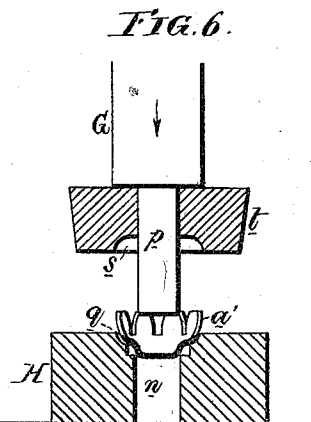
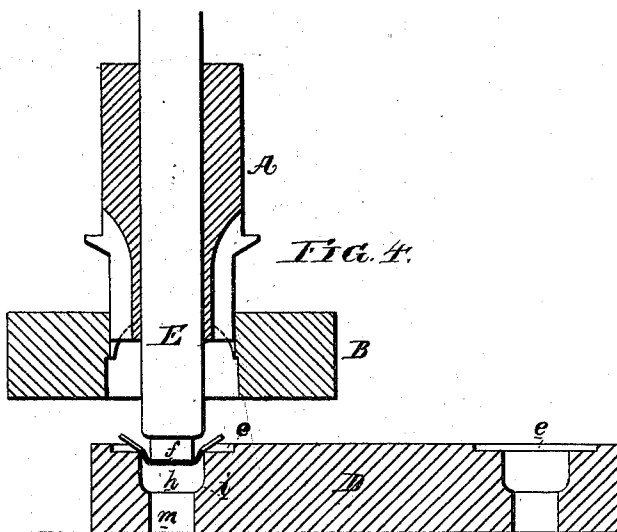
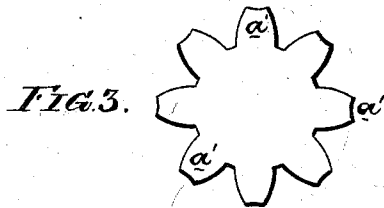
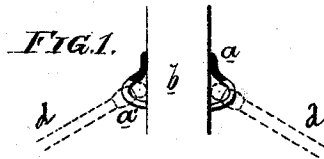


A. & I. HERZBERG.

Manufacture of Umbrella Notches.

No. 140,920.

Patented July 15, 1873.



Witnesses;

Thomas McHain
Harry Smith

Abraham & Isaac Herzberg
by their Atty's.
Hovius and Son

UNITED STATES PATENT OFFICE.

ABRAM HERZBERG AND ISAAC HERZBERG, OF PHILADELPHIA, PA.

IMPROVEMENT IN THE MANUFACTURE OF UMBRELLA-NOTCHES.

Specification forming part of Letters Patent No. **140,920**, dated July 15, 1873; application filed May 27, 1873.

To all whom it may concern:

Be it known that we, ABRAM HERZBERG and ISAAC HERZBERG, of Philadelphia, Pennsylvania, have invented an Improvement in the Manufacture of Umbrella-Notches, of which the following is a specification:

The object of our invention is the economical and rapid manufacture of umbrella-notches by punching blanks (Figure 3 of the accompanying drawing) from sheet metal, and reducing the said blanks to the condition shown in Fig. 1, the system of punches, plungers, and dies wherewith to carry out the process being illustrated by thesectional views, Figs. 4 and 6.

Figs. 1 and 2 represent a vertical section and a plan view of the umbrella-notch produced by the process and apparatus described hereafter, the said notch being the subject of Letters Patent granted to us October 22, 1872, reissued January 14, 1873, and consisting of a short tube or ferrule, *a*, adapted to the stick *b* of an umbrella, and having projections *a'* bent to the shape shown in Fig. 1, so as to retain the spherical or other shaped heads of the ribs *d*, the stems of which fit and move freely in the slots between the said projections.

In order to manufacture these notches we proceed as follows: In the first place, blanks, Fig. 3, having the desired projections *a'*, are punched from a plate of sheet-iron or other ductile metal, and this is accomplished by a steel punch, A, of the precise shape of the blank, and adapted to a stationary die, B, on which the metal is placed, so that when the punch descends a blank is cut from the sheet and falls into an annular recess, *e*, in a die, D. A plunger, E, which is reduced in diameter at its lower end so as to form a projection, *f*, now descends and bends the blank and forces it into the opening *h* of the die D until it is arrested by a shoulder, *i*, in the said opening; but as the downward movement of the plunger is continued the projection *f*, at its lower end, forces a central portion of the blank into the reduced portion *m* of the opening in the die, while the body of the blank is retained by the shoulder *i*. The result of these operations is the reduction of the blank, Fig. 3, to the condition shown in Fig. 5.

We prefer to make the die D double, as shown in the drawing—that is, with two openings of precisely similar character—the die be-

ing so constructed that it can be moved to and fro on a suitable bed, and either of its openings brought to a position beneath the plunger. By this arrangement ample time will be afforded for the extraction of a partly-formed notch from one opening of the die, while another blank is receiving its preliminary shape in the other opening. We also prefer to use the compound punch illustrated in Fig. 4, but separate punches A and E may, if desired, be employed.

The partly-formed notch, Fig. 5, is completed by the combined action of the compound plunger G and die H, shown in section in Fig. 6, the die having an opening, *n*, adapted to the portion *p* of the plunger, and this opening terminating at the top of the die in an annular recess, *q*, in which the partly-formed notch is placed, as shown.

As the plunger descends the portion *p* of the same punches a disk from the notch, and continuing its descent forms the desired ferrule or tube *a*, Fig. 1, on the notch, and the descent of the plunger is continued until the recessed portion *s* of the movable collar *t* on the said plunger strikes the projections *a'* and bends them to the curved shape shown in Fig. 1, when the notch is complete. On the upward movement of the plunger its movable collar *t* is held down upon the notch in order to facilitate the withdrawal of the portion *p* of the said plunger from the ferrule *a*.

We claim as our invention—

1. The punch A and its plunger E having a projection, *f*, in combination with a die, D, having the recess *e*, opening *h m*, and shoulder *i*.
2. The combination of the die H, its opening *n*, and recess *q*, with the plunger G, and its movable collar *t*.
3. The mode or process described of manufacturing umbrella-notches—that is to say, punching from a sheet of metal, blanks, Fig. 3, and forming these blanks into notches by bending and punching in the manner described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ABRAM HERZBERG.
ISAAC HERZBERG.

Witnesses:

WM. A. STEEL,
HUBERT HOWSON.