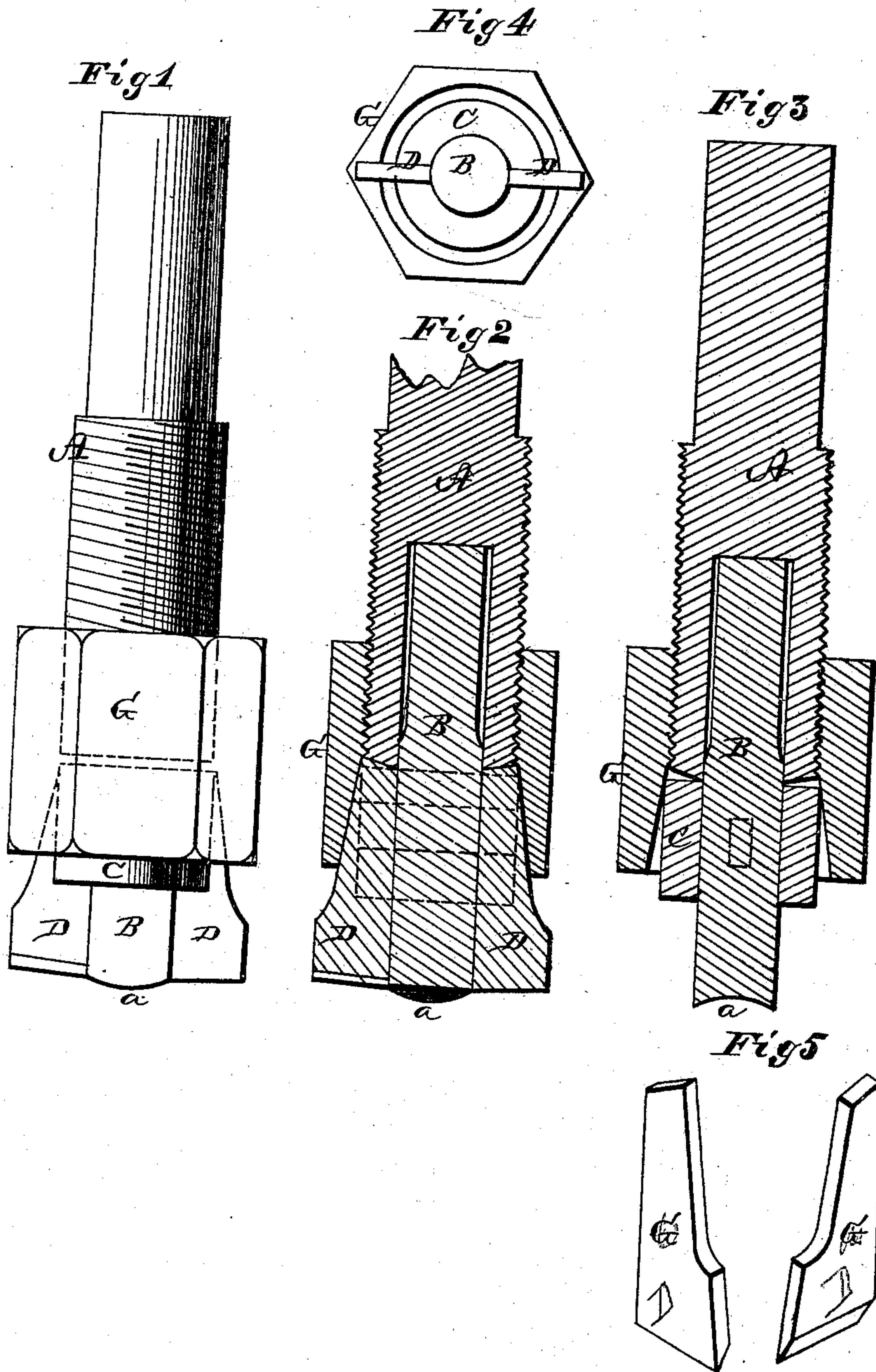


K. H. LOOMIS.
PUNCHES FOR MAKING NUT-LOCK WASHERS.
No. 171,148. Patented Dec. 14, 1875.



WITNESSES
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KELLOGG H. LOOMIS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
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IMPROVEMENT IN PUNCHES FOR MAKING NUT-LOCK WASHERS.

Specification forming part of Letters Patent No. **171,148**, dated December 14, 1875; application filed
May 19, 1875.

To all whom it may concern:

Be it known that I, KELLOGG H. LOOMIS, of Philadelphia, in the county of Philadelphia and in the State of Pennsylvania, have invented certain new and useful Improvements in Punches for Making Nut-Lock Washers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a punch for making that class of nut-locking washers which have a central aperture with radial slots extending toward the corners, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view of the punch. Figs. 2 and 3 are longitudinal sections of the same. Fig. 4 is an end view thereof, and Fig. 5 is a perspective view of the cutting-wings.

A represents the mandrel of my punch, having a hole or recess in its lower end, into which is inserted the punch B, and held therein either by screw-threads, key, or other suitable means. The lower end of the punch B is made concave to form the cutting-edge *a*, for punching the round hole in the washer. On the punch, a suitable distance above the lower

end, is formed or attached a hub or elongated collar, C, in which are made two vertical slots, on opposite sides, for the reception of the side cutters or cutting-wings D D. The edges of these cutters are beveled in opposite directions, as shown, and they are held securely in their places by means of a screw-sleeve, G, screwed on the outside of the mandrel, the lower end of said sleeve being made flaring on the inside, and fitting over the outer inclined edges of the wings or cutters D D.

The mandrel A is to be attached to any punching-machine, and by its operation the center hole with two radial slots is cut. Four radial slots may be cut by the addition of two more cutting-wings or side cutters, to be held in the same manner and by the same means as described above.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the punch B, with concave cutting-edge *a*, hub or elongated slotted collar C, and cutting-wings or side cutters D D, with the hollow mandrel A and flaring screw-sleeve G, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of April, 1875.

K. H. LOOMIS.

Witnesses:

C. L. EVERT,
HENRY E. MOSS.