H. M. SMITH.

MILL GEARING.

No. 104,783. Patented June 28, 1870.

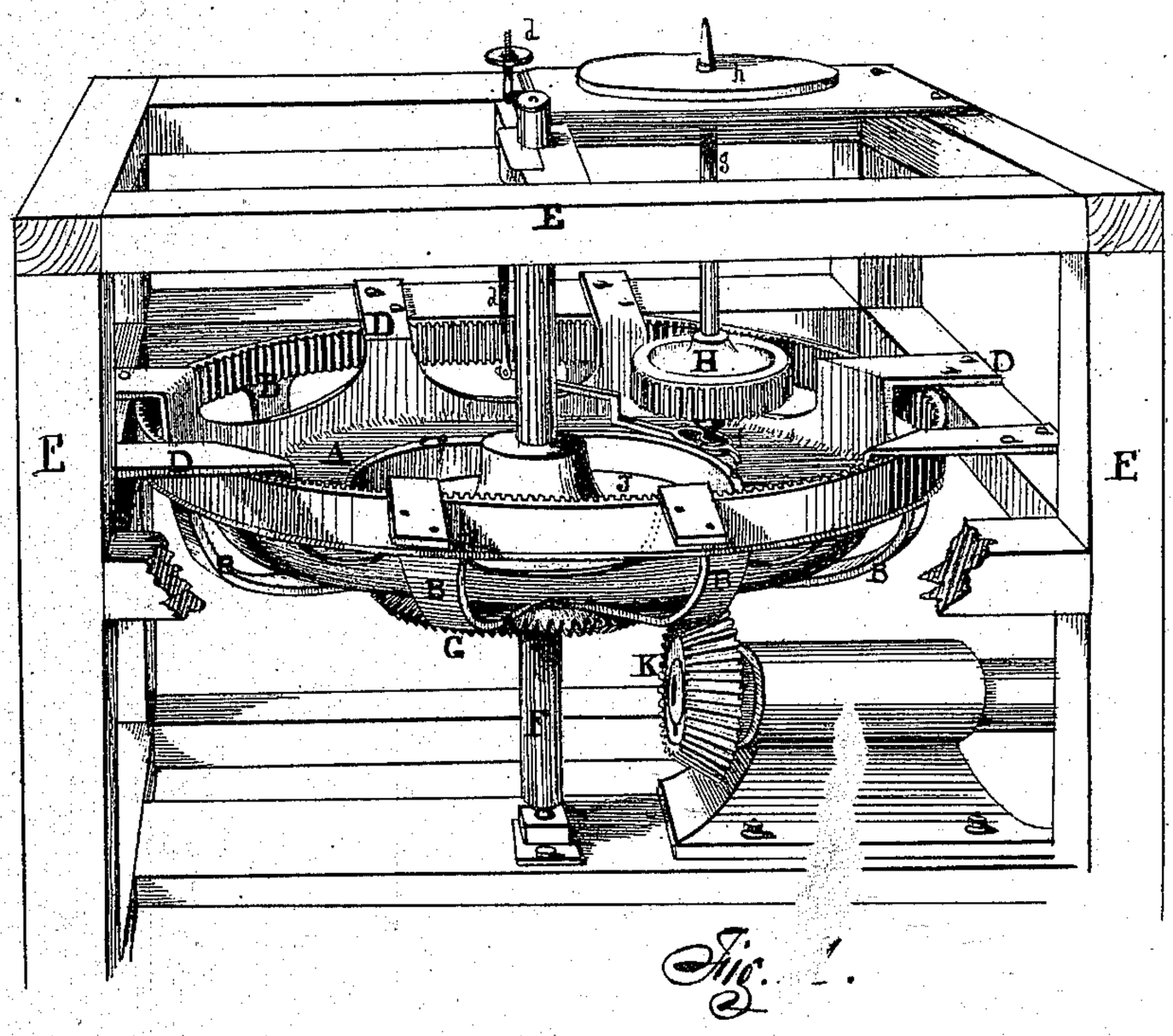

Fig. 1.

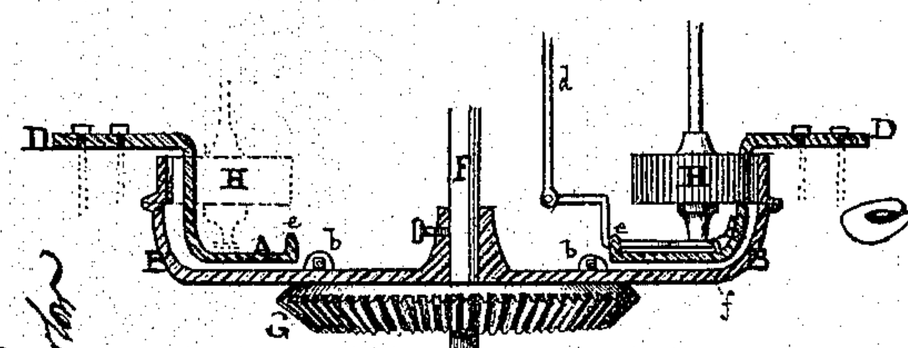

Fig. 2.

