

O. C. BURDICT.

Cutter-Heads for Pointing the Ends of Bolts.

No. 135,520.

Patented Feb. 4, 1873.

Fig. I.

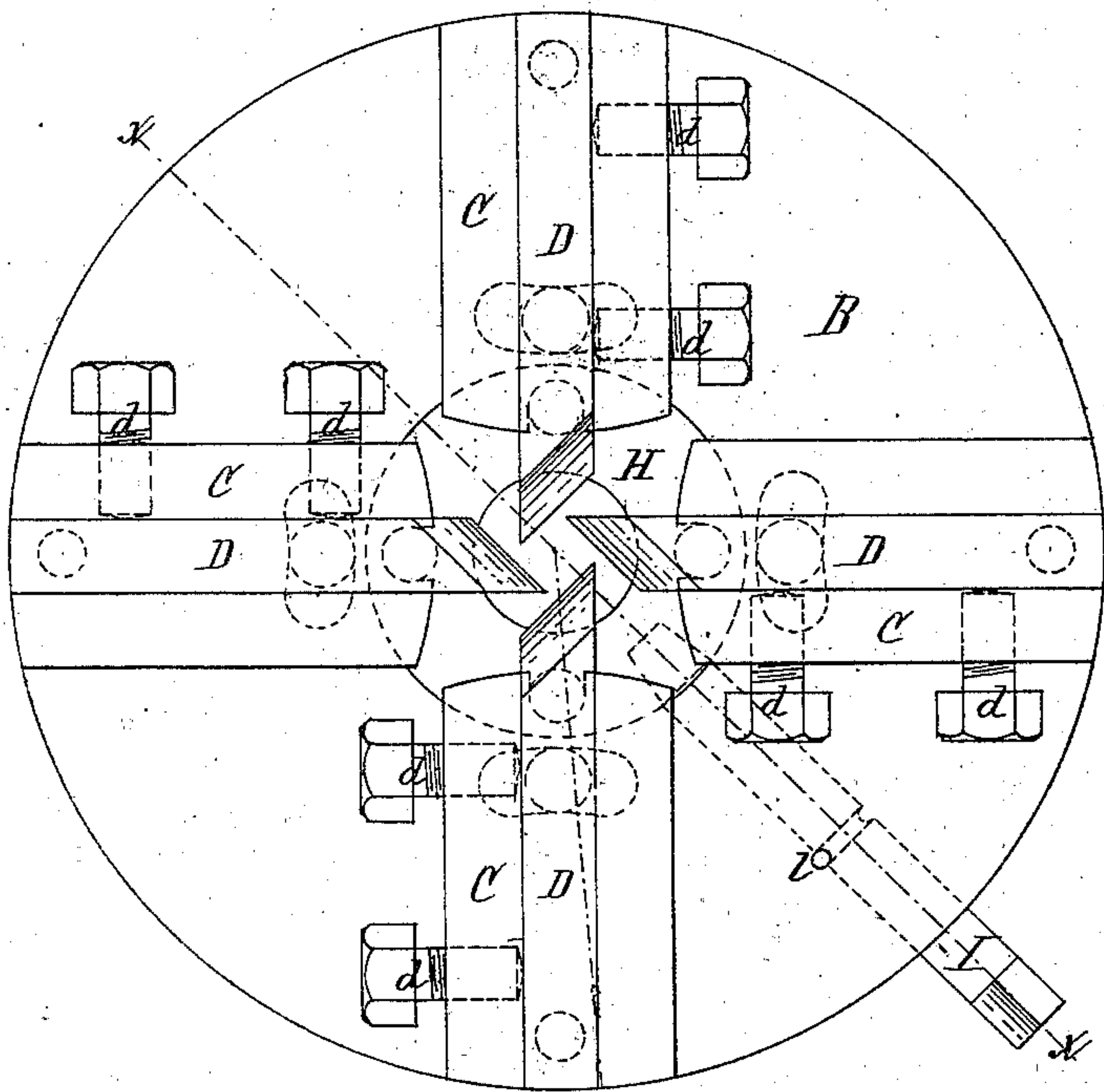


Fig. II.

