(No Model.)

J. R. ALSING.

TRITURATING MILL.

No. 320,994. Patented June 30, 1885.

Fig. 1

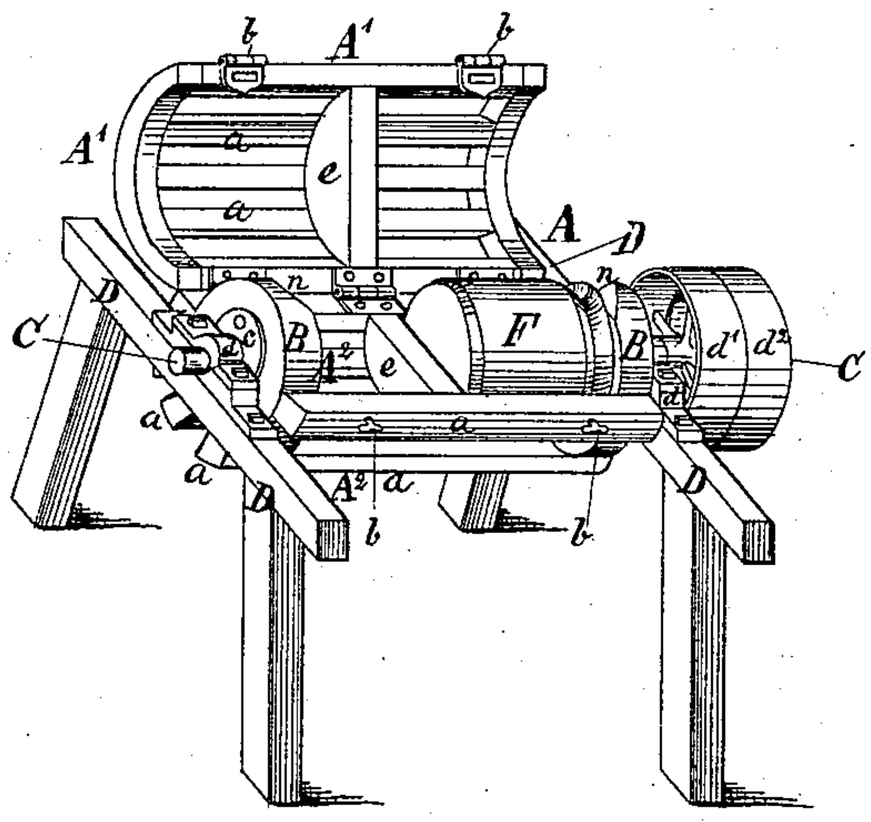


Fig. 2

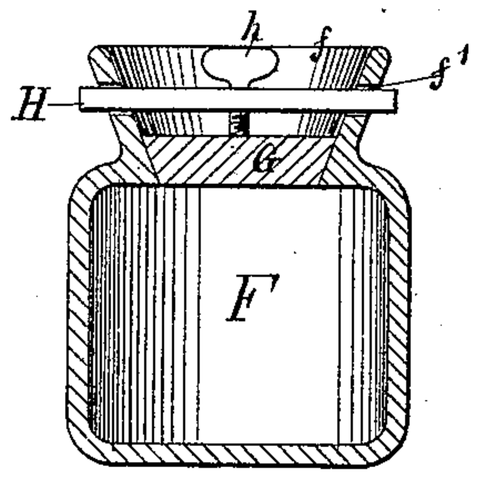


Fig. 3

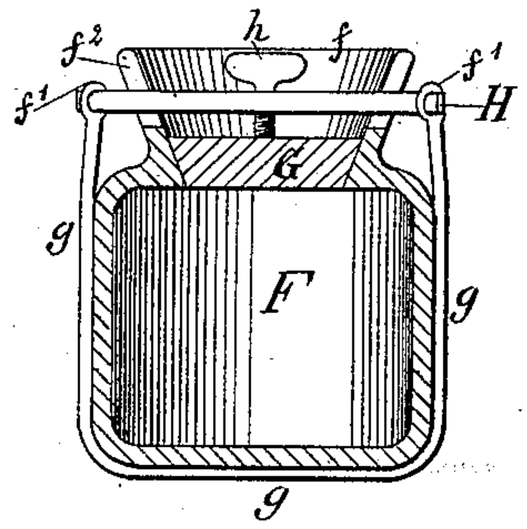


Fig. 4

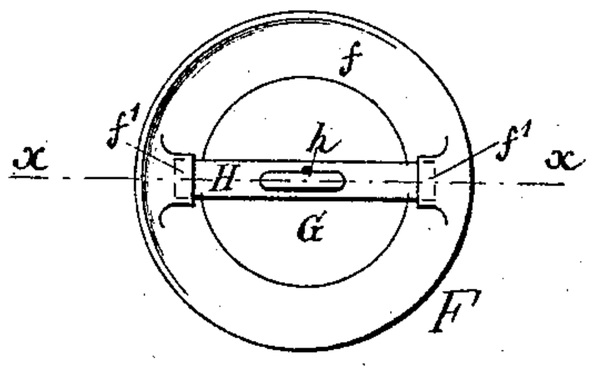
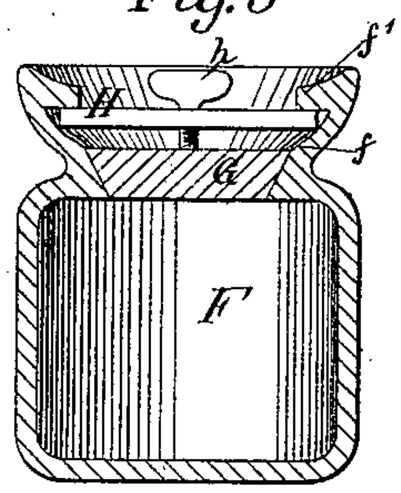


Fig. 5



Witnesses:
C. V. Hedjestrand
A. Wahlberg

Inventor:
Johan Robert Alsing
by A. W. Almqvist
Attorney

UNITED STATES PATENT OFFICE.

