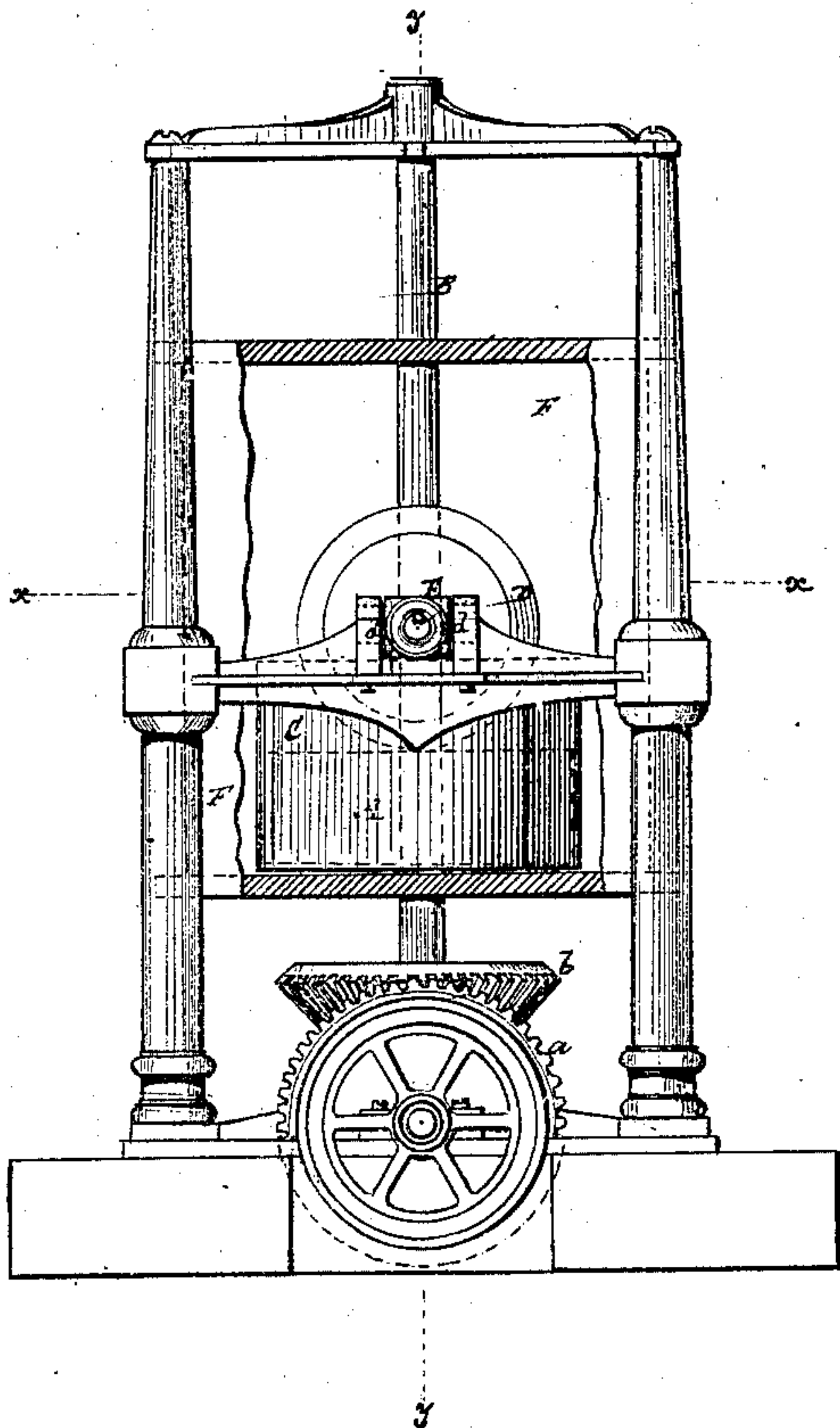


H. D. GARRISON.  
MILL FOR POWDERING ROOTS, &c.

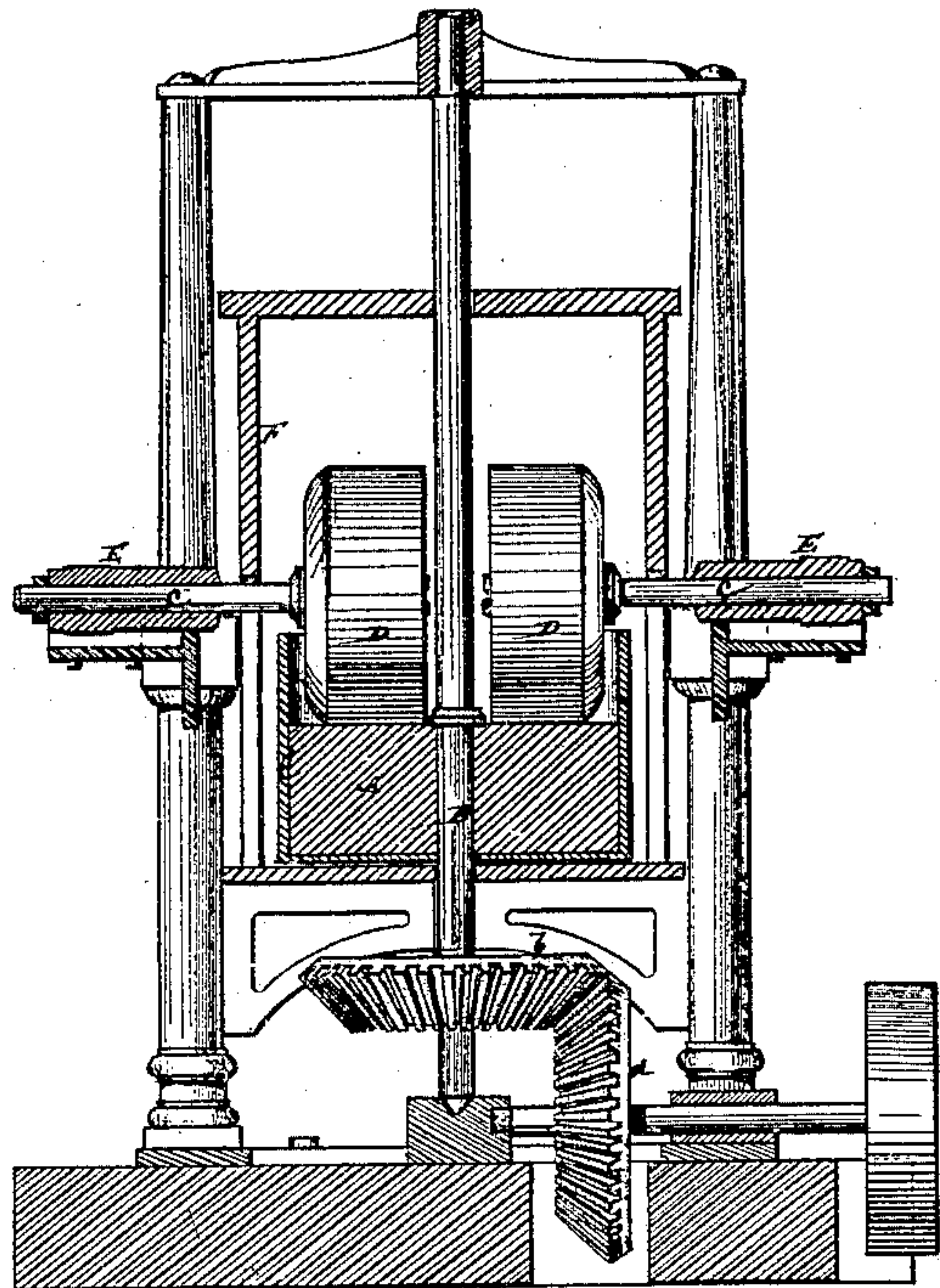
