(No Model.)

2 Sheets—Sheet 1.

J. M. CLOCK.

TOOL GRINDER.

No. 476,872. Patented June 14, 1892.

Fig. I.

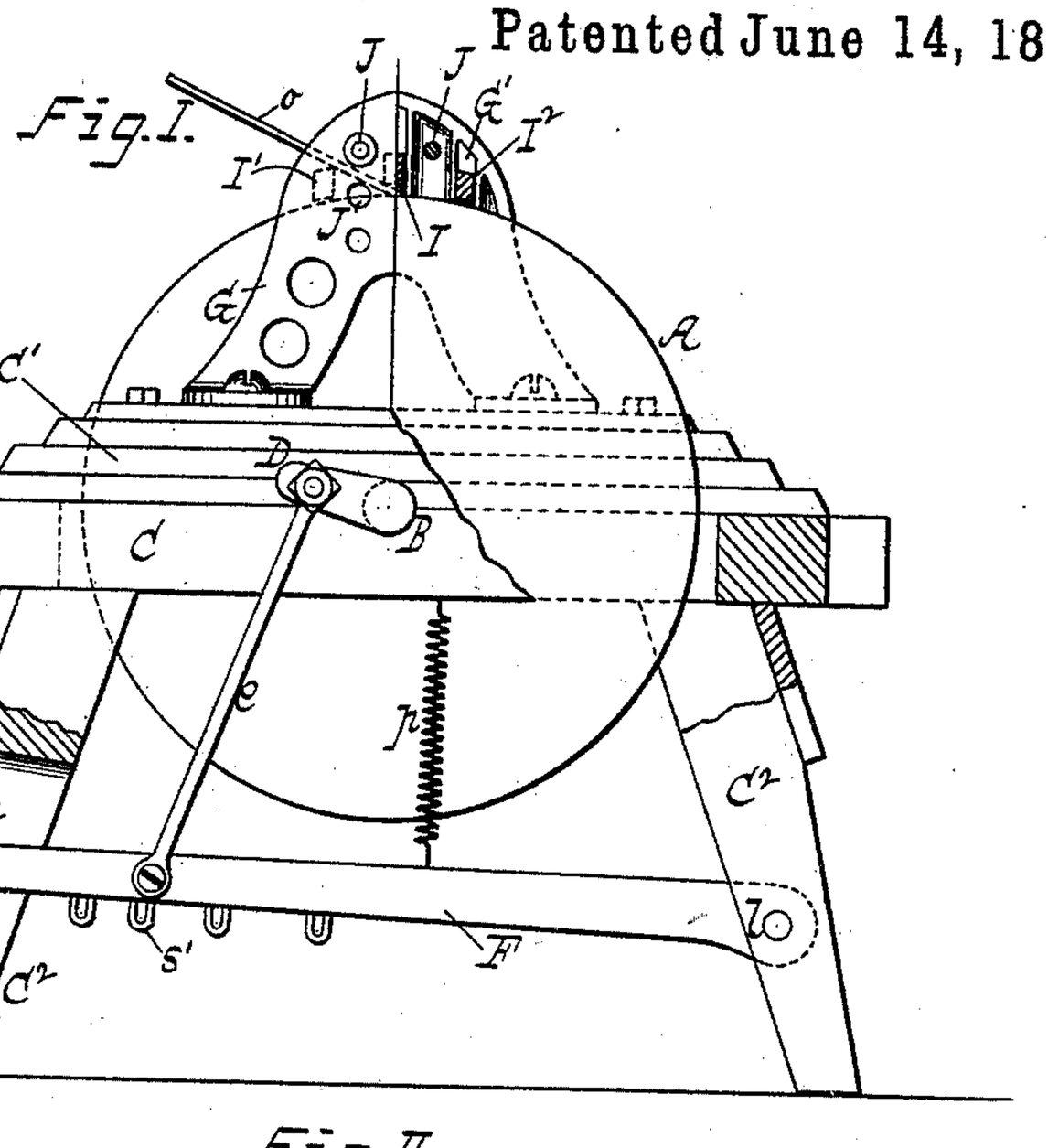


Fig. II.

