(No Model.)

J. H. SIMONSON.

TREADLE FOR GRINDSTONES.

No. 371,856. Patented Oct. 18, 1887.

Fig 1.

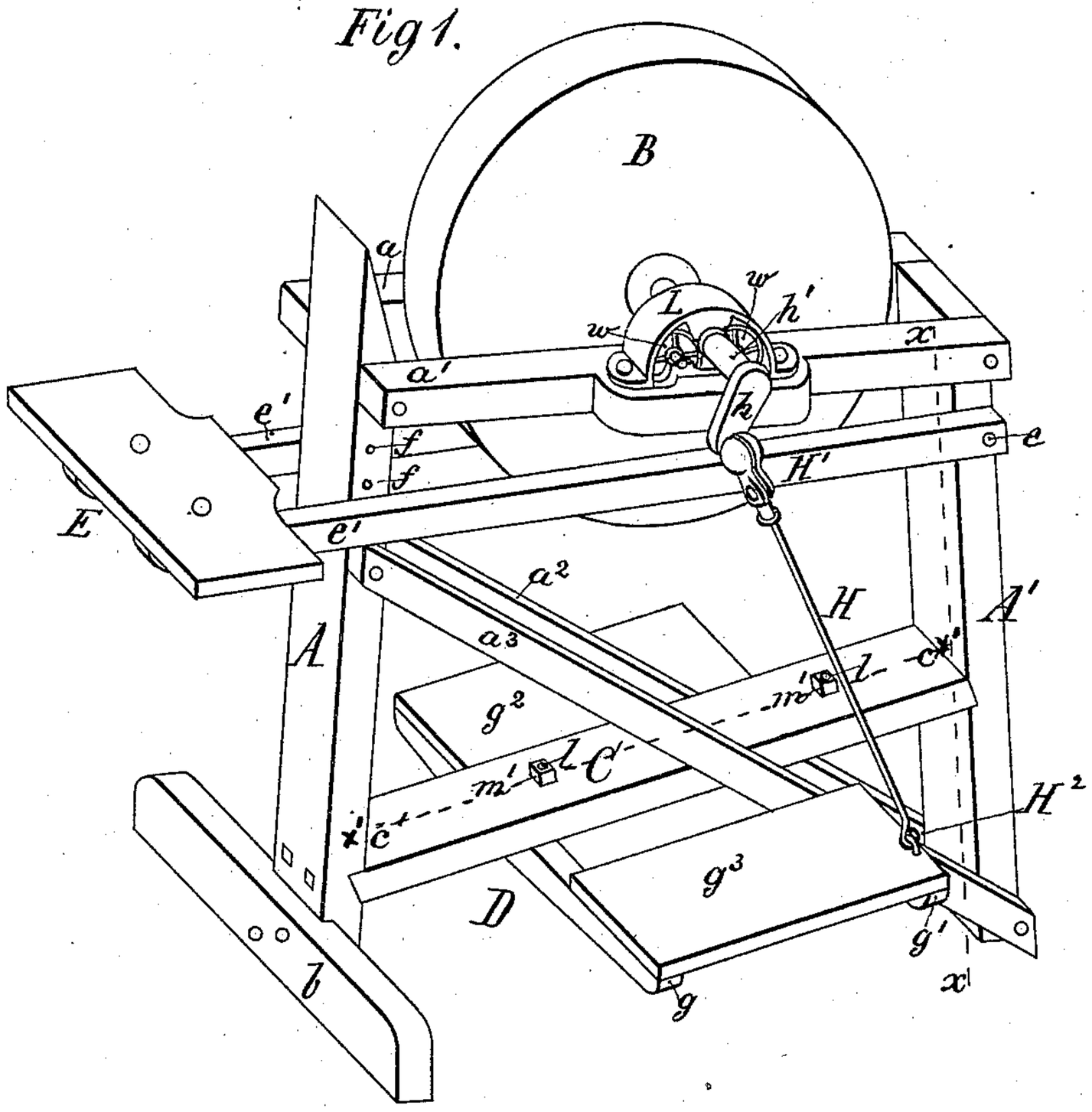


Fig 2.

