

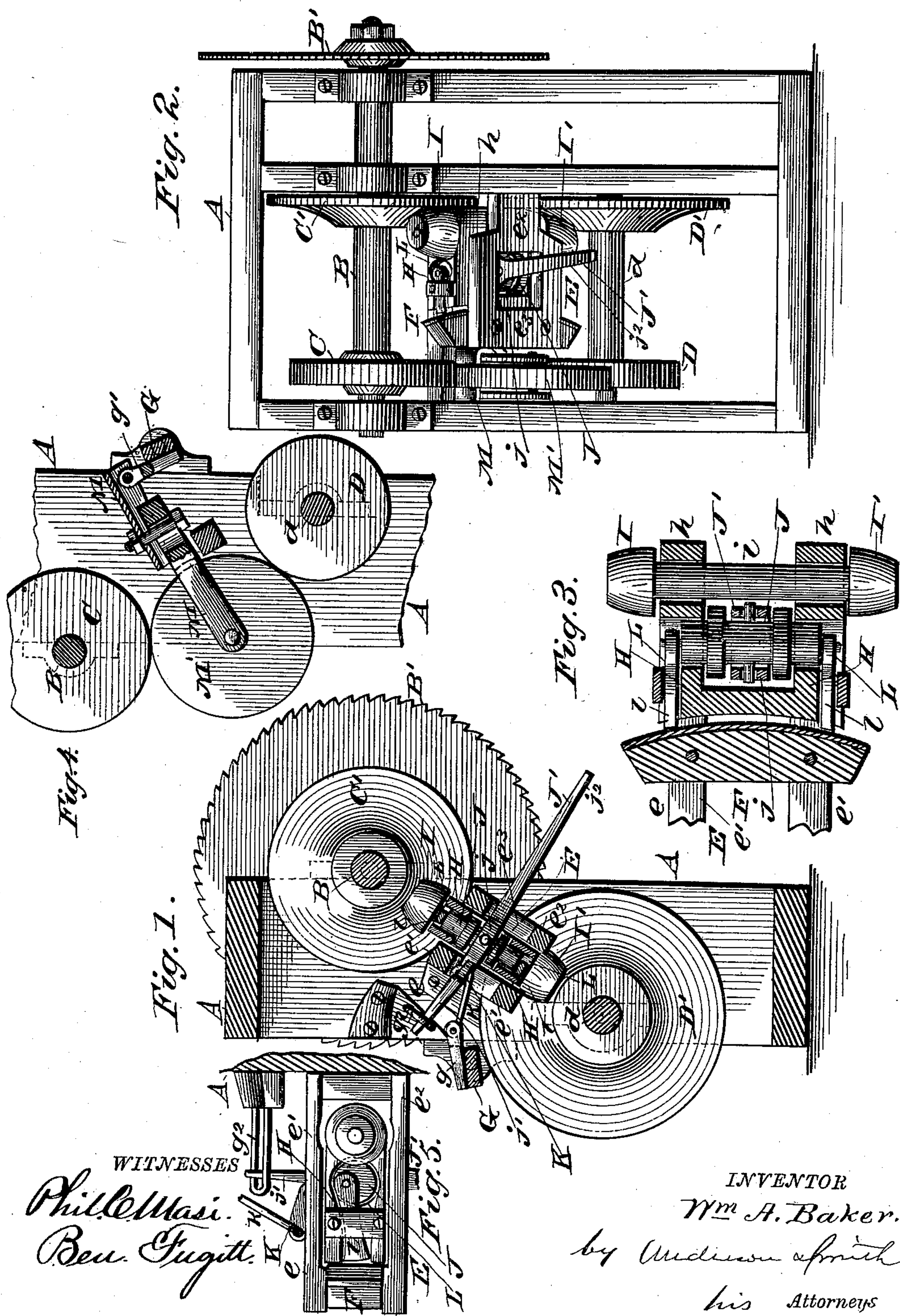
(No Model.)

W. A. BAKER.

SPEED REGULATOR FOR SHAFTS OF CIRCULAR SAWS, &c.

No. 334,329.

Patented Jan. 12, 1886.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM A. BAKER, OF NEW MATAMORAS, OHIO.

SPEED-REGULATOR FOR SHAFTS OF CIRCULAR SAWS, &c.

SPECIFICATION forming part of Letters Patent No. 334,329, dated January 12, 1886.

Application filed November 17, 1885. Serial No. 183,116. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. BAKER, a citizen of the United States, residing at New Matamoras, in the county of Washington and State of Ohio, have invented certain new and useful Improvements in Speed-Regulators for Shafts of Circular Saws, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a vertical central sectional view. Fig. 2 is a front elevation. Fig. 3 is an elevation, partly in section, of the frame E. Fig. 4 is a detail vertical sectional view, and Fig. 5 is a plan view of the frame E.

This invention has relation to improvements in mechanism for regulating the speed of the shafts of circular saws, grindstones, &c.; and it consists in the construction and novel arrangement of parts hereinafter described, and pointed out in the claims.

Referring to the accompanying drawings by letter, A designates the frame of the machine, and B the shaft of the circular saw B', which shaft turns in bearings b b, secured to the frame, and carries upon it the friction-wheels C C', as shown. The wheel C receives motion by friction on its edge, and the wheel C' by friction on its inner face, which is beveled on the arc of a circle from near its center to its circumference, the bevel being concave, as shown.

d is the driving-shaft, turning in bearings in the main frame a suitable distance below and to the rear of the said shaft, and having upon it the wheels D D', respectively, similar to the wheels C C', and turning in the same plane.

