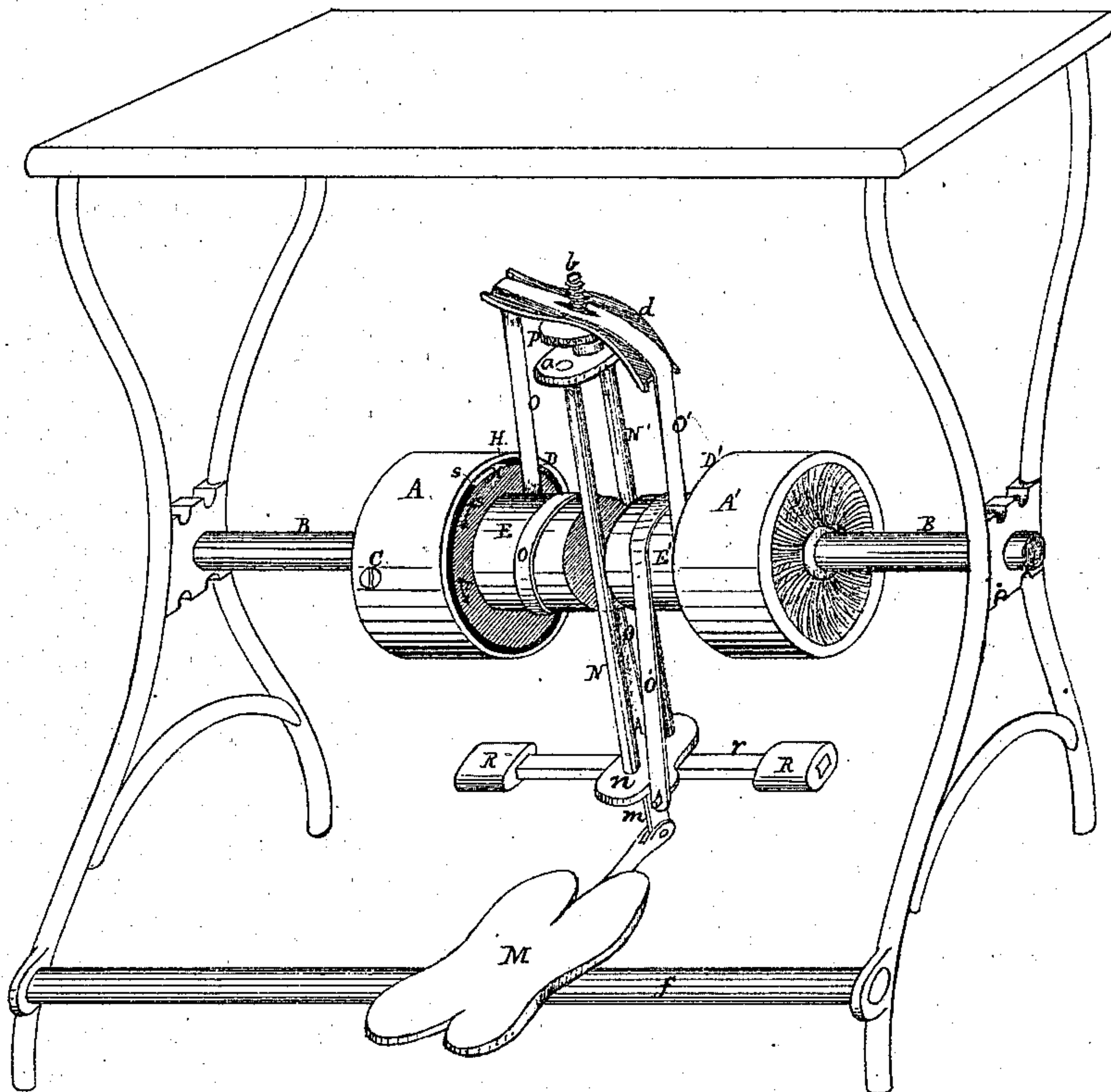


J. B. BOLINGER.  