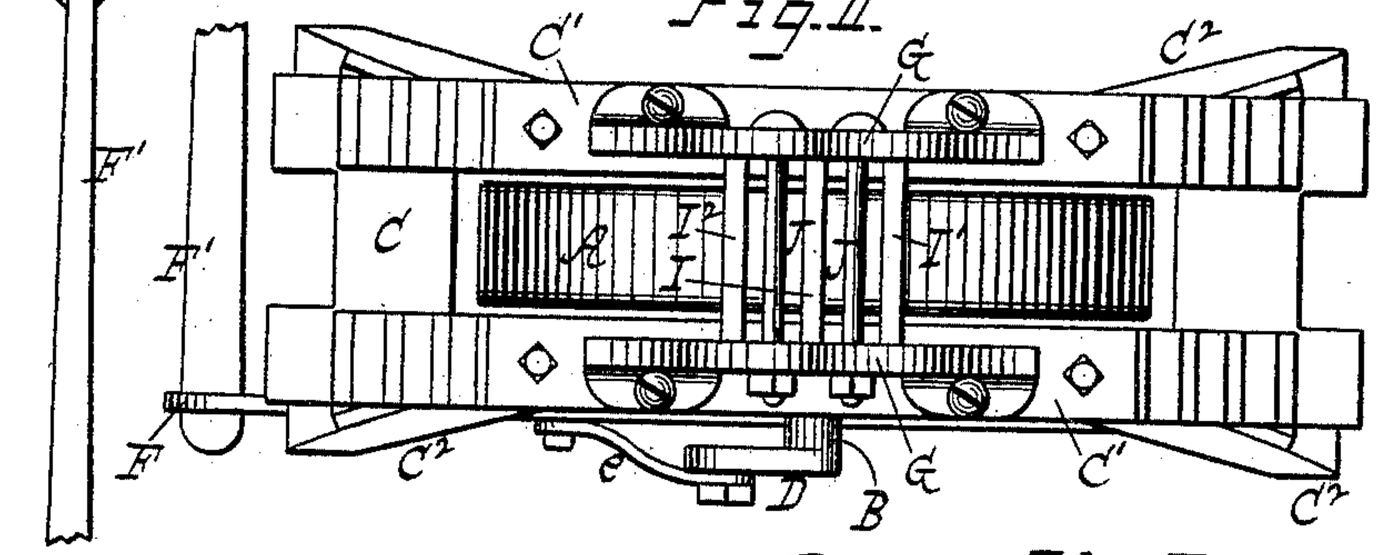
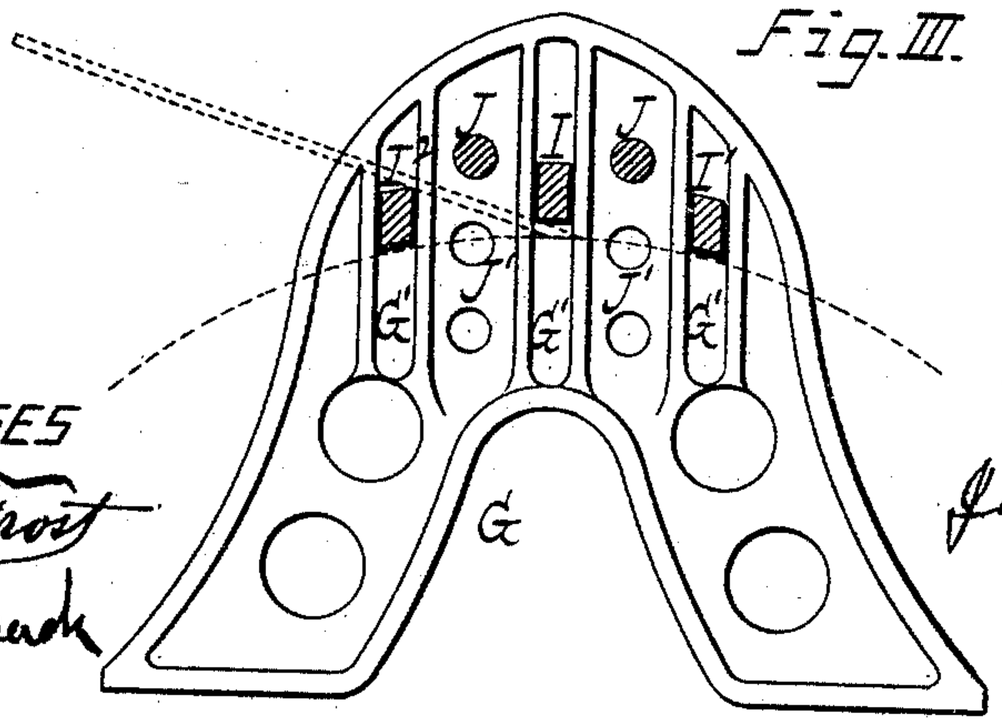


