

No. 682,565.

Patented Sept. 10, 1901.

W. OVENS.
DRILL BIT SHARPENER.

(Application filed Mar. 28, 1901.)

(No Model.)

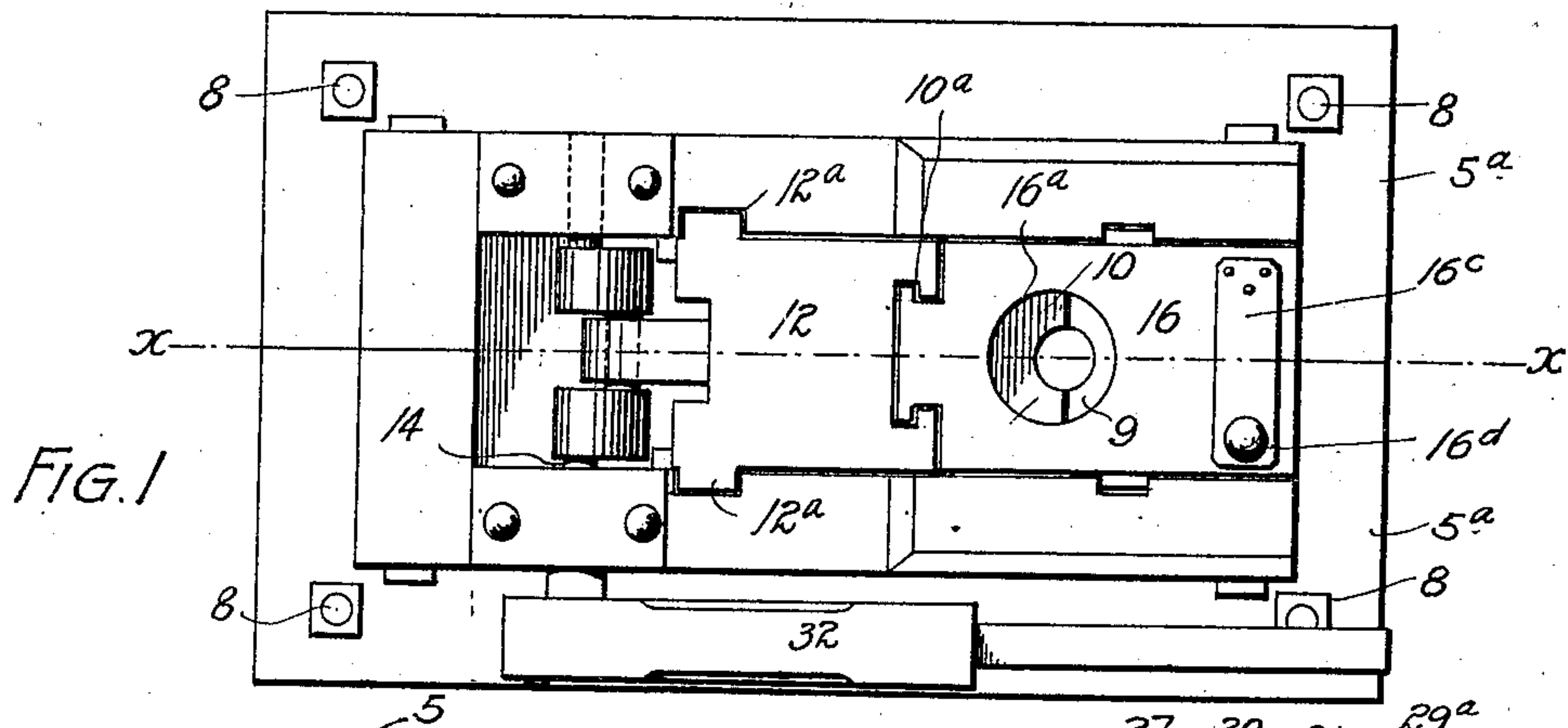


FIG. 1