No. 109,196.

Patented Nov. 15, 1870.

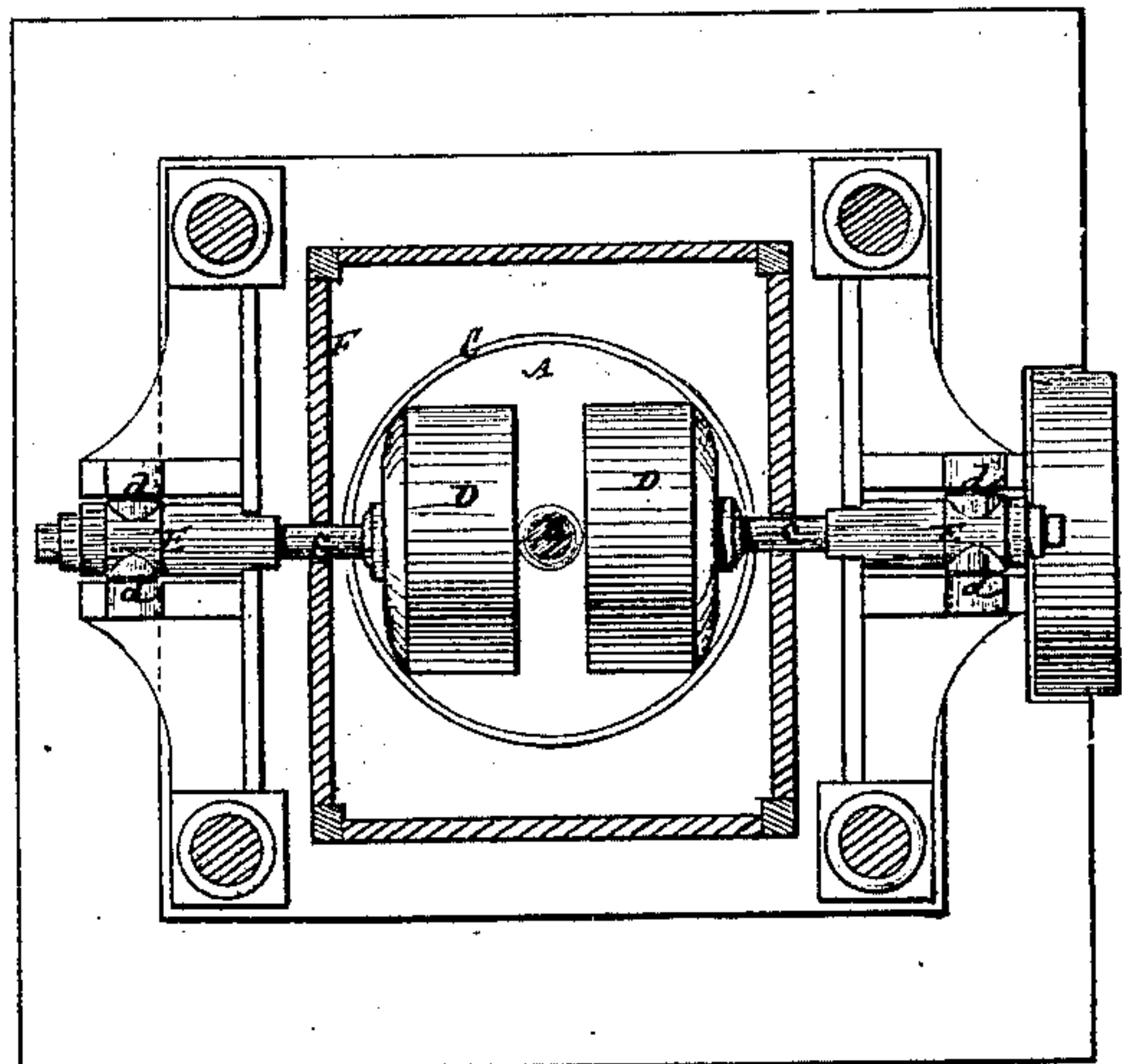
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



