(No Model.)

J. A. BECHER.

SCREW CUTTING DIE HEAD.

No. 426,228. Patented Apr. 22, 1890.

Fig. 1

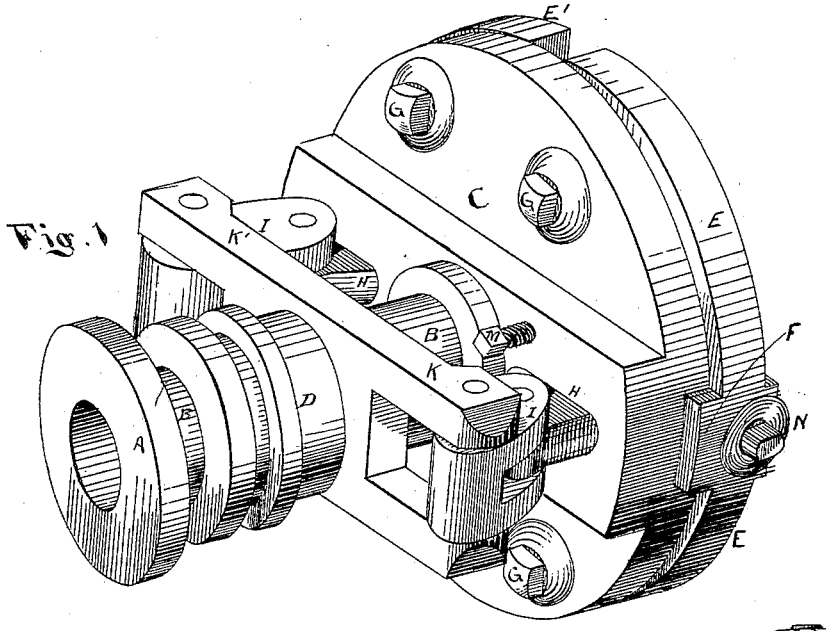


Fig. 3.

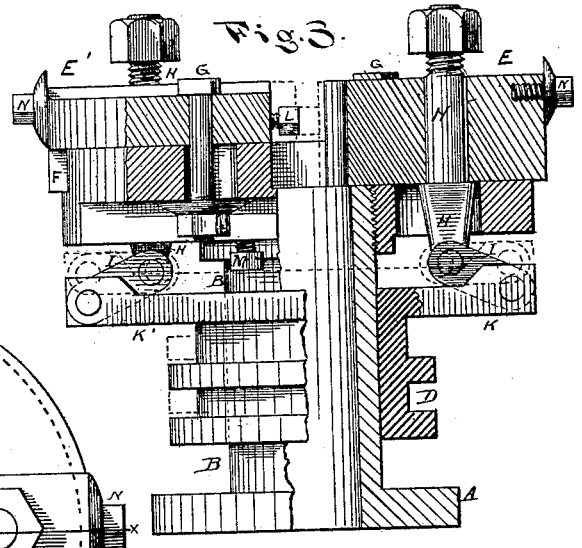
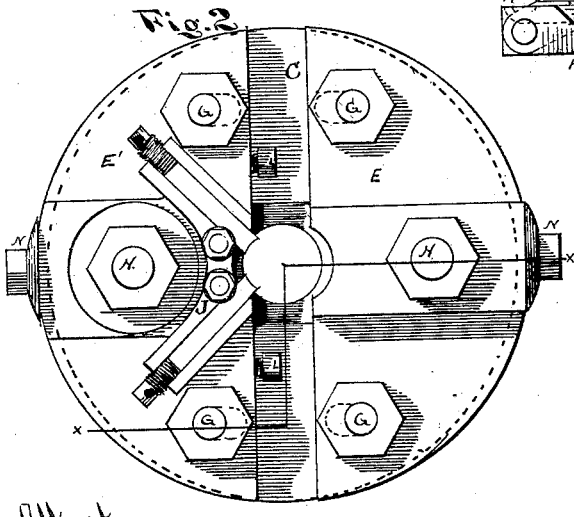


Fig. 2.



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JAMES A. BECHER, OF MISHAWAKA, INDIANA.

SCREW-CUTTING DIE-HEAD.

SPECIFICATION forming part of Letters Patent No. 426,228, dated April 22, 1890.

Application filed October 7, 1889. Serial No. 326,166. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. BECHER, of Mishawaka, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Screw-Cutting Die-Heads, and I do hereby declare that the following is a full and accurate description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of my machine. Fig. 2 is a face plan of the same. Fig. 3 is a longitudinal section of the same on line *x x* of Fig. 2.