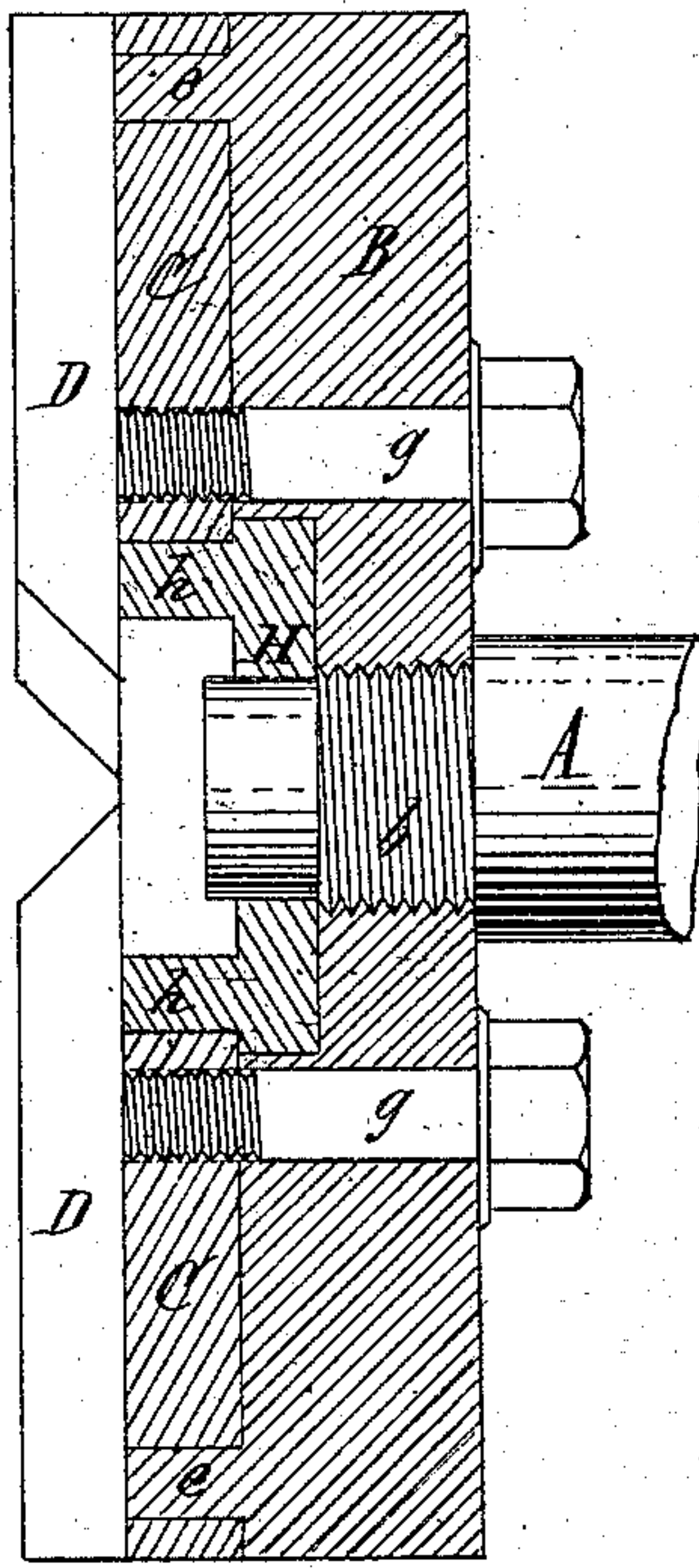


Fig. III.

