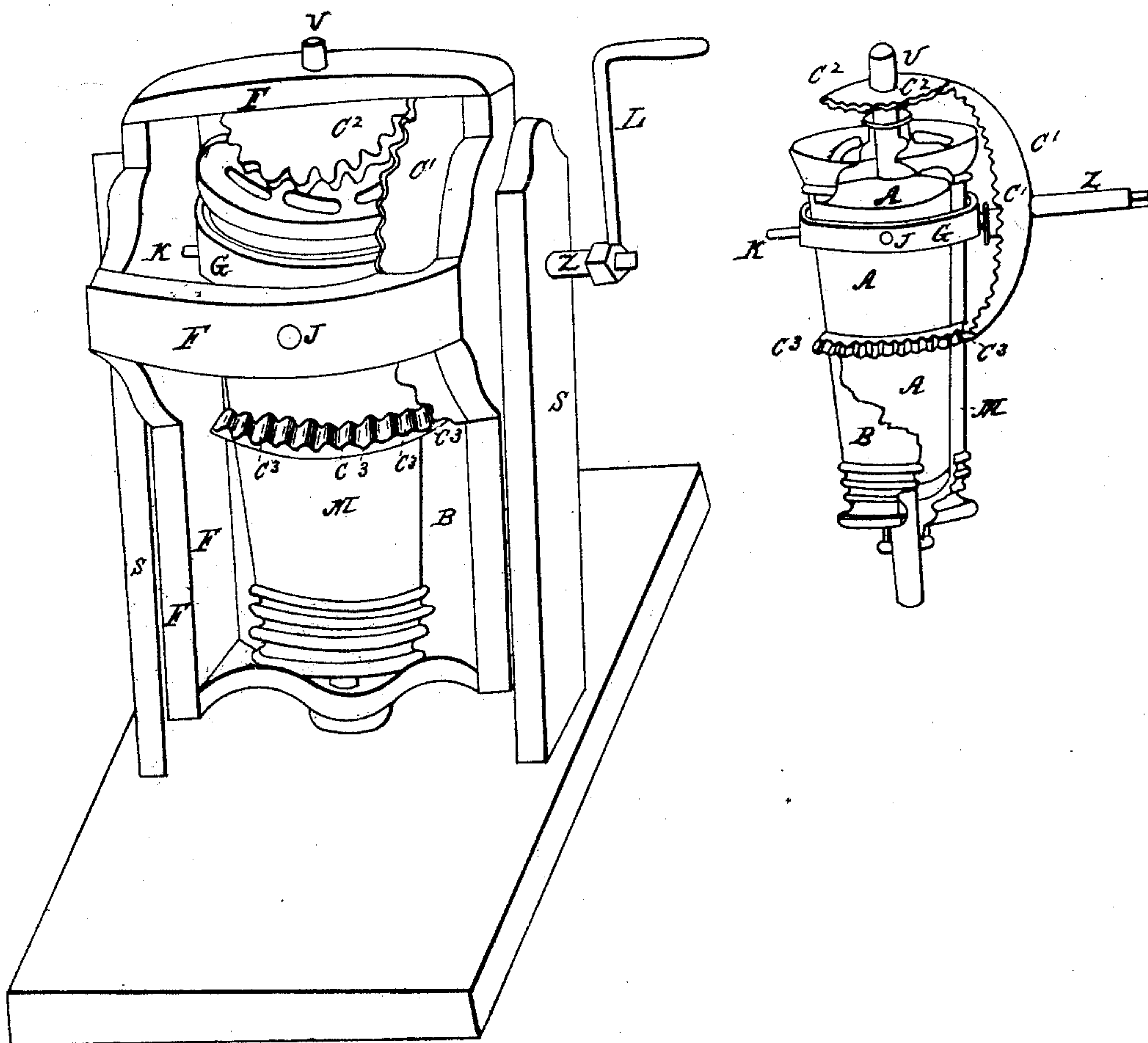


J. BRYANT.
Grinding Mill.

Patented Feb. 14, 1860.

No. 27,102.



Witnesses:
Charles Leach
C. V. Hoit

Inventor:
J. Bryant

UNITED STATES PATENT OFFICE.

JOEL BRYANT, OF BROOKLYN, NEW YORK.

GRINDING-MILL.

Specification of Letters Patent No. 27,102, dated February 14, 1860.

To all whom it may concern:

Be it known that I, JOEL BRYANT, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Mode of Constructing Portable Grinding-Mills; and the following is a full and correct description thereof, to wit:

The nature of my invention consists in a new and peculiar mode of making, framing, and gearing portable grinding mills, so that the cylinders of the said mills turn in opposite directions (making the said mills double acting); and also—that, by the same peculiar mode of making, framing and gearing—the cylinders or body of the said mills, may be adjusted, and set to stand and grind at any desirable angle, or plane, that is to say—that the barrel or body of the said mills, may be set to grind in a vertical position, or—in a horizontal position, or—at any intermediate angle between a vertical, and horizontal plane; and thus—the said mills—in consequence of the double action of the cylinders, by turning in opposite directions, have a double force and power in grinding; and, in being adjustable to—and from a vertical, or horizontal position, or—adjusted, and set, to run, and grind, at any intermediate angle between a vertical, or horizontal plane—the said mills have, in this way, a very decided advantage over other mills whose barrels are stationary; inasmuch—as, by being thus adjustable—they may be made to grind more or less quickly—or finer, or coarser, accordingly as the body of the said mills are set to run, and grind, in a more or less vertical, or horizontal position, as—it will be obvious—that the more vertical the body of the said mill is set—runs, and grinds—the more quickly the grain, or other substances being ground will pass through between the grinding surfaces of the said mills, and—consequently, the coarser the said substances will be ground; and, vice versa—the more horizontal the body of the said mill is set, to run, and grind—the more slowly—and the finer ground—will, the substances (ground) pass through the body of the said mills: And thus, as aforesaid—my improved grinding mills, possess important advantages over other, and ordinarily constructed portable grinding mills.

