

(No Model.)

D. A. BARNES.  
CHUCK.

No. 485,364.

Patented Nov. 1, 1892.

Fig. 1.

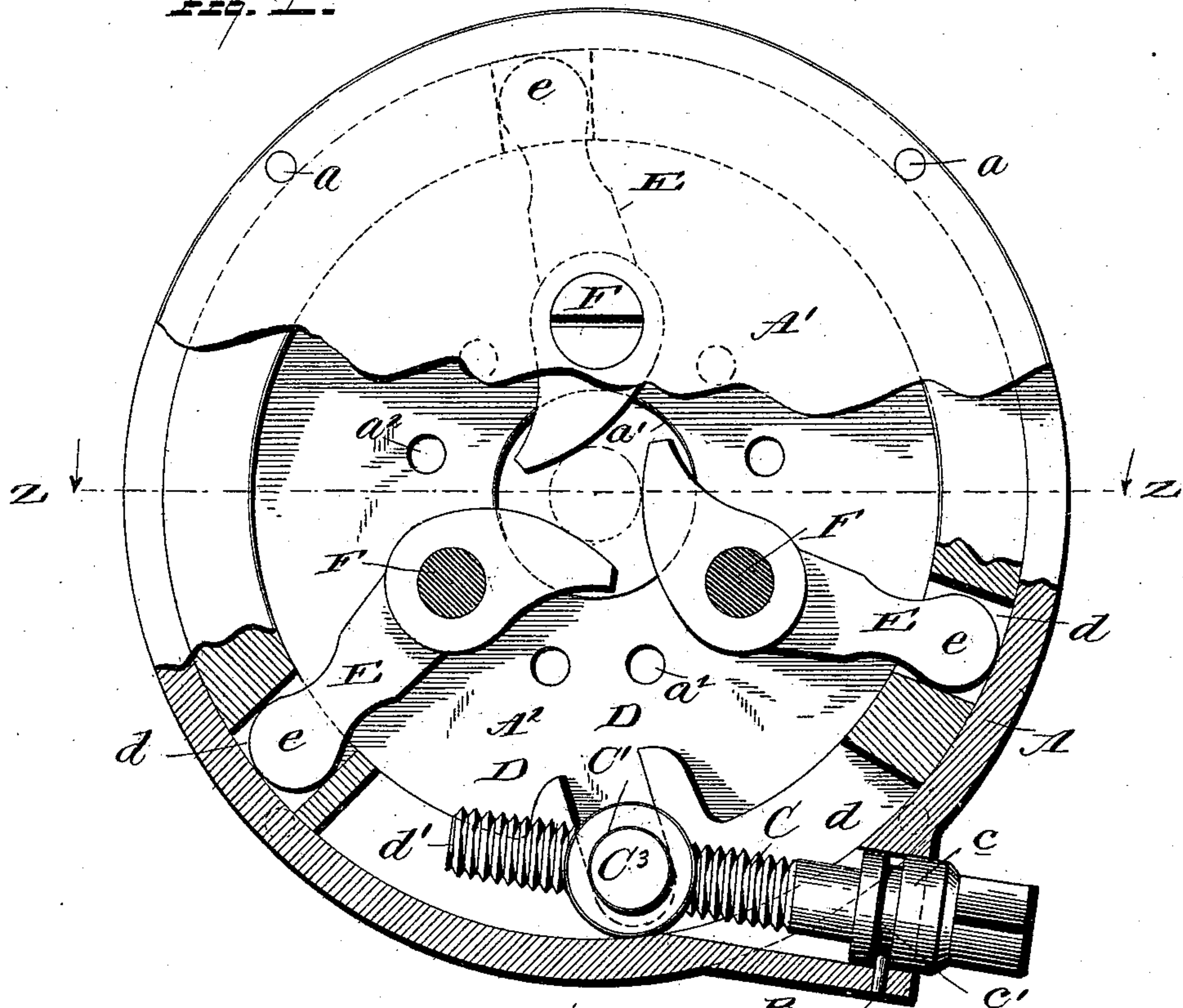
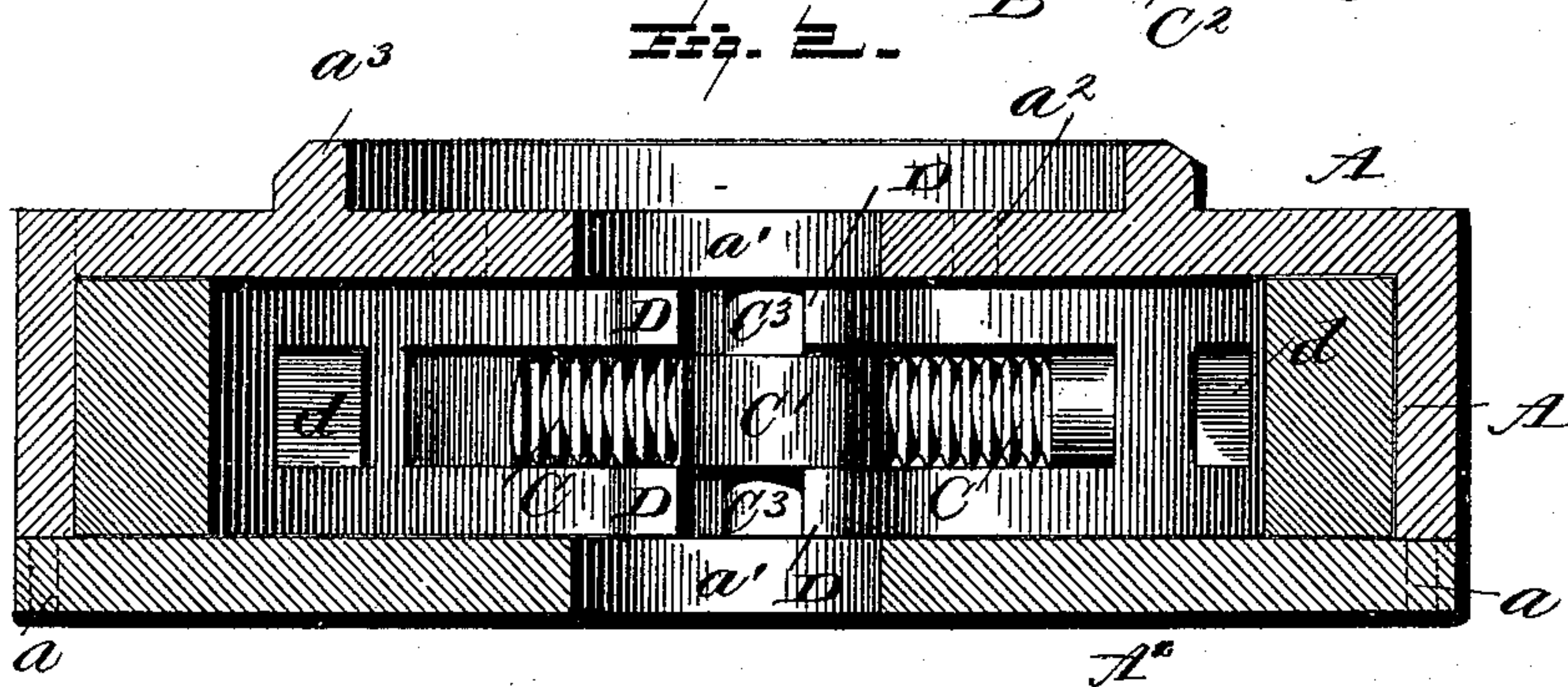