JOHAN ROBERT ALSING, OF NEW YORK, N. Y.

TRITURATING-MILL.

SPECIFICATION forming part of Letters Patent No. 320,994, dated June 30, 1885.

Application filed November 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHAN ROBERT ALSING, a citizen of Sweden, and resident of New York, in the county and State of New York, have invented a new and useful Improvement in Triturating-Mills, of which the following is a specification.

My invention relates to triturating-mills, in which granulated substances are introduced, together with a quantity of balls or pebbles, in a cylindrical drum, and are reduced to an impalpable powder by the grinding action of the said balls, due to the revolving of the drum.

The object of my invention is to provide a cheap and efficient construction, whereby several different substances, separate from each other, may be triturated simultaneously in one single mill or machine, and each separate substance may be removed in the order in which it is ground fine enough and replaced by a new charge without impeding the operation upon any of the others.

The invention is intended more especially for grinding small quantities at a time, and thus particularly adapted for druggists' use, and for grinding fine colors, &c. It comprises, mainly, a revoluble drum provided with interior compartments, adapted to receive in each compartment a separate jar charged with balls and material to be ground, as will be hereinafter described, with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the mill open. Figs. 2 and 3 are central sections of two modifications of the jar. Fig. 4 is a top view of a third modification of the jar. Fig. 5 is a section of the same, taken on the line *x x* of Fig. 4.

A is the drum, made preferably of longitudinal slats or bars of wood *a*, sufficient in number to surround and retain the inclosed jars. The drum is divided longitudinally in two halves or parts, A′ A², hinged together, so that the part A′ serves as a cover to be folded or closed upon the part A², and secured when so closed by straps and buttons or other suitable fastening devices, *b*. The part A² is formed by securing a number of the slats *a* to cylindrical end pieces, B, to which are fastened by flanges *c* the studs or journals C, by which latter the drum A is mounted in bearings *d* upon a suitable frame-work, D, and one of the said journals projects through its bearings sufficiently for providing it with fast and loose pulleys *d′ d²*, by which and a belt power is transmitted to impart rotary motion to the drum, or to stop its motion, as the case may require. The drum A is made long enough to accommodate, say, from one to six jars, and is preferably, though not necessarily, divided by partitions *e* into compartments—one for each jar.

To facilitate the insertion and removal of the jars, the partitions *e* are divided diametrically, one half being attached to the cover A′ and the other half to the body A², and for the same purpose the end walls, B, of the drum are beveled off on the inside at *n*, as seen in Fig. 1. Each compartment may be provided with a separate cover; but I prefer using one cover common for all, as shown in the drawings.

F are the jars, made of porcelain, glass, or other like material, and rounded off at the corners to prevent any substance from sticking there and remaining unground. The mouth or charge-opening of the jar is flaring or funnel-shaped, and has two objects, one object being to prevent spilling of material when charging the jar, and the other to afford lugs or stops *f′* (as in Figs. 2, 4, and 5,) for retaining a cross-bar, H, through which a thumb-screw, *h*, is threaded and used for pressing down and tightening the plug, stopper, or cover G in the neck of the jar. The said retaining-stops *f′* against the outward counter-pressure of the cover G may be obtained by simply making two diametrically-opposite holes through the wall of the funnel *f*, as in Fig. 2, or by forming lugs on the inside thereof, as in Figs. 4 and 5; or, in order to prevent breaking the stops by careless handling when they are thus formed in the flange, they may be obtained by the construction shown in Fig. 3. In this the bar H is prevented from lateral displacement by being retained in diametrically-opposite notches *f²* in the funnel *f*, and a strap or band, *g*, centered in a groove or notch in the surface of the jar, passes across the bottom and along opposite sides of the jar, and has loops at its ends through which the ends of the bar H are inserted, and by which it is held against outward pressure. But as the special construction of the jars is a

subject distinct from that of the drum, I reserve a claim to it for a separate application. It will thus be seen that the jars F are the grinding-cylinders proper, and the drum A is simply a revoluble receptacle in which they are clamped, and with which they are revolved. The jars are independent of each other and chargeable with different contents, and the number which can be worked at a time depends only on the length of the drum. A jar, in which the material has been ground fine enough, may be removed in a few seconds and replaced with another, the cover A′ fastened down, and the mill again started, to continue grinding the contents of the remaining jars without waiting for the removed jar to be emptied of its finished contents and recharged. The shape of the drum and jars (round, polygonal, or other) is immaterial, so long as the drum clamps and retains the jars.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of separately-chargeable jars F, with a revoluble drum, A, having interior compartments and provided with a cover, A′, for receiving, retaining, and removing the said jars, substantially as specified.

2. In combination with removable jars F, the drum A, divided longitudinally in two parts, A′ A^2, hinged together and provided with fastening devices *b*, and transverse partitions *e*, one of the said parts, A^2, having end walls, B, and journals C, mounted to revolve in bearings *d*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 6th day of November, 1884.

J. R. ALSING.

Witnesses:
A. W. ALMQVIST,
HENRY SELLMAN.