E is an inclined transverse frame, secured within the main frame, the longitudinal central line of which coincides in an oblique plane with the shafts B and d. The frame E is composed of the rear longitudinal piece, e, having the upper and lower parallel legs, e' e', and the front longitudinal piece, e², provided with the rectangular slot e³.

F is a fixed block, secured transversely in

the frame E, between the pieces e and e², and having its edges looking toward the saw, and the wheels C' and D' made convex on the arc of a circle corresponding to the bevels of said wheels.

G is a rock-shaft having its bearings in the main frame to the rear of the frame E, and provided with the forwardly and upwardly extending arms g g', as shown.

g² is a transverse supporting-loop and guide, situated above and to the front of the rock-shaft.

H is a traveling block, one edge of which is concave and rides on the convex edge of the block F. The opposite edge is recessed to form the arms h h, in the ends of which bearings are formed for a shaft, i, carrying on its upper and lower ends, respectively, outside of said bearings, the friction-wheels I I'. The said wheels have their bearing-surfaces convex, to correspond to and engage with the concave surfaces of the wheels C' and D'.

J is a shaft journaled in the arms h h to the inner side of the shaft i, and J' is a lever having upon it a loop, j, within which the said shaft is pivoted. The rear arm, j', of the lever enters the supporting-loop g², and its front arm, j², projects through the slot e³ forward and downward. By lifting on the front end of the lever the supporting-loop g² becomes a fulcrum for the rear arm of the same, and the block H is made to travel upward on the block F, so that the wheels I I' change their frictions in relation to the wheels C' and D'. When the blocks H and F are in contact, the wheels I I' do not engage in the surfaces of the wheels C' and D', but they are made to engage thereon by the following mechanism:

K is an arm standing at right angles from the rear arm, j', of the lever J' at a proper point, and k is a link-rod connecting the end of the arm K with the end of the arm g on the rock-shaft G, making with the latter a universal joint.

L L are shallow recesses in the ends of the block H, running outward from the journal-openings of the shaft J toward the block F, and having their ends open adjacent to said block.

l l are presser-bars lying in said recesses, and each having one end pivoted upon the end of the shaft J and the other end resting against

the edge of the block F. These ends are so pivoted on the shaft that when the front arm, j^2 , of the lever J' is moved toward the rear, the rear arm, j' , arm K, and link-rod k , being all connected together, will turn on the arm g as a fulcrum, the ends of the presser-bars will bear against the edge of the block F, and said block will be moved toward the wheels C' and D' , so that the wheels $I I'$ will engage the same. A reversal of the motion of the lever J' disengages the said wheel. The latter or disengaging motion, by bringing the point of the arm K nearer the rock-shaft, will, by means of the link-rod k , rock said shaft backward, and make the extensions g and g' swing backward.

M is a bar pivoted loosely at its end to the arm g' , and bifurcated at its front end, and M' is a friction-wheel pivoted between the arms of the said bifurcation. The wheel M' equals in size and stands between the wheels C' and D' , and when the bar M is drawn rearward by the swinging backward of the arm g' , caused by the disengaging motion of the lever J' , the said wheel M' engages both wheels C and D; but when it is moved forward by the engaging motion of said lever it only engages the wheel D and rides idly thereon.

The shaft d is the driving-shaft of the machine, and is operated by a belt and pulley in the usual manner, and when the wheels $I I'$ are disengaged from the wheels C' and D' motion is communicated through the wheels C, M' , and D to the saw-shaft B. This gives the normal speed of the machine and is uniform. By causing the wheels $I I'$ to respectively engage the bevel-wheels $C' D'$, the wheel M' is disengaged from the wheel C. The saw-shaft is then driven by the wheels $I I'$, and said bevel-wheel and its speed may be increased by moving the block upward by the means described, so that the wheel I will engage near the center of the wheel C' , and the wheel I' nearer the circumference of the wheel D' . The curved edges of the blocks F and H keep one of the wheels $I I'$ in engagement, whether they are moved upward or downward.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the wheel C' on the saw-shaft, the wheel D' on the driving-shaft, the block F, secured in the frame E, and having one edge made on the arc of a circle, the block H, traveling on said edge, the wheels $I I'$, having their shafts journaled in the block H, and arranged to engage, respectively, with the wheels C' and D' , and mechanism, substantially as described, whereby the wheels $I I'$ can be engaged to and disengaged from the wheels C' and D' , and can be with their shaft moved in the plane forming the centers of the same, substantially as specified.

2. The combination of the wheel C' on the saw-shaft, the wheel D' of the driving-shaft, the block F, secured in the frame E, and block H, sliding on the block F, with the rock-shaft G, provided with the arm g , the shaft J, journaled in the arms h of the block H, the presser-bars l , the lever J' , arm K, link-rod k , and supports and guide-loops g^2 , substantially as specified.

3. The combination of the wheels C C' on the saw-shaft, the wheels D D' on the driving-shaft, the fixed block F, the block H, traveling thereon, the wheels $I I'$, having their shaft journaled in the block H, and the shaft J, journaled in the arms h of the block H, and having the presser-bars $l l$, pivoted to its ends, with the lever J' , the supporting and guide loop g^2 , the arm K on the rear end of the lever J' , the link-rod k , the rock-shaft G, provided with the arms $g g'$, the bar M, pivoted to the arm g' , and the friction-wheel M' , pivoted to the bar M, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM A. BAKER.

Witnesses:

JASPER LISK,
S. F. KOONTZ.