Treadles.

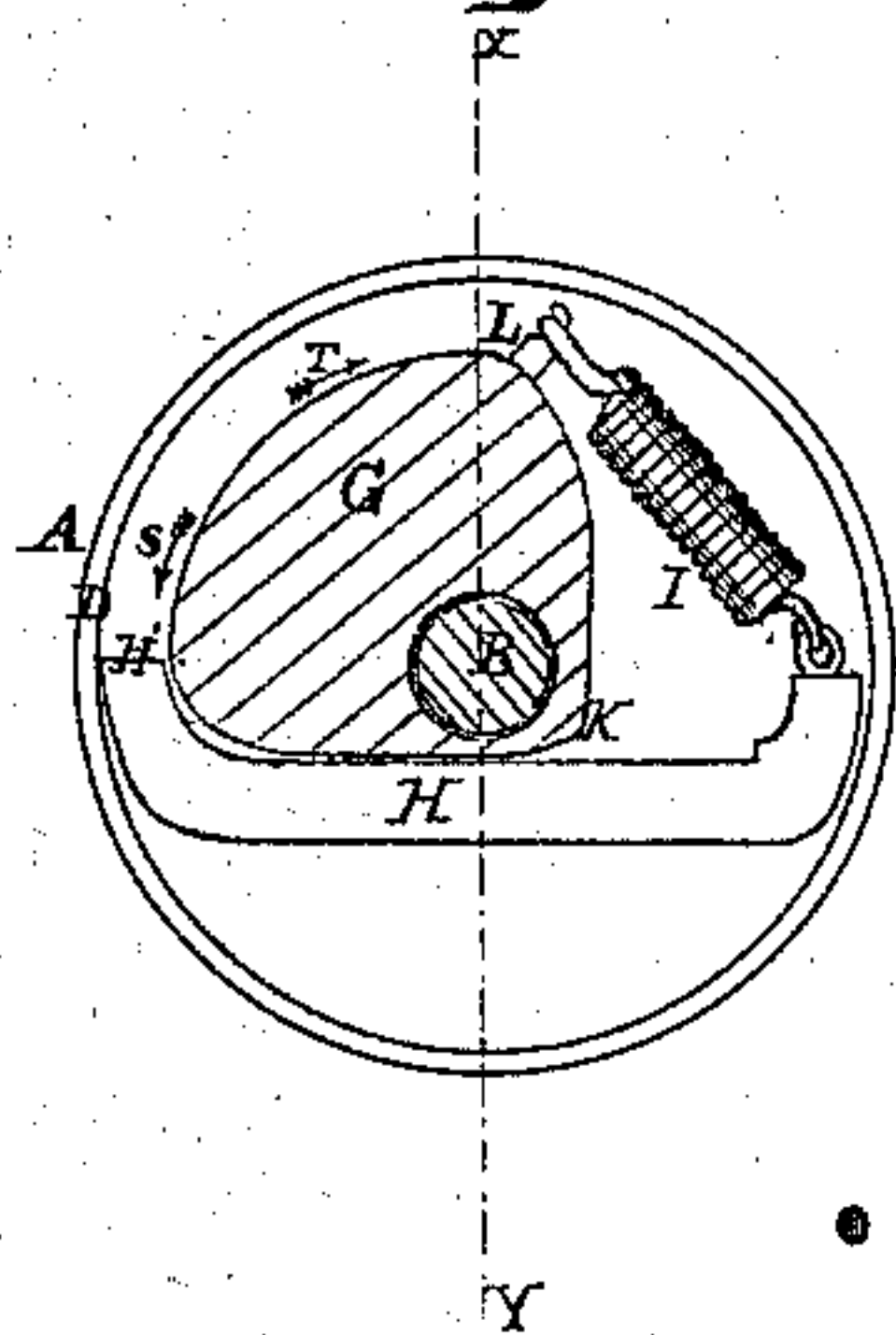
No. 136,810.