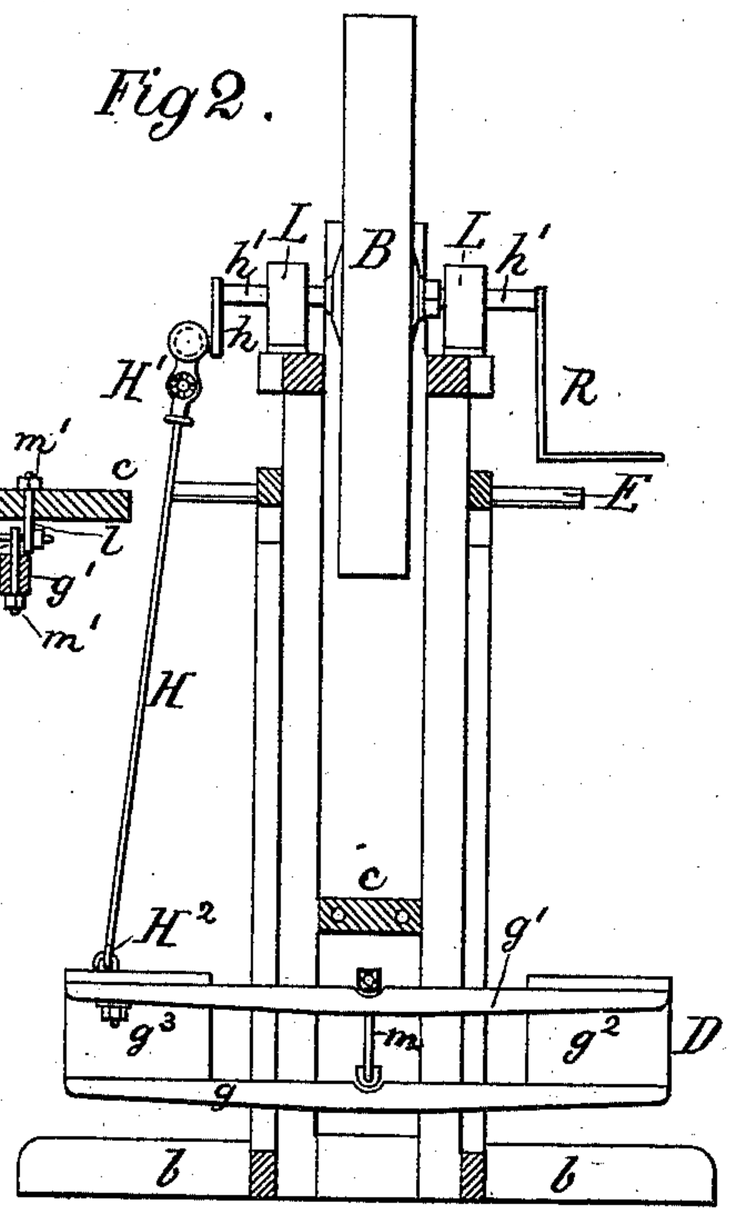
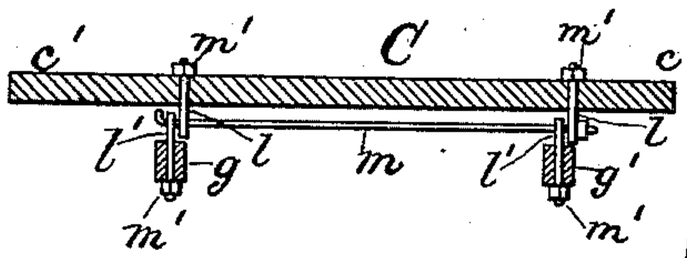


Fig 3.



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UNITED STATES PATENT OFFICE.

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TREADLE FOR GRINDSTONES.

SPECIFICATION forming part of Letters Patent No. 371,856, dated October 18, 1887.

Application filed April 25, 1885. Renewed February 21, 1887. Serial No. 228,418. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SIMONSON, a citizen of the United States, residing at Oyster Bay, in the county of Queens and State of New York, have invented a new and useful Improvement in Treadles for Grindstones, of which the following is a specification, in connection with the drawings, of which—

Figure 1 is a perspective view of my improved grindstone-treadle. Fig. 2 is a sectional view in the line *x x* of Fig. 1, the parts forward of that line being in elevation; and Fig. 3, a detail sectional view in the line *x x* of Fig. 1, showing the mode of hanging the treadle.

The object of my improvement is to enable a grindstone to be conveniently and easily driven by a person using the stone.

As shown in Fig. 1, A A′ are upright portions of a suitable frame, upon which the stone B is mounted, said uprights being stayed by horizontal beams, as *a a′*, and diagonal braces, as a^2 a^3, the front upright portion, A, being provided at its base with a cross-support, *b*, which prevents the machine from being easily overturned.