To enable others skilled in the art to make

and use my invention, I will proceed more fully to describe and explain the construction and operation of my improved (double acting, and adjustable) portable grinding mills, reference being made to the accompanying drawings, and the figures and letters marked thereon, and forming a part of this specification: Figure 1, being a perspective view of one of my said mills,—showing the body M, (the cylinders A, and B), set in the band G, and secured by the bolts J, to the inside frame F, which is loosely set in the outside frame or standards S, S, in which it is held, so as to freely turn from a vertical, to a horizontal position, and vice versa,—the shaft z, of the large cogwheel C¹, and—the opinion K, on the opposite side, forming the axis on which the said frame F, with the band G, holding the said mill, turns, and—by which it is supported and hung between the standards S, S, as aforesaid: The said Fig. 1, also shows the mode of gearing the said mills, by means of the cog-wheels C¹, C² and C³, which operate in connection with each other, and in combination with the cylinders (A, and B,) which constitute the body M, of the said mills,—one of the said cog-wheels C², being set on the shaft U, of the inside cylinder A, (see Fig. 2,) and—another cog-wheel C³, being attached to (or formed with) the outside cylinder B, (which represents the body M, of the said mills), and—the other and larger cog-wheel C¹, is set in the frame F, on the shaft z, which, passing from the outside, through the standard S, and frame F, is stepped, rests, and turns loosely, in the strong band G, to which the body M, of the said mill is secured, as aforesaid,—the said cog-wheel C¹, thus set on the said shaft Z, at an equal distance between the other two cog-wheels C², and C³, formed or set on their respective cylinders A, and B, as aforesaid—the said large cog-wheel C¹, when thus set, and is turned, by the crank L, or its equivalent, it operates in connection with the said cog-wheels C², and C³, and consequently, through them, upon their respective cylinders A, and B, upon which they (the cog-wheels C², and C³,) are formed, or to which they are firmly attached, so, as thus to turn the said cylinders A, and B, of the said mill, in contrary and opposite directions; and thus acting, it will be obvious—that the said cylinders A, and B, are turned by the said

cog-wheels (C^1 , C^2 , C^3 ,) with great force and power, and—with great velocity.

Fig. 2, plainly shows the peculiar mode of gearing the said improved mills (Fig. 1,); and, this figure (Fig. 2,) taken in connection with Fig. 1, will clearly illustrate the "character, and principle" of my invention. My said improved grinding mills (Figs. 1, and 2,) are made adjustable as aforesaid, by being hung in the standards s , s , (which may be considered as the outside frame of the mill) so as to rest and turn freely on the shafts z , and pinion K , or its equivalent. It will be obvious without illustration, that from the nature of this invention, or mode of construction—that by duplicating the said large cog-wheel C^1 , and, the shaft z , and crank L , and setting the same on the opposite side of the said mill from that of the present large cog-wheel c^1 , the same would constitute, when set, a double gearing for the said mill, so as that by thus double gearing the said mill, in this way, it could be made to act with a double amount of force, and power, in grinding. It will be obvious without further illustration, that the body M , of the said mill (Fig. 1,) being set in frame (F ,) and secured therein by the bolts J , to the band G , which surrounds the said body M , and by which it is hung in the said frame F , which hangs by the shaft z , and pinion K , in the standards s , s , substantially as aforesaid—the said body M , may, by any suitable means, be turned and set, to run, and grind in any desirable position,—vertical, horizontal, or oblique, so as to grind faster, or slower, or coarser, or finer, as the circumstances of the case may require in grinding different kinds of grain, feed, or

other substances, which it may be desirable to grind in the said mill. 40

In the construction of my said grinding mills (Fig. 1,) I do not confine myself to any definite shape, or size, of mill, nor—to any definite kind of dress, or grinding surfaces for the cylinders (A , and B ,) but—in all matters relating to the said mills, except what is herein set forth as my invention, (the making—framing, and gearing the said mills (Fig. 1,) substantially as herein described), I make like as other mills, or as circumstances require. 45 50

Having now distinctly set forth the nature and object of my invention; as also—the construction and operation of my improved portable grinding mills—I desire to secure by Letters Patent, of the United States, what I herein claim as my invention, to wit: 55

1. I claim, in the construction of portable grinding mills, the cog-wheels c^1 , c^2 , and c^3 , when constructed, set, and operating in connection with each other, and the cylinders A , and B , of the said mills, substantially as herein described, and for the purposes set forth. 60 65

2. And in connection with the above—I claim the making setting, and gearing, of the body M , of portable grinding mills, so as that the said mills (Fig. 1,) may be set to run, and grind at any desirable plane of the horizon—either vertical, or horizontal, or oblique—substantially as herein described, and for the purposes set forth. 70

J. BRYANT.

Witnesses:

CHARLES LEECH,
MELVILLE BRYANT.