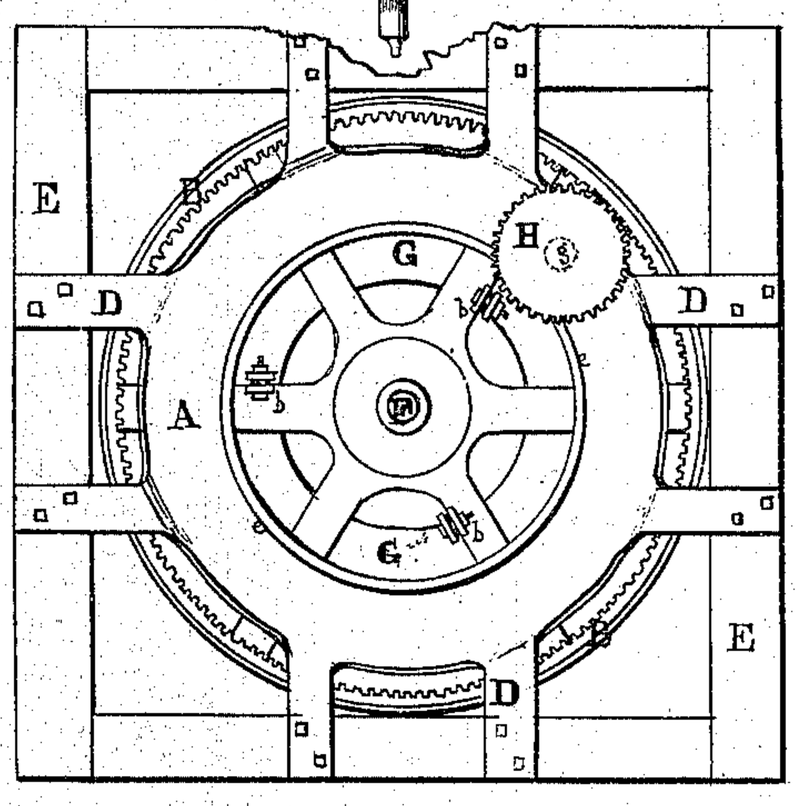

Fig. 3.

Witnesses
W. A. Lovell
Edward Thurston

Inventor.

United States Patent Office.

HARLOW M. SMITH, OF PEORIA, ILLINOIS.

Letters Patent No. 104,783, *dated June* 28, 1870.

IMPROVEMENT IN MILL-GEARING.

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, HARLOW M. SMITH, of the city of Peoria, in the county of Peoria and in the State of Illinois, have invented a new and useful Improvement in Mill-Gearing; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a perspective view.

Figure 2, a sectional elevation.

Figure 3, a plan view.

This invention relates to the driving of mill-spindles by a wheel with the cog or spurs on its interior surface, its center and arms being dished or depressed to make room for the smaller spur-wheels or spur-core pinions and their supporting bridge-tree, the spur-wheels on the spindles being placed within the wheel and supported on a proper bridge-tree.

A is a concave bridge-tree within the wheel B, its interior surface being low enough to form a support for a spur-core pinion, H, and rests, by means of a sufficient number of horizontal arms, D D, on the Hurst frame E E, above the bevel of the wheel B, and to which they are securely bolted.

A circular opening, J, in the middle of the bridge-tree, admits the vertical shaft F of the wheel B below, and a rib or flange, *e*, running around the openings, gives strength to the tree. The latter may be further strengthened by means of ribs along each arm D.

B is a dished or concave spur-wheel, supported by dished arms radiating from its hub or nave some distance below the plane of its spurs or cogs, so as to allow the spurred interior surface of wheel to embrace the concave bridge-tree A, leaving room enough between each arm of the bridge-tree for the cogs to engage with the pinions H. The interior of this wheel is provided with vertical cogs or spurs, and can be cast separate from its dished arms, to which it may be then united by a flange and bolts, or equivalent fastenings.

This wheel B may receive its impetus from a proper wheel on its shaft, or a bevel-wheel, G, may be bolted to the arms of the former, as at *b b*.

H is one of a series of core-spur pinions on the mill-spindle *g*, set in the step *f*, resting on the bridge-tree A, and engages, through one of the spaces between the arms D D, with the internal spur-wheel B. As many as four spindles and pinions may be set within this wheel. This kind of pinions is deemed best on account of the economy of time in still running the engaged pinions, if necessary, up to the last moment, while a new set are being set with spurs to replace them; also, that greater ease of motion, less jarring, &c., are secured by wooden spur-pinions.

The usual step *f*, lever, and screw *d*, are employed to regulate the grade of flour, by lifting the running buhr-stone above the stone *h*.

The concave spur-wheel may be substituted by a bevel spur-wheel, and the core spur-pinions by bevel-pinions, but the plan first described is deemed far preferable.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent, is—

The concave bridge-tree A, with arms D bolted to the Hurst frame E, for supporting mill-spindles or other gearing, in combination with the interior gear-wheel B, having either a spur or bevel-gear, H, on its interior circumference, and constructed with concave or dished arms, substantially as described.

In testimony that I claim the foregoing as my invention, I have hereunto set my hand this 24th day of November, 1869.

HARLOW M. SMITH.

Witnesses:

HENRY W. WELLS,

EDMUND THURLOW.