Fig. III.



WITNESSES

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R. F. Van Benthuysen

INVENTOR

Jesse M. Clock

(No Model.)

2 Sheets—Sheet 2.

J. M. CLOCK.

TOOL GRINDER.

No. 476,872. Patented June 14, 1892.

Fig. IV.

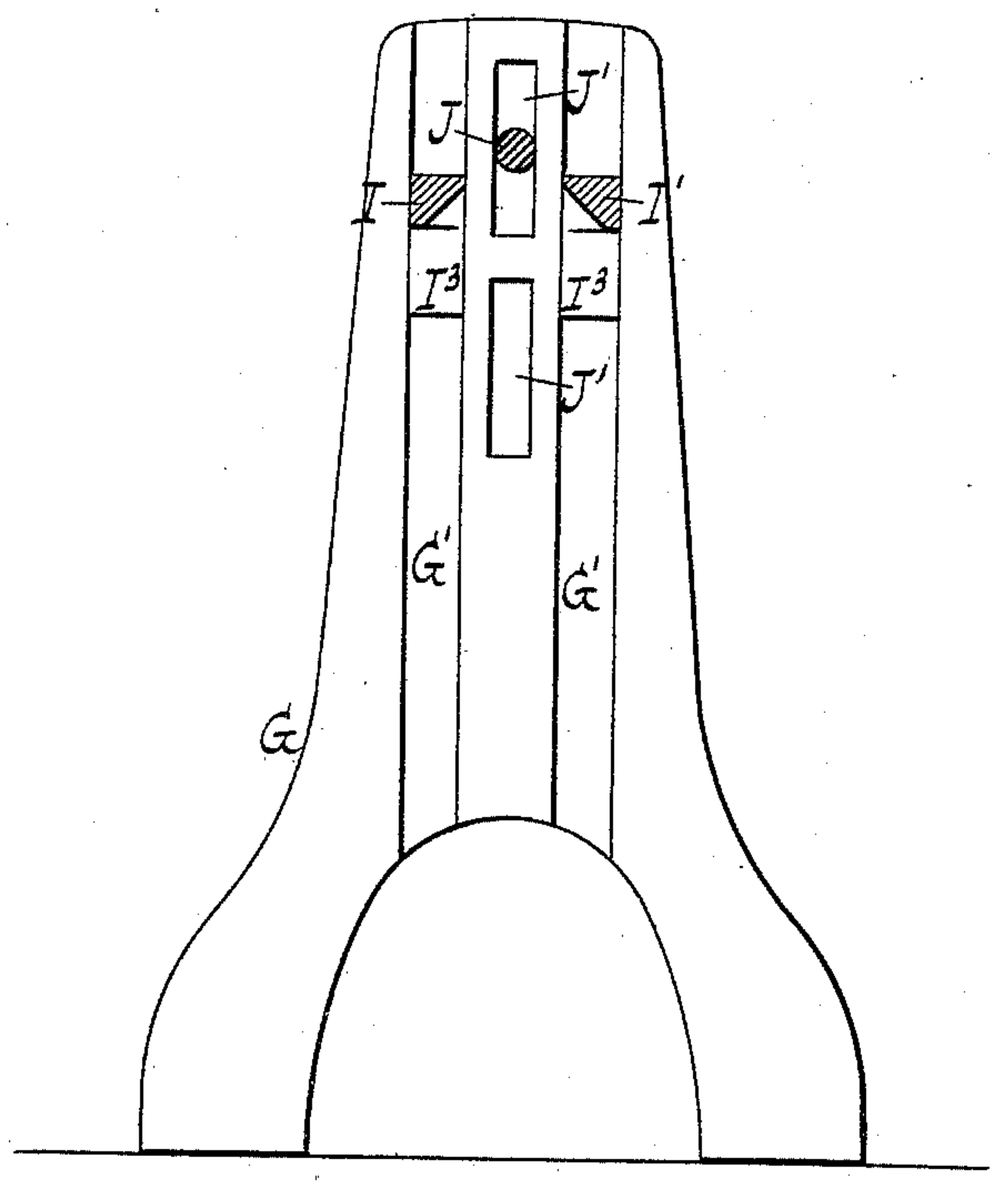
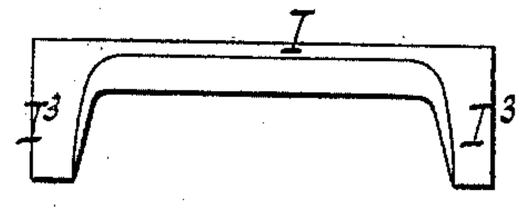


