

(No Model.)

2 Sheets—Sheet 1.

O. SMALLEY, Jr.

APPARATUS FOR TESTING AND STRAIGHTENING DRILLS.

No. 427,805.

Patented May 13, 1890.

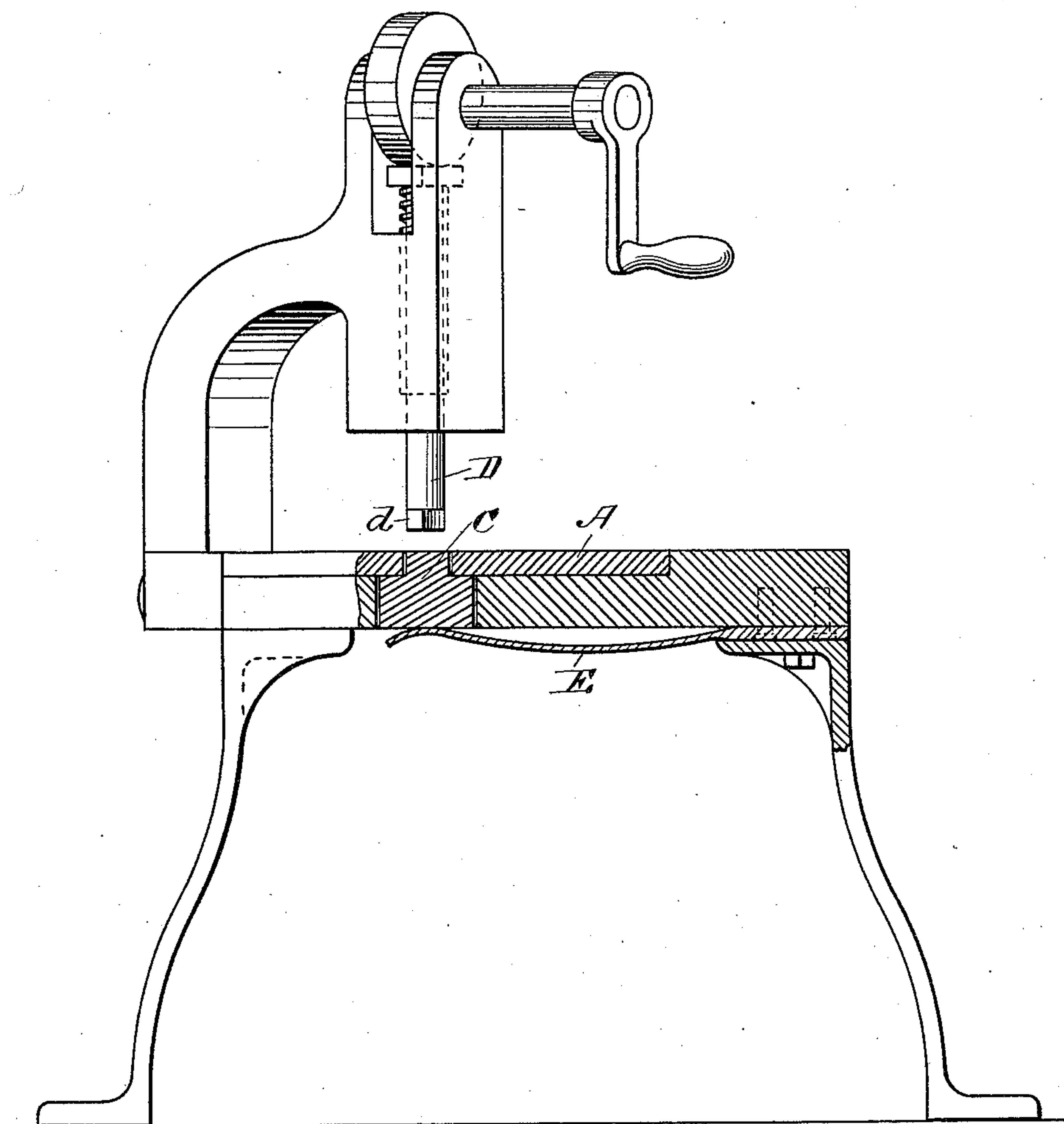


Fig. 1.

WITNESSES.