This invention relates to the invention patented to me September 11, 1888, No. 389,434; and it consists in several improvements in structure hereinafter described, whereby the implement is cheapened and made positive in action in both directions and the parts completely balanced. Therefore springs may be dispensed with. Said Patent No. 389,434 describes and claims a revoluble screw-cutting die-head having the dies carried by jaws capable of being opened or closed while in revolution; but the organization was such that the jaw movements were not controlled positively and springs were required to open the jaws when liberated.

Among other things, my present improvement is such that the jaws are controlled positively by the opening and closing mechanism without the employment of springs, and the parts are perfectly balanced, so that they move with equal resistance at all points of movement and at all speeds.

The face-plate A is adapted to be mounted on the spindle of an ordinary lathe. It is provided with the axial arm B, upon the extremity of which the jaw-plate C and the clutch-ring D are fitted to move longitudinally on said arm with freedom. The jaws E E′ are mounted upon the jaw-plate C, with a guide-rib F, whereby a rectilinear movement of said jaws is insured. The retaining-bolts G are set tight either in the jaw or jaw-plate, and they pass through slots in the other, so that while free to move on said jaw-plate the jaws are restrained from leaving their seats. The stud-bolts H are also set tight in the jaws E E′, respectively, and project therefrom toward the rear to furnish joint-connections for the toggle-links I, and it is convenient to project said bolts from the front also, as shown in the drawings, to furnish fastenings for the die-stocks, one of which is shown in place at J, Fig. 2; but it is manifest that the die-stocks may be entirely different in structure from that shown at J, and may be held in place by fastenings other than the bolts H.

This structure is not a part of my invention which I intend to cover in this patent, and with the exception of the rib F and its channel in the jaw-plate C does not necessarily differ from that shown in my patent above named.

The clutch-sleeve D is provided with the two arms K K′, which project in opposite directions from said sleeve, and are at or near their extremities jointed to the toggle-links I. When the sleeve D is moved forward toward the jaw-plate, the joint-centers at the extremities of the toggle-links I approach the same line, and the ordinary action of a toggle takes place—viz., the studs H and jaws E E′ are forced toward each other, and when said centers become in line said jaws are locked against any pressure which tends to force them apart. On the other hand, when said clutch-sleeve moves away from the jaw-plate, said jaws are independently and positively pulled apart and held in position, as determined by the position of said sleeve D. Therefore no springs or counter-force of any kind is required. The parts on one side of the axis are duplicates of the parts on the other side, and therefore the weights are uniformly distributed and the implement perfectly balanced in revolution. The gage-screws L L M, Figs. 2 and 3, limit the movements with exactness, and the screws L L serve also as abutments for the jaws to close upon, so that when closed they shall be locked and incapable of motion in either direction, making a rigid or solid head.

Instead of screws L L M to gage the movements of the sleeve D and the jaws E E′, wedges or other devices may be employed for that purpose. Screws are preferred because the slight wearing away of the parts by use will cause an adjustment to be required, and screws offer the most convenient means for that, though other devices are equally exact.

The buttons N, Fig. 3, are simply gages to

aid in setting the die-stocks with facility and exactness.

Having described my invention, I claim—

1. The jaw-plate C, provided with the axial arm B, adapted to be revolved on its axis and to carry the jaw-plate C in its revolution, combined with the reciprocating jaws E E′, toggles I I, clutch-sleeve D, and jointed to said toggles on either side, substantially as and for the purpose set forth.

2. The jaws E E′, each provided with a rib F and retaining-bolts G, combined with the jaw-plate C, provided with a groove adapted to receive the ribs F, and means whereby said jaws may be actuated at will during rotation.

3. In a revolving screw-cutting die-head C, two reciprocating-jaws E E′, of equal size and weight, a clutch-sleeve D, and two toggles I I, of equal size and distance from the center, said toggles being connected to the jaws E E′ and to the clutch-sleeve, respectively, as set forth, whereby all the revoluble parts are perfectly balanced, as set forth.

4. The jaw-plate C, the reciprocating jaws E E′, and the actuating-toggles I I K K′, combined with gage-stops L, whereby when said jaws are closed they are solidly held in both directions, as set forth.

JAMES A. BECHER.

Witnesses:
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R. D. O. SMITH.