

F. S. Barnard,
Horse Power.

N^o 1,318.

Patented Sept 10, 1839.

Fig: 1.

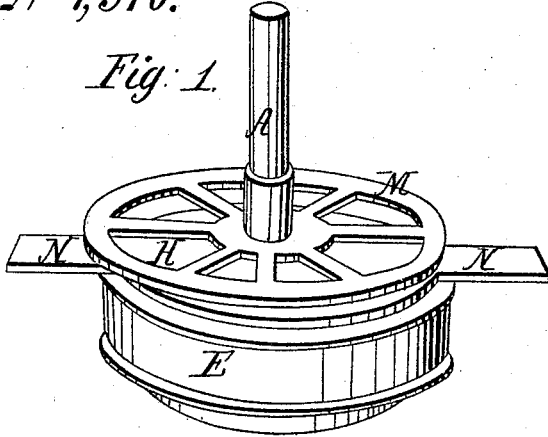


Fig: 3.

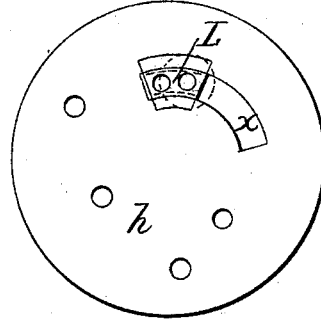


Fig: 2.

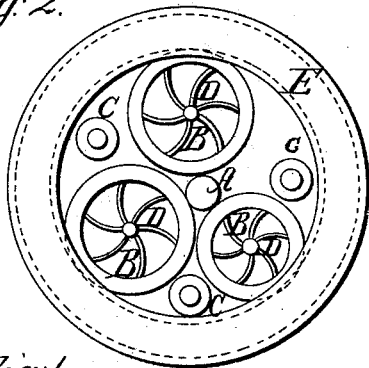


Fig: 5.

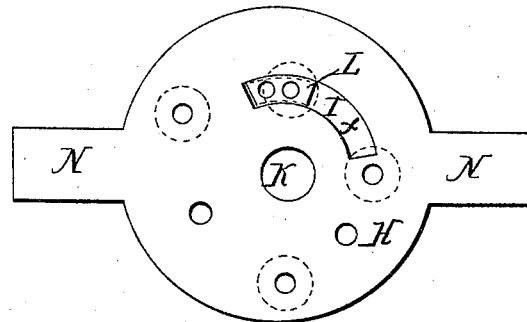


Fig: 4.

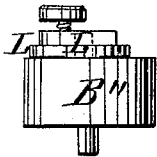


Fig: 8.

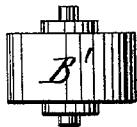


Fig: 9.

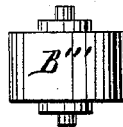


Fig: 10.



Fig: 7.

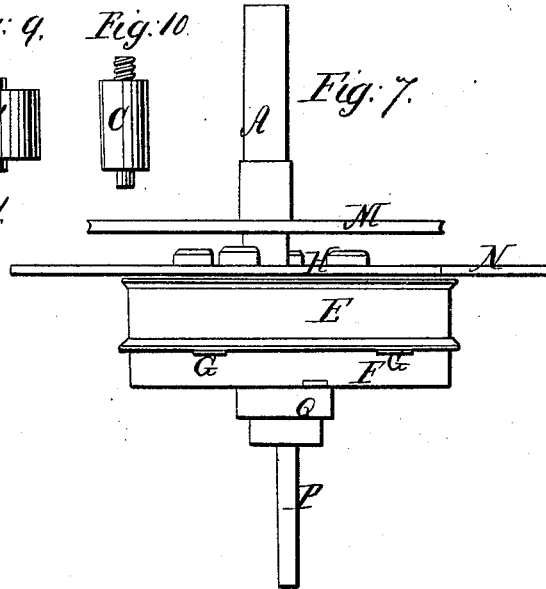


Fig: 6.

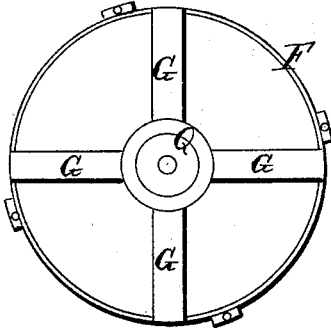


Fig: 11.



UNITED STATES PATENT OFFICE.