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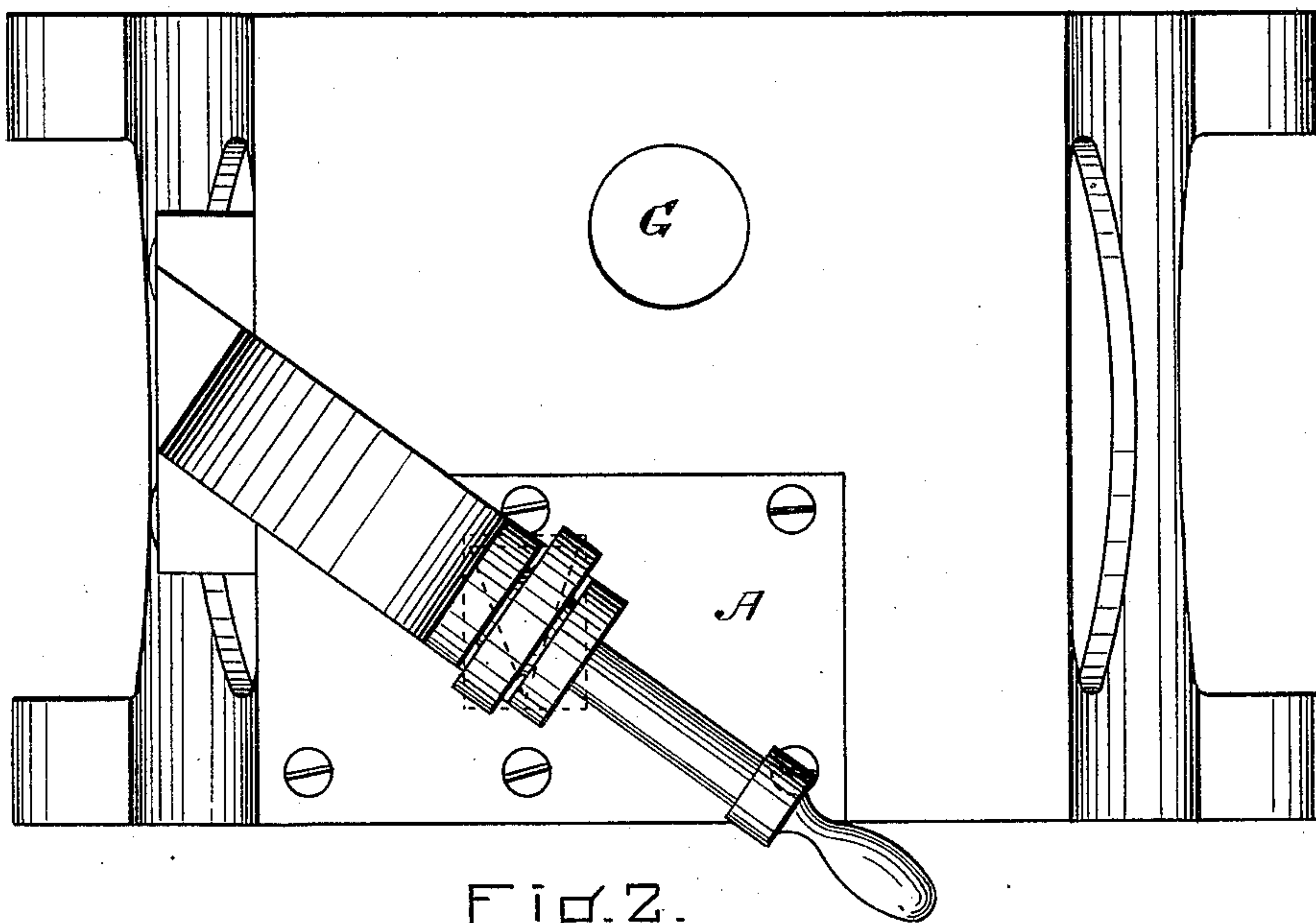


Fig. 2.

