(No Model.) 2 Sheets—Sheet 1.

G. S. BLACK.

SAW SWAGING MACHINE.

No. 342,172. Patented May 18, 1886.

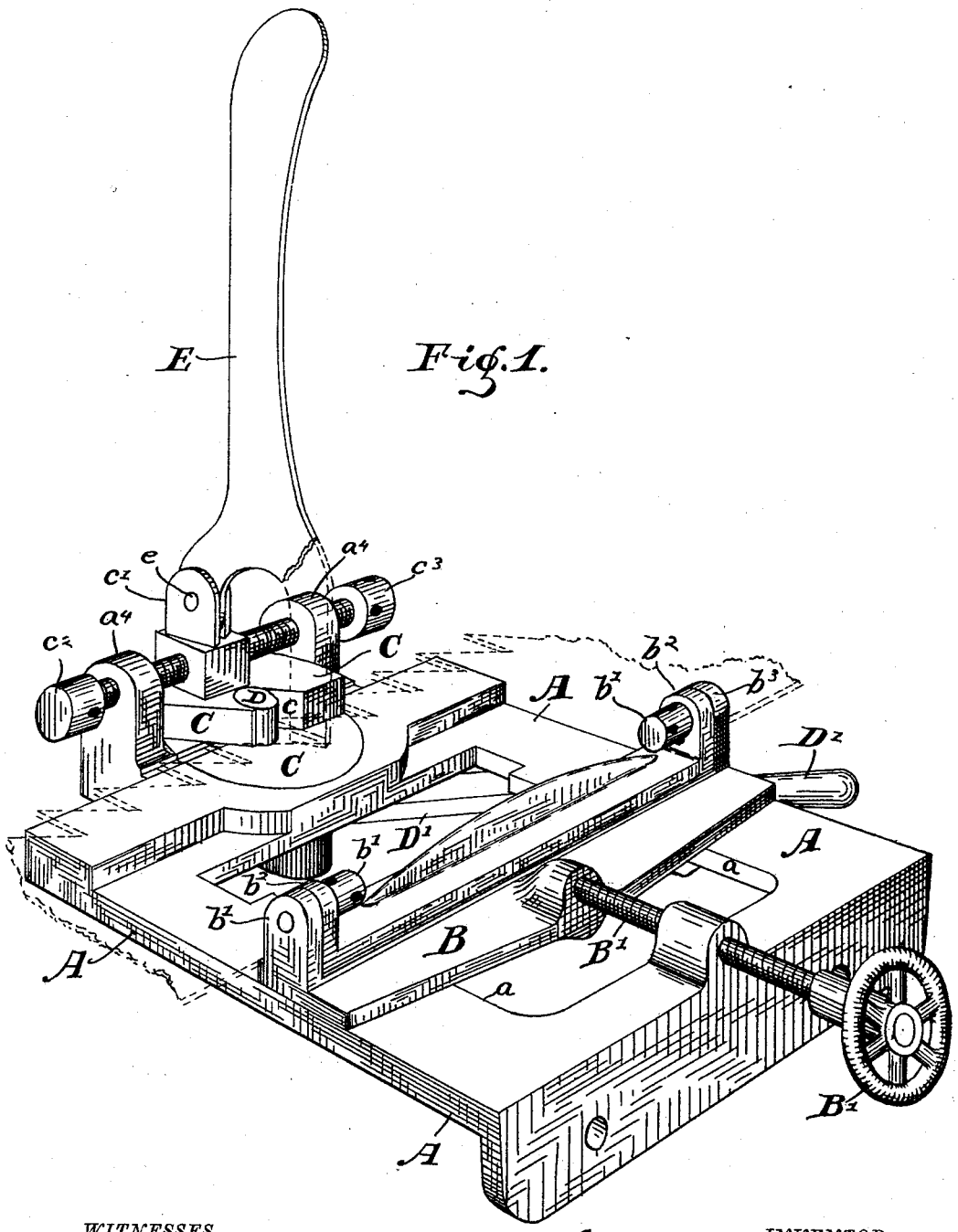

Fig. 1.

WITNESSES.