FREDERICK S. BARNARD, OF NEW YORK, N. Y.

MODE OF INCREASING, REDUCING, AND COMMUNICATING MOTION IN MACHINERY
TO BE USED AS A SUBSTITUTE FOR COG-GEARING.

Specification of Letters Patent No. 1,318, dated September 10, 1839.

To all whom it may concern:

Be it known that I, FREDERICK S. BARNARD, of the city, county, and State of New York, have invented a new and Improved
5 Mode of Increasing and Reducing Motion in Machinery, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

10 Figure 1 is a perspective view of the machine in a horizontal position. It may, however, be placed in a vertical position. Fig. 2 represents the arrangement of the wheels, studs and axle one of the outside or
15 end plates of the cylinder being removed for that purpose. Fig. 3 represents one of the end plates of the cylinder and segment slots and sliding box therein; Fig. 4, wheel without shoulder and one of the sliding
20 boxes and screw; Fig. 5, the other outside or end plate; Fig. 6, circular rim with arms attached to the cylinder for turning it, the wheels and the axle; Fig. 7, side elevation of the whole machine; Fig. 8, edge view of one
25 of the large wheels; Fig. 9, edge view of the small wheel; Fig. 10, one of the studs; Fig. 11, the axle detached.

Similar letters refer to similar parts in the several figures.

30 The nature of my invention consists in surrounding a small shaft or spindle A by three wheels B', B'', B''', two of which B' and B'' are of an equal diameter, the other B''' less. These three wheels bear on the
35 shaft A, and are placed as near together as may be without coming in contact. They run between two stationary plates H, h, and are encircled by a metallic cylinder or ring E. The space X between the ring and shaft
40 and between the small and one of the larger wheels of course varies in width in proportion to the variation of the diameter of the last above mentioned wheels. Therefore by moving the larger wheel B'' (the axle of
45 which runs in sliding boxes L, secured with fastening screws in the guide openings in the plates) on a curved line α passing through the space and toward the axis of the smaller wheel B''' (the boxes of which,
50 together with those of the wheel B', are in the plates H, h, and stationary). I thereby obtain any required bearing or pressure

equally against the shaft A, and ring E, after moving or wedging the wheel B'' in said space X so as to secure said bearing or 55 pressure. Then the set screws in the two sliding boxes L are made use of to keep the wheel in its place. The plates H, h, are connected by three studs c, c, c, within, one in each space between the wheels, so as not to 60 interfere with the wheels. One of the plates H has two flanges N. It may be furnished with four the better to fasten it to any place where the gearing is to be put in motion, the shaft or spindle A, passing through plate H, 65 in an opening K, larger than the diameter of the shaft which of course has no bearing against said plate, but bears on the peripheries of the three wheels B', B'', and B''', and occasionally touching the inside of 70 plate h, by its flanged end, which is made convex. On the outer center of this plate is a stud or axle P, fixed at right angles with the face of the plate and parallel with the axles of the wheels or rollers and shaft. On 75 this fixed stud is a hub Q with four arms G screwed to the side of the ring. The arms and hub being on the extreme outside of plate h, and being fixed to the ring E revolve with it. There is a band wheel M on the 80 shaft A, the propelling power being applied to this shaft A when the motion is to be reduced to obtain power and to the hub Q, when the motion is to be increased. The flanges on the inner periphery of the cylinder are for keeping it from the plates, the 85 wheels having shoulders for keeping them in their proper places between the plates. The center shaft A, likewise has a flange on it near the extremity thereof which is between 90 the wheels and the plate h, for preventing it from drawing out and is made convex where it occasionally touches the plate for reducing friction.

The circular form of this machine and the 95 compact arrangement of its parts renders it a very useful and cheap gearing for propelling various kinds of machinery.

I do not claim as my invention the substitution of the friction of the surfaces of revolving bodies as a substitute for cog gearing, as this, I am aware has long been known, but not employed in a manner similar to mine. 100

I therefore claim as my invention—

The combination of the ring E, wheels B', B'', and B''', and the spindle A arranged as herein described as a substitute
5 for cog gearing, and also claim the method of increasing the pressure against the surfaces of the spindle A, wheels B', B'', and

B''', and inner periphery of the ring E, by shifting the position of one of the wheels B, in the manner herein described.

FREDERICK S. BARNARD.

Witnesses:

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JOHN A. HALL.