Witnesses:  
*Fred. Haynes*  
*J. M. Coombs*

*per* *Herod D. Garrison*  
*J. M. Coombs*

*Attorney*



# United States Patent Office.

HEROD D. GARRISON, OF CHICAGO, ILLINOIS, ASSIGNOR TO GARRISON & MURRAY, OF SAME PLACE.

Letters Patent No. 109,196, dated November 15, 1870.

## IMPROVEMENT IN MILLS FOR POWDERING ROOTS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HEROD D. GARRISON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mills for Powdering Roots and other purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a side elevation of a mill constructed in accordance with my invention, showing a portion of the box or outer case, which incloses the stones, removed;

Figure 2 is a horizontal section, taken as indicated by the line *x x* in fig. 1; and

Figure 3, a vertical section through the line *y y*.

Similar letters of reference indicate corresponding parts.

This invention relates to "chasers" or drug-mills for grinding roots, herbs, barks, gums, and other substances; and

It consists, first, in the arrangement of a curb or drum, extending vertically as high as practicable above and around the bed-stone to retain the material to be ground as closely as possible under the runners until it is pulverized, and which also serves as a binder to prevent the bed-stone from cracking, or other damage.

The invention likewise includes a novel mode of hanging the upper stones by means of sleeves or boxes hung on trunnions having a transverse relation to the axes of said stones, which are thus left free to rise and fall to ride over hard substances or obstacles in the mill.

Referring to the accompanying drawing—

A represents the bed-stone, which may be supported by an iron disk, formed with a hub for securing, by means of set-screw and key, the stone to its vertical driving-shaft, B.

Said bed-stone is held in position by a metallic drum, C, arranged to project above the face of the bed-stone to form a curb for retaining the drug or material under operation till reduced to powder, as required.

Motion may be communicated to the vertical central shaft B by means of bevel-gear *a* and *b*, or by any other suitable means, arranged either above or below the bed-stone.

D D are the upper stones, arranged independently of each other for rotation around axes lying at right angles, or thereabouts, to the vertical axis of the bed-stone, but not moving around with the latter.

Two such upper runners are here shown; but there may be only one, or, if desired, more than two of them arranged around the axis of the bed-stone, and free to be rotated by frictional contact with the upper or grinding surface of said stone, on which they rest.

No restriction is placed upon the kind of stone used.

Each runner D is hung so as to be capable of play up or down, to facilitate its riding over hard substances or lumps which are not capable of being readily reduced to powder by the runners.

To effect this each of said runners has its shaft *c* arranged to rotate in a sleeve or box, E, which is supported by trunnions *d d*, that are disposed in transverse relation to the axes of the runner.

These, and all the bearings, in fact, which require oiling, are arranged outside of the case or box F, that incloses the several stones, and serves to prevent scattering or waste of powder produced by grinding, and concentrates or collects it through any suitable outlet.

By this arrangement of said oil-bearings outside of the powder-receptacle F, the product or powder is prevented from coming in contact with the oil on the bearings and of being tainted or injured by it.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination of the curb or drum C with the revolving bed-stone A, to serve as a binder thereto, and extending vertically upward nearly to the axes of the runners D, so as to prevent the material being ground from overflowing; constructed substantially as herein shown and described.

2. The sleeve E, constructed with trunnions *d*, arranged transversely to its axis, and near its outer end, for supporting the spindle *c* of the runner D, as and for the purpose set forth.

HEROD D. GARRISON.

Witnesses:

L. S. MAJOR,  
J. F. COOK.