

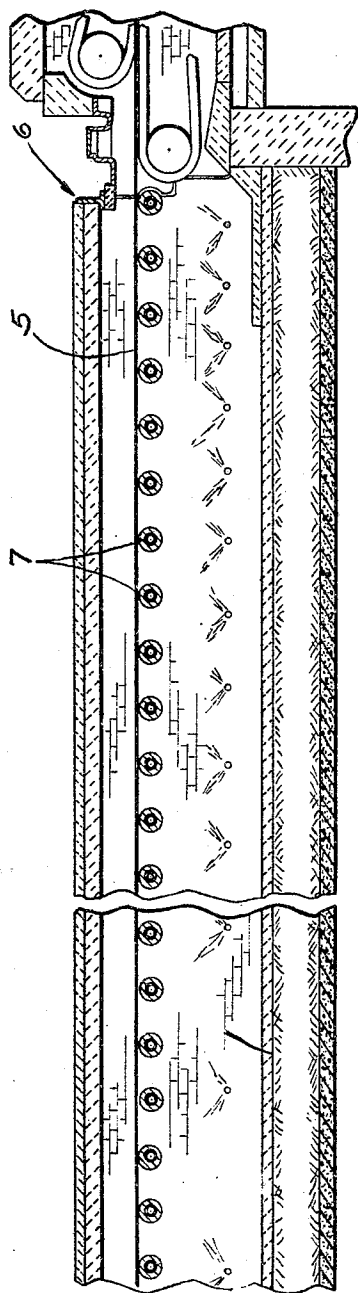
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J. L. DRAKE

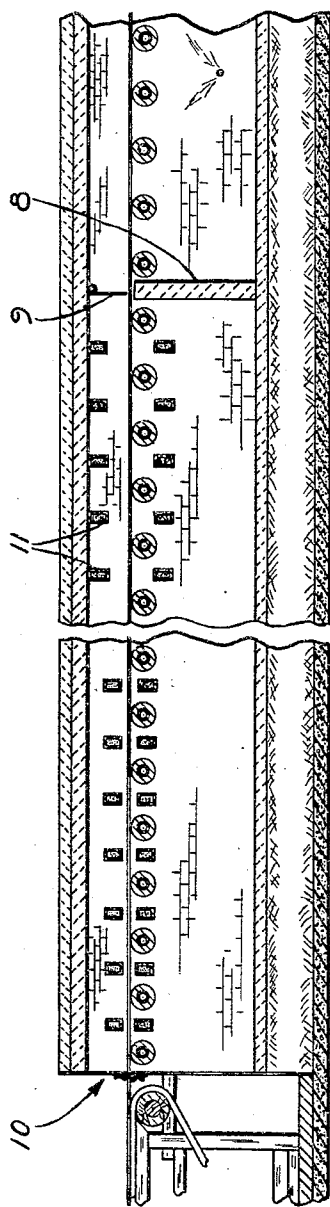
1,818,201

ANNEALING LEER

Filed Nov. 15, 1926



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ANNEALING LEER

Application filed November 15, 1926. Serial No. 148,405.

The present invention relates to an annealing leer.

An important object of the invention is to provide, in an annealing leer, means whereby the temperature within the leer can be accurately controlled.

Another object of the invention is to provide, in an annealing leer, means for heating one end thereof, and means for cooling the opposite end thereof.

A further object of the invention is to provide, in an annealing leer, means for controlling the temperature therein by suitable heating means until the ware being annealed has reached its critical point, and then providing means for rapidly reducing the ware to room temperature.

Still another object of the invention is to provide, in an annealing leer, heating means arranged at one end thereof, and a plurality of heat absorbing means arranged in the opposite end thereof, some of the heat absorbing means being disposed above the ware and some below said ware.

A further and important object of the invention is to provide, in an annealing leer, a plurality of heat absorbing means arranged progressively closer from one end thereof toward the other to absorb heat from the ware after it has passed its critical point of annealing, and rapidly reduce the same to room temperatures, thus permitting proper annealing in a relatively shorter leer than heretofore.

A still further object of the invention is to provide, in an annealing leer, means for absorbing heat from the ware without causing a draft therearound.

Other objects and advantages of the invention will become more apparent during the course of the following description.

In the drawings wherein like numerals are employed to designate like parts throughout the same,

Fig. 1 is a fragmentary vertical longitudinal section through the intake or hot end of my improved leer, and

Fig. 2 is a similar section through the cold or outlet end of said leer.

