No. 643,914. Patented Feb. 20, 1900.

E. F. SHAW.

TROWEL GRINDING MACHINE.

(Application filed June 20, 1896.)

(No Model.) 3 Sheets—Sheet 1.

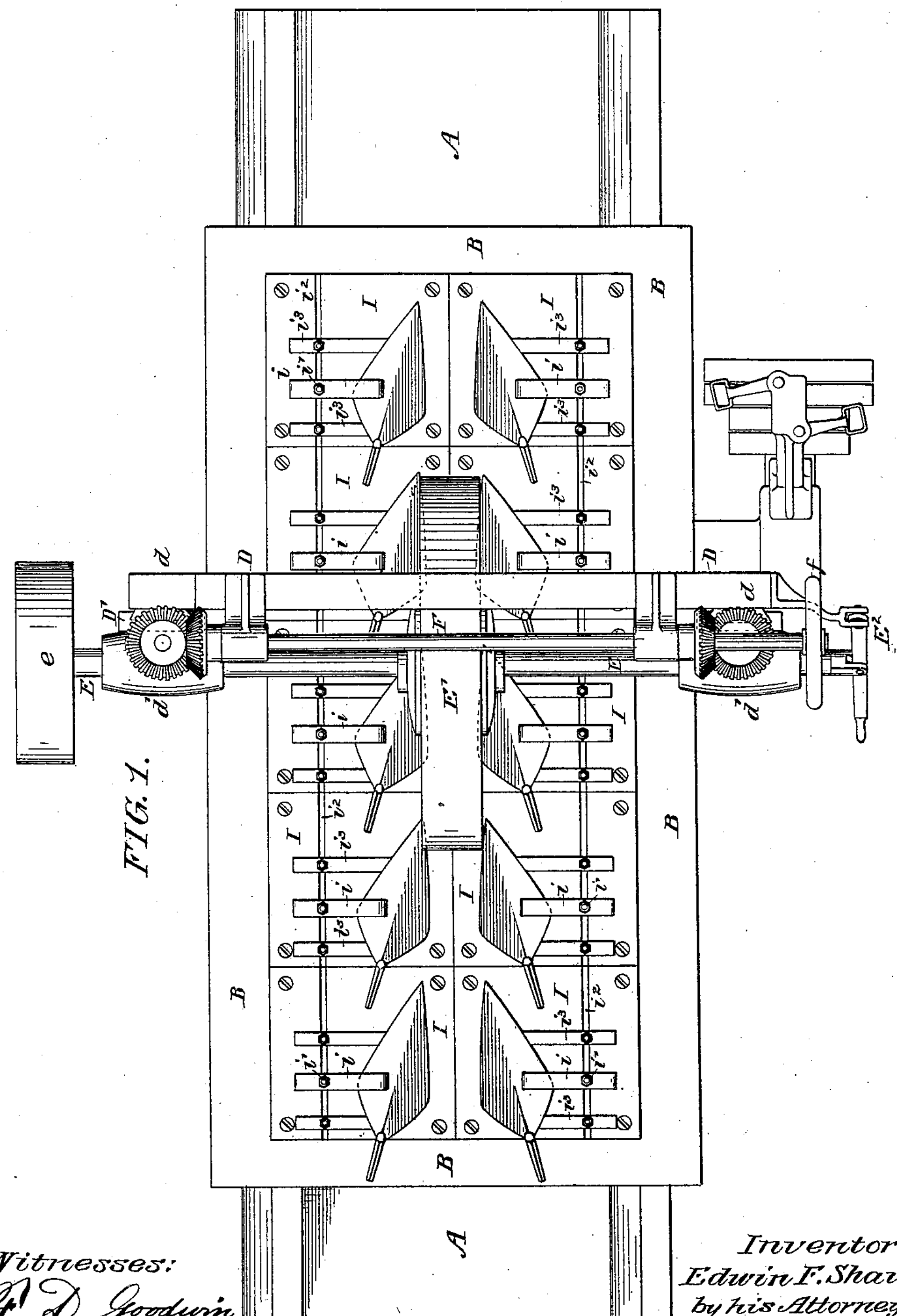


FIG. 1.