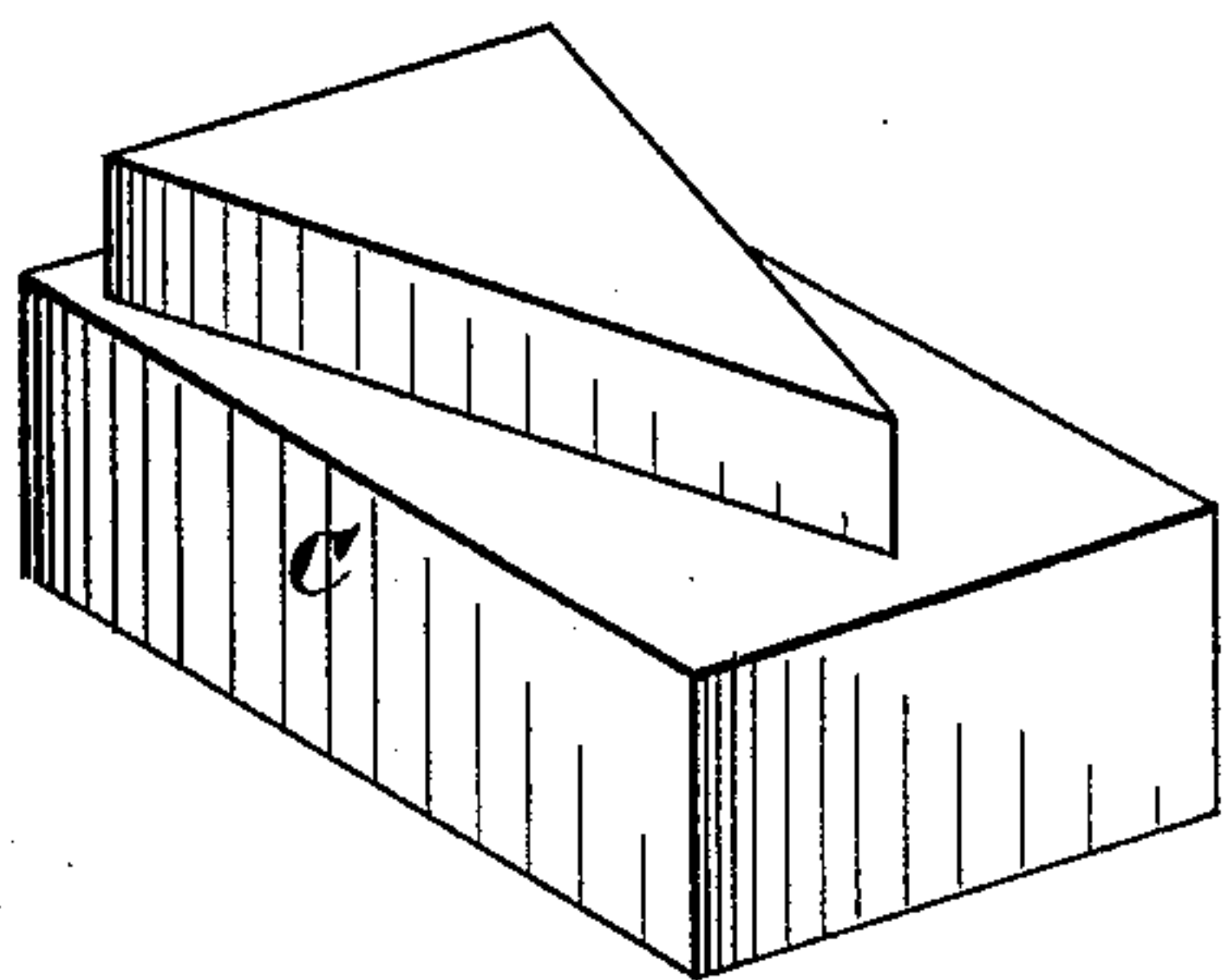


Fig. 3.

