F. KESSELER.
STONE LATHES.

No. 195,021. Patented Sept. 11, 1877.

Fig. 1.

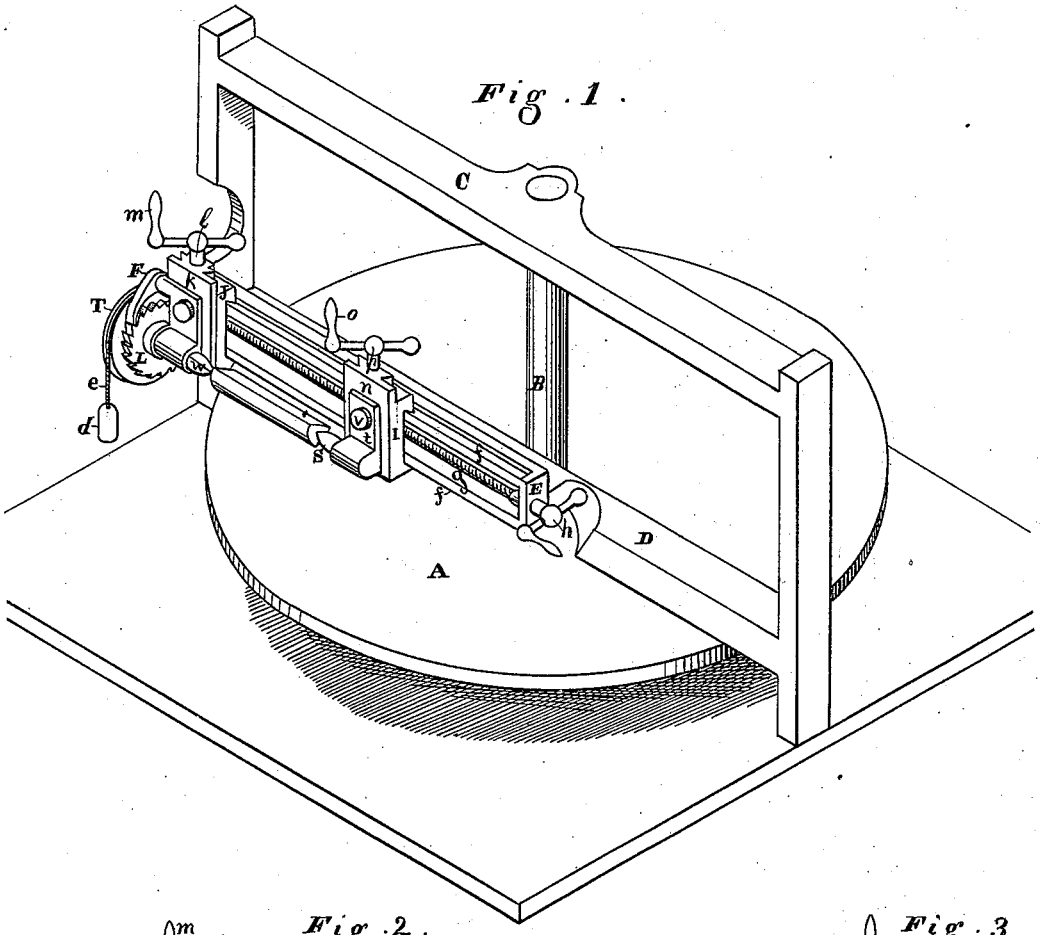


Fig. 2.

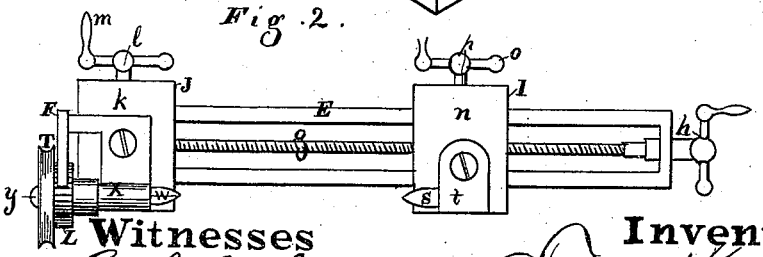
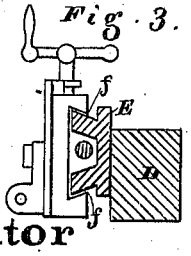


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK KESSELER, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN STONE-LATHES.

Specification forming part of Letters Patent No. 195,021, dated September 11, 1877; application filed January 27, 1877.

To all whom it may concern:

Be it known that I, FRANK KESSELER, of the city and county of San Francisco, and State of California, have invented a Stone-Lathe; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

Marble manufacturers employ what is known as a rubbing or polishing wheel or bed for grinding and giving a uniform surface to such pieces of plain surfaces stone as can be held down upon it. This wheel or bed consists of a circular plate of cast-iron, mounted horizontally upon a vertical shaft, and driven at a proper rate of speed, so that by pressing the plain surfaces of pieces of stone down upon the moving cast-iron surface of the bed or wheel the surfaces of the stone will be ground evenly and uniformly.