Fig. V.



WITNESSES:

Louis W. Frost

R. Wm. Rockwell

INVENTOR

Jesse M. Clock

UNITED STATES PATENT OFFICE.

JESSE M. CLOCK, OF NEW YORK, N. Y.

TOOL-GRINDER.

SPECIFICATION forming part of Letters Patent No. 476,872, dated June 14, 1892.

Application filed November 17, 1891. Serial No. 412,146. (No model.)

To all whom it may concern:

Be it known that I, JESSE M. CLOCK, a citizen of the United States, residing at New York, county and State of New York, have invented new and useful Improvements in Tool-Grinders, of which the following is a specification, reference being had to the accompanying drawings, making part thereof.

My invention relates to machines for grinding plane-irons and other similar tools with a bevel edge; and it consists of certain novel devices to be used for presenting the desired tool to the face of the stone, as hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a partial side view and partial longitudinal section of a tool-grinder embodying my invention. Fig. 2 represents a plan or top view thereof. Fig. 3 represents an inside view of a standard detached with the grooves and bars and on a larger scale than in preceding figures. Fig. 4 represents a like view of a standard with two grooves and bars. Fig. 5 represents a side view of a cross-bar.

Similar letters of reference indicate similar parts.

The letter A indicates the grindstone, and B its shaft, by which the stone is mounted in the bench C, and which shaft has a crank B, connected by the pitman *e* with a treadle F, for imparting to the stone a revolving motion.

At each side of the stone A, and at a point central thereof, is a standard G, which is attached at its base to a side rail C′ of the bench and formed with vertical grooves G′ on its inner surface, said grooves coinciding with each other as to the two standards.

Referring to Figs. 1, 2, and 3, in the grooves G′ of the standards are fitted the ends of cross-bars *l l′ l²*, which are at a point above and contiguous to the face of the grindstone, the middle bar *l* lying in the vertical plane of the axis of the stone parallel to such axis, and the outer bars *l′ l²* being equidistant from said middle bar. The purpose of these cross-bars *l l′ l²* is to sustain the tool *o* as it is presented to the face of the grindstone—that is to say, if the tool is laid upon one of the outer bars with its edge under or against the middle bar shown said outer bar acts as a rest or fulcrum and said middle bar as a stop or abutment for the tool, so that but a very slight pressure need be exerted upon the tool by the operator for effecting the desired grinding, the tool at the same time affording a support to the hands of the operator, which is a desideratum.