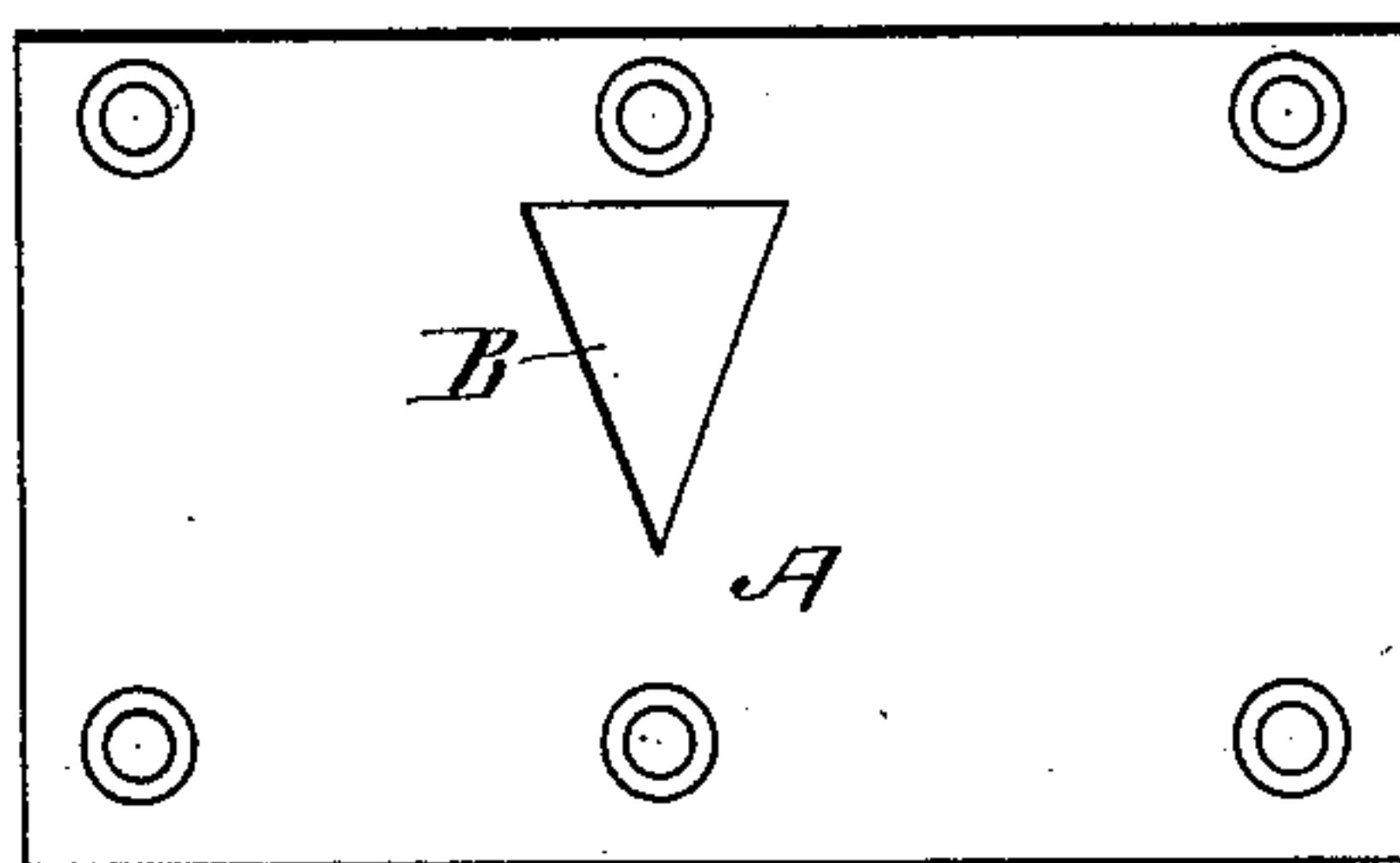


Fig. 5.

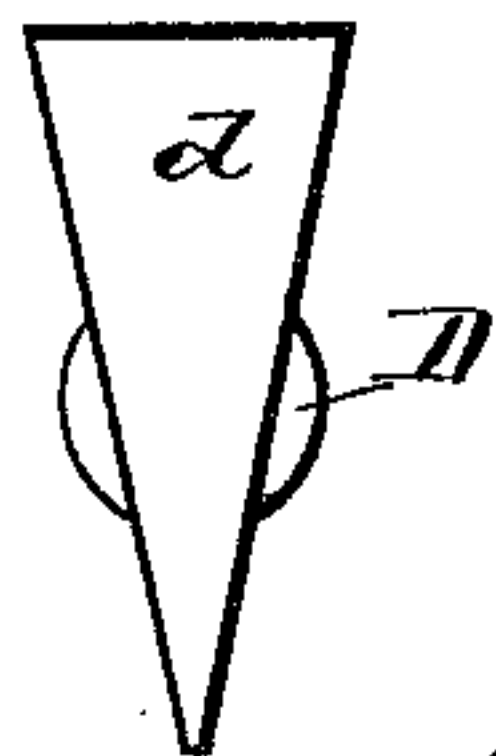


Fig. 4.

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UNITED STATES PATENT OFFICE.

ORRICK SMALLEY, JR., OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO
THE MORSE TWIST DRILL AND MACHINE COMPANY, OF SAME PLACE.

APPARATUS FOR TESTING AND STRAIGHTENING DRILLS.

SPECIFICATION forming part of Letters Patent No. 427,805, dated May 13, 1890.

Application filed January 27, 1890. Serial No. 338,233. (No model.)

To all whom it may concern:

Be it known that I, ORRICK SMALLEY, JR., of New Bedford, in the county of Bristol and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Machines for Testing and Straightening Drill-Blanks and Drills, of which the following is a specification.

My invention relates to machines whereby wire blanks for drills and drills themselves may be tested to determine their straightness, and if found to be curved or crooked may be readily straightened.

In the accompanying drawings I have represented an apparatus embodying my present invention.

In the drawings, Figure 1 is a view of the said apparatus in elevation and partial vertical section. Fig. 2 is a plan view of the same; Fig. 3, an enlarged perspective view of the spring-supported block; Fig. 4, a view of the operative end of the straightening device; and Fig. 5, a view of a portion of the bed or table of the machine, showing the straightening-slot therein.

