(No Model.)

W. H. BROCK.

Grindstone.

No. 242,873. Patented June 14, 1881.

Fig. 1.

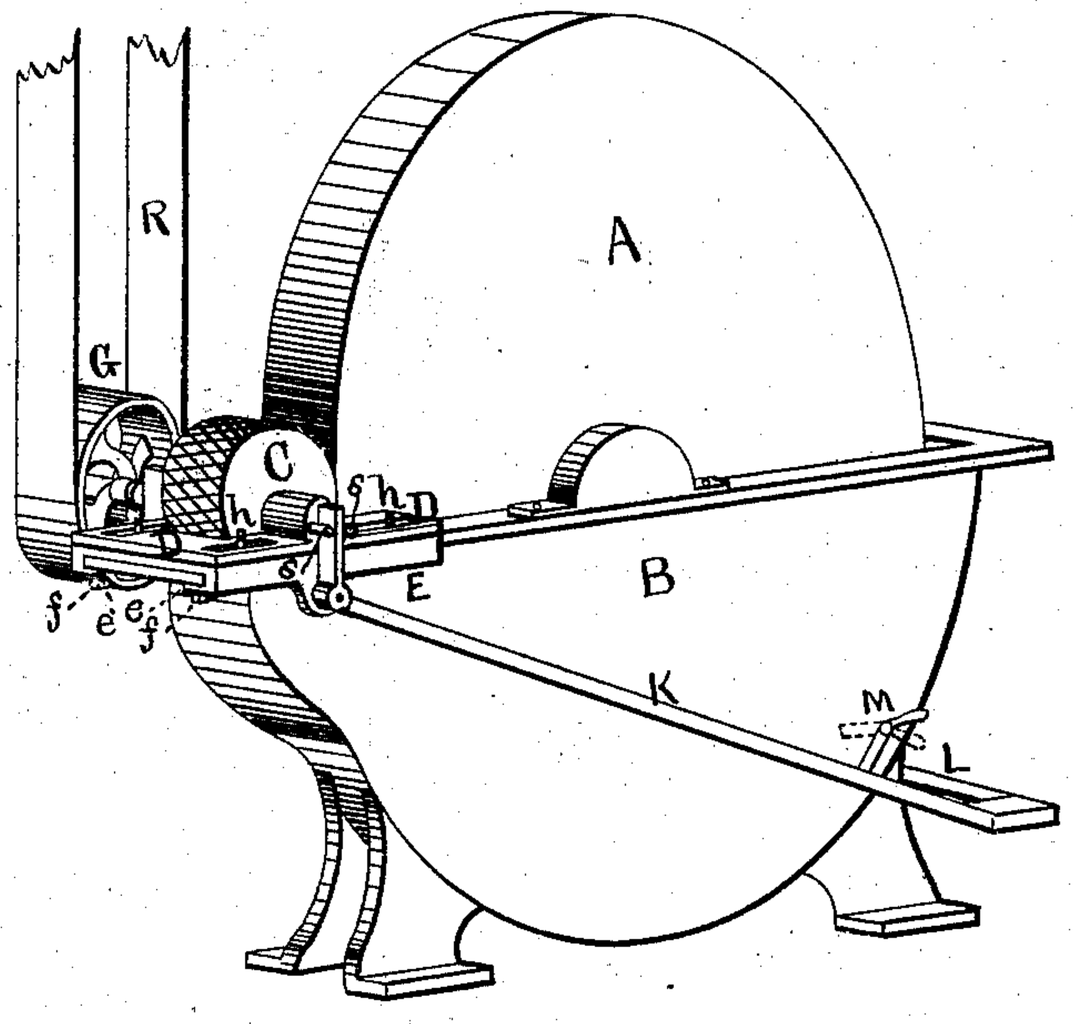
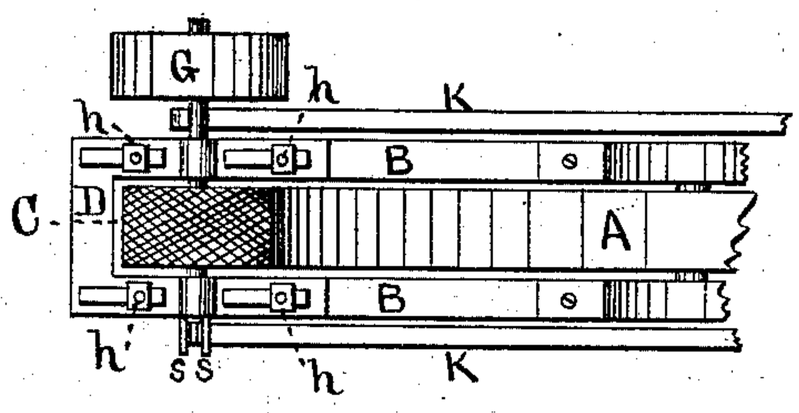


Fig. 2.



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UNITED STATES PATENT OFFICE.

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GRINDSTONE.

SPECIFICATION forming part of Letters Patent No. 242,873, dated June 14, 1881.