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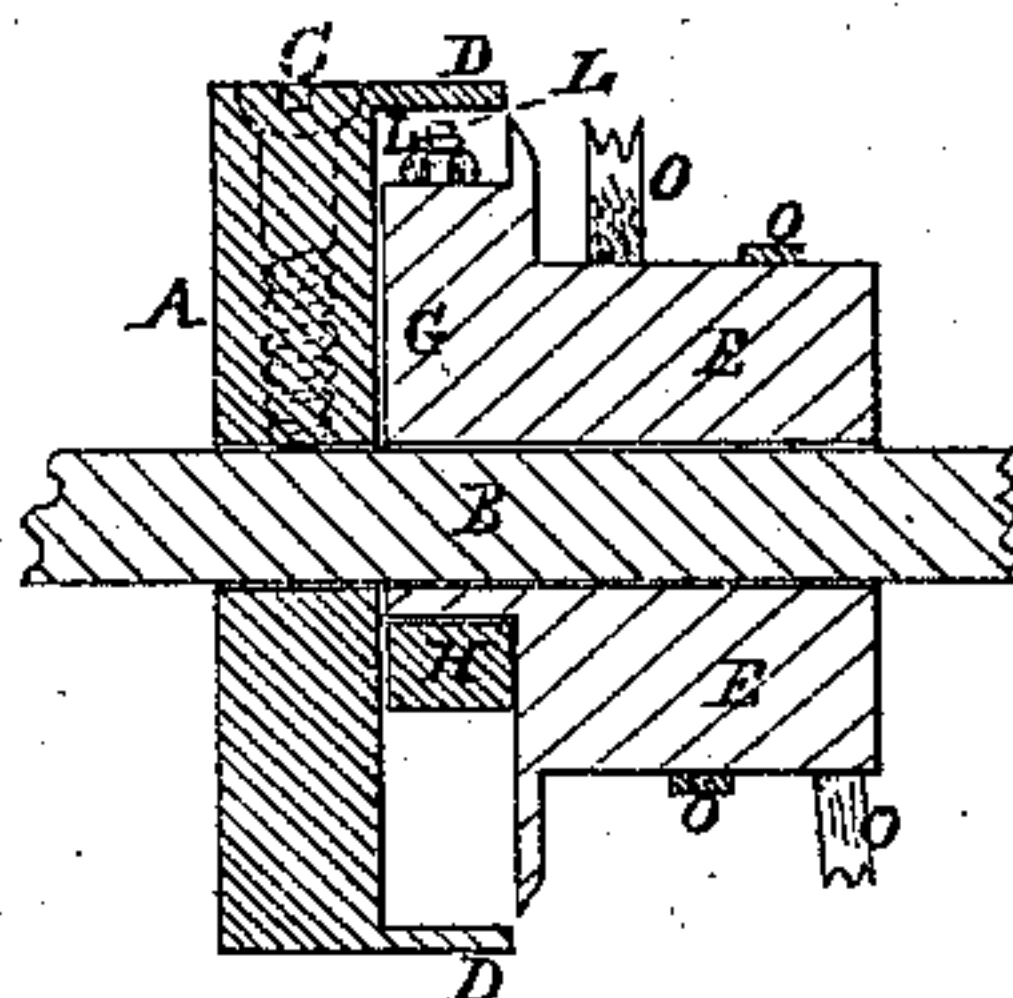
**Fig. 1.**



**Fig. 2.**



**Fig. 3.**



Witnesses,  
*Wm M. Hawley Jr.*  
*A. W. Hawley*

*John B. Bolinger.*  
Inventor,  
by *Job Abbott*, Atty.



# UNITED STATES PATENT OFFICE.

JOHN B. BOLINGER, OF MICHIGAN CITY, INDIANA.

## IMPROVEMENT IN TREADLES.

Specification forming part of Letters Patent No. 136,810, dated March 18, 1873.

*To all whom it may concern:*

Be it known that I, JOHN B. BOLINGER, of Michigan City, in the county of Laporte and State of Indiana, have invented certain new and useful Improvements in Treadle-Movements; and that the following is a full, clear, and exact specification thereof, which will enable others skilled in the art to make and use the said invention.

My invention relates to an improved treadle-movement for sewing-machines, jewelers' lathes, and other light machinery in which it is desirable to drive the main shaft of the machinery always in the same direction; to start the machinery at any point without having to touch the balance-wheel on the main shaft; to stop the machinery quickly, but without a sudden jerk, when required; and to have a treadle-motion which can be varied by the operator at will to suit the varying amount of power required. To this end, said invention consists, first, in the combination of a flanged driving-pulley with a friction-pawl, spring, and eccentric so arranged that the eccentric acts to force the pawl against the flange of the driving-pulley so as to cause the pulley to revolve with the eccentric in one direction, but leaving the pulley free when the eccentric is revolving in the opposite direction; second, in the combination of two flanged pulleys with eccentrics, friction-pawls, and springs with and upon the main driving-shaft of the machinery, for the purpose of causing a continuous rotation of said shaft; and, lastly, in the combination, with the treadle, of a friction-brake arranged to act upon and arrest the rotation of the driving-pulleys and main shaft.