My invention consists in attaching to the frame of said rotary bed or wheel a lathe, by means of which I can utilize the said cast-iron grinding-surface for turning cylindrical forms either true or conical, all as hereinafter described.

Referring to the accompanying drawings, Figure 1 is a perspective view of my lathe. Fig. 2 is a front view. Fig. 3 is a transverse section.

Let A represent the horizontal cast-iron wheel, and B the vertical shaft upon which it is mounted. The upper end of the shaft B is supported in a cross-timber, C, of a frame which is built over the wheel.

D is another beam or timber, which extends across just above the upper surface of the wheel A, passing on one side of the vertical shaft B so as not to interfere with it. To one side of this beam or timber I secure the lathe attachment above referred to, as follows: E is the frame of the lathe, which I secure to one of the vertical sides of the beam or timber D. The outside face of this frame is formed into tracks or ways *f f*, and a screw-rod, *g*, passes longitudinally through the frame between the tracks or ways. A crank, *h*, at one end, serves to rotate the screw-rod for the purpose of adjusting the tail-stock I to or from the stationary or head stock J, according to the length of the stone piece to be turned.

The stationary or head stock J is fixed to the outer end of the lathe-frame, and it has a plate, *k*, secured by a dovetail connection in the manner of a slide, so that it can be raised or lowered by a screw, *t*, and crank *m*.

The tail or adjustable stock I has also a similar sliding plate, *n*, which can be adjusted up or down by a screw, *p*, and crank *o*.

The vertical slides of each stock has a center, between which the stone to be turned is chucked. The center S on the adjustable head is made movable by being attached to a plate, *t*, which has a central bearing in the sliding plate, while a slot and screw, V, serves to fix the plate and center in the required position, as will be hereinafter described.

The center *w* of the fixed head or stock J is made square, and is formed on the end of a shaft, *y*, which bears in a box, X. This box is secured permanently to the sliding plate K. On the outer end of the shaft is a pulley, T, and ratchet-wheel L. A pawl, F, is arranged to engage with the ratchet-wheel, and thus prevent the shaft and work from turning backward. A cord, *e*, is secured to the pulley T, and is wound several times around it, and a weight, *d*, is suspended from the end of the cord, so that it will keep a continual strain in one direction on the pulley T, shaft *y*, and stone, which is secured between the centers, consequently causing the stone to be pressed against the moving wheel or surface in a contrary direction, and rotating it as the grinding-surface wears away the portion of the stone which bears upon it.

The operation is as follows: The piece of stone to be turned is first provided with a center socket at each end, which will correspond with the shape of the head and tail centers, respectively. The pulley T is then turned so as to wind up the cord, but the weight should be supported until everything is ready to turn the stone. The stone is then chucked between the two centers, and the sliding plates K and *n* are moved down, by means of the screws, until the stone bears throughout its entire length against the upper surface of the bed. The rotary wheel or bed A is then set in motion, and an attendant throws sand and water upon the bed in the rear of the stone. Before releasing the weight the stone should be held

in one position, and moved downward against the bed by means of the depressing-screws, until a face has been given to it which is on a plane with the desired circumference of the cylinder. The weight is then released so as to press the stone against the wheel or bed in one direction as its surface is worn away, until it has been ground around its entire circumference, thus producing a column or cylinder at a single revolution; but, if preferred, the outside surface of the stone could be turned down by degrees, in which case it would have to rotate several times before it was sufficiently reduced.

In actual operation I shall employ an automatic sand-and-water feed for supplying the desired quantity of sand and water to produce the grinding action.

When I have several strips of marble or other stone which I desire to provide with a rounding or circular face on one side, I employ a triangular or polygonal bar, *a*, which is provided with a center socket at each end. I then secure one of these strips or pieces of stone to each of its faces by means of plaster-of-paris or other cement. I can then turn the entire piece so as to finish the circular faces of three or more strips at a single operation.

I thus produce a machine which is of great value to the stone manufacturer, as it enables him to produce cylinders, columns, and other circular-faced work with great speed and at a slight expense, whereas this class of work, when done by hand, is very tedious and costly. Besides it enables me to produce perfectly uniform cylinders and surfaces, which is extremely difficult to do by hand.

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

1. The combination of a horizontally rotary bed or wheel, A, with a lathe attachment, which is adapted to hold the stone against the bed and rotate the stone as its surface is ground away, substantially as above set forth.

2. The horizontally rotary bed or wheel A, having the beam or timber D passing across its upper surface, in combination with the lathe-frame E, provided with the head-stock J, with its vertically-sliding plate K, square center *w*, shaft *y*, ratchet L, pawl F, and suspended weight, and having the tail-stock I, with its vertically-adjustable sliding plate *n*, and adjustable center S, all combined and arranged to operate substantially as and for the purpose described.

In witness whereof I have hereunto set my hand and seal.

FRANK KESSELER. [L. S.]

Witnesses:

GEO. H. STRONG,

OLWYN T. STACY.