

R. B. HAMEL & J. B. HOLDEN.
MECHANICAL MOVEMENT.

No. 103,175.

Patented May 17, 1870.

Fig. 1.

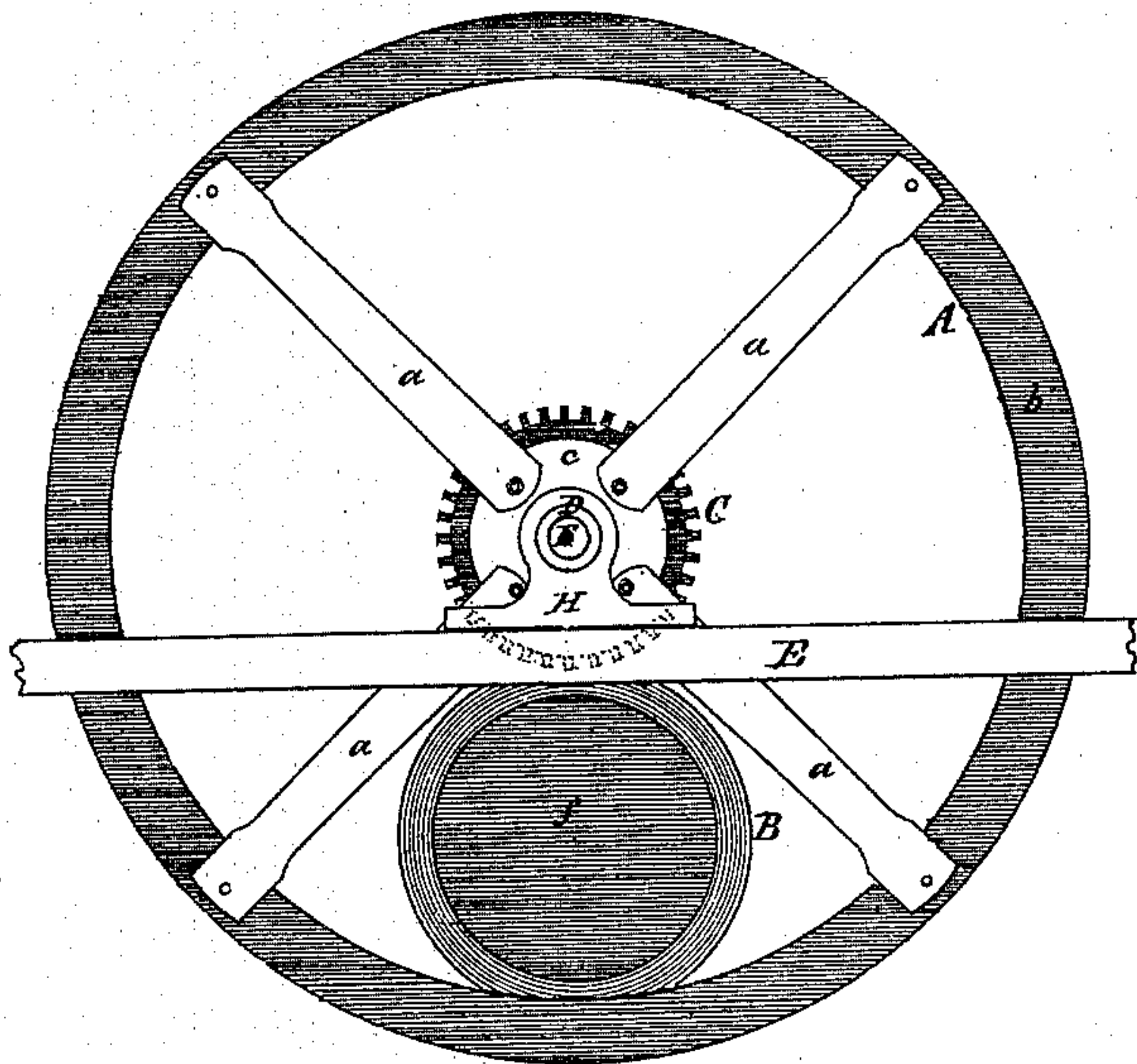


Fig. 2.