Application filed March 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BROCK, residing at Corona, county of Queens, and State of New York, have invented certain new and useful Improvements in Grindstones; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to stones or wheels employed for grinding, polishing, &c., and whose surface abrades and wears away in use.

It has for its object the maintenance of a uniform rate of speed in the movement of the surface of the rotating stone, notwithstanding the reduction of its diameter by use, so that the face of the stone or wheel shall, with a constant motor, move at one and the same constant rate of speed independently of the change in the circumference of the wheel resulting from its wear.

It consists in a combination, with the friction-wheel engaging the face of the grindstone to drive it, of suitable mechanism for throwing the friction wheel or pulley in and out of contact with the grindstone, and for securing contact, as required, until the stone is wholly worn away.

In the accompanying drawings, Figure 1 is a perspective view of my improved constant-motion grindstone and driving-pulley, and Fig. 2 a top or plan view thereof.

A is a grindstone, of any quality or description adapted for grinding or polishing and which is liable to wear away in use. This stone is mounted in suitable bearings upon a frame or casing, B, in the customary manner, so as to revolve freely and truly upon its axis.

C is a smaller wheel or friction-pulley, mounted in suitable bearings upon a sliding plate, D, which rests upon a second plate, E, adapted to fit upon the casing B in front of the stone. This second plate, E, is formed with lateral flanges *e e*, Fig. 1, made to overlap and embrace the edges of the flange of the casing, and is secured to the casing by means of set-screws *f f*, working through the overlapping flanges *e e* of the plate E against the inclosed flange of the casing.

When the set-screws *f f* are loosened the plate E may be moved to or from the grindstone; but it remains immovable when the set-screws are tightened up. The movement of the plate E permits of its adjustment in proper proximity to the face of the stone, as required, for the purpose of bringing the friction-wheel C into contact therewith.

The bearing-plate D, which rests and slides upon the adjustable casing-plate E, is guided and limited in its movement longitudinally to and from the stone by means of pins *h h*, which project upward from the casing-plate E through longitudinal slots in the bearing-plate D. (See Fig. 2.)

The friction-pulley C is mounted upon an axle or arbor, which, supported in suitable journal-boxes upon the sliding bearing-plate D, extends out far enough on one side to receive a driving-pulley, G, Fig. 2, geared by a band, R, Fig. 1, to a suitable prime motor.

K K are crank-levers pivoted each to an ear or offset upon the sides of the adjustable casing-plate E. The shorter arm of each lever passes up between pins S S, projecting from the sliding plate D, and its longer arm extends downward at an inclination forward to within ready reach of the operator's foot at the other end of the stone, the long arms of the levers being united at their outer ends by a transverse connecting foot-bar, L, Fig. 1. By depressing the long arm of the levers their shorter arms are thrown in toward the grindstone and operated to force the sliding bearing-plate D inward, and thus carry the friction-pulley C into contact with the grindstone with a pressure proportionate to that exerted upon the foot-bar L. This pressure may be maintained by the operator at pleasure, either by keeping his foot on the foot-bar L or by fastening down said bar by means of a latch, M, secured to the casing, and arranged to engage the lever K, (see Fig. 1,) or by other simple form of locking device.

The sliding plate D may be automatically withdrawn from contact with the grindstone by means of a spring arranged to retract it, or by causing the shorter arm of one or both levers K to embrace a pin on the sliding plate D, so that when the long arm of the lever is

lifted it shall in itself operate to carry back the plate and friction-pulley. In this case a spring may be applied to operate upon the lever to effect the withdrawal of the pulley.

The surface of the friction-pulley C is preferably made very hard and scored with diagonal grooves running from side to side, one set of grooves being made to cross the other, as shown in the drawings, Fig. 2.

The grooves, when properly cut and sharpened, will serve to keep the face of the grindstone true and clean and in the best condition for effective work.

In the use of my device the friction-wheel, driven with a constant uniform speed by the belt R, is brought into contact with the face of the grindstone by a simple pressure of the foot upon the lever-bar L, and by contact with the stone produces its rotation, the rotation being maintained by keeping the foot upon the lever-bar L, or by locking the lever in its operative position by means of the latch M or other equivalent device.

So fast as the grindstone wears away in use the adjustable clamp-plate E is moved toward it, so that the friction-pulley may always be readily brought into effective contact with its face by a movement of the levers K. As the rate of rotation of the friction-pulley is constant and uniform, so it will always produce a corresponding rate of speed in the face of the grindstone, and this rate will remain the same when the stone is reduced to the smallest possible diameter as when it was of largest size.

It is evident that, instead of moving the friction-pulley toward the face of the grindstone in order to produce an operative contact of the two, the friction-pulley may revolve in fixed bearings and the stone be moved to and from the pulley by substantially the same mechanism as above described, in which case the stone is to be regulated as an equivalent substitute for the pulley, and vice versa.

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

The combination of a movable plate, D, carrying the journals of a friction-pulley, C, with the supporting-casing B of a grindstone, and with devices for producing a movement of the plate D and pulley C to and from the face of the grindstone, substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. BROCK.

Witnesses:
DAVID A. BURR,
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