J. Toll,

Horse Power,

No. 41,406, Patented Jan. 26, 1864.

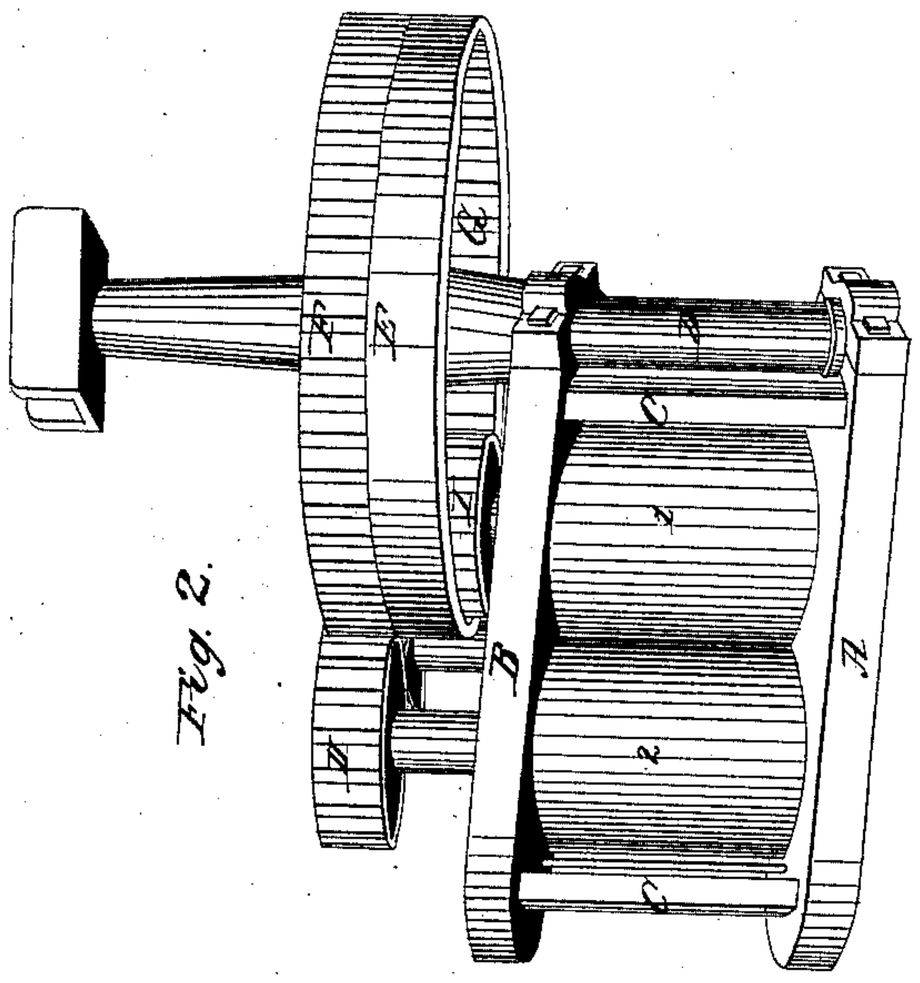

Fig. 2.