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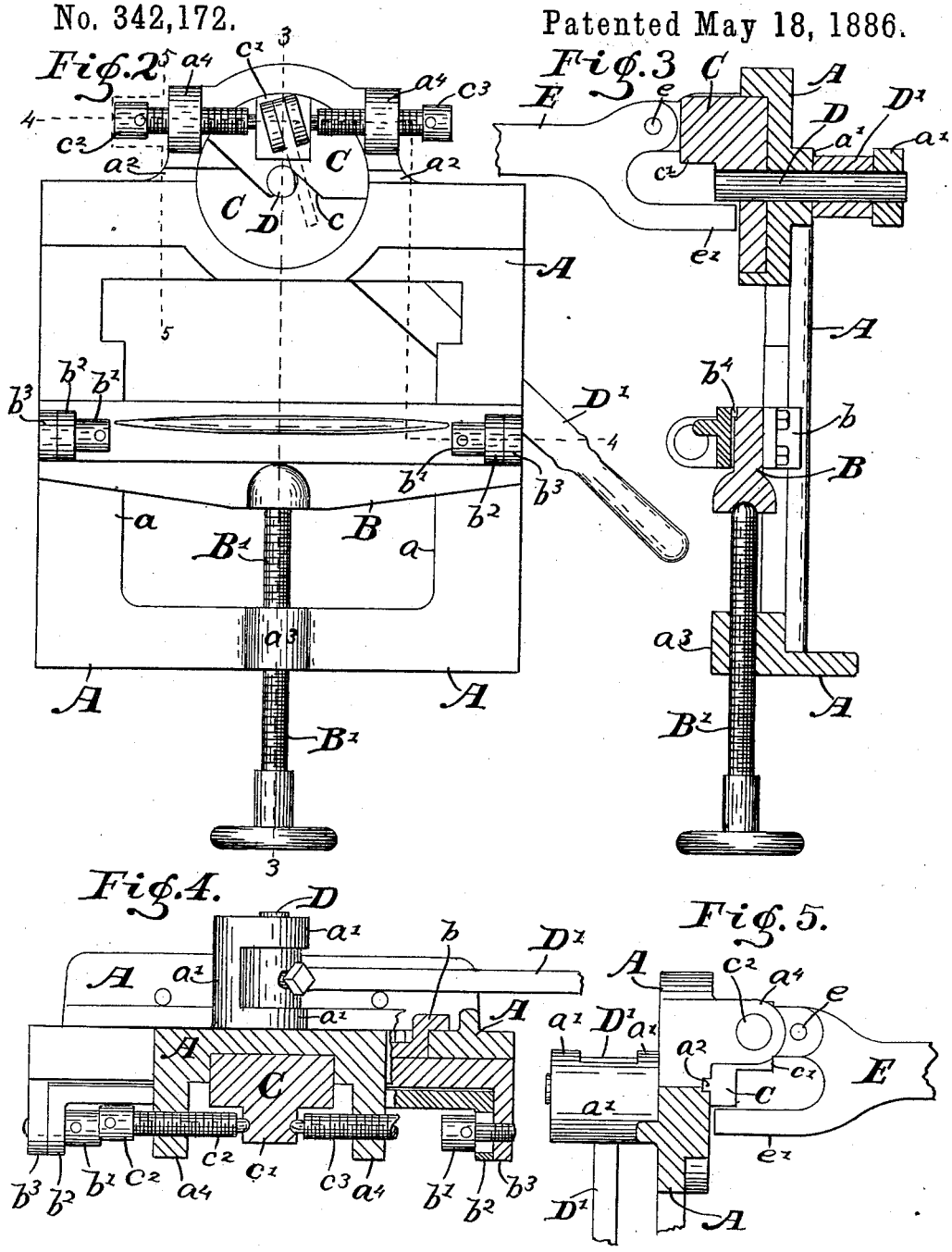

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UNITED STATES PATENT OFFICE.

GEORGE S. BLACK, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO E. C. ATKINS & CO., OF SAME PLACE.

SAW-SWAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 342,172, dated May 18, 1886.

Application filed February 23, 1886. Serial No. 192,856. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BLACK, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Saw-Swaging Machines, of which the following is a specification.

The object of my said invention is to produce a machine by which mill-saws of various kinds may be conveniently swaged; and it consists in the various improvements hereinafter particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of my improved saw-swaging machine; Fig. 2, a top or plan view thereof; Fig. 3, a central vertical sectional view, looking toward the left from the dotted line 3 3 in Fig. 2; Fig. 4, a horizontal sectional view, looking downwardly from the dotted line 4 4 in Fig. 2; and Fig. 5, a detail sectional view, looking toward the right from the dotted line 5 5 in Fig. 2.