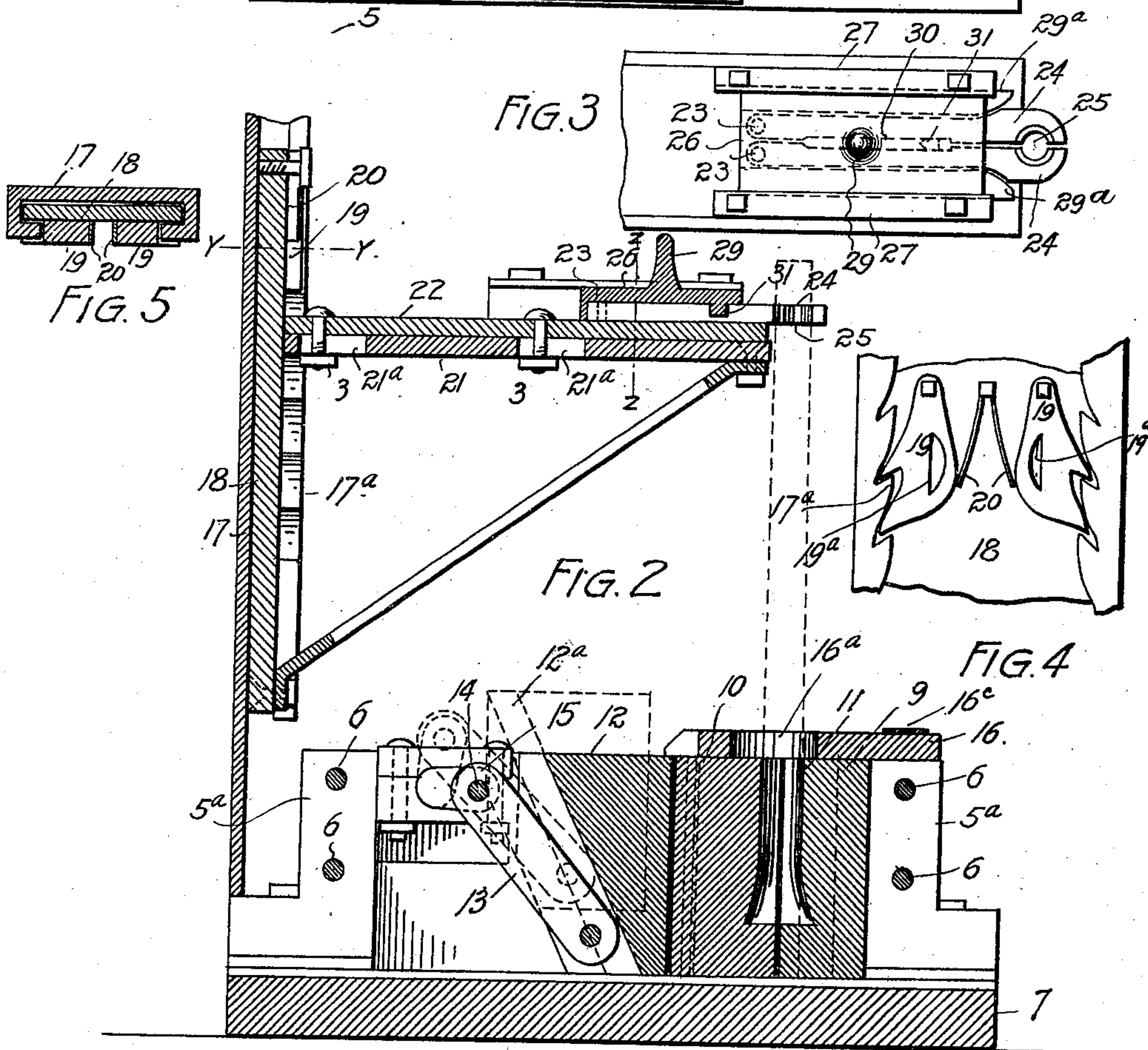


FIG. 3

FIG. 2

FIG. 4

FIG. 5

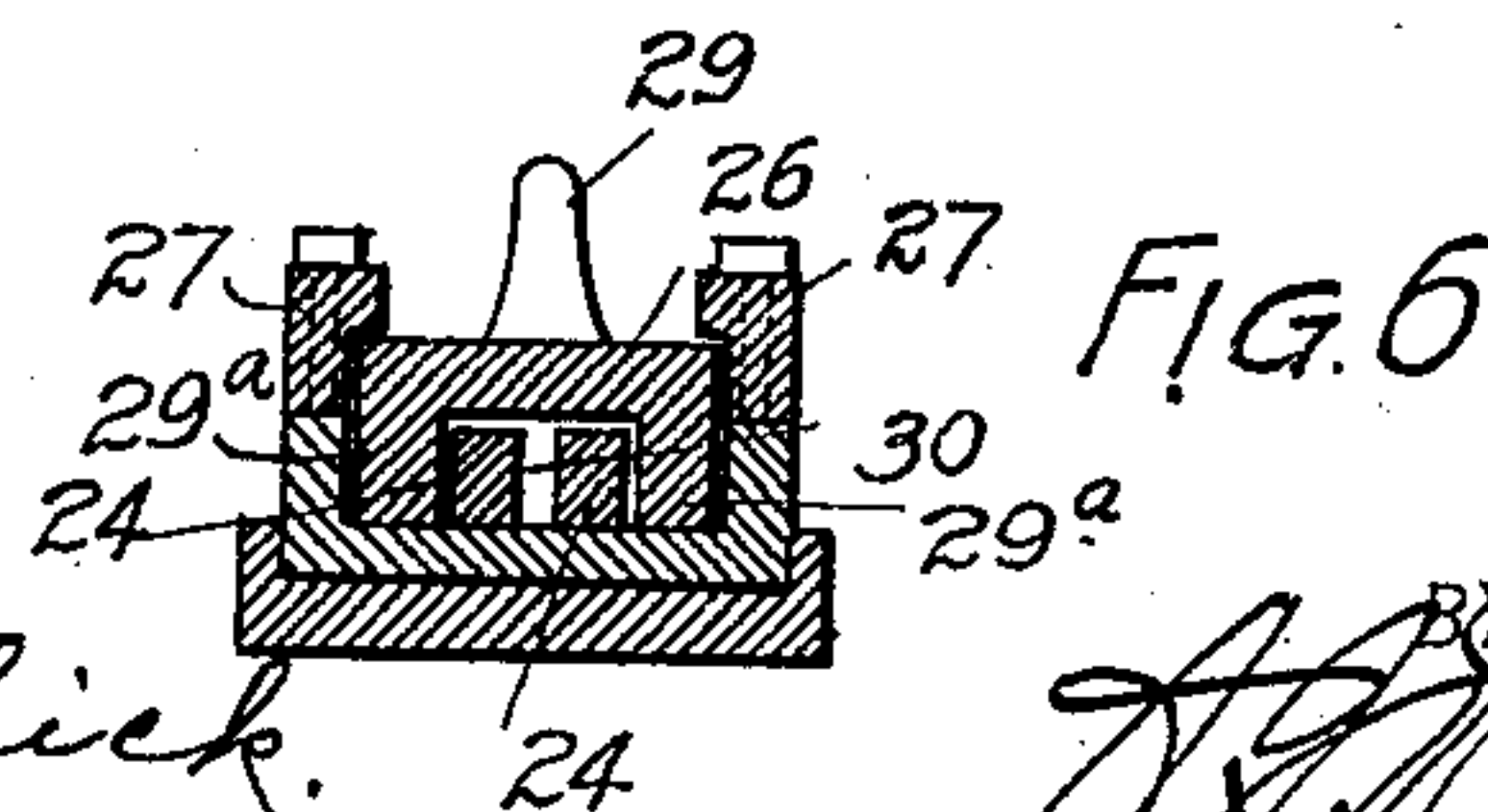


FIG. 6

WITNESSES:

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DRILL-BIT SHARPENER.

SPECIFICATION forming part of Letters Patent No. 682,565, dated September 10, 1901.

Application filed March 28, 1901. Serial No. 53,353. (No model.)