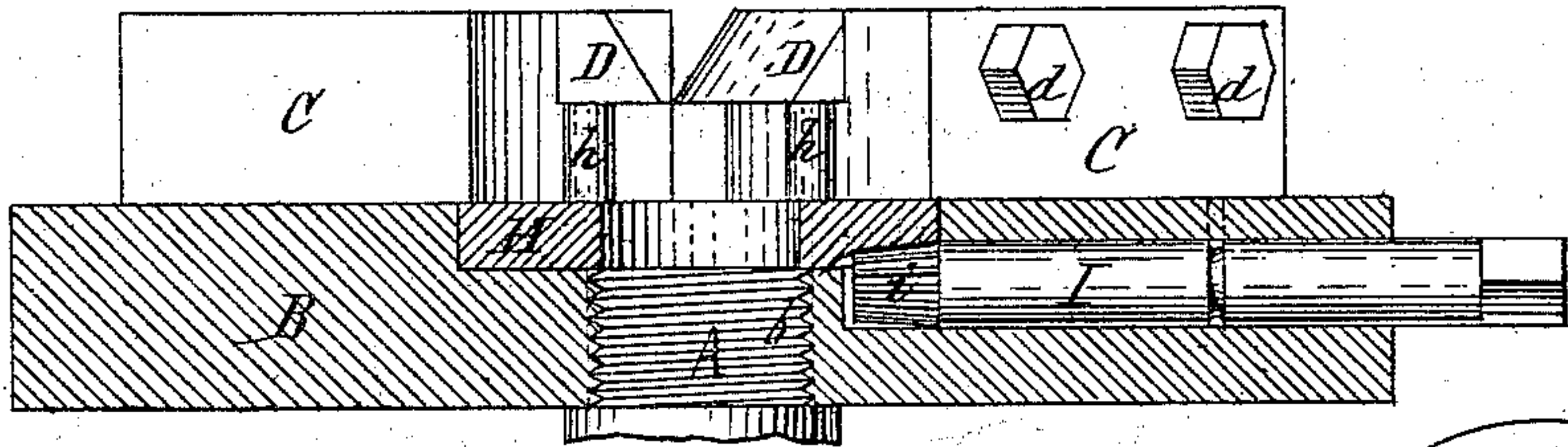


Fig. IV.