According to my improvement the necessity for straightening blanks or drills is determined by the operator rolling them upon a level bed-plate about on a level with a suitable opposed source of light, whereby if the blank or drill is not straight this fact will be shown by light passing between it and the bed upon which it is rolled. In the drawings I have represented the frame of a machine carrying such a bed-plate A as I have described. In this bed-plate I provide a slot or aperture B, which may conveniently be made of different widths at different portions and preferably V-shaped. To fill this slot or aperture, I provide a block C, the upper face of which is made to correspond in contour with the slot B, so as to evenly and closely fill the same. This block is provided with a yielding support, which may conveniently be in the form of a flat spring, as shown, so that it will ordinarily fill the slot, but will move out of the way in the bending operation.

Above the aperture B, I provide a bending or straightening piece D, provided at its lower or operative end with a properly-formed foot.

This foot I prefer to make of an outline conforming, substantially, to the form of the slot in the bed-plate, and so have represented it in the drawings at *d*.

In connection with this bending-piece I provide a spring E, which normally holds it up, and a cam or other convenient means of applying power to press it down when desired.

Inasmuch as my improvement concerns both testing for straightness and also bending, when such test reveals a lack of straightness it is important that for the first purpose the bed-plate which forms my test-table should have a continuous surface, to which the surface of the drill to be tested may be compared against the opposed source of light. It is for this reason that I employ the spring-supported block to fill the aperture in the bed-plate. When this block is up in place, the surface of the bed-plate, being continuous, may be used for testing, as described. If now the machine is to be used as a bending-machine, this is made possible by the combined operation of the aperture in the plate and the downward yield of the block filling that aperture. The drill in order to be straightened must often be bent slightly into the aperture, which obviously could not be done unless the block had a yielding support. Again, were the aperture left unfilled the bed-plate at that part could be less conveniently used for testing, as the drill would have to be moved to some other part of the plate for this purpose.

The method of using the device is as follows: The operator, being seated at the side of the bed-plate and with his eye on a level with the light which strikes across it, takes the piece of wire or the drill to be tested and rolls it over the bed-plate. If the wire blank is straight, so that no light passes under it at any part, it is ready to be formed into a drill; but if it is bent this fact is shown by the passage of light under the bent portion as the blank is rolled upon the bed-plate. The same process applies to a drill to be straightened. To straighten or take out a bend, the operator then lays the wire or the drill with the bent portion over the slot in the bed-piece,

and, pressing down the straightening-rod D, bends and straightens the wire or drill, the spring-supported block C yielding slightly under the pressure of the straightening-rod to enable the wire to be thereby straightened. When the slot in the bed-piece is made of varying width, the wire or drill to be straightened will be held across the wider or narrower part of the slot, according as the bend in it is long or short.

I find it in practice desirable to slightly heat the drill before straightening, and for this purpose have represented an aperture in the bed of the machine, as shown at G, through which a gas-flame or other source of heat may pass to heat the drill.

I claim—

1. In an apparatus adapted both for testing and straightening drill-blanks and drills, the combination of a bed-plate provided with a bending slot or aperture with a bending-piece located above the said slot, whereby the straightness of the drill may be first tested by rolling it upon the bed-plate, and its bends, if any, may be subsequently removed by bending it over the said slot by means of the said bending-piece.

2. In an apparatus adapted both for testing and straightening drill-blanks and drills, the combination of a bed-plate, a slot or aperture formed therein, a block normally filling the said slot, a yielding support for the said block, and a bending-piece located above the same and adapted to be pressed down upon a drill-

blank or drill to bend and straighten it, substantially as set forth.

3. In an apparatus adapted both for testing and straightening drill-blanks and drills, the combination of a bed-plate or true surface, over which the drill may be rolled and its straightness determined, as described, a slot or aperture formed in the said bed-plate, a block normally filling the said slot, a yielding resilient support for the said block, and a bending-piece located above the same and adapted to be pressed down upon the drill-blank or drill to bend the same to straighten it, substantially as set forth.

4. In a machine for testing and straightening drill-blanks and drills, the combination of a bed-piece provided with a V-shaped slot, a spring-supported block having a V-shaped portion adapted to enter and fill the slot, a spring-supported straightening-piece arranged above the said slot and having its lower end formed to correspond substantially with the form of the slot, and means, substantially as described, for pressing down the said rod toward the said slot to straighten the drill-blank or drill, all substantially as set forth.

In testimony whereof I have hereunto subscribed my name this 20th day of January, A. D. 1890.

ORRICK SMALLEY, JR.

Witnesses:

LEM LE B. HOLMES,
ELIOT D. STETSON.