N. GOODWIN, Jr.

Quartz Mill.

No. 50,115. Patented Sept. 26, 1865.

FIG. 1.

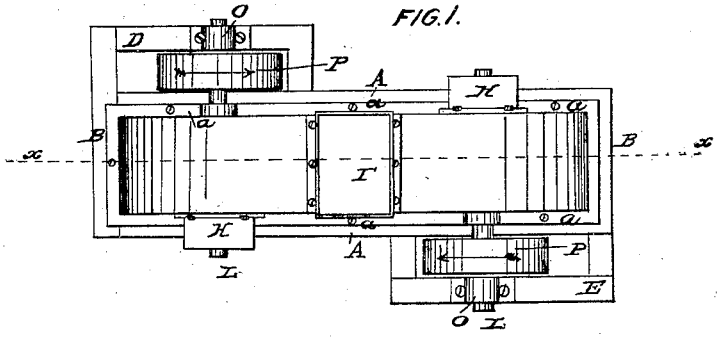


FIG. 2

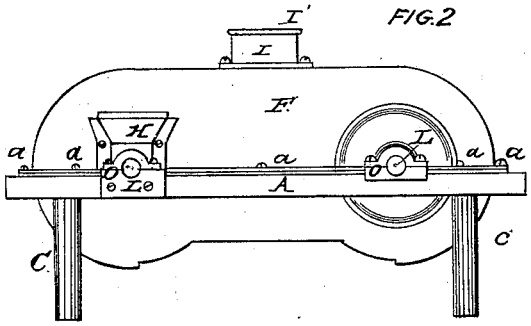
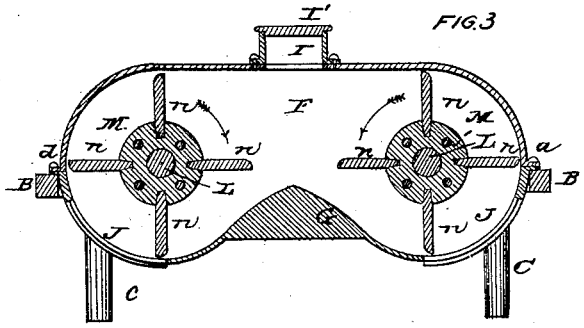


FIG. 3



WITNESSES

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NATHANIEL GOODWIN, JR., OF NEWBURYPORT, MASSACHUSETTS.

IMPROVEMENT IN QUARTZ-MILLS.

Specification forming part of Letters Patent No. **50,115**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, NATHANIEL GOODWIN, Jr., of Newburyport, in the county of Essex and State of Massachusetts, have invented a new and useful Grinding and Crushing Mill; 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 accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top view. Fig. 2 is a side elevation; and Fig. 3 is a longitudinal vertical section in the line *x x* of Fig. 1.

Like parts are indicated by the same letters in all the drawings.

The nature of my invention consists, first, in arranging, in a single case or chamber, two independent grinding and crushing wheels, revolving in opposite directions, or toward each other, so as to throw the materials being ground or crushed from the one wheel toward the other, in order that, moving toward each other, they the said materials may strike against each other, or the wheel opposite the one from which they are thrown, with redoubled momentum and crushing, shivering effect and, second, in the employment of an inclined central ridge or deflector, G, to prevent the materials thrown by one wheel from shooting under the opposite, and also, by receiving them, assist in breaking them to pieces.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A A are the sides, and B B are the ends, of the frame, which rests upon the legs, C.

F is the iron case of the mill, made in two parts, united by flanges and screws *a*, and shaped and proportioned as clearly shown in the drawings.

L L are the axles of the wheels M M, provided with paddles or beaters *n*, similar to those of other grinding and crushing mills in general use. These axles L L turn in suitable boxes, O, resting on the sides A A of the frame, and are driven with great rapidity in the direction of the arrows in Fig. 1 by means of belts on the pulleys P P. At each end of the case F, under each wheel M, is a removable metallic perforated plate or grating, through which the crushed or ground materials, are delivered from the mill into a suitable close receptacle or chamber. The size of the perforations or the holes in the grating may be varied according to the degree of fineness to which the materials passed through the mill are required to be crushed or ground.

H H are side hoppers, which deliver the materials to be ground close to the axes of the wheels. These hoppers are intended to be used chiefly when the mill is employed for grinding and pulverizing, as distinguished from crushing.

I is an opening or hopper in the center of the top of the case F, midway between the two wheels M M, as represented in the drawings, and provided with a removable cover, I′. This hopper I is chiefly used when the mill is employed as a crusher. When the mill is used for grinding or pulverizing the hopper I is closed by the cover I′, the materials being in this case fed in through the hoppers H H, as stated above.

G is an inclined ridge or deflector, of solid iron, extending from one side to the other of the case F, midway between the two wheels and directly underneath the hopper I, as clearly represented in Fig. 3. The function of this ridge or deflector has been described above.

If the hoppers H H are provided, as they may be, with sliding gates or covers to exclude currents of air when the mill is used as a pulverizer, there will be no need of an air-tight receiving room or chamber, nor of a pipe to relieve the same from the pressure of air that would result from a continual drawing in at the center and throwing out at the circumference.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement in a single case or chamber, F, of the two grinding or crushing wheels M M, revolving toward each other, substantially as set forth, and for the purposes described.

2. In a grinding or crushing mill thus constructed, for the purposes specified, the central ridge or deflector, G, in combination with the wheels M M, substantially as and for the purposes described.

NATHL. GOODWIN, JR.

Witnesses:

N. AMES,

H. A. BROOD.