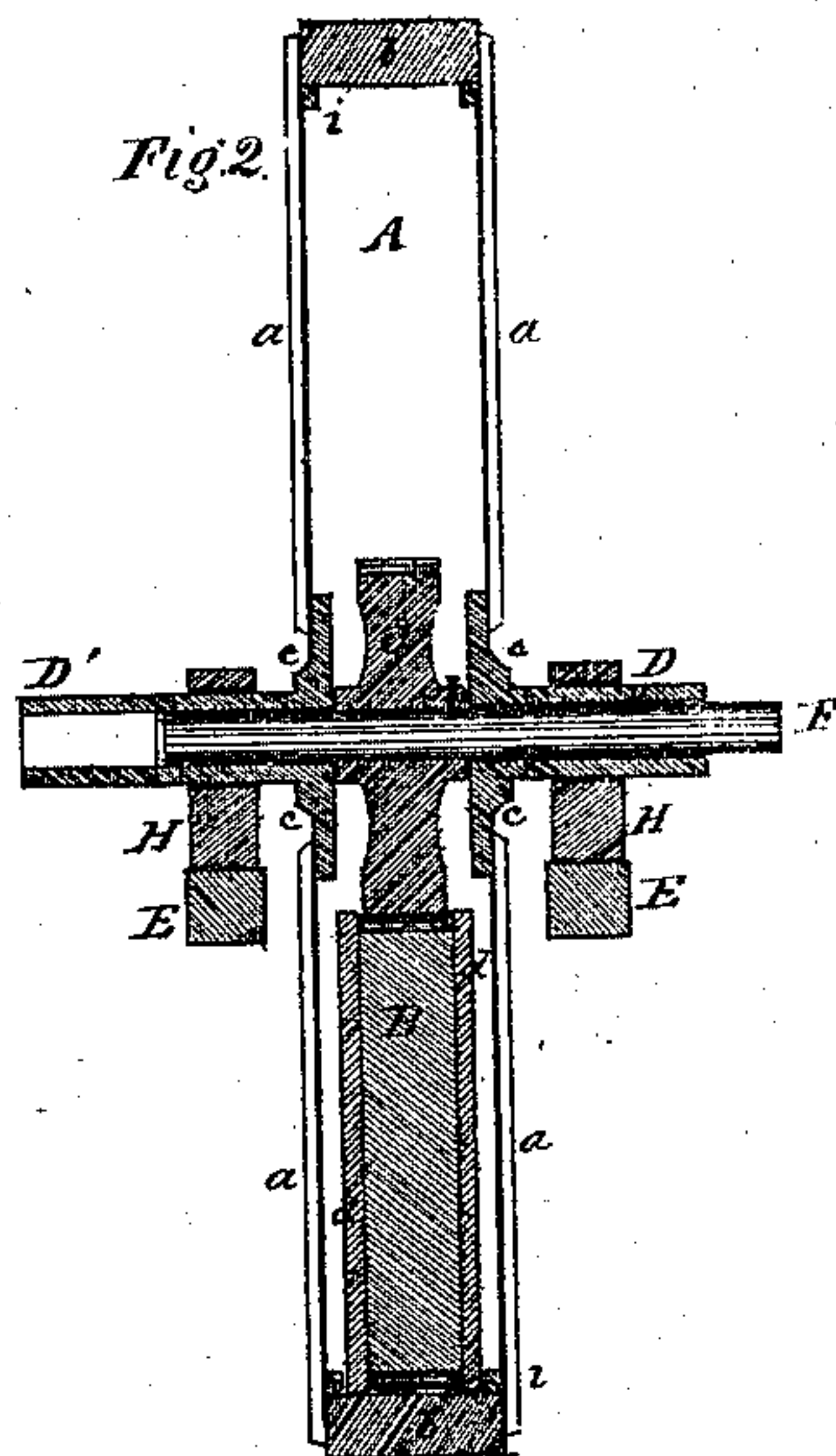
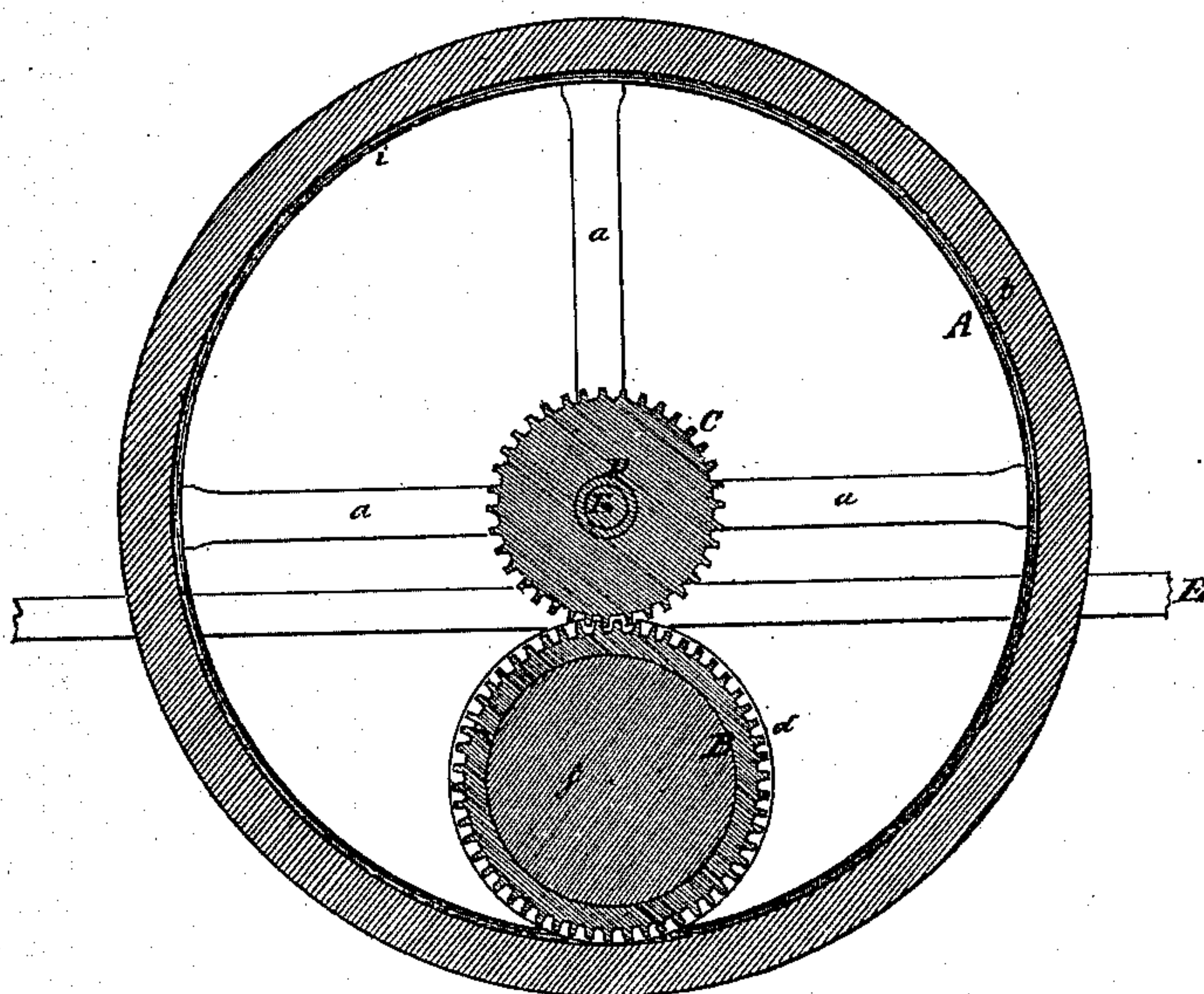