By the tool presented to the stone as above stated a uniform wear of the stone is produced of soft spots in the stone by either outer bar *l′* or *l²* and the flow of water supplied to the stone is controlled, preventing the water from spraying by centrifugal force against the operator.

Three bars *l l′ l²* are used in order to permit of reversing the angle or position of the tool upon the machine in grinding; but, if desired, one of the outer bars may be omitted, inasmuch as only two of the bars are in actual use at any one time in Figs. 4 and 1.

The standards G are connected together by screw-bolts J, usually two in number, which may alternate in position with the cross-bars *l l′ l²*, and when these bolts are tightened said bars are thereby clamped endwise against the standards, causing the bars to effectually retain the desired position, while if said bolts are loosened the bars are free to move up or down in the vertical grooves G′, permitting the same to be adjusted in relation to the grindstone. Hence the bars *l l′ l²* may be readily adapted to a holding of the tool *o* at a different degree of angle for varying the bevel of its edge ground by the stone, the middle bar being raised or lowered for that purpose. In order to adapt the screw-bolts J to the vertical adjustment of the cross-bars *l l′ l²*, the standards G may have vertical rows of holes J′ or vertical slots J, Fig. 4, for the passage of said bolts.

The grooves G′ and bolts J constitute a simple and effective means for adjusting the cross-bars *l*, &c.; but any other suitable means may be employed for that purpose, and when the bars are simply to be lowered in order to compensate for wear of the stone, each of the side rails C′ of the bench may be composed of planks laid one upon the other and fastened together, as shown Fig. 1, said planks being removed in succession to lower

the bars, together with the standards, without releasing the bars.

The treadle F is pivoted, as at *t*, to one end leg C^2 of the bench and it works in a slot *n* of the other end leg on the same side of the machine, a spring *p* being generally used to facilitate the operation of the treadle. To the treadle F is connected another or auxiliary treadle *p'*, which extends approximately at a right angle thereto, as shown, and which in practice is fitted at or near its free end in a guide *k*, Fig. 2, affixed to the floor. This auxiliary treadle *p'* enables the operator to work the main treadle F with convenience by either foot at one end of the machine without changing his position, and also increases the leverage exerted on the crank D for driving the stone.

In order to better adapt the auxiliary treadle *p'* to the swinging motion of the main treadle F, its connection thereto is effected by a swivel-joint *s*, composed of a hook and one of a series of staples *s'*, arranged at different points along the main treadle to receive said hook, the series of staples permitting the auxiliary treadle to be connected with the main treadle at different points for varying the speed of motion of the grindstone.

What I claim as new, and desire to secure by Letters Patent, is—

1. A tool-grinder having, in combination with a grindstone, cross-bars above and contiguous to the face of the stone, one forming a rest and fulcrum and another a stop or abutment for the tool, and supports for said bars constructed to permit adjustment thereof in relation to the stone, substantially as and for the purpose described.

2. A tool-grinder having, in combination with a grindstone, standards on opposite sides and central of the stone, constructed with vertical grooves on their inner surfaces, cross-bars the ends of which are fitted in said grooves of the standards at points to bring the bars above and contiguous to the face of the stone, and screw-bolts connecting the standards for clamping the bars endwise, substantially as and for the purpose described.

JESSE M. CLOCK.

Witnesses:
LOUIS W. FROST,
R. T. VAN BOSKERCK.

Corrections in Letters Patent No. 476,872.

It is hereby certified that in Letters Patent No. 476,872, granted June 14, 1892, upon the application of Jesse M. Clock, of New York, N. Y., for an improvement in "Tool-Grinders," errors appear in the printed specification requiring correction, as follows: In line 62, page 1, a comma should be inserted after the word "stone," and in line 63, same page, the word "and" should be stricken out; and that the Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 28th day of June, A. D. 1892.

[SEAL.]

GEO. CHANDLER,
First Assistant Secretary of the Interior.

Countersigned:

W. E. SIMONDS,
Commissioner of Patents.