June 11, 1968 D. E. HUGHES 3,387,551

AIR CURTAIN FOR OBSERVATION WINDOW

Filed July 22, 1966

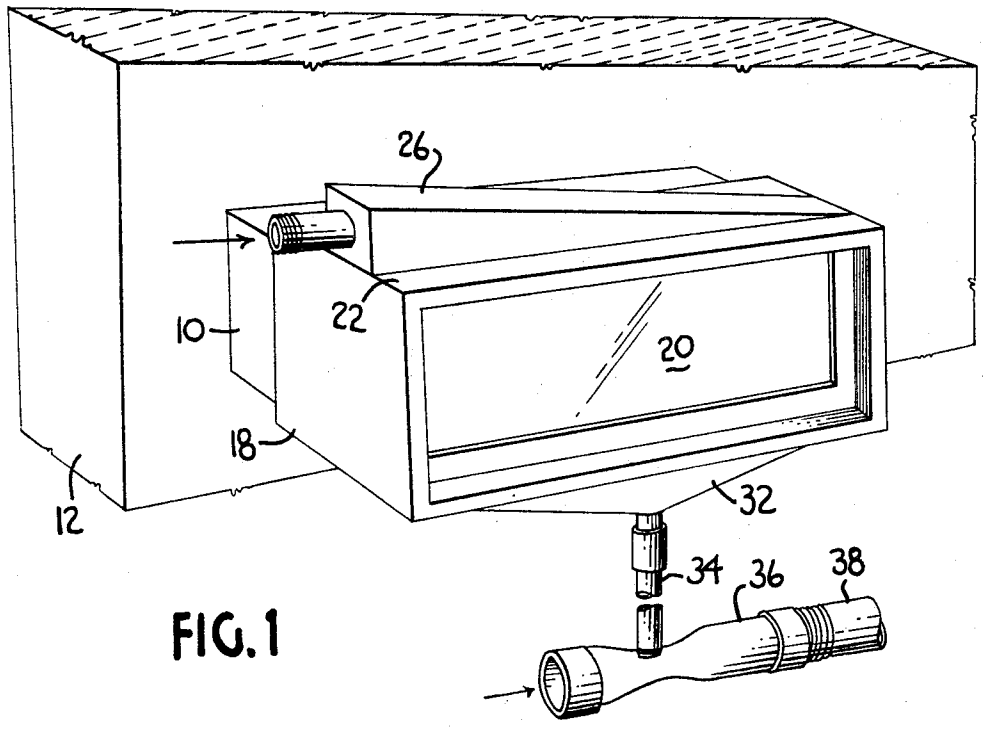


FIG. 1

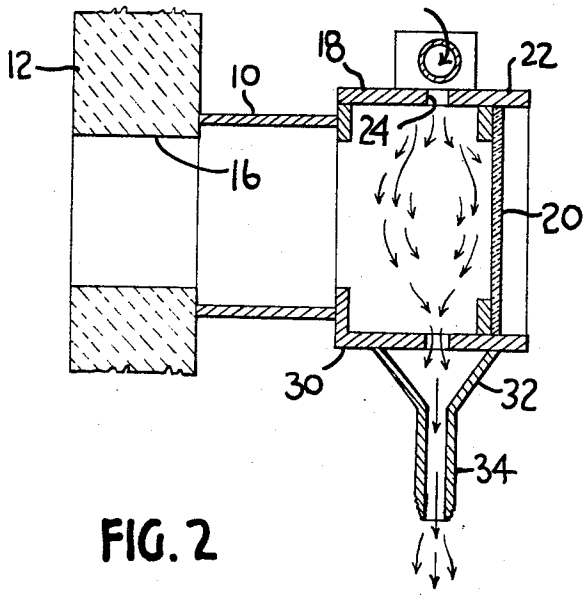


FIG. 2

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AIR CURTAIN FOR OBSERVATION WINDOW

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ABSTRACT OF THE DISCLOSURE

A window arrangement for a wall of a glass manufacturing apparatus is constructed so as to use a gas curtain to isolate the window from the atmosphere in the apparatus.

This invention relates to the manufacture of glass and especially to a viewing window construction for attachment to the wall of a glass manufacturing apparatus.

In the float process of manufacturing flat glass wherein glass is supported on a molten metal bath, the processing takes place under controlled conditions and in a closed space. To observe the process, viewing windows are provided in the walls of the float tank, i.e., that tank which contains the molten bath.

The atmosphere within such a tank is controlled and may contain constituents which will condense or be deposited on the inner face of a glass window, rendering the window opaque and unusable within a short period of time. Replacement of the windows is thus frequently required, so as to observe the process, either by an operator or by a camera.

It has been proposed to provide a window structure in which a curtain of gas is moved across the interior of a box incorporating a window, as one side, in order to avoid the problems heretofore encountered and to isolate the window from the atmosphere within the tank.

The present invention is an improved construction of such a window, as will be evident from the foregoing description taken with the accompanying drawing, in which

FIG. 1 is a perspective view of a window arrangement constructed in accordance with this invention, and

FIG. 2 is a cross-sectional view of the apparatus of FIG. 1, taken on line 2—2 thereof.

In the drawing, the apparatus of this invention includes a rectangular frame **10** having one end attached to the wall **12** of a float tank by any suitable means and in alignment with an opening **16** in the wall **12**. The opening **16** is, of course, above the float bath in the tank.

A frame box **18** is connected, as by welding, to the frame **10** and its outer end is sealed by a window **20** of glass. Generally, it is preferred to use tempered or wire glass for the window **20**.

In the top **22** of the box frame **18**, there is provided an elongated, relatively narrow slot **24** which extends

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from side wall to side wall of the frame **18** and a tapered manifold **26** is connected in registry with the slot, which manifold is connected to a source of controlled atmosphere, generally the same atmosphere supplied to the interior of the float tank. The tapered manifold **26** and the width of the slot **24** insure an even flow of atmosphere from top to bottom of the apparatus and across the window **20**.

To exhaust the supplied atmosphere there is provided an elongated relatively narrow slot **28** in the bottom wall **30** of the frame **18** opposite the intake slot **24**. Usually the slot **28** is wider than the slot **24** to insure flow of atmosphere which may expand while in the frame **18** due to the temperature therein. A V-tapered manifold **32** is connected to the wall **30** in registry with the slot **28** to exhaust the amosphere from the frame **18**. A discharge pipe **34** is connected to the manifold **32** and, in turn, is connected to a venturi device **36** connected in a supply line **38** of controlled atmosphere. The venturi device **36** insures a reduced pressure at the slot **28** and the flow of atmopshere across the window **20**. The atmosphere for the window can be, especially for economy reasons, recirculated. The pressure of the atmosphere supplied and withdrawn must be such to insure flow across the window and not flow into the float tank or from the float tank.

The device described can also be used in other equipment, such as glass melting tanks, or where similar conditions are encountered. Also, other means, such as suction pumps, etc., can be used for exhausting the atmosphere from the frame **18**.

I claim:

1. A window arrangement for connection to a wall of glass manufacturing apparatus having at least one opening therein which comprises a frame fitted in registry with said opening, a glass window sealing the outer end of the frame, a slot in the top of the frame extending from side to side thereof, means connected to said slot for supplying a gas thereto and thus to said frame, a slot in the bottom of said frame extending from side to side thereof, means including a venturi-device connected to said second-named slot for withdrawing said gas, said slots directing gas supplied to said frame as a curtain across said window to isolate said window from the atmosphere in said glass manufacturing apparatus.

2. Apparatus as recited in claim 1, further including a tapered manifold to insure uniform flow of gas to said first-named slot.

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