Witnesses:
G. D. Goodwin
Will A. Barr

Inventor:
Edwin F. Shaw
by his Attorneys
Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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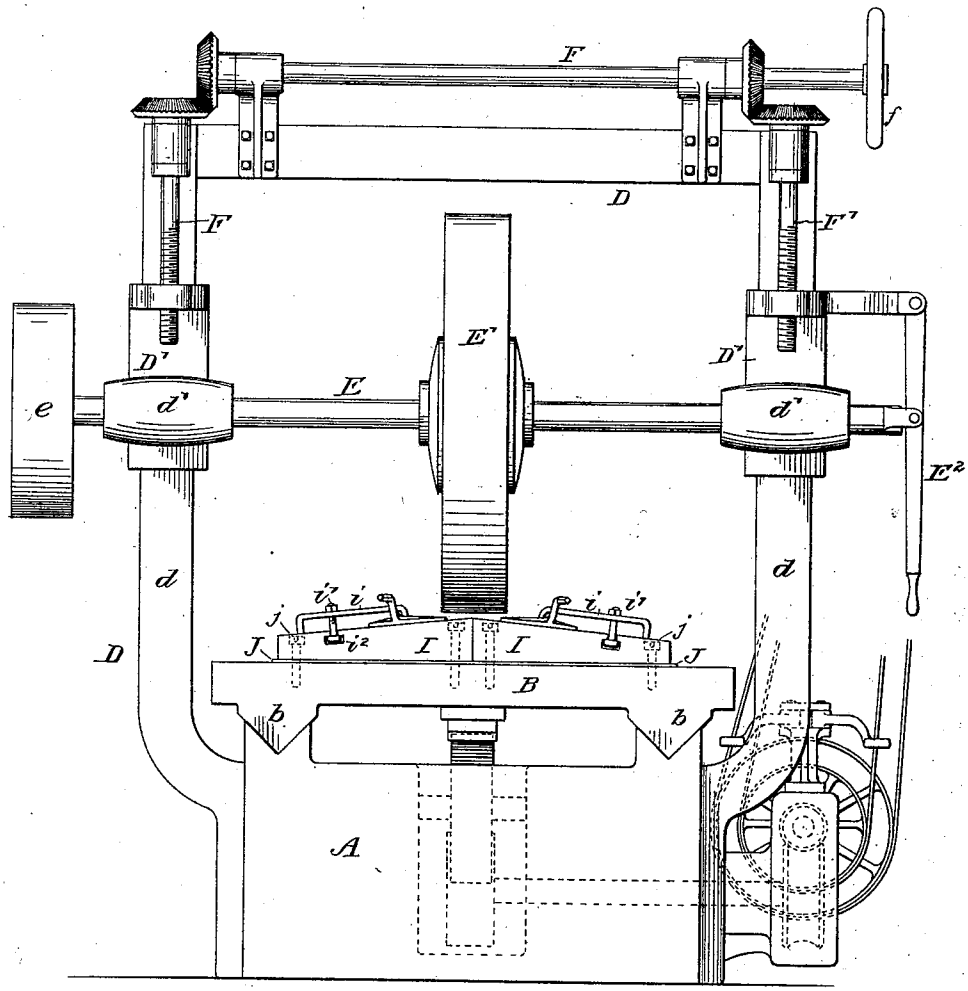
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(No Model.) 3 Sheets—Sheet 2.

FIG. 2.



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(No Model.) 3 Sheets—Sheet 3.

FIG. 4.

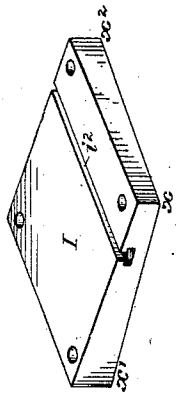


FIG. 3.

FIG. 5.

Witnesses:
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Wm. A. Baw.

Inventor:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWIN F. SHAW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE HENRY DISSTON & SONS, INCORPORATED, OF SAME PLACE.

TROWEL-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 643,914, dated February 20, 1900.

Application filed June 20, 1896. Serial No. 596,327. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. SHAW, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Trowel-Grinding Machines, of which the following is a specification.

The object of my invention is to so construct a machine for grinding trowels that several trowels can be ground at one operation and in which the proper taper will be given to each individual trowel.

In the accompanying drawings, Figure 1 is a plan view of my improved trowel-grinding machine. Fig. 2 is an end view. Fig. 3 is a longitudinal sectional view. Fig. 4 is a perspective view of one of the blocks on which the trowel-blank is clamped; and Fig. 5 is a view of a trowel, showing the manner in which it is ground on my improved machine.