In the accompanying drawing, Figure 1 is a perspective view of my invention; Fig 2, an elevation of the rigid pulley detached, showing the pawl, spring, and a section of the quadrantal eccentric and shaft; Fig. 3, a vertical section of the pulley, eccentric, drum, pawl, and shaft on the line *x y* of Fig. 2.

A A' are the driving-pulleys, which are rigidly secured on the shaft B by the screws C, shown in dotted lines in Fig. 3. D D' are flanges projecting laterally from the periphery of the pulleys A A'. E E' are drums, which revolve freely on the shaft B, and on the inner faces of which are the quadrantal eccentrics G, which are attached to and form part of said

drums, and which project into the space formed by the lateral flanges D D'. H is a friction-pawl, to one end of which is attached the spring I, the other end of said spring being attached to a stud, L, in the eccentric G. M is a treadle, vibrating on the shaft *f*, and having its front end connected to the rod *m*, on the upper end of which is the cross-plate *n*, to which are attached the pitman-rods N N', which pass up between the drums E E' and on each side of the shaft B, and are united above said shaft by the cross-plate *a*, in which is secured the bolt *b*, on which is the adjusting-nut *p*. The plate *d* is placed over the bolt *b*, and rests on the nut *p*, and the belt O O' lies over said plate, and passes down with one wrap over the drums E E' to the plate *n*, to which its ends are attached, so that by tightening or loosening the nut *p*, the tension on the belt O O' can be adjusted as required. K is the corner or bearing shoulder of the eccentric G, which is forced against the pawl H when the motion of the eccentric G is in the direction of arrow T. When the drum E is revolved in the direction of arrow T, Figs. 1 and 2, the corner K of eccentric G bears against the pawl H at K, and, with the assistance of spring I, the ends of the pawl are thrown against the inside of flange D of pulley A, which compels the pulley A and shaft B to which pulley A is rigidly attached, to revolve with the eccentric G and drum E so long as they continue to revolve in the direction indicated—that is, so long as the pitman N' is rising. At the same time, that part of the belt O' running on the drum E' turns the drum E' in a contrary direction to E, and the pawl on the drum E' slides without friction inside the lateral flange D' on the drum A'. The drum E, pulleys A A', and shaft B are now all revolving in the same direction; but the pitman N N' having reached the height of its stroke begins to descend, and the action of the belt O revolves the drum E and eccentric G in the direction of arrow S, relieving the bearing of the corner K on the pawl H, which releases point H' of the pawl from friction with flange D, and this downward motion of the pitman N N' has the same effect on drum E' as the upward motion had on E, thus keeping the pulleys A' A and shaft B revolving continuously in the same direction. On the cross-



plate *n* is secured the brake-bar *r*, at the ends of which are the brake-blocks *R R* of rubber or other suitable material.

When the operator desires to stop the revolution of the shaft *B*, he presses on the back end of the treadle *M* until the blocks *R* are brought in contact with the pulleys *A A'* on which said blocks act as friction-brakes, in a manner readily seen.

In using this treadle, the operator can vary the amount of motion on the treadle as desired, giving it a short quick motion when a rapid rotation of the shaft *B* is desired, and a much longer motion when more power with less speed is desired, which gives it a great advantage over the ordinary crank and treadle movement.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The pulley *A* with lateral flange *D*, in combination with the friction-pawl *H*, spring *I*, and eccentric *G*, said pawl *H* being arranged

to act against the lateral flange *D* in producing the rotation of the pulley *A*, substantially as described.

2. The drums *E E'* with eccentrics *G*, pulleys *A A'* with flanges *D D'*, pawls *H*, and springs *I*, arranged and operating on the shaft *B*, substantially as and for the purpose specified.

3. The brake *R r R*, operated by the treadle *M*, and acting on the pulleys *A A'*, substantially as and for the purpose specified.

4. The combination of the pitman *N N'*, double belt *O O'*, pulleys *E E'*, eccentrics *G*, pawls *H*, springs *I*, and pulleys *A A'*, the whole being so arranged as to produce a continuous rotation of the shaft *B* on imparting a reciprocating motion to the pitman *N N'*, substantially as described.

As evidence of the foregoing witness my hand this 26th day of September, A. D. 1872.

JNO. B. BOLINGER.

Witnesses:

J. A. THORNTON,

JARED H. ORR.