PATENT SPECIFICATION

Application Date: April 19, 1932. No. 11,251/32. **401,710**

Complete Left: Feb. 22, 1933.

Complete Accepted: Nov. 20, 1933.

PROVISIONAL SPECIFICATION.

Improvements in or relating to the Manufacture of Glass.

We, JAMES A. JOBLING & COMPANY LIMITED, a British Company, of Wear Glass Works, Sunderland, in the County of Durham, and ERNEST JOSEPH JOBLING-PURSER, Glass Manufacturer and Director of the aforesaid Company, of The Grange, South Hylton, in the County of Durham, a subject of the King of Great Britain, do hereby declare the nature of this invention to be as follows:—

This invention relates to the manufacture of glass, the chief object being to provide a new or improved method of manufacturing variegated glass, that is, glass which is formed or streaked with different colours or the like.

According to this invention the variegated glass is produced by adding to molten glass, preferably contained in the forehearth of an automatic feeder, glass of one or more colours and preferably of a different colour from that of the molten glass in the forehearth. The additional glass may be of any desired degree of transparency or it may be opaque. Preferably the additional glass is supplied to the forehearth of an automatic glass feeder, so that variegated glass can be obtained from the feeder orifice or at the position where the glass is gathered or supplied. The additional glass may be supplied or added to the molten glass at any suitable temperature. for example, the additional glass may be at any temperature from atmospheric to that of the glass in the forehearth, which latter temperature varies from say about 1000° C. to approximately 1500° C. according to the kind of glass and the size of the object or article to be produced. The additional glass may be supplied in rod, powder or granular form, or in broken lumps or pieces and as previously stated it may be of a different colour from the main supply of glass in the forehearth and it may be opaque or transparent, or the additional glass may be supplied in molten or fluent condition. In one example of supplying the additional glass the latter is added in the form of lumps or pieces, for example in from roughly $\frac{1}{8}$" overall dimensions to about $\frac{3}{4}$", such additional glass being introduced at a suitable position in the forehearth so that it can be properly mixed with the main supply of glass in order to emerge from the feeder orifice in variegated form. In another example in which glass is added for instance in rod or tube form, the rods or tubes which may be in lengths of a few inches, for example, 6 to 12 inches, may be fed or dropped vertically or horizontally into the molten glass in the forehearth. In an example in which the additional glass is supplied in molten or fluent state, the molten glass may be supplied from a subsidiary furnace to mix with that in the forehearth. The position at which the additional glass is supplied to the forehearth may vary according to requirements and circumstances but in all cases the position or method of introduction is such as to ensure the requisite mixing with the molten glass contained in the forehearth. so that the glass which is fed or supplied from the feeder orifice is of variegated form. For example the additional glass may be supplied through holes, slots or openings in a cover extending over the forehearth at any suitable position from adjacent the furnace towards the feeder. The invention may be carried out in connection with various types of forehearths or the like including rotating or other types from which a suction device takes its charges of molten glass.

Dated this 19th day of April, 1932.

HASELTINE, LAKE & Co.,
28, Southampton Buildings, London, England, and
19—25, West 44th Street, New York, U.S.A.,
Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in or relating to the Manufacture of Glass.

We, JAMES A. JOBLING & COMPANY LIMITED, a British Company, of Wear Glass Works, Millfield, Sunderland, in the County of Durham, and ERNEST

[*Price* 1/-]

JOSEPH JOBLING-PURSER, Glass Manufacturer and Director of the aforesaid Company, of The Grange, South Hylton, in the County of Durham, a subject of the King of Great Britain, 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 glass, the chief object being to provide a new or improved method of manufacturing variegated glass, that is, glass which is formed or streaked with different colours or the like.