A is a bed similar to that of an ordinary planing-machine, having V-shaped grooves in its upper surface, in which slide the V-shaped ribs *b* on the bottom of the table B. This table can be either moved across the bed by hand or by mechanism similar to that used on planing-machines. Secured to the bed is a frame D. The uprights *d d* of this frame are in the form of ways, on which are two carriers D′, each having a bearing *d′* for the shaft E, on which is mounted the grinding-wheel E′. This shaft is driven in the present instance by belting which passes over the belt-wheel *e*, and the shaft, with its grinding-wheel, is moved longitudinally in its bearing by means of the hand-lever E^3. By this arrangement the grinding-wheel can be moved laterally over the face of the table. The carriers D′ are adjustable vertically by means of a shaft F, which is provided with a handle *f*, and this shaft is geared to screw-shafts F′ F′, which enter the screw-threaded openings in the carriers, so that on turning the shaft F the carriers will be raised or lowered, so as to adjust the grinding-wheel toward or from the table.

On the table B are a series of blocks I of the form clearly shown in the perspective view, Fig. 4. Each block I is beveled in two directions—that is, from corner *x* to the corner *x′* and from *x* to x^2—so that when the trowel is placed in position on the block, as shown in Fig. 1, it will be ground in such a manner as to be thicker at the center than at the edges and thicker at the shoulders than at the point. Each trowel-blank is held to its block by means of a clamp *i*, which is held to the block by means of the bolt *i′*, having a head which is within the undercut slot i^2 in the block. The trowel is held from swinging by stops i^3 on each side of the clamp. These stops are held in the same manner as the clamp, so that when the trowel is in position it will be rigidly held, so that the wheel can properly grind the face. Other styles of clamps may be used without departing from my invention. Under each block is a sheet of rubber J, and the blocks are loosely attached to the table by means of screws *j*, so that the trowel-blank will be kept in contact with the grinding-wheel, the rubber acting as a cushion.

The operation of the machine is as follows: The blocks are mounted on the table and secured thereto with the rubber under them and the blanks to be ground are adjusted on the blocks. The machine is then set in motion, so that the table will reciprocate under the grinding-wheel, and as the table reciprocates the grinding-wheel is moved laterally over the table by operating its lever, so that the surface of the trowel-blanks will be gradually ground to give the proper bevel, so that the thick part will be at the shank and will gradually bevel off in both directions toward the point.

The machine, as shown, grinds the left-hand side of one set of trowel-blanks and grinds the right-hand side of another set. When the grinding is completed, the trowel-blanks are shifted, so that the opposite sides of the trowels can be ground, thus insuring the proper grinding of the trowels.

By my invention a number of trowels can be ground in one operation, and the proper taper can be given to the trowel by shaping the blank to the bevel required.

It will be understood that in some instances the blocks I may form part of the table B, although I prefer to make them independent of the table.

I claim as my invention—

1. The combination of a frame, a table

mounted thereon, means for reciprocating said table, blocks on the table, means for clamping a trowel-blank to each block, the surface of each block being beveled in two directions so that trowels held thereto may be beveled from the center to each edge and from the heel or butt to the point at one operation, in combination with a grinding-wheel and means for rotating said wheel, substantially as described.

2. The combination in a trowel-grinding machine, of the frame, a bed, means for reciprocating said bed, two rows of independent blocks secured to said bed, the surface of each block being tapered in two directions, clamps on each block extending over one surface of a trowel-blank so as to secure the said blank in the adjusted position, the frame having standards, adjustable bearings on the standards, a driven shaft, a grinding-wheel mounted on said shaft and means for moving the shaft longitudinally in its bearings whereby a portion of each trowel-blank can be ground, substantially as described.

3. The combination of a reciprocated table, blocks thereon having a single beveled face adapted to receive the trowel-blanks, cushions interposed between the blocks and the table and a grinding-wheel mounted above the table, substantially as described.

4. The combination in a trowel-grinding machine, of the frame, a reciprocated table, a series of blocks secured thereto the surface of each block being tapered in two directions, a T-headed groove in each block, a clamp, a bolt securing the clamp to the block the head of said bolt being within the groove, stops against which the trowel-blank rests, with a grinding-wheel for grinding the surface of the blank, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN F. SHAW.

Witnesses:
WILL. A. BARR,
JOS. H. KLEIN.