To all whom it may concern:

Be it known that I, WELLINGTON OVENS, a citizen of the United States of America, residing at Silverton, in the county of San Juan and State of Colorado, have invented certain new and useful Improvements in Drill-Bit Sharpeners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in means for sharpening drill-bits or tools; and it consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a top or plan view of the lower part of my improved apparatus. Fig. 2 is a section taken through the complete machine on the line xx , Fig. 1, a part being shown in elevation. Fig. 3 is a fragmentary top view of the device for clamping and holding the upper portion of the drill-bit during the sharpening operation. Fig. 4 is a fragmentary detail view of the adjustable holder for the bit. Fig. 5 is a section taken on the line yy , Fig. 2. Fig. 6 is a section taken on the line zz , Fig. 2.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a casing, preferably composed of two members 5^a, connected by transverse bolts 6, secured to a base 7 by vertical bolts 8. Within a chamber formed in this casing are located two cooperating dies 9 and 10. These dies are slidable vertically in the casing, whereby they may be removed at will when for any reason it may become necessary. Normally or during the drill-sharpening operation the dies have no vertical movement. The two die members when in position for use, as shown in Fig. 2, inclose a vertical cavity 11, whose upper portion is shaped to fit the shank of the drill-bit and whose lower extremity is shaped to conform to the shape of the cutting extremity of

the drill-bit to be sharpened. The die member 10 is movable horizontally, whereby the cavity 11 is made to conform to the size of the drill-bit and confine it closely in place. To this end the member 10 is provided with a dovetail tongue 10^a, engaging a counter-part groove formed in a block 12, having inclined side tongues 12^a, engaging counter-part grooves formed in the side walls of the casing. This block 12 is connected by means of a link 13 with a shaft 14, provided with a crank 15, whereby as the shaft is turned the block 12, together with the die, is moved back and forth at will. The block 12 as it moves backward rises with the link 13, while the die member 10 moves backward in a horizontal plane, since the block is vertically slidable on the die, and the latter is normally locked against vertical movement by the top plate 16, having an opening 16^a above the cavity 11 and provided with a leaf-spring 16^c, having a depending stud 16^d engaging a recess formed in the casing below. This stud passes through the spring and terminates in a knob above for convenience of adjustment. The plate 16 is provided with side tongues engaging grooves formed in the adjacent sides of the casing and is located directly above the parts 10 and 12, whereby they are locked against vertical movement. To the base of the casing or other suitable stationary support is made fast an upright part 17, in which is slidable vertically a plate 18, provided with toothed dogs 19, normally pressed outwardly by leaf-springs 20 to engage teeth 17^a, formed on opposite sides of the part 17 and in front of vertical ways in which the plate 18 slides. Mounted on the plate 18 and projecting therefrom at right angles is a platform 21, upon which is adjustably mounted a bed-plate 22 by means of bolts 3, fast on the plate and passing through slots 21^a, formed in the platform.

Upon the upper surface of the plate 22 are pivotally mounted, as shown at 23, two clamping members 24, whose outer extremities are recessed, as shown at 25, so that when closed they will grasp the upper portion of the drill-bit and hold it securely in place. These clamping members are opened and closed through the instrumentality of a slidable

plate 26, held in place by two overlapping side strips 27. This plate 26 is provided with an upward projection 29 for use in moving it back and forth, according as it becomes necessary to open or close the clamping members 24. The plate 26 is provided with side pieces 29^a, one being located on each side of the clamping members and constructed and arranged to close said members as the plate is moved forward or toward the right, referring to Figs. 2 and 3. When closed, as shown in Fig. 3, there is a narrow space 30 between the clamping members. The forward portion of this space is of sufficient width to receive a depending projection 31, fast on the plate 26. This space, however, diminishes in width toward the rear, whereby as the plate 26 is moved rearwardly or toward the left, referring to Figs. 2 and 3, the projection 31 opens the jaws of the clamping members and releases the drill-bit. The jaws where they are recessed to form the opening 25 are preferably lined with rubber or other suitable material, whereby they adapt themselves to the shape of the drill-bit shank and grip it tightly when adjusted for the purpose. When the parts are properly adjusted, the opening 25 is directly above the socket 11, which receives the lower extremity of the drill-bit or tool as aforesaid. The horizontal platform 21 is adjustable vertically on the standard 17 to conform to the length of the drill-bit by moving the plate 18. As this plate is moved upwardly the dogs yield automatically as they engage the ratchet-teeth 17^a on each side and slip over the said teeth. However, in order to move the plate downwardly the dogs must be pressed inwardly against the springs 20 until they are released by the ratchet-teeth. For this purpose a recess 19^a is formed in each dog to facilitate the aforesaid action.