Fig. 3.



Witnesses:

John Thomson

Frank Rogers

Richard B. Hamel.

James B. Holden

Inventors.

United States Patent Office.

RICHARD B. HAMEL AND JAMES B. HOLDEN, OF JERSEY CITY, NEW JERSEY, ASSIGNORS
TO THEMSELVES, ARTHUR M. SMITH, AND HENRY W. NEWKIRK.

Letters Patent No. 103,175, dated May 17, 1870.

IMPROVED MECHANICAL MOVEMENT.

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

To all whom it may concern:

Be it known that we, RICHARD B. HAMEL and JAMES B. HOLDEN, both of Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Mechanism for Transmitting Power, and increasing the effects of the same; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to an improved mechanism for transmitting power and increasing its effects, by the use of which, in connection with machinery driven by any of the well-known powers, the effectiveness of such machinery is increased, and the driving-power employed is made to accomplish a greater amount of work, and thus a considerable saving in the expenditure of driving-power requisite to enable the machinery to do its work is effected, and, consequently, the cost of running the same is considerably diminished.

Besides its utility as an auxiliary to other machinery, it forms a most effective machine for hoisting, pressing, and other purposes.

The nature of this invention consists in the use or employment of an independent intermediate wheel, weighted or loaded as hereinafter more particularly described, that is, supported on the inner surface of the rim of an outer annular wheel, and drives the same, which said intermediate wheel is driven by means of a pinion fixed on a shaft that runs within the hollow shafts of the outer wheel, and has bearings therein.

