(No Model.)

C. OSBORNE.

METHOD OF PERFORATING METAL.

No. 490,773. Patented Jan. 31, 1893.

Fig. 1

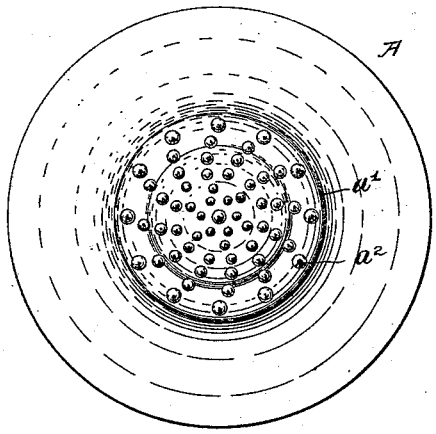


Fig. 3.

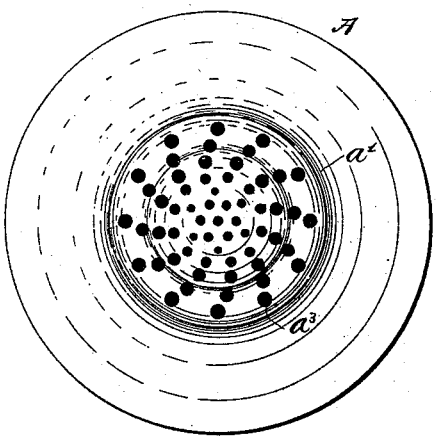


Fig. 2.

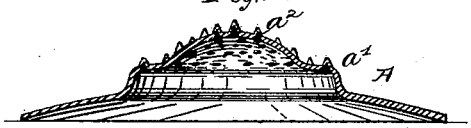
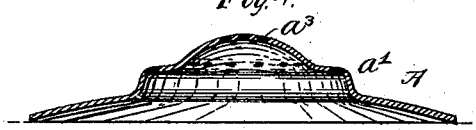


Fig. 4.



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CHARLES OSBORNE, OF NEW YORK, N. Y., ASSIGNOR TO THE WHITING MANUFACTURING COMPANY, OF SAME PLACE.

METHOD OF PERFORATING METAL.

SPECIFICATION forming part of Letters Patent No. 490,773, dated January 31, 1893.

Application filed May 27, 1892. Serial No. 434,556. (No model.)

To all whom it may concern:

Be it known that I, CHARLES OSBORNE, of New York, county and State of New York, have invented a new and useful Improvement in the Process of Forming Perforations in Metal, of which the following is a specification.

This improvement relates more particularly to the process of forming perforations in metal tops for condiment bottles and similar articles and it consists in forming hollow projections on the metal and in subsequently removing the hollow projections.

I will describe a process embodying my improvement and then point out the novel features in a claim.

In the accompanying drawings, Figure 1 is a plan view of a blank embodying one step of my process. Fig. 2 is a transverse section thereof. Fig. 3 is a plan view of a blank showing the perforations completed in accordance with my process. Fig. 4 is a transverse section thereof.

Referring by letter to the drawings, A designates a metal blank struck up by a suitable die to form the central portion a' approximately the size of a bottle mouth or neck. Within this central portion a' portions of the metal are forced up to form the hollow projections a^2 which are here shown as conical in form. These projections a^2 are imperforate and may be formed at the same time the central portion a' is formed. These projections a^2 are to be removed to form the perforations a^3. The projections may be removed by any desirable means, such for instance, as by grinding or by cutting with a turning tool.

By forming the perforations by my process, I save time in the operation and also prevent fraying of the edges of the perforations as is liable to occur when the perforations are formed with a punch in the usual manner.

Having described my invention, what I claim is:

The process of forming perforations in metal tops for bottles consisting in first forming the blank with a number of imperforate hollow projections and in subsequently removing said projections by cutting from the outer side, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES OSBORNE.

Witnesses:

CONSTANT TELLIER,

F. E. KOLB.