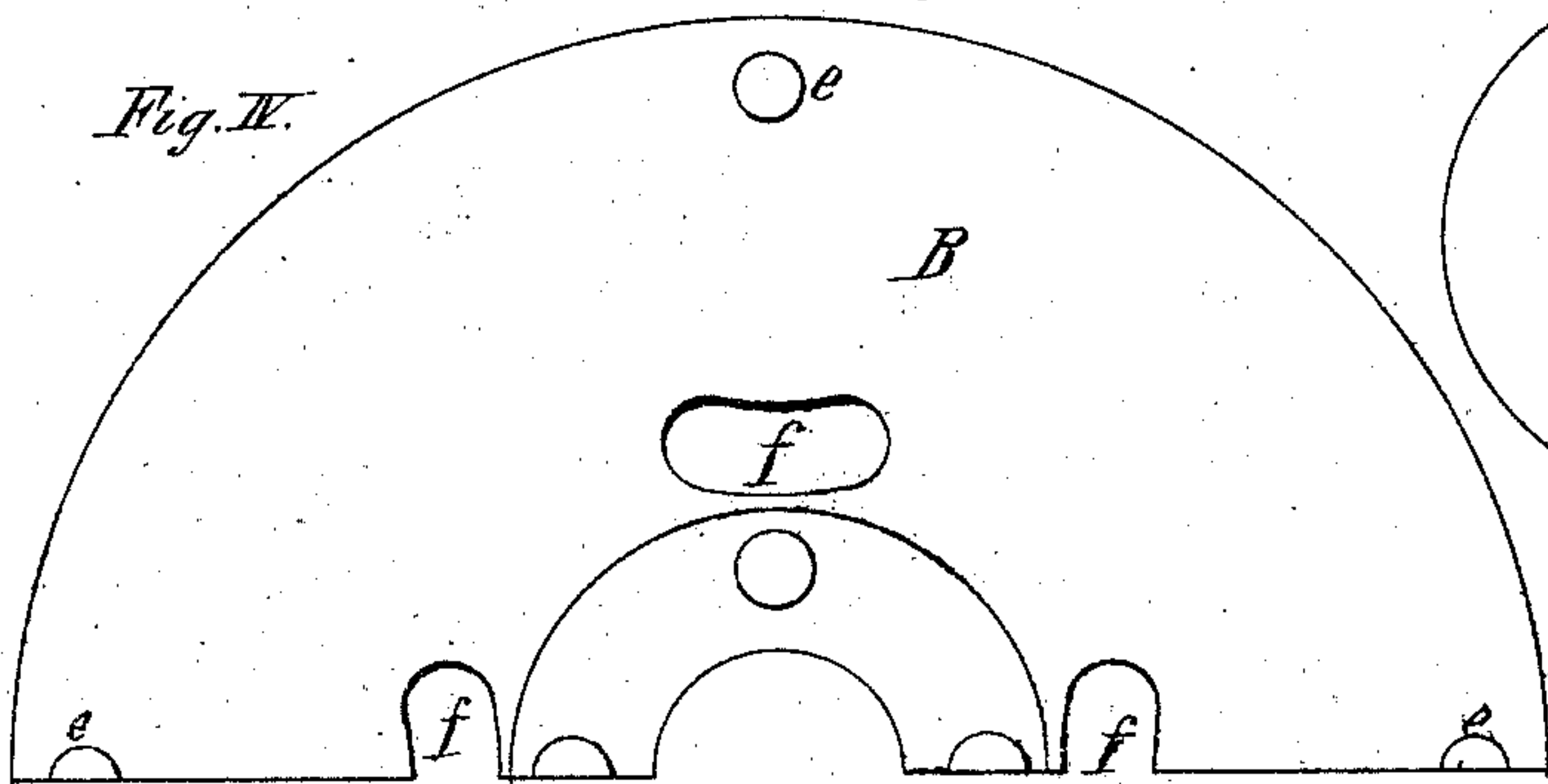
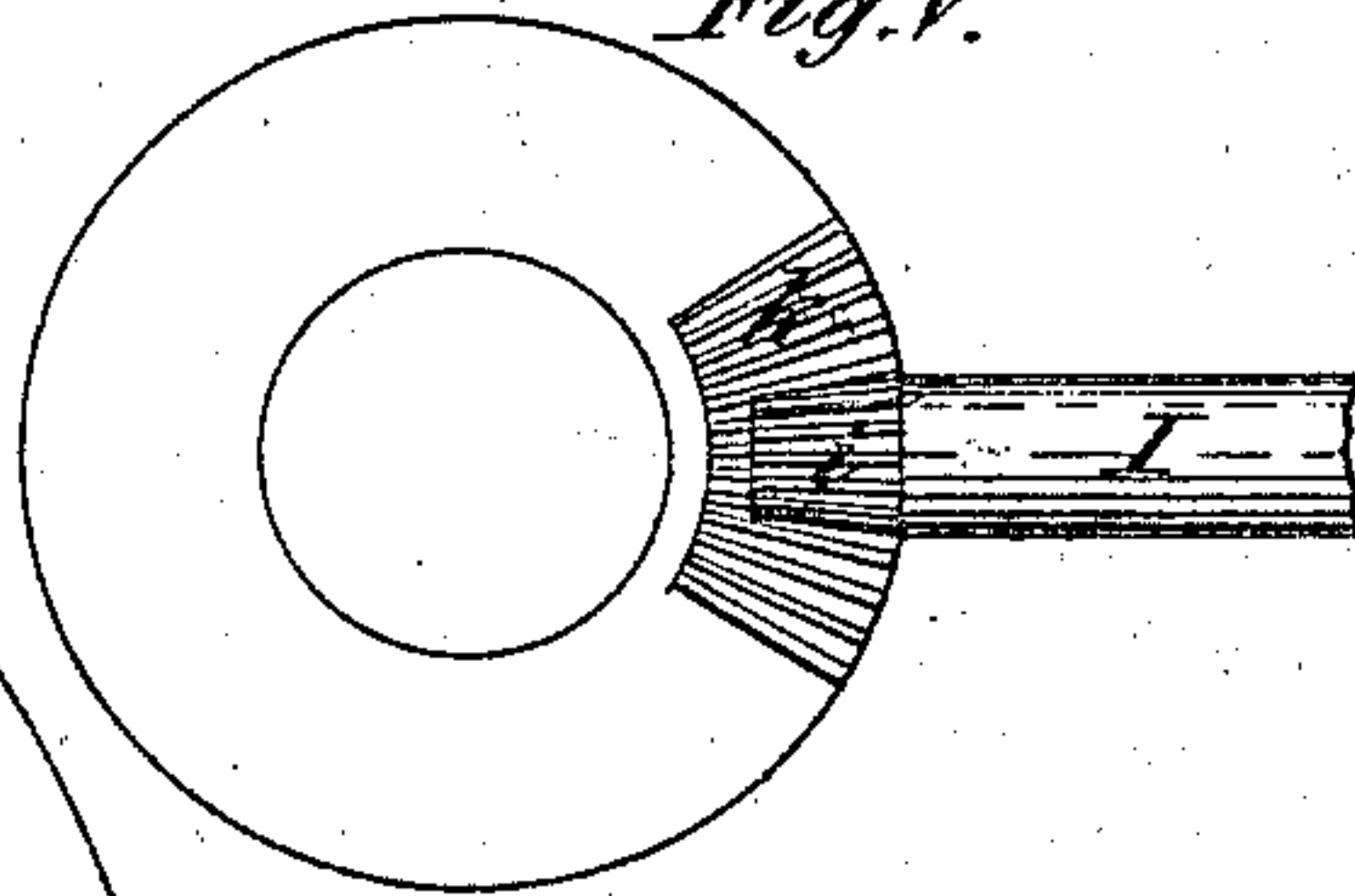