The said intermediate wheel is weighted or loaded proportionately to the amount of driving-power applied to the said pinion and the amount of resistance to be overcome by the outer wheel, and to such an extent that, while in operation, it will retain a position nearly perpendicular to or nearly directly under the pinion before mentioned.

The driving-power is applied to the pinion, which imparts a rolling motion to the loaded intermediate wheel, upward upon the inner periphery of the outer wheel, thus bringing the said intermediate wheel into a position in which the weight of the same operates in driving the outer wheel.

To enable others skilled in the art to make and use our invention, we will now proceed more particularly to describe its construction and operation.

Figure 1 represents a side elevation of our improved mechanism;

Figure 2 is a transverse vertical section of the same; and

Figure 3 is a corresponding longitudinal vertical section.

Letters or like name and kind indicate like parts in each of the figures.

A is the outer annular wheel;

B is the independent intermediate wheel; and

C is the pinion-wheel.

The outer wheel A is made of such dimensions and strength as may be most suitable for the amount of power to be applied thereto, and is provided with any convenient number of arms, *a a a a*, one end of each of these arms being bolted or otherwise secured to the rim *b*, and the other end secured in any suitable manner to one of the hubs *c c*, which carry the shafts D D' of this wheel A.

These shafts D D' have suitable bearings in the pillow-blocks H H, secured to and supported by any suitable frame, E.

The shafts D D' are made hollow or cylindrical, for the purpose of receiving the shaft F of the pinion, which has bearings and runs within the same.

The independent intermediate wheel B is made in the form of a boxed or flanged gear-wheel, and it is supported on the inner surface of the rim *b* of the outer wheel, its flanges *d d* being in contact with the plain inner surface of the rim *b*, and causing friction thereon, by means of which it drives the outer wheel A.

This intermediate wheel B gears with the pinion C, which drives the same, and is weighted or loaded proportionately to the driving-power applied and the resistance to be overcome.

The loading *f* may be secured to the wheel B in any convenient and suitable manner, and should be of sufficient weight or amount to keep the intermediate wheel B nearly perpendicular to or nearly directly under the pinion C, and prevent its being carried too far upward on the rim *b* when in operation.

i i are guides or rods secured to the inner side of the rim *b*, for the purpose of guiding the wheel B and keeping it in position.

The pinion C is fixed on and secured to the shaft F, which runs and has bearings within the hollow shafts D D' of the outer annular wheel A, and the teeth of the said pinion mesh with those of the wheel B, as plainly shown in the drawings.

The driving-power is applied to the shaft F of the pinion C, which, being set in motion, imparts a rolling motion to the intermediate wheel B, and causes it to ascend a short distance on the rim *b* of the outer wheel A, which is thus put in motion, as the weight of the intermediate wheel, loaded as before described, is brought to bear thereon.

The peculiar features of this invention are, that the comparatively small amount of power requisite to give a rolling motion to the loaded intermediate wheel, places the latter in a position in which its weight acts upon the rim of the outer annular wheel, and drives the same.

The wheel A may, if desired, be provided with teeth on the inner side of its rim *b*, so as to gear with the

intermediate wheel B, in which case the flanges *d d* would be left off. But we consider the construction above described as being preferable.

We may here state that the mechanism herein described has been practically tested by attaching the same to the machinery of a saw-mill driven by steam power, when it was found that by its use, as an auxiliary, the engine could more easily accomplish the work with forty pounds pressure of steam than it had previously done with eighty pounds pressure of steam.

In this instance, the weight of the intermediate wheel was about twenty-four hundred pounds, the diameter of the pinion was twenty-two inches, that of the intermediate wheel was thirty-three inches, and the minor diameter of outer annular wheel was eighty-eight inches.

Having thus described our invention,

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A weighted or loaded wheel, B, supported on the inner surface of the rim of an outer annular wheel A, and operating upon and in connection with the same, whether the inner surface of the rim of the said wheel A is provided with teeth or with a plain friction-surface, substantially as herein shown and described and for the purposes set forth.

2. The pinion-wheel C upon the shaft F, the latter running within the hollow shafts D D' of the outer wheel A, in combination with the loaded intermediate wheel B, and said outer annular wheel A, all operating as herein shown and described, and substantially for the purposes set forth.

RICHARD B. HAMEL.
JAMES B. HOLDEN.

Witnesses:

JOHN S. THORNTON,
FRANK ROGERS.