2 Sheets—Sheet 1.

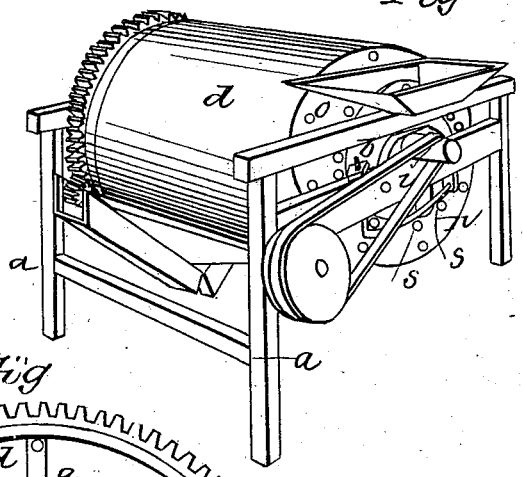
A. BARBER.

Metallic Burr.

No. 5,143.

Patented June 5, 1847.

Fig. 1.



Fig

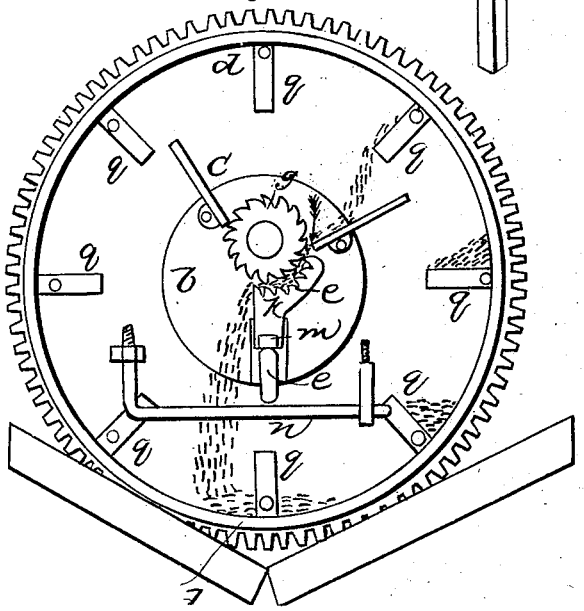


Fig. 2

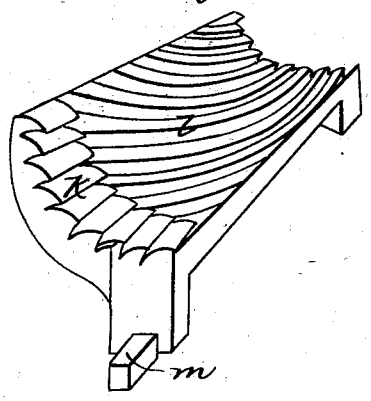


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Fig. 3

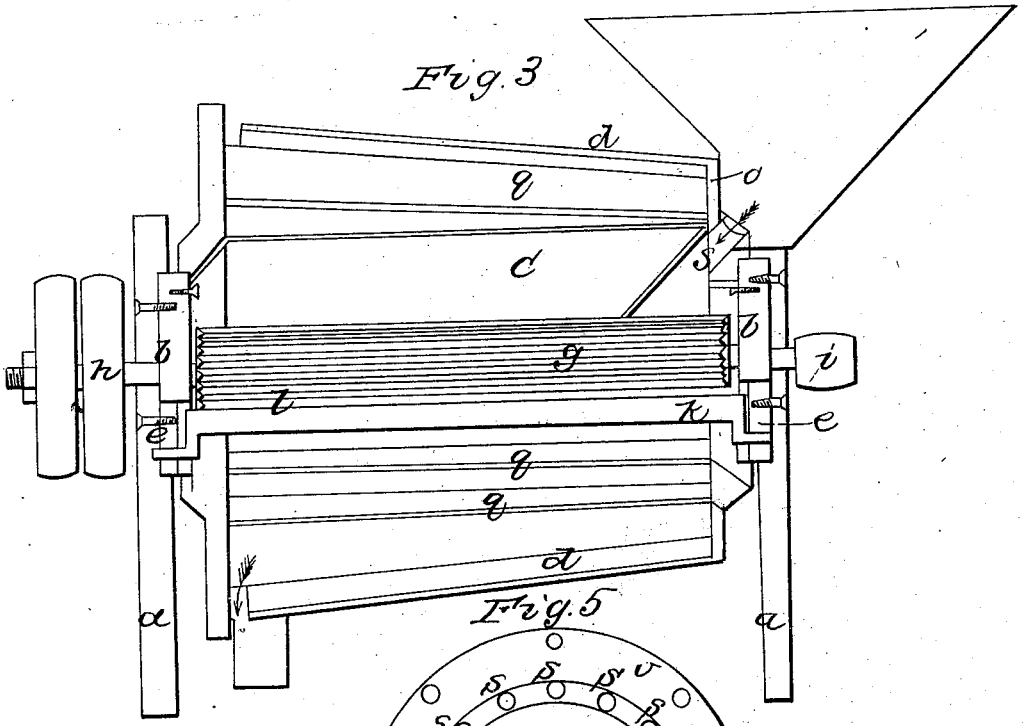
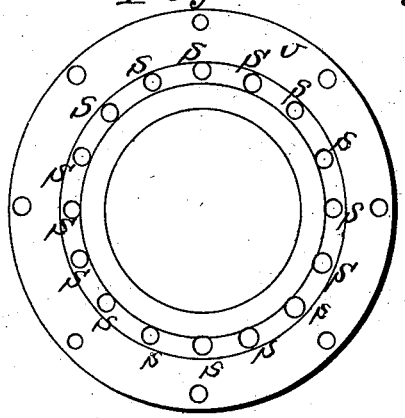


Fig. 5



UNITED STATES PATENT OFFICE.

