed. The mortar may be level, or it can be placed and secured in position at any desired angle by means of the thumb-screw *a*, which engages with the arm C. If a semi-liquid mass is being operated upon it is deemed better to have the mortar inclined.

By the revolving of the mortar the matter being

ground or mixed is continually kept in motion, and the process is, therefore, rapidly and uniformly effected. The constantly-varying relative positions of the grinding-surfaces as the machine is in operation prevent their becoming glazed or clogged.

For grinding and mixing artists' colors my apparatus is well adapted, and will be found, in all the uses to which it is applicable, a profitable labor-saving machine.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The revolving adjustable bed-plate D, mortar H, connected therewith by means of clamps or equivalent devices, and the revolving pestles I, combined and operating substantially as described.

2. The shaft G, cross-head K, and spindles L, adjustable longitudinally on the cross-head and loosely fitted to enter the recesses *o*, thereby admitting an independent vertical movement of the pestles, as and for the purposes specified.

3. The combination of the standard B, shafts E, F, and G, revolving bed-plate D, mortar H, and pestles I, as and for the purposes set forth.

Witnesses: ELIJAH BRADY.

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