Fig. V.



Edward Michel
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by Jay Hyatt, Atty

UNITED STATES PATENT OFFICE.

ORRIN C. BURDICT, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF AND
RALPH PLUMB, OF SAME PLACE.

IMPROVEMENT IN CUTTER-HEADS FOR POINTING THE ENDS OF BOLTS.

Specification forming part of Letters Patent No. **135,520**, dated February 4, 1873.

To all whom it may concern:

Be it known that I, ORRIN C. BURDICT, of the city of Buffalo, in the county of Erie and State of New York, have invented an Improvement in Cutter-Heads for Pointing the Ends of Bolts, of which the following is a specification:

This invention relates to a device or appliance already in use in connection with a lathe for turning off or pointing the ends of bolts, which device consists generally of a revolving disk or head attached to the lathe-spindle, and provided on its face with several radial knives or cutters, the cutting-edges of which are made inclined, so as to give the desired bevel to the end of the bolts. I am aware that previous to my invention the cutters of such devices have been made adjustable in a radial line toward or from the center of revolution, so as to adapt them to bolts of various sizes. When thus arranged the cutters reduce the bolt by a sort of scraping action. The object of my invention is to effect an improved arrangement and adjustment of the cutters so as to cause them to act upon the bolt with greater efficiency, and produce a smoother surface to the pointed or turned-off end of the bolt.

My invention consists, first, in the combination, with the cutter-head, of three or more cutter-stocks or clamps, each holding a cutting-tool and pivoted to the cutter-head, so as to adjust the cutters in adapting them to different-sized bolts, by swinging the cutter-clamps on their pivots and throwing the cutting-edges more or less out of a radial line, and in an inclined or partially-tangential position with reference to the bolt, which is the most favorable position for insuring a rapid cutting action and smooth surface to the end of the bolt; second, in the combination, with the cutter-head and pivoted cutter clamps or stocks, of a central ring or disk, to which connect the inner ends of the cutter-clamps, so as to be simultaneously swung on their pivots and adjusted by giving the said ring a partial turn; third, in the combination, with the cutter-head the pivoted cutter-clamps and adjusting central ring or disk, provided with a toothed segment, of a shaft and pinion by which said central ring is turned and the cutters attached

thereto adjusted; fourth, in the combination, with the cutter-head and pivoted cutter-clamps, of fastening-screws passing through curved slots arranged in the cutter-head concentric with said fulcrum-pins, said screws screwing into the cutter-clamps so as to attach the latter to the cutter-head while they allow a limited angular adjustment of the inner ends of the cutters; fifth, in the arrangement of the cutter-stocks so as to overlap the edge of the central adjusting-ring, and thereby retain it in place in the recess formed in the cutter-head.