Fig. 2.



Witnesses

L. C. Hills.  
E. A. Bond

Inventor:

Dana A. Barnes.  
by E. B. Stollings  
Attorney



# UNITED STATES PATENT OFFICE.

DANA A. BARNES, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE  
WESTINGHOUSE COMPANY, OF SAME PLACE.

## CHUCK.

SPECIFICATION forming part of Letters Patent No. 485,364, dated November 1, 1892.

Application filed March 31, 1892. Serial No. 427,220. (No model.)

*To all whom it may concern:*

Be it known that I, DANA A. BARNES, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Chucks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in chucks of that class in which are employed an outer fixed shell, an inner rotatable part, pivoted gripping-jaws, and a worm for rotating the inner movable part.

It has for its objects, among others, to simplify the construction, to render the device less difficult to operate, to provide for ready assembling or disassembling of the parts and less friction in the working thereof. I provide an inner rotatable ring with openings in which are loosely seated the outer ends of the gripping-jaws, which jaws are pivotally held within the case, and the said ring is further provided with inwardly-extending guides in which the worm-nut is loosely guided and in which guides the said nut moves as the ring is moved in the one direction or the other. A worm is mounted in a side socket in the outer portion of the chuck and engages the nut, the said worm being held against longitudinal movement in any suitable manner and provided with an exterior portion adapted to receive a wrench or other implement by which it may be actuated when desired.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a top plan with portions broken away and parts in section of my improved chuck. Fig. 2 is a central section through the line *z z* of Fig. 1, looking in the direction of the arrows, the gripping-jaws being removed.

Like letters of reference indicate like parts in both views.

Referring now to the details of the drawings by letter, A designates the outer portion or case of the chuck, which comprises a ring provided with two heads  $A^1$  and  $A^2$ , one or both of which may be made removable in any suitable manner—as, for instance, by means of pins *a* on the one part engaging corresponding holes in the other part. Both of these heads are provided with a central opening  $a^1$  for the reception of the parts to be acted upon by the clutch or chuck-jaws, and one of the heads is provided with holes  $a^2$  and a surrounding flange  $a^3$  for attachment to a lathe-chuck of any desired construction. The ring portion of the case is formed or provided with a side socket B, through which the worm C is passed. This worm, as above stated, passes through this socket and engages a worm-nut  $C^1$ , its outer end being polygonal in shape, as seen in Fig. 1, or otherwise formed to receive a wrench or other implement by which it may be revolved when desired. It is further provided with a collar or enlarged portion *c*, provided with an annular groove  $c^1$ , in which works a pin  $C^2$ , held in the socket, as seen clearly in Fig. 1, and which serves to permit rotation and yet prevent endwise movement of the worm. The nut  $C^1$  is provided upon each side with a reduced portion  $C^3$ , which fits loosely between the inwardly-extending guide-lugs D of the inner rotatable ring  $D^1$  and between the adjacent upper and lower faces of which lugs the nut works, as seen in Fig. 2. This inner ring  $D^1$  is fitted to the inner periphery of the ring portion of the outer portion or case A, and is provided at the proper distances apart with recesses or chambers *d*, in which are loosely seated the outer ends *e* of the gripping-jaws E, which ends are preferably rounded, as seen in Fig. 1, to lessen the frictional contacting-surfaces. The ring is provided upon opposite sides of the guide-lugs D with a space or chamber  $d^1$  for the working of the worm, as seen in Fig. 1.

The gripping-jaws E are pivoted between their ends upon the pivots F, which are preferably in the form of screws, as seen in Fig. 1, and which pass through the detachable head and through suitable openings in the jaws and into the other head. The pivots thus



serve to hold the head in place, the screws of course having plain surfaces where they pass through the jaws. The acting faces of the said jaws are cam-shaped, as seen in Fig. 1.

5 The operation will be readily understood from the foregoing description when taken in connection with the annexed drawings. The turning of the worm by any suitable implement turns the inner ring by reason of the  
10 engagement of the worm-nut with the guide-lugs of the said ring, and this movement of the inner ring simultaneously moves all the gripping-jaws in one direction or the other. As the ring moves the worm-nut must have a  
15 slight movement toward or from the center, and this is provided for by the inclined guides,

When the pivots of the gripping-jaws are removed and the head taken off the jaws may be removed.

20 The device is simple in its construction, cheap of manufacture, the parts are readily assembled, and in practice it has proved most

efficient for the purposes for which it is intended.

What I claim as new is—

1. The combination, with the outer fixed shell and the inner rotatable ring with guides, of the gripping-jaws, the worm, and a worm-nut loosely mounted in said guides, as set forth.

2. The combination, with the outer fixed shell and the inner rotatable ring with guides with space therebetween, of the worm-nut loosely mounted between said guides and having portions working in the guides, and a worm suitably mounted in the outer shell and engaging said nut, as set forth.

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

DANA A. BARNES.

Witnesses:

O. H. R. HEGEMAN,  
ORLEY HAZELTON.