ASA BARBER, OF STEPHENTOWN, NEW YORK.

MILL FOR GRINDING.

Specification of Letters Patent No. 5,143, dated June 5, 1847.

To all whom it may concern:

Be it known that I, ASA BARBER, of Stephentown, Rensselaer county, State of New York, have invented a new and useful Improvement in Mills for Grinding, of which the following is a specification.

The nature of my invention consists, mainly in the application of two metallic furrowed surfaces to the purposes of grinding grains of wheat, corn, coffee, barks, drugs, &c., being combined in such a way as to dispense with all the ordinary grinding stones now in use; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure I is a perspective view of the entire machine. Fig. II is a perspective view of the concave furrowed bed. Fig. III is a longitudinal section. Fig. IV is a transverse section, showing the inside hopper furrowed cylinder and concave furrowed bed, as combined. Fig. V is one of the end plates showing the feeding holes.

Similar letters refer to similar parts in all the figures.

The construction of this machine is as follows: Upon a proper frame *a*, *a*, I secure two circular heads *b*, *b*, and to the sides of these heads a long trough or hopper *c*, *c* is fastened and on the lower side a groove or slit is cut in these heads, from a point near the center to the periphery, in order to receive the projecting ends of the furrowed bed, as seen at *e*, *e*. The peripheries of these heads serve likewise, as an axis on which the drum or cylinder *d*, *d*, is made to revolve.

The letter *g* represents the metal grinding cylinder, having a series of longitudinal furrows cut or cast upon its face, the shape of the furrows being somewhat similar to the teeth of a saw. The shaft upon which this grinding cylinder revolves, passes through the heads *b b*, and has its bearings upon the frame outside, a driving pulley is secured to the shaft at *h*, and likewise a small pulley at *i*. The pulley at *i* gives a rotary motion to the drum *d* by its connection with the pinion and toothed wheel as seen in Fig. I.

Fig. II is a view of the concave furrowed bed; at *k* is seen a series of short, coarse furrows; this is termed the "cracker" the grain first falling upon it in the operation, in order to get a rough or coarse crushing in passing under the cylinder *g*. The furrows on the rest of the bed are finer and cut it spirally in the direction of its length, as seen at *l*. A toe *m* is cast upon either end, which (when in the frame) passes through the slots *e*, *e*, before mentioned, and rest upon a bar *u* secured to the frame *a*, on the outside; by means of this bar and proper adjusting screws, the bed *k*, *l*, is elevated or depressed. The drum *d d* has on one end a head with teeth upon its periphery by means of which it is made to revolve. This head is larger than the other which gives a conical form to the drum. The head *o* has a series of small holes, *s* pierced through it, for the purpose of feeding the grain, from the hopper, placed in connection, as seen in the figures. At the large end of the drum several openings are made to discharge from as seen at the arrow Fig. III.

The letters *q*, represent a series of narrow boards secured to the drum, and revolve with it. They are used in carrying the grain up to the hopper *c*, *c*, as fast as it falls to the bottom of the drum, thus causing the grain to pass several times between the grinding roller and concave bed; to insure the thorough grinding of the same. The drum *d*, *d* is conical in shape for the purpose of causing the grain to slide gradually toward the discharge place as it revolves.

The operation is as follows: A high speed is first imparted to the grinding cylinder *g* by the pulley *h*, and by means of the gearing from *i* the drum *d* is also put in motion but revolves at a much slower rate. The grain or other material to be ground, is then poured into the hopper, and feeds the grinding cylinder through the holes *s*, in the head of the drum, as fast as the holes come within the hopper, a hole being made in that side of the hopper which rests against the head of the drum, for the purpose. As the grain comes within the drums, through the holes *s* before mentioned, it falls upon the grinding cylinder, *g*, at the end which plays over the concave bed at *k*, and passing over that part which I call the cracker it gets a coarse crushing or cracking first, thence falling to the bottom of the drum it is again brought up by the board *q*, and thrown into the hopper *c*, where it is made to pass between the cylinder *g* and the finer spiral furrows, *l*, in the concave bed. In consequence of the conical shape of the drum *d d*,

the grain gradually works itself (as the drum revolves) toward the discharge place, as seen at the arrow Fig. III where it falls into the troughs placed to catch it, and led off to the bolts.

In grinding coffee or other soft materials the drum *d d* may be dispensed with, and the hopper *c*, *c*, only used, a pan or box being placed underneath to catch the ground substances. In grinding such substances also, the motion of the cylinder *g* must be the reverse of that for grinding hard grain, *i. e.* in a direction contrary to that seen in Fig. IV.

What I claim as my invention and desire to secure in Letters Patent is

The combination of the conical drum and lifters with the grinding cylinder and concave furrowed bed, substantially as herein described and set forth.

ASA BARBER.

Witnesses:

J. L. KINGSLEY,

JOSEPH P. PIRSSON, Jr.