In the accompanying drawing, Figure I is a front elevation, and Fig. II a side elevation of my improved device for turning the conical ends of bolts. Fig. III is a vertical section in line *x x*, Fig. I. Fig. IV is a fragmentary plan view of the cutter-head with the cutter-clamps removed. Fig. V is a bottom-plan view of the central ring for adjusting the cutters, and the mechanism by which it is operated.

Like letters designate like parts in each of the figures.

A is the revolving lathe-spindle, and B the cutter-head secured to the end thereof by means of a screw-thread, *b*, provided thereon. C are the adjustable cutter-stocks or clamps arranged on the face of the cutter-head B, and D the cutters arranged in a longitudinal groove in said clamps, and secured therein by set-screws *d*. *e* are the pivot-pins arranged on the face of the cutter-head B, preferably near its periphery, and fitting in sockets formed on the under side of the clamps C, so that the latter swing on said pins as centers. *f* are the curved slots arranged in the cutter-head B concentric with the pins *e*; and *g* the fastening-screws passing through these slots and screwing into the clamps C, so as to secure the latter to the cutter-head while allowing the same a limited movement on their pivot-pins. H is a disk or ring arranged in a corresponding recess in the center of the face of the cutter-head B. It is provided on its face with projecting pins *h* engaging in notches in the inner end of the cutter-clamps, so that by turning the ring H in one or the other direction the inner ends of the clamps C are simultaneously adjusted. The inner ends of the clamps C overlap the ring H, so as to secure it in the recess

of the cutter-head. I is a shaft arranged radially in the cutter-head B, and provided on its inner end with a pinion, *i*, engaging with a gear-segment, *k*, formed on the under side of the ring H. The shaft I is prevented from becoming disengaged by a locking-pin, *l*, or other suitable means.

The bolts to be pointed are placed with their heads in a socket of a head mandrel, corresponding in shape with the head of the bolt, and the point of the bolt brought in contact with the cutters, which will keep it properly centered during the pointing operation without the use of any other guide or support. It is evident that either the cutter-head or bolt may be rotated, as preferred.

The clamps C are so arranged on the cutter-head B that the cutting-edges of the cutters D are out of the radial line, as clearly shown in Fig. I, the radial line being indicated by a broken line. By turning the shaft I in one or the other direction the ring H is turned correspondingly, and the cutters swung on their pivot-pins, so as to cause their cutting-edges to approach or recede from each other as may be required, to adapt them to bolts of different sizes, the inclination of the cutting-edges increasing or approaching more nearly the tangential as the bolts increase in size.

By arranging the pivot-pins *e* at or near the center of the cutter-stocks C and forming the same of set-screws passing into the cutter-head, said stocks may be adjusted after loosening

the pivot-screws, and secured in this adjusted position by tightening the same, thus dispensing with the fastening-screws *g*.

I claim as my invention—

1. In combination with the cutter-head and rotating disk H or its equivalent, provided with pins *h*, the pivoted cutter-clamps C, capable of adjustment out of a radial line, substantially in the manner and for the purpose set forth.

2. The combination, with the cutter-head B and the pivoted clamps C, of the adjusting-ring H provided with pins *h*, and the operating-shaft I, substantially as and for the purposes set forth.

3. The combination, with the cutter-head B, pivoted cutter-clamps C, and central adjusting-ring H provided with toothed segment *k*, of the shaft and pinion I *i*, substantially as hereinbefore set forth.

4. The combination, with the cutter-head B, and pivoted cutter-clamps C, of the fastening-screws *g* passing through curved slots *f*, substantially as and for the purpose hereinbefore set forth.

5. The arrangement, with the cutter-head and adjusting central ring H, of the cutter stocks or clamps, so as to overlap the edge of said ring and retain it in place, as hereinbefore shown and described.

O. C. BURDICT.

Witnesses:

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