In said drawings, the portions marked A represent the frame of the machine; B, the adjustable saw-support; C, the female die; D, the male die, and E the lever by which the saw may be held in place while being operated upon.

The frame A is rectangular in general outline, and its interior opposite sides, *a a*, form slides upon which the saw-support rests and moves. These are cut away at one end, as shown, so that the points of said saw-support which engage with the underside of the slides may be formed directly on said saw-support, and still pass beneath and engage with these slides. At its upper end it has a seat formed therein for the female die, and below said die it is provided with bearings *a'* for the stem of the male die. Alongside the dies, at the point where the points of the teeth of the saw while being operated upon come, are formed grooves or recesses a^2, into which said points enter, and are thus protected from being broken off or dulled by contact with the metal as they pass through the machine. Alongside the seat for the female die are lugs or projections a^4, in which are screws c^2 c^3, by which the female die may be adjusted.

The saw-support B has points *b*, which extend beneath the slides *a* on the frame A, and said support as a whole is mounted on said slides and moves thereon, as indicated. It is provided with a screw, B', which is mounted in a screw-threaded bearing, a^3, on the frame A, by which it may be adjusted to or from the dies, and thus adapted to support saws of various widths while being operated upon by said dies. It has a groove, b^1, to receive the back edge of the saw, and thus hold it in position; and the portion above said groove is preferably made in a separate piece, and thus adapted to be moved in and out and the width of the groove thus varied by means of the bolts *b'*, which pass through ears b^2 in this portion, and into corresponding ears, b^3, in the main or lower portion. The ears b^2 are slotted, as indicated, to permit this adjustment.

The female die C is circular in general outline, and is seated in the frame A, as indicated. A hole is formed in the center for the reception of the male die, and extending out from said male die at the proper angle is a surface, *c*, against which the back of the tooth rests while being operated upon. It also has a projection, *c'*, against which screws c^2 c^3, carried by the lugs a^4, bear, and by this means this die can be adjusted so that the surface *c* will just fit the backs of the teeth of the saw being at the time operated upon. This is desirable to permit the machine to be used with saws having teeth of various inclinations, and still operate perfectly upon all.

The male die D is a round steel bar having an appropriate cam-surface to operate upon the teeth when revolved, and is mounted in the central opening in the die C therefor, and in the bearing *a'* underneath, formed to receive it. It is provided with a handle, D', by which it may be operated, as shown.

The lever E is mounted on a pivot-bolt, *e*, in bearings on the die C, and has a point, *e'*, which is adapted to come over and rest upon

the saw-plate while the saw is being operated upon, and thus hold the saw down firmly onto the frame of the machine.

The operation is as follows: The saw being placed in the machine, the groove in the saw-support is first adjusted to about its thickness, and the female die C is so adjusted that the back of the teeth will just bear against the surface *c*. The saw-support B is then moved by means of the screw B′ so that the points of the teeth of the saw will just come between the dies C and D. The saw being moved along by hand, or in any other desired manner, the teeth are successively operated upon by revolving the die D, the saw being meanwhile held down firmly in position by the lever E. The grooves or recesses a^2 receive the points of the teeth, and, especially after being operated upon, permit them to pass without danger of being dulled or broken.

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

1. The combination, in a saw-swaging machine, of the frame A, adjustable saw-support B thereon, the female die C, and the male die D, mounted and revolving in said die C.

2. The combination, in a saw-swaging machine, of the frame, the saw-support, and the dies, the female die C being adjustable, and its surface *c* thus adapted to be brought into position to completely support the teeth of the saw, substantially as set forth.

3. The combination, in a saw-swaging machine, of the frame-work, the saw-support, the dies, and a clamping-lever, substantially as shown and described.

4. In a saw-swaging machine, the combination of the frame A, having groove or recess a^2 arranged alongside the swaging-dies, and said swaging-dies, substantially as set forth.

5. The combination, in a saw-swaging machine, of the frame, the saw-support, and the dies, said saw-support being divided, and one part being adjustable on the other, whereby the groove which receives the back of the saw may be adjusted to fit the thickness of the saw being operated upon, substantially as set forth.

6. In a saw-swaging machine, the combination of the frame, saw-support, and male and female dies, the female die being recessed to receive the saw-teeth, and the male die being in the form of a cam, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 19th day of February, A. D. 1886.

GEORGE S. BLACK. [L. S.]

In presence of—
C. BRADFORD,
CHARLES L. THURBER.