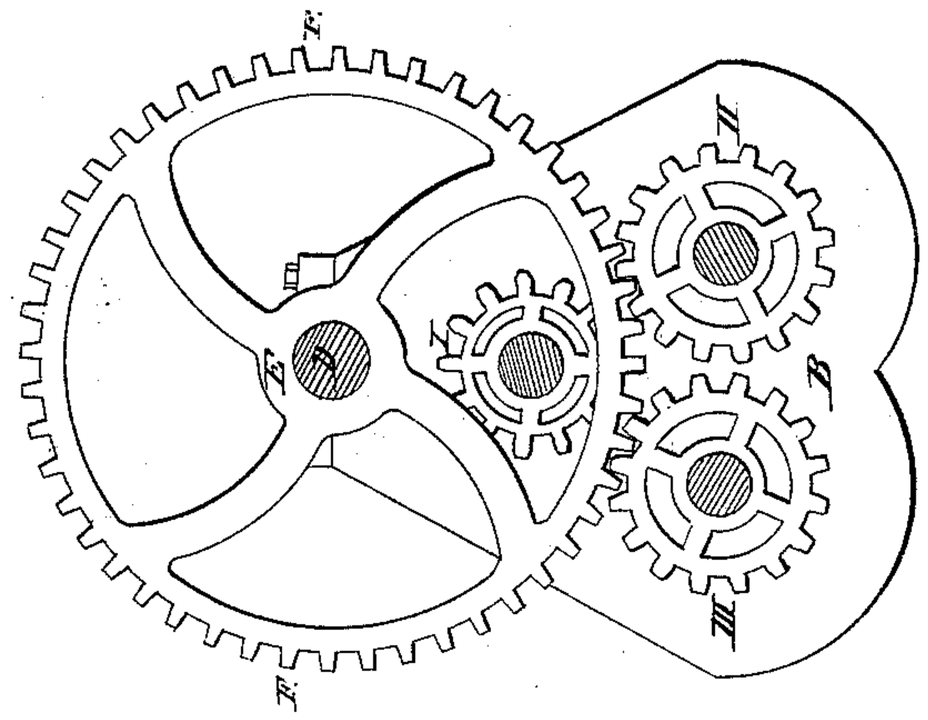

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSE TOLL, OF LOCUST GROVE, OHIO.

IMPROVEMENT IN MOTIVE POWER.

Specification forming part of Letters Patent No. **41,466**, dated January 26, 1864; antedated January 24, 1864.

To all whom it may concern:

Be it known that I, JOSE TOLL, of Locust Grove, Adams county, Ohio, have invented a new and useful Improvement in the Motive Power for operating the rollers of a sugar-mill or other similar mechanism; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to a new and useful arrangement of driving mechanism, applicable to a variety of uses, but especially adapted and intended for application to a sugar-mill.

Figure 1 is a top view of a sugar-mill embodying my improvement. Fig. 2 is a perspective view of the same.

A represents the bed-plate, and B the top-plate, which, being united by posts C, constitute the frame.

The rolls 1 2 3, although of less than half the diameter or one-fourth of the weight of those now commonly in use, are of equal speed and efficiency of working surface.

The requisite speed of grinding-surface is usually obtained by the large size of the rolls. This object I attain more efficiently and economically by "gearing-up" in manner following: Journaled vertically in the frame, at one side thereof, is a shaft, D, which rises above the frame sufficiently for the attachment of a "sweep." The shaft D carries a large master-wheel, E, armed with two sets of cogs, one set, F, being situated on its periphery, and the other set, G, on its concavity. The master-wheel E meshes exteriorly in the pinions I I and I I I, of the rolls 2 and 3, and interiorly in the pinion I, of the roll 1.

I have found it desirable to give the pinions and the master-wheel a relative proportion of one to three. These proportions result in giving to the peripheries of the rolls a speed greater than is usually obtained by the large diameter of the common rolls. Such arrangement, together with the use of sufficient animal power, of which there is not commonly any lack, insures the efficiency and dispatch, which is of such primary importance in this connection.

It will be seen that every roll is driven equally and directly from the master-wheel, instead of from the pinion of one roll to that of the next, and so on through the series.

It will also be seen that the master-wheel—in respect to its interior as well as its exterior cogs—meshes with the pinions I, I I, I I I, of the rolls at points immediately in line with the work or place of greatest stress of the cane on the peripheries of the rolls. This arrangement enables the construction of a mill of any given capacity at much less than the usual weight and cost, and of much greater compactness. It also insures a greater freedom from strain and oblique bearing, and consequently a more perfect transmission of the power. It also enables the rolls 2 and 3 to be placed so near together as to dispense wholly, or nearly so, with a return-plate.

I claim herein as new and of my invention—

The arrangement of the doubly-cogged master-wheel E, meshing with the disconnected pinions I, I I, I I I, coincident with the lines of contact of a series of crushing or other rolls, 1 2 3, the whole being combined and operating together in the manner and for the objects stated.

In testimony of which invention I hereunto set my hand.

JOSE TOLL.

Witnesses:
GEO. H. KNIGHT,
JAMES H. LAYMAN.