As clearly shown in Fig. 1, C is a longitudinal obliquely-set brace connecting the uprights A A′, the rear end, *c*, of which brace is as much more elevated than the end *c′*, as it is desirable to give such forward pitch to the treadle D as will best accommodate the feet of an operator when sitting upon an adjustable seat, E, and operating said treadle. As shown in said figure, the seat E, which is pivoted to the upright A′, as signified at *e*, may be elevated more or less, as desired, by inserting a proper pin beneath the side bars, *e′ e′*, of the seat and into the holes *f f* of the upright A.

The treadle D, which is made to depend centrally of its width from brace C and on a line central and longitudinal of said brace, as shown, is composed of two transverse bars, as *g g′*, and connected by foot-rests, as g^2 g^3; and from a loose joint-connection, H^2, near the upper right-hand corner of the foot-rest g^3 a pitman, H, is made to connect with a crank, *h*, of the crank-axle *h′* of the grindstone B by means of a ball-and-socket joint, H′, as shown. As indicated in Figs. 1 and 3, the treadle D is made to depend from a rod or bar, *m*, which is made to pass through eyebolts *l*, passed through brace C and held by nuts *m′* and like bolts, *l′*, (see Fig. 3,) passed through the transverse bars *g g′* and held by nuts *m′*, said bar *m* being bent up at one end, as shown, and confined at its opposite end by a nut, thus confining the treadle D in its normal position (indicated in Fig. 1) and capable of having its foot-rests g^2 g^3 alternately moved up and down by the alternate pressure thereon of the feet of the operator of the grindstone.

As signified clearly in Fig. 3, the treadle D is suspended from the screw-threaded eyebolts *l l*, which pass through the inclined brace C and are confined thereto, as shown by screw-nuts *m′ m′*, so that by simply turning the nuts *m′ m′* upon the bolts the treadle may be readily adjusted up or down with reference to the operative length of the pitman H and without any longitudinal adjustment of said pitman, while at the same time the pitch of the treadle toward the operator may be more or less adjusted in order to accommodate an easy or natural working position of the feet of the operator as he sits upon the seat E while working the machine. With the treadle D thus constructed and hung upon the oblique brace C and connected with the single crank *h* of the grindstone B a downward movement of the foot-rest g^2 serves to move the pitman H upward with a leverage thrust against the crank *h*, while the downward movement of the foot-rest g^3 serves to exert a leverage pull downwardly upon the crank *h*, the two movements jointly serving to give rotation to the grindstone. In this manner I am enabled to obtain an upward and downward movement and rotation of the grindstone and with great leverage power by the employment of one treadle and one crank, but in such manner that both of the feet of the operator can be utilized upon the one treadle to impart rotation to the grindstone. By this construction the operator can sit directly in front of the grindstone with his person balanced on either side of the center of the grinding-face of the stone and thus occupy the most effective position for applying power to operate it, as well as for holding an implement to be ground against the stone, and while this is the case only a single treadle is used and of the simplest kind.

As shown in Fig. 2, the pitman H at its

lower end is set far out near the extreme upper outer corner of the foot-rest g^3, in order to secure leverage, while its upper end is much nearer to the longitudinal central vertical plane of the machine, and thus a tendency would exist to cause a "bind" between the pitman and the crank during the revolution of the stone B were it not for the ball-and-socket-joint connection H′ between the pitman H and the crank *h;* but by the use of the ball-and-socket joint any such tendency is obviated, and the desired leverage secured at the same time with ease and effectiveness in operating the stone B. As auxiliaries I also provide friction-wheels *w* in boxes L L on either side of the stone for the axle *h′* to revolve upon, and also provide a hand-crank, R, for said axle, as shown, whereby additional manual power may be utilized for turning the grindstone.

What I claim as my invention is—

1. A single treadle, D, dependent from an axis of movement, as *m*, which is directly beneath a grindstone, B, or other main wheel, to which the power of the treadle is imparted, in combination with means whereby said treadle is rendered capable of being obliquely set, substantially as described.

2. The combination of a single adjustable treadle, D, capable of being obliquely set and having foot-rests g^2 g^3, and dependent from an axis of movement, as *m*, and the oblique rod H, having loose connections, and the crank-arm of a grindstone or wheel, substantially as described.

3. The combination of a seat, a treadle, D, having an axis of movement, as *m*, which is directly beneath a grindstone, B, or other main wheel, to which the power of the treadle is imparted, an oblique connecting-rod having loose connections, and the crank-arm of the grindstone or wheel, substantially as and for the purpose described.

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