

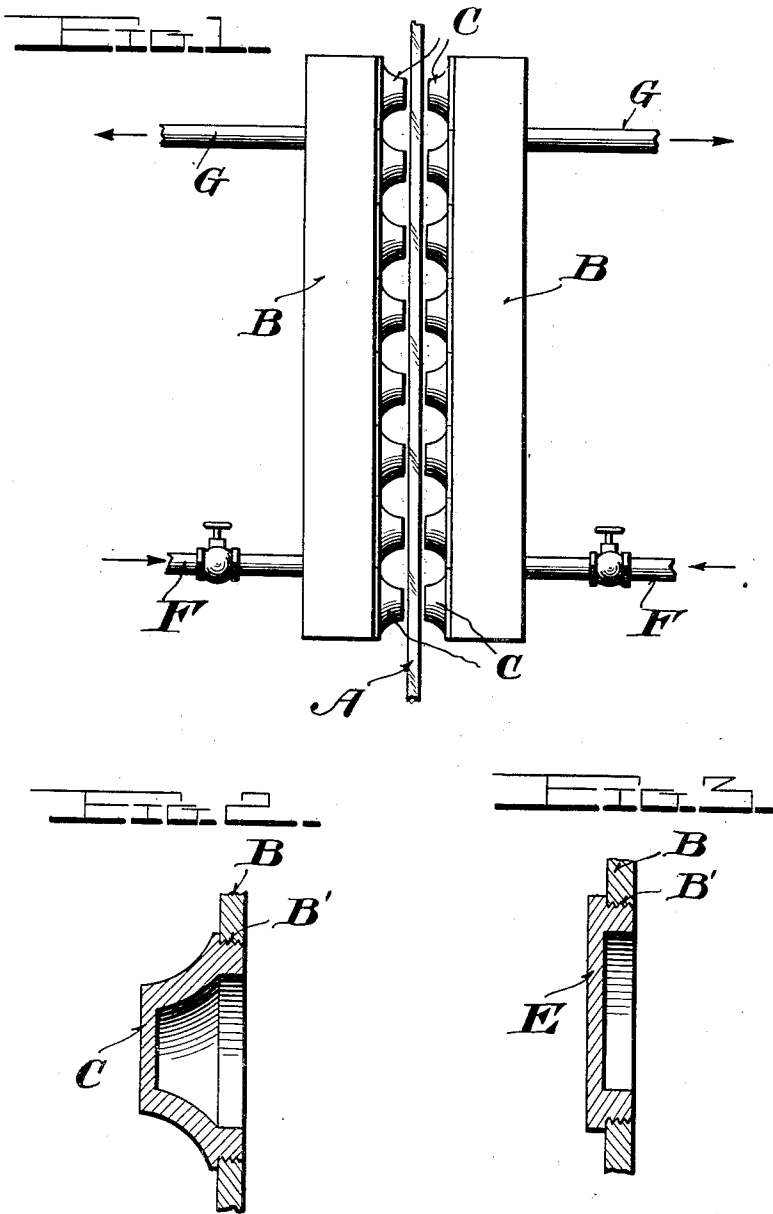
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H. LEBEL

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METHOD OF AND APPARATUS FOR TEMPERING GLASS SHEETS

Filed July 22, 1930



Inventor

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UNITED STATES PATENT OFFICE

HENRY LEBEL, OF PARIS, FRANCE, ASSIGNOR TO SOCIETE ANONYME DES MANUFACTURES DES GLACES & PRODUITS CHIMIQUES DE SAINT GOBAIN, CHAUNY & CIREY, OF PARIS, FRANCE

METHOD OF AND APPARATUS FOR TEMPERING GLASS SHEETS

Application filed July 22, 1930, Serial No. 469,745, and in France August 8, 1929.

It has been proposed to use a windshield for automobiles so tempered as to produce strain therein at selected points, whereby a selected and desired breaking pattern may be obtained, and it has been further proposed to use air jets directed on selected points on the heated sheet as a means of accomplishing the desired tempering. According to the present invention I propose to accomplish the desired tempering by radiation from the heated sheet onto a cooled metallic surface placed in proximity (preferably only at selected points), to the surface of the sheet, but not contacting therewith to thus avoid defacing the surface of the sheet.

For the purposes stated, my invention comprises both the method of tempering the sheet and an apparatus for carrying out such method as will be hereinafter described and claimed.

Referring to the accompanying drawing in which corresponding parts are designated by corresponding marks of reference,—

Fig. 1 is a side elevation partly in section of an apparatus embodying my invention and adapted to carry out the process here described.

Figs. 2 and 3 are details of parts to be used with the apparatus shown in Fig. 1.

A is a sheet of glass which has been uniformly heated to a temperature corresponding to that of the commencement of its softening, which for ordinary window glass will be in the neighborhood of 550° to 620° C. The sheet in this highly heated condition is placed between two cooled surfaces, but out of contact therewith. Under these conditions the surfaces of the sheet will lose heat by radiation to the cooled surface and this without impairing the finish of the glass surface. Each cooled surface is, by preference, one side of a suitable hollow box B, provided with induction and eduction pipes F and G, by which a cooling medium may be circulated through the box to remove the heat absorbing from the plate.

In order to locally chill the surface of the plate at desired points the face of the box adjacent the sheet has formed therein a series of apertures B—1 located at selected points

and threaded to receive hollow bosses C, projecting beyond the general level of the surface of the box. The tops of the bosses are thus brought into close proximity with the surface of the sheet whereby the selected chilling will be obtained. When it is desired to suppress the chilling adjacent to any boss, that boss may be removed and replaced by a filling plug E, not projecting so far from the surface of the cooled plate. In this way a selected chilling pattern may be obtained on the surface of the sheet; and hence the character of its burst determined.

Having thus described my invention what I claim as new and desire to secure by United States Letters Patent is:—

1. The hereinbefore described method of tempering glass sheets which comprises uniformly heating the sheet to a temperature close to its softening point and similarly chilling the opposite surfaces of the sheet while so heated by bringing such surfaces simultaneously into proximity to but out of contact with cool surfaces.

2. The hereinbefore described method of tempering glass sheets which comprises uniformly heating the sheet to a temperature close to its softening point and chilling the selected points on the surface of the sheet by bringing the same into proximity to but out of contact with cool surfaces.

3. In an apparatus for tempering glass sheets, the combination with oppositely disposed plates having bosses therein at selected points, of means for cooling the bosses and means for suspending a highly heated glass sheet between the bosses on the opposite plates.

In testimony whereof I hereunto affix my signature.

HENRY LEBEL.