Although the present leer is not in any way

limited to use in the production of sheet glass, it has been illustrated in connection with such use, and I shall therefore describe the same as applied to a sheet glass machine.

The numeral 5 designates a sheet of glass which has been formed by any suitable mechanism. The numeral 6 designates the intake or hot end of the leer which may be formed from a suitable refractory brick material, metallic sections, etc. The sheet is preferably, although not necessarily, supported upon and conveyed through the leer by means of the rotatable rolls 7. The leer is divided preferably into two compartments by means of a wall 8 and an adjustable baffle 9, shown in Fig. 2. That portion of the leer arranged between the intake end 6 and the wall 8, I call the hot end, while that portion of the leer disposed between the wall 8 and the outlet end 10, I term the cold end.

Arranged in the hot end of the leer is a plurality of heating means 11, so arranged and so controlled that the sheet 5 is properly annealed. A sheet of glass is generally considered to have passed through its critical range when it gets below 750° Fahrenheit, although this point may vary on different types of ware, and it is to be understood, therefore, that I do not wish to limit myself specifically in this matter. The location of the wall 8 and the treatment of the sheet in the hot end is such that, after the sheet passes past the wall, it will have passed through its critical annealing range.

In the cold end of the leer, I have arranged a plurality of heat absorbing members 11, and as shown they are arranged relatively far apart at the front end of the cold portion of the leer, and are gradually arranged progressively closer until they are arranged very close to the sheet at the outlet end 10. By arranging the heat absorbing members 11 substantially as illustrated, it is possible to rapidly reduce the annealed sheet to room temperatures, thus permitting a shorter leer to be used than heretofore. Of course, the heat absorbing means 11 are preferably adjustably mounted so that the cooling action can be accurately controlled. Furthermore, the baffle 9 and wall 8 may be adjustably ar-

ranged within the leer so that the heat absorbing action of the members 11 can be applied to the sheet immediately after it has passed through its critical range but not before.

From the above, it will be seen that I have provided means for absorbing heat from glass ware in an annealing leer in a manner that no draft is created around said ware. Thus, the absorption of heat, although rapid, is uniform, and therefore the ware can be reduced to room temperatures very rapidly without injury thereto.

The heat absorbing members are preferably arranged transversely of the sheet as illustrated, and are adapted to have a cooling medium passed therethrough, such as air or water. The temperature of the medium can be controlled as can the proximity of the coolers to the ware so that an accurate and uniform treatment of the ware can be had.

It is to be understood that the form of the invention herewith shown and described is to be taken as the preferred embodiment of the same, and that various changes in the shape, size and arrangement of the parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Claims:

1. In sheet glass apparatus, an annealing leer, means for passing a sheet of glass therethrough, and a plurality of heat absorbing members arranged in said leer, the members being mounted transversely of the sheet and arranged progressively closer to said sheet as the exit end of the leer is approached.

2. In sheet glass apparatus, an annealing leer, means for passing a sheet of glass therethrough, and a plurality of heat absorbing members arranged in the leer and on both sides of the sheet, said members being mounted progressively closer to the sheet as the exit end of the leer is approached.

3. In sheet glass apparatus, an annealing leer including two compartments, means for passing the sheet through both of the compartments, and heat absorbing means arranged in one of the compartments and mounted progressively closer to the sheet as the exit end of the leer is approached.

4. In sheet glass apparatus, an annealing leer including two separate compartments, means for passing the sheet through both compartments, and a plurality of cooling means arranged in one of the compartments and being disposed on both sides of the sheet, said coolers being arranged progressively closer to the sheet as the exit end of the leer is approached.

5. In sheet glass apparatus, an annealing leer, means for passing a sheet of glass therethrough, and a plurality of heat absorbing members arranged in said leer, the members being mounted transversely of the sheet and

at least one of said member being arranged closer to said sheet than the other members.

6. In sheet glass apparatus, an annealing leer, means for passing a sheet of glass therethrough, and a plurality of heat absorbing members arranged in said leer, the members being mounted transversely of the sheet, the members near the exit end of the leer being arranged closer to said sheet than the members arranged remotely from the exit end of said leer.

Signed at Toledo, in the county of Lucas and State of Ohio, this 12th day of November, 1926.

JOHN L. DRAKE.