

(No Model.)

O. M. SMITH.

METHOD OF MAKING UMBRELLA NOTCHES.

No. 436,676.

Patented Sept. 16, 1890.

Fig.2.

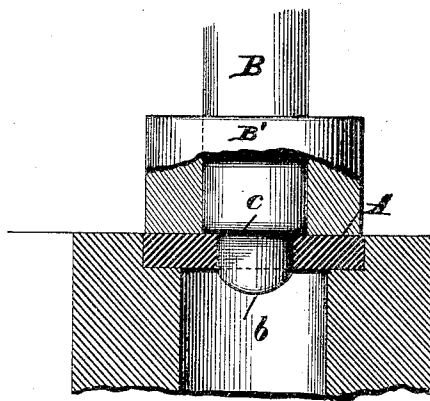


Fig.1.

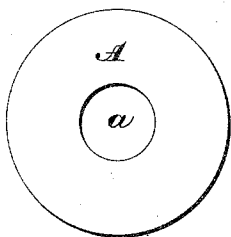


Fig.3.

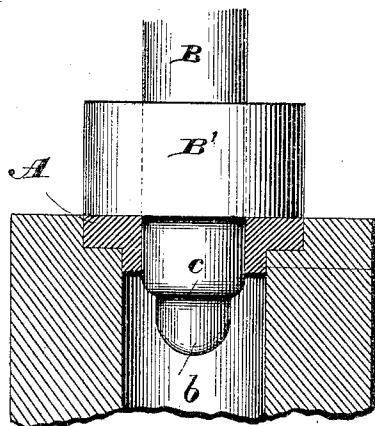
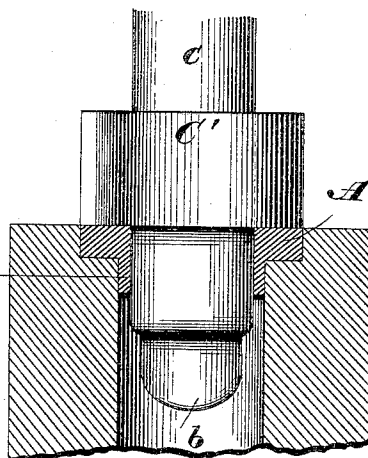


Fig.4.



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Inventor

Witnesses
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by *[Signature]*

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UNITED STATES PATENT OFFICE.

ORREN M. SMITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN W. GRANGE, OF SAME PLACE.

METHOD OF MAKING UMBRELLA-NOTCHES.

SPECIFICATION forming part of Letters Patent No. 436,676, dated September 16, 1890.

Application filed October 22, 1889. Serial No. 327,760. (No model.)

To all whom it may concern:

Be it known that I, ORREN M. SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in the Method of Making Umbrella-Notches; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to the production of umbrella-notches; and it consists in the method hereinafter described and set forth, whereby the flange is formed unaccompanied by any weakness or liability to fracture at the intersection of said flange with the body of the notch.

In the accompanying drawings, forming part of this specification, and in which the several parts have been shown on an enlarged scale, Figure 1 is a plan view of a planchet or blank from which the notch is to be made according to my improved method. Fig. 2 is a detail sectional view of said planchet or blank, showing the position of the punch with relation thereto previous to forming the flange. Fig. 3 is a like view showing the position of the parts when a partial flange has been formed, and Fig. 4 is a similar view showing the application of a second punch of larger diameter to complete the flange-forming operation.

In carrying out my improved method I first form a planchet or circular blank A of rolled or ductile metal with a central perforation *a* and of a diameter corresponding with the greatest diameter of the completed notch. This planchet or blank A is placed in a suitable die or dies and subjected to the action of punches or tools B C to press or force the metal around the perforation *a* and form the flange. By reference to Figs. 2, 3, and 4 it will be seen that the form of punch employed by me is one in which the end is reduced to present a teat *b*, which as the punch or tool descends enters and snugly fills the perforation *a* to re-enforce and embrace the metal adjacent thereto, and the further movement of the punch causes its shoulder *c* to force

down the metal adjacent to the perforation and form a flange *d*. By this arrangement a flange is made, while the metal is re-enforced and braced, and the liability of the metal to become weakened or fractured at the point of the intersection of the flange with the body of the notch (as would be the case were the metal simply bent) is avoided.

As the capacity of the metal to withstand strain is limited, I prefer to form the flange in two operations—first, by making what may be properly designated an “embryo flange,” and then by employing a larger punch or tool C to provide for the increased diameter of the opening *a* to complete the formation of the flange. As will be seen by comparing Figs. 3 and 4, the embryo flange is much thicker than the completed one, the surplus metal being forced down to increase the length of said flange and reduce it to the desired size.

When the flange is formed, the body of the notch will be of the same diameter as that of the original blank, so that the size of the notch can always be calculated in cutting or stamping out the original planchet or blank. After the punching operations referred to have been performed the notch can be completed by grooving and notching, as will be well understood.

It will be obvious that the article can be annealed at any stage of its manufacture, as may be found desirable.

The article made in accordance with the method herein described will present a smooth and even appearance and therefore require no further finishing, as cast notches do. Pinholes and chill-spots do not exist.

The article herein set forth is more durable than a cast-metal notch, since it is not so friable.

It is desirable that the movement of the punch or tool be quick and decisive.

Each of the punches B C is provided with a sleeve B' C', relative to each of which the punch has a limited play, so that said sleeve will bear upon the upper side of the blank to clamp and hold its marginal portion securely in position while the punch proper is forcing down the metal around the central perforation. Unless some provision were made for

so holding the blank the force exerted by the punch on the metal around the central perforation would simply result in tilting the blank to an extent that would only cause the punch to simply bend the central portion.

I claim—

1. The method of forming the flanges of umbrella-notches, the same consisting in placing a centrally-perforated planchet or blank, as in Fig. 1, on a die, as in Fig. 2, having a recess below said central perforation of larger diameter, clamping the marginal portion of the planchet or blank on the die, filling the central perforation, and forcing down the surrounding metal by a punch, as in Fig. 3, to form a flange, substantially as set forth.

2. The method of forming the flanges of umbrella-notches, the same consisting in placing a centrally-perforated planchet or blank,

as in Fig. 1, on a die, as in Fig. 2, having a recess below said central perforation of larger diameter, clamping the marginal portion of the planchet or blank on the die, filling the central perforation and forcing down the surrounding metal by a punch, as in Fig. 3, to form an embryo flange, and then filling the increased opening in the planchet or blank and further forcing down the surrounding metal by a punch of larger diameter, as in Fig. 4, to form a complete flange, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of October, 1889.

ORREN M. SMITH.

Witnesses:

WILLIAM GRANGE,
S. A. LEWIS.