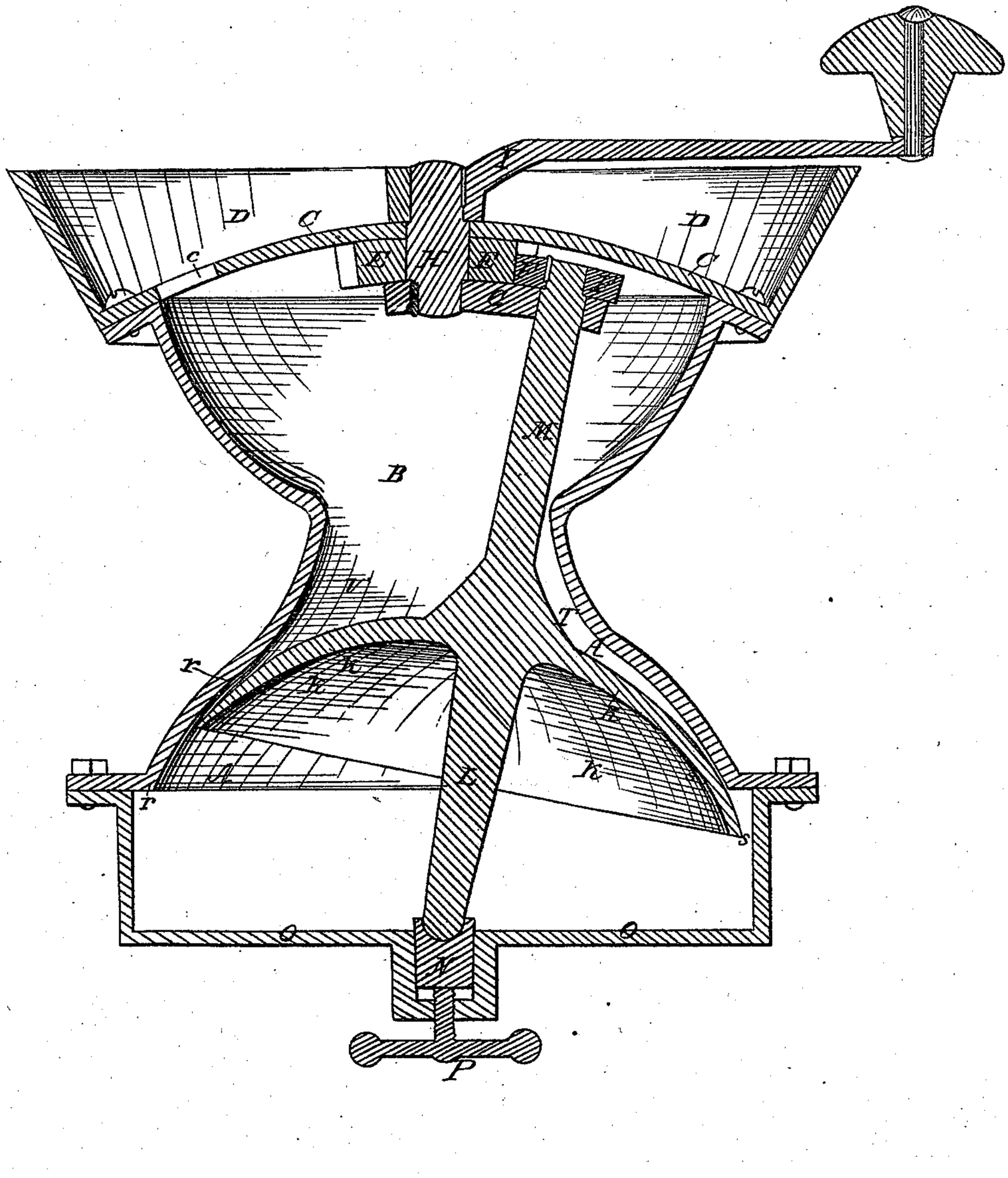
J. A. MONTGOMERY.

Grinding Mill.

No. 81,526. Patented Aug. 25, 1868.



Witnesses;
Stephen W. Hall
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UNITED STATES PATENT OFFICE.

JOHN A. MONTGOMERY, OF CRAWFORD, NEW JERSEY.

IMPROVED GRINDING-MILL.

Specification forming part of Letters Patent No. **81,526,** dated August 25, 1868; antedated August 15, 1868.

To all whom it may concern:

Be it known that I, JOHN A. MONTGOMERY, of Crawford, in the county of Union and State of New Jersey, have invented a new and Improved Mill for Grinding Grain, Bark, and other substances; 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 drawing, making a part of this specification, the drawing being a sectional view of the mill—

A A representing the shell or outer grinding portion; B, a portion which may be used as a hopper; C C, the top, which may be either a plate, as represented, or a bar or cross, its use being to hold the pinion E E and shaft H. K K represent the shell of the runner, *k k* showing the inner or concave surface of the same. L is one end of the shaft of K K, M being the other end of said shaft. N represents a concave step, held in the cross-bar or frame O O, and adjustable by the screw P. F F is a pinion attached to the upper end of M. G is a crank attached to the shaft H, and I is a crank for applying power, and for which any other attachment can be substituted.

I turn or form the shell A A so that a portion of it, as from *r* to *r*, is a section of a hollow sphere, whose center is at the center of the step N, the balance of it being of such form as may be best suited to the material to be ground. I form the runner K K so that a portion of it, as from *s* to *s*, is a section of a sphere whose center is the same as that of the step N, and of such size as to fit sufficiently close to *r r*, and the balance of it being of such form as to bring it sufficiently close to the portion A A above *r r*. I pass the shaft M through the crank G, and on the end of it fasten the pinion F F. The pinion F F meshes into the pinion E E, which is stationary, and attached to C C. The shaft H being free to revolve in C C and E E, and being keyed or attached to the crank G, when made to revolve, carries with it the crank G, and causes the shaft M to rotate about the center of H, and the pinion F F meshing into and rotating around E E gives to the shaft M L and the runner K K a rotary motion on their own center, which motion can be increased or diminished by changing the proportions of E E and F F.

By the means above described, I give to the runner a rotary motion on its own center, and a rotary oscillating motion around H and on the step N, thus having constantly one portion of the mill, as V, open to admit the substance to be ground, and another portion, as T, closed and crushing the substance. Again, I always have a portion of the shell, as at A *r*, free to clear itself, and a portion of the runner, as at *s*, always in the same condition, while at no time is the substance allowed to pass without being ground. I also secure what I believe to be the best motion for grinding.

What I claim as my invention, and desire to secure by Letters Patent, is—

A grinding-mill consisting of the shell A and runner K, provided with shafts H and M, pinions E and F, and crank G, for the purpose of imparting to said runner a reciprocating rotary motion, as shown and described.

J. A. MONTGOMERY.

Witnesses:

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