According to this invention the variegated glass is produced by adding to the molten glass whilst contained in a suitable receptacle, solid, powdered or molten glass of one or more colours and usually of a different colour from that of the molten glass in the said receptacle, which latter may be the forehearth of an automatic feeder. The coloured or added glass may be of any desired degree of transparency or it may be opaque. Preferably the additional or coloured glass may be introduced into the forehearth of an automatic glass feeder, so that the molten glass obtained from the feeder orifice or at the position where the glass is gathered or supplied is such that the glass in its final form will be variegated. The introduction of the additional or coloured glass to the molten glass may be effected in any appropriate manner, for example, the additional or coloured glass may be supplied in rod, powder, or granular form or in broken lumps or pieces, or in a molten condition and as previously stated it may be of a different colour from that of the main supply of glass in the receptacle or forehearth, whilst it may be opaque, transparent or translucent. In one method of carrying out the invention, the additional or coloured glass when in solid form may comprise lumps or pieces, for example, from roughly $\frac{1}{8}$" overall dimension to $\frac{3}{4}$", such additional glass being introduced at a suitable position into the forehearth wherein it mixes with the main supply of molten glass contained in the forehearth, so that the glass which emerges from the feeder orifice may be variegated. In another method of carrying out the invention in which the additional or coloured glass is supplied, for instance in rod or tube form, the rods or tubes which may be in lengths of a few inches, for example 6 inches to 12 inches, may be fed or dropped vertically or horizontally into the molten glass in the forehearth. When the additional or coloured glass is supplied in molten or fluent state, it may be supplied from a subsidiary furnace and may be introduced into the forehearth in any appropriate manner so as to mix with the main supply of molten glass contained therein. The position at which the additional or coloured glass when solid, powdered or molten is supplied to the forehearth may vary according to requirements and circumstances, but in all cases the position or method of introduction is such as to ensure the requisite mixing with the molten glass contained in the forehearth, so that the glass fed or supplied from the feeder orifice is in such a condition that the final glass which is produced is variegated. Generally stated, the additional or coloured glass may be supplied through holes, slots or openings in a cover extending over the forehearth at any suitable position between the furnace end and the feeder end, and the supply of the additional glass may be effected at intervals or continuously and either automatically or by hand. The accompanying drawing illustrates in Figure 1 a sectional view of the forehearth of a glass furnace and in Figure 2 a plan view of the forehearth. The forehearth and the feeder may be of any suitable or conventional construction, but the cover A extending over the forehearth may be provided with holes B through which lumps or pieces of the coloured or additional glass can be dropped into the molten glass contained in the forehearth. Also, rods or tubes of glass may be dropped vertically through the said holes. Instead of or in addition to the holes B, a slot C may be provided in the forehearth which can be used for enabling rods or tubes of glass to be dropped horizontally into the forehearth, although, of course, lumps or pieces of glass could be dropped through a slot such as C. If desired, mixing, stirring or similar means may be provided within the forehearth. The invention may be used in connection with various types of forehearths or receptacles containing molten glass, including rotating or other types, from which a suction device takes its charges of the molten glass.

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. A method of producing variegated glass, which consists in adding to molten glass contained in a suitable receptacle, solid, powdered or molten glass of one or more colours.

2. A method of producing variegated glass, which consists in adding to molten

glass contained in the forehearth of an automatic feeder, solid powdered or molten glass of one or more colours.

3. A method of producing variegated glass, in which glass in rod, powder or granular form or in broken lumps or pieces is added to a supply of molten glass, the added glass being of a colour or colours different from that of the molten glass.

4. A method of producing variegated glass as in any of the preceding claims, in which the added or coloured glass is opaque, transparent or translucent.

5. A method of producing variegated glass according to any of the examples hereinbefore referred to.

6. Variegated glass produced by any of the methods herein claimed.

7. Apparatus for use in carrying out the method of producing variegated glass herein claimed, substantially as described or as illustrated.

Dated this 22nd day of February, 1933.

HASELTINE, LAKE & Co.,
28, Southampton Buildings, London, England, and
19—25, West 44th Street, New York, U.S.A.,
Agents for the Applicants.

