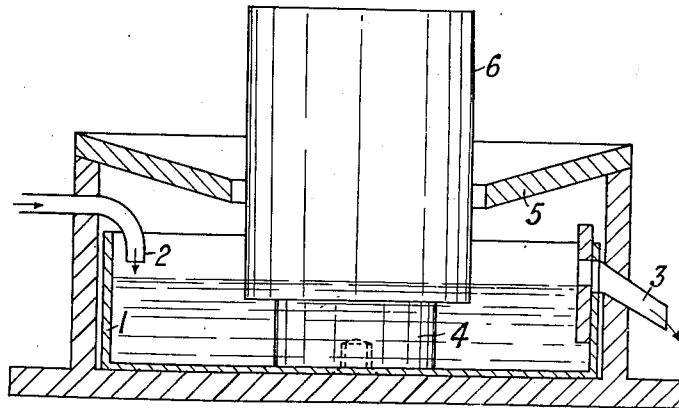


March 19, 1940. J. B. TALBOT-CROSBIE ET AL

2,193,891

METHOD FOR THE PRODUCTION OF HOLLOW METALLIC CASES

Filed July 1, 1939



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UNITED STATES PATENT OFFICE

2,193,891

METHOD FOR THE PRODUCTION OF
HOLLOW METALLIC CASESJohn Burrell Talbot-Crosbie and Arthur Penrhyn
Stanley Macquisten, Glasgow, ScotlandApplication July 1, 1939, Serial No. 282,396
In Great Britain July 4, 1938

3 Claims. (Cl. 207—10)

This invention relates to an improved method for the production of hollow metallic cases and the like, more particularly ammunition shells or shell cases, produced from a steel billet.

5 The invention is particularly applicable to the production of ammunition shell cases by a forging and extrusion process.

In the production of ammunition shell cases by this process, as described in the specification of United States Letters Patent No. 2,115,519, dated April 26, 1938, a billet is supported on an annular die the lower end of which is temporarily closed. A plunger carrying a punch and reciprocable within the billet-receiving chamber forces the lower part of the billet into the die, forming a recess in the billet which is then extruded through the die.

Broadly, the present invention contemplates local cooling of the billet prior to extrusion whereby to reduce or control the ductility or extrusibility of a selected part or parts of the billet, whereby the surface next to any part of the tools may be rendered less liable to extrude in a direction other than that planned.

25 In the production of ammunition shell cases by a forging and/or extrusion process such as above referred to there is a liability to formation of a fin between the plunger and the wall of the billet-receiving chamber, since, in practice, a certain clearance is generally allowed between these parts.

35 We avoid or reduce the tendency to the formation of such a fin by cooling the billet over an outer annular area on the face of the billet which is subjected to the action of the moving tools, say the upper face of the billet.

In practice the cooling may be effected immediately prior to the forging operation by, for instance, partial immersion of the billet in water, while preferably shielding or screening the central or other parts of the submerged face, the billet being inverted before introduction into the chamber.

One form of apparatus used for effecting the local cooling is illustrated diagrammatically in the figure of the accompanying drawing.

As shown the apparatus comprises a vessel 1 having a water inlet connection 2 and an overflow 3. On the base of the vessel 1 is fixed an iron pad 4 concentric with a dished guide plate 5. To cool an outer annular area of the billet 6, the billet is rested temporarily on the pad 4.

It is to be understood that the local cooling or reduction of temper of the billet may be effected in other ways.

What is claimed is:

1. In the production of hollow metallic cases from a steel billet by a forging and extrusion process, the step of cooling the billet locally prior to extrusion, for the purpose specified.

2. In the production of hollow metallic cases as set forth in claim 1, the step of cooling the billet over an outer annular area on an end face of the billet.

3. In the production of hollow metallic cases as set forth in claim 1, cooling the billet locally by partial immersion of the billet in water while screening part of the submerged face.

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