When the apparatus is in use, the drill-bit occupies the position shown by dotted lines in Fig. 2. The bit is sharpened by striking its upper extremity with a hammer or other suitable instrument, and the force thus exerted causes the lower extremity of the bit to conform to the shape of the socket in which it is located. As the socket is the counterpart of a sharp drill-bit, the tool is quickly sharpened by the operation described. With short drill-bits the devices for supporting the upper extremity of the drill-bit shank need not be employed. With longer bits, however, this feature will be found extremely advantageous, since in order to properly sharpen the lower extremity of the bit the shank must be held in a uniform vertical position. The block 12 is adjusted by means of a lever-arm 32, (see Fig. 1,) made fast to the outer extremity of the crank-shaft 14.

Having thus described my invention, what I claim is—

65 1. The combination with a casing, of two die members located therein, and recessed to

form a socket for the lower extremity of the tool to be sharpened, one of the said members being movable, and suitable means applied to the movable member, for closely confining the drill-bit in the adjustable socket. 70

2. In a sharpener for drill-bits and similar tools, the combination with a suitable casing, of two dies recessed to form a socket for the extremity of the tool to be sharpened, one of the dies being movable, a block connected with the movable die to have a vertical movement on the latter, the casing having guides for the block whereby it has a diagonal movement, and suitable means for actuating the said block for the purpose of manipulating the movable die. 75 80

3. The combination of two dies recessed to form a socket for the cutting extremity of the tool to be sharpened, one of said dies being movable, a block connected with said movable die, and arranged to move vertically as it moves the die horizontally, a crank-shaft, and a link connecting the block with the crank-shaft. 85 90

4. In a drill-bit sharpener, the combination with a casing of two coöperating detachable dies, recessed to form a sharpening-socket for the drill-bit, one of the dies being movable to vary the size of the socket whereby it is made to accommodate bits of different sizes, an adjustable plate located above the dies to hold them in place during use, said plate being apertured above the sharpening-socket. 95

5. In a drill-bit sharpener, the combination of two dies inclosing a sharpening-socket, one die being movable, adapted to receive the cutting extremity of the bit, and means located directly above the sharpening-socket for holding the upper portion of the drill-bit during the sharpening operation. 100 105

6. In a drill-bit sharpener, the combination with clamping means provided with a sharpening cavity, of a standard, a vertically-adjustable platform mounted on the standard, and an adjustable device carried by the platform and adapted to clamp the upper portion of the drill-bit shank when its cutting extremity is in the sharpening cavity. 110

7. In a drill-bit sharpener, the combination with clamping means provided with a sharpening cavity, of a standard, a vertically-adjustable platform mounted on the standard, a plate horizontally adjustable on the platform, and a clamping device mounted on the plate above the sharpening cavity. 115 120

8. In a drill-bit sharpener, the combination with bit-confining means provided with a sharpening cavity, of a standard, a vertically-adjustable platform mounted on the standard, an adjustable device carried by the platform and adapted to clamp the upper portion of the drill-bit shank when its cutting extremity is in the sharpening cavity, the said device comprising a slidable plate, two clamping members embraced by the plate on opposite sides and normally separated by a narrow 125 130

space, the plate being provided with a depending projection adapted to separate the members as the plate is moved in one direction, while the plate embraces the clamping
5 members from the sides and closes the members when the plate is moved in the opposite direction.

In testimony whereof I affix my signature
in presence of two witnesses.

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Witnesses:

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