Reference has been directed, in pursuance of Section 7, Sub-section 4, of the Patents and Designs Acts, 1907 to 1932 to Specification No. 339,583, and to United States of America Specifications Nos. 1,828,216, 1,828,217 and 1,828,226.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1933

Fig. 1

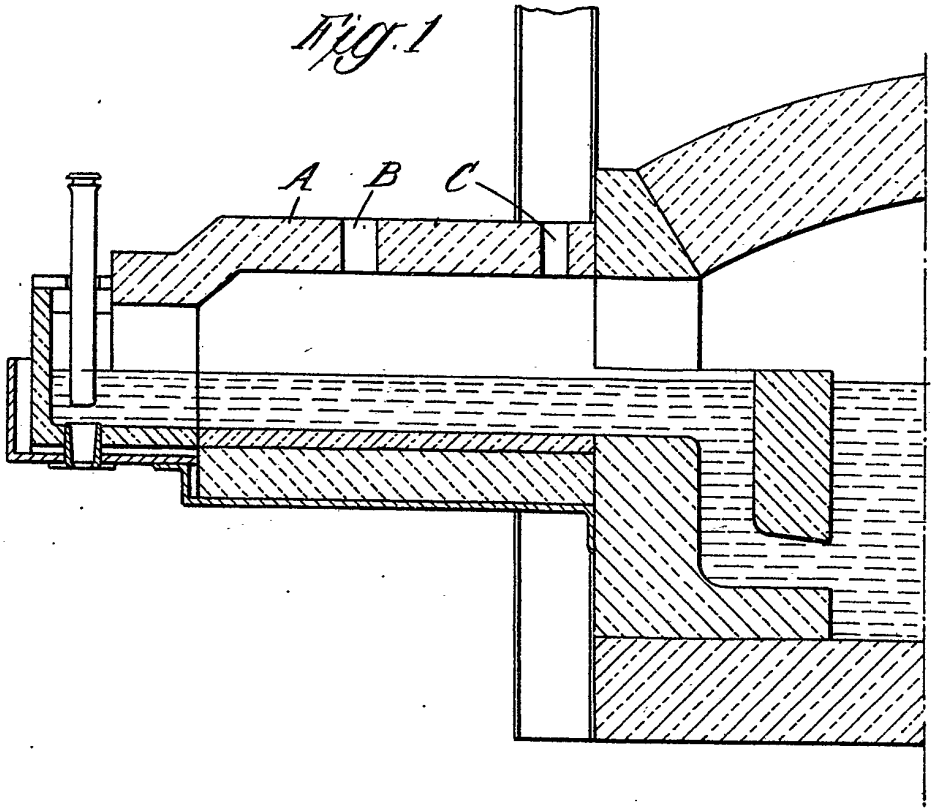
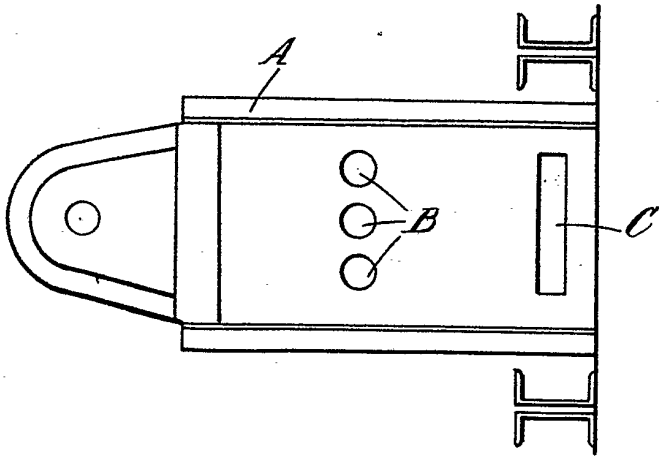


Fig. 2.



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