PATENT SPECIFICATION

Convention Date (Germany): June 25, 1925.

254,330

Application Date (in United Kingdom): June 25, 1926. No. 16,053/26.

Complete Accepted: June 2, 1927.

COMPLETE SPECIFICATION.

Process for the Manufacture of Moulds or Tools used in the Manufacture of Glass.

We, GLASFABRIK AKTIENGESELLSCHAFT, of Brockwitz, near Dresden, Germany, a company organised under the laws of Germany, and Dr. GERHARD STEIN, of Brockwitz, near Dresden, Germany, a German subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the manufacture of moulds or tools used in the manufacture of glass.

Hitherto moulds and tools used for the production of pressed glass and glass articles have consisted of rather soft cast iron. Especially in the use of moulds the surfaces of the latter are in many cases provided with patterns cut into said surfaces. The cast iron may only have a certain small degree of hardness, because otherwise the work of cutting the patterns into hard cast iron done by chasers would be rendered too difficult and the performance of very fine work to be done in hard material would probably be impossible.

Again the moulds are, owing to the soft material used, subject to a rather rapid wear, so that a repeated renewal of the moulds will be necessary causing high costs and inconvenience.

The present invention has for its object to permit the use of soft iron moulds in the manufacture of glass and to provide means for preventing rapid wearing.

According to the present invention the mould or tool is coated on its working surface with a layer of chromium. The chroming may be effected electrolytically or by means of any known process suitable for this purpose.

One process, by way of example, which can be used for chroming the mould consists in the electrolytic deposit of a layer of chromium on the surface of the mould, the mould being submerged in an electrolyte composed of a solution of chromate of chromium and chromic acid with water in the proportions of 1:20:50 for a period of about half an hour the intensity of the electric current employed being about 0.5 to 0.6 amperes per sq. cm. and the temperature of the electrolyte about 40 degrees Centigrade.

It is to be understood that the particular method above described of carrying out the invention forms no part of the present invention, as any convenient method may be employed.

In connection with the moulds this chroming may take place after the patterns have been cut into the mould. The coating process by no means injures the fineness of the patterns cut into the moulds; on the contrary the patterns will appear quite clearly and the upper surface of the mould in contact with the glass material is of an extraordinarily high hardness equal to that of corundum. In consequence of this extreme degree of hardness neither the moulds nor the tools wear so easily as has hitherto been the case. Consequently their life is longer and the costs for the manufacture of glass articles are correspondingly reduced.

Moreover, the layer or coat of chromium shows a permanently smooth surface polished, so to speak, in such a manner that polishing or cleaning the moulds or tools is not necessary even after repeated use. Owing to the smooth polished and "chromed" surface of the moulds or tools a brilliant surface of the objects manufactured by the tools or within the moulds is permanently ensured.

The accompanying drawing illustrates, by way of example, a vertical section of a mould a the working surface of which

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has been coated or covered electrolytically by a layer of chromium *b*, by means of any known process suitable for this purpose.

We are aware that in other branches of industry it has previously been proposed to provide a forming tool having its wearing surface coated with metallic chromium.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is :—

1. In the manufacture of glass the use of moulds or tools having their working surface coated with chromium.

2. A mould or tool for use in the manufacture of glass characterised in that the mould or tool is coated on its working surface with a layer of chromium.

3. A mould according to Claim 2 characterised in that the mould is fashioned, engraved or otherwise worked on before chroming.

4. In the manufacture of glass, the selection of moulds and tools having their working surfaces coated with chromium and the use thereof as described.

Dated this 25th day of June, 1926.

MEWBURN, ELLIS & Co.,
70—72, Chancery Lane, London, W.C. 2,
Chartered Patent Agents.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1927.