D. E. STEARNS.

STONE SAW-MILL.

No. 182,490. Patented Sept. 19, 1876.

Fig. 1.

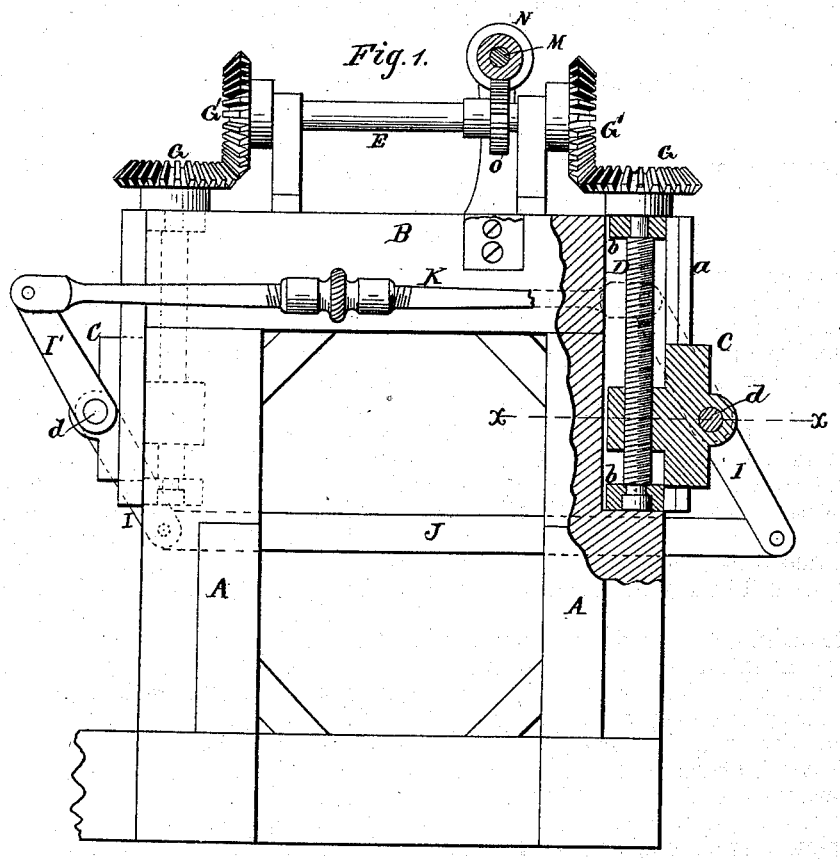


Fig. 3.

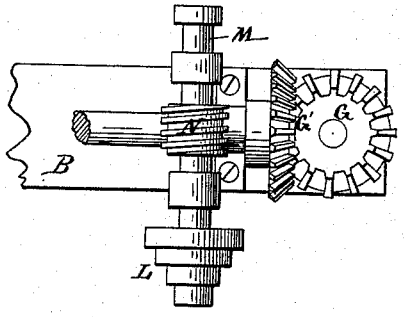
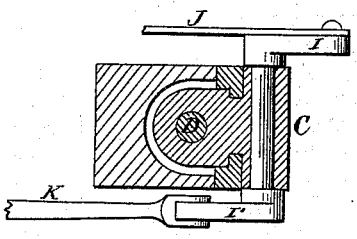


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

DAVID E. STEARNS, OF BEREA, OHIO.

IMPROVEMENT IN STONE-SAW MILLS.

Specification forming part of Letters Patent No. **182,490**, dated September 19, 1876; application filed March 7, 1876.

To all whom it may concern:

Be it known that I, DAVID E. STEARNS, of Berea, in the county of Cuyahoga, and in the State of Ohio, have invented certain new and useful Improvements in Stone-Saw Mills; and 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.

The nature of my invention consists in the construction and arrangement of a stone-sawing machine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation of my machine, partly in vertical section. Fig. 2 is a horizontal section through the line *x x* in Fig. 1. Fig. 3 is a plan view of one end of the machine.

A A represent two parallel standards, supported upon a suitable bed, and connected at their upper ends by a beam, B, of sufficient strength, so that the whole will form a solid and strong frame-work.

The standards A A are slotted vertically from their upper ends—either on the outer side, as shown, or on the inside, if required—and on the edges of the slotted side are secured vertical guides *a a*, which enter grooves in the sides of a head, C, placed between them, and project into the chamber formed in the standard. Through the inner end of the head C passes a vertical screw, D, having bearings in plates *b b* at top and bottom of the slot or groove in the standard. On the upper end of the screw-shaft D is a miter-pinion, G, which meshes with a similar pinion, G′, on a horizontal shaft, E. The shaft extends across to the other standard, where similar gear-wheels connect it with the other upright screw. Through the outer end of each head C is passed a short horizontal rocking shaft, *d*, having at one end a downward-extending arm, I, and at the other end a similar arm, I′, extending upward. To the lower ends of the arms I I is fastened the saw J, and the upper arms I′ are connected by a rod, K, which is to be connected to the pitman of the engine that runs the machine.

When the machine is in operation the saw or saws are raised high at each end of the stroke by means of the arms or cranks I I, to which the saws are attached, thereby permitting the water and sand to pass under the saws. It is, of course, understood that it is the sand and water that cuts the stone and not the saws. If the saw is drawn horizontal across the stone, and not allowed to rise at either end of the stroke to let the sand and water pass under, the saw would not cut at all, but would turn on its side, and all saws spring upward when the weight of the saw comes on the stone, so it is necessary to raise the saw to some height if hard stone is being sawed, and feeding fast to permit the saw to straighten at each end of the stroke.

By placing the rod or stretcher K above the saws on the crank, it makes a fulcrum, and causes a friction upon the heads C, and takes the weight of the saws off from the screws, thereby enabling the operator to run his saws at a much greater speed.

To feed the saws the engine-shaft is to be connected by a suitable belt with a counter-shaft, on which is a cone-pulley connected by a belt with a cone-pulley, L, on a shaft, M, and this shaft provided with a worm, N, that meshes with a worm-wheel, O, on the shaft E.

By means of the cone-pulleys for shifting the belt, and the gearing connecting the shafts M and E and screws D D, the saws may be fed at any desired speed. It may be regulated so that the screws will make one revolution to each stroke of the saws, or the saws make up to fourteen hundred strokes to one turn of the screws, thus enabling the operator to cut from the softest to the hardest.

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

1. The combination of the heads C C, feed-screws D D, rocking shafts *d d*, with cranks or arms I I and I′ I′, one or more saws, J, and stretcher K, all substantially as and for the purposes herein set forth.

2. The combination, with the feed-screws D D, of the miter-gears G G, shaft E, with miter-gears G′ G′, and worm-wheel O, and the shaft M, with worm N, and cone-pulley L, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of December, 1875.

DAVID E. STEARNS.

Witnesses:
F. M. COATES,
J. MCCRODEN, Jr.