

E. R. BROWN & JAMES LONG.

Improvement in Cutters for Cutting Washers from Leather.

No. 115,157.

Patented May 23, 1871.

Fig 1

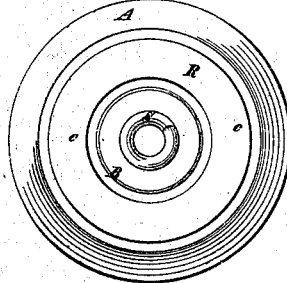


Fig 2

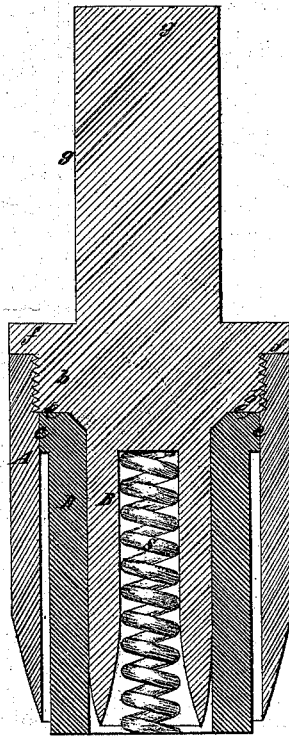
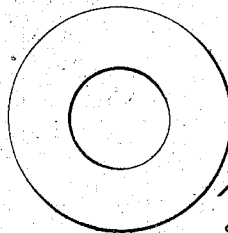


Fig 3



Witnesses.

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UNITED STATES PATENT OFFICE.

EZRA R. BROWN, OF MAUCH CHUNK, AND JAMES LONG, OF PACKERTON,
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IMPROVEMENT IN CUTTERS FOR CUTTING WASHERS FROM LEATHER.

Specification forming part of Letters Patent No. 115,157, dated May 23, 1871.

To all whom it may concern:

Be it known that we, EZRA R. BROWN, of Mauch Chunk, in the county of Carbon and State of Pennsylvania, and JAMES LONG, of Packerton, in the same county and State, have invented a new and Improved Cutter for Cutting Washers from Leather and other Soft Material; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification.

The object of this invention is to enable washers and other articles having holes in them to be cut from a sheet of leather or other soft material, and to have the holes cut in them at one operation. To this end, it consists in the combination of two hollow punches of annular or other form, with sharp cutting-edges arranged one within the other, and provided with an interposed spring, as well as with a central one contained in the inner cutter, by means of which springs the washer and center piece are discharged from the cutter.

In the accompanying drawing, Figure 1 is an inverted plan view of a cutter constructed according to our invention. Fig. 2 is a longitudinal section of the same; and Fig. 3 is a face view of a washer cut by the said cutter.

Similar letters of reference indicate corresponding parts in the several figures.

A and B are two annular punches, having sharp cutting-edges, like the punches commonly employed for cutting holes in leather. The inner punch may be screwed to or made in the same piece with the shank or stock *g* of the cutter; and this shank has formed upon it a collar, *b f*, the lower portion *b* of which has a male screw-thread on its exterior, and the upper portion *f* of which forms a flange projecting over or beyond said screw-thread. The outer punch A is composed of a piece of steel tube, properly ground or shaped to produce its cutting-edge, and has within the upper part of its interior a screw-thread by which it is screwed tightly onto the male screw-thread on the collar *b f*, and up against the flange *f* thereof. The two punches, when secured together, have their edges nearly in the same plane. R is the spring which is interposed between the

punches A and B. This spring is composed of soft vulcanized India rubber, of tubular form, of a length somewhat greater in its normal condition than the distance between the face *e* of the collar *b f* and the cutting-edges of the punches A and B, as shown in Fig. 2. Its upper part fits snugly enough between the exterior of the inner punch B and interior of the outer punch A to enable it to be retained in place against the face *e* of the collar; but for the greater part of its length it fits loosely enough to permit of lateral expansion produced by longitudinal compression. S is the central spring within the inner punch B. This consists of a spiral spring of suitable size to fit tightly within the upper part of the interior of the said punch, but it fits loosely within the greater portion of its length, that its lower part may have a free longitudinal movement.

The operation of this cutter is as follows: When the said cutter descends upon the leather or other material to be cut the two springs R and S are compressed longitudinally by pressure in contact with said material, and as two cutters are driven through the material by the pressure the two portions of the material cut out, viz., the washer or other article to be cut with an opening in it, and the portion cut to make the opening, follow the springs into the interior of the cutter, one entering the space between the two punches and the other entering the inner punch. As the cutter is drawn back after the cutting operation the springs expand longitudinally, and the spring R expels the washer or other article from between the punches, and the spring S expels from the punch B the piece cut from the center of the washer or other article.

What we claim as our invention, and desire to secure by Letters Patent, is—

A punch, consisting of a cutter, B, having a central spring, S, and surrounding cutter A, with annular spring R interposed between said cutters, all constructed, arranged, and combined substantially as shown and described.

EZRA R. BROWN.
JAMES LONG.

Witnesses:

JAMES HOUSTON,
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