N. FRANZEN.

MACHINE AND METHOD FOR MAKING WIRE GLASS.

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1,135,937.

Patented Apr. 13, 1915.

FIG. 1

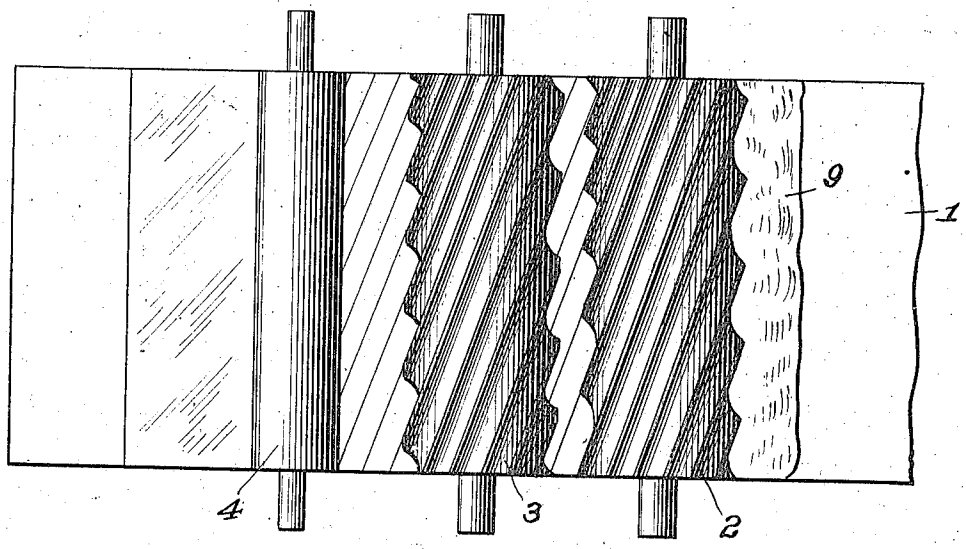
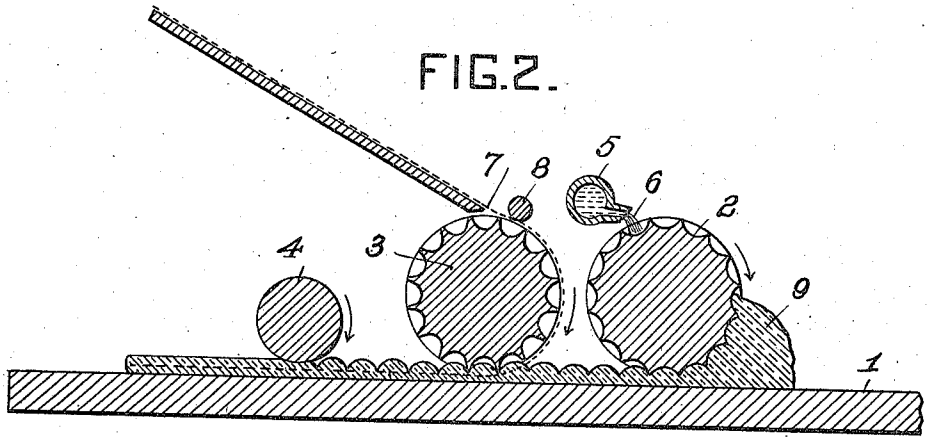


FIG. 2.



WITNESSES:

Francis J. Tomasson.

Louis G. Donata

INVENTOR

Nicklas Franzen

by Christy & Christy

Atty's

UNITED STATES PATENT OFFICE.

NICKLAS FRANZEN, OF FLOREFFE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO PITTSBURGH PLATE GLASS COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

MACHINE AND METHOD FOR MAKING WIRE GLASS.

1,135,937. Specification of Letters Patent. Patented Apr. 13, 1915.

Original application filed May 8, 1909, Serial No. 494,858. Divided and this application filed December 5, 1912. Serial No. 735,126.

To all whom it may concern:

Be it known that I, NICKLAS FRANZEN, residing at Floreffe, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Machines and Methods for Making Wire Glass, of which improvement the following is a specification.

The present application is a division of my pending application, Serial No. 494,858, filed May 8th, 1909.

My invention relates to the manufacture of wire glass by what is called the one pour operation, that is, the operation in which a single batch of molten glass is spread against a supporting surface to sheet form with wire incorporated within it. The object of my invention is to render this one-pour operation of greater practical value than it has heretofore been.

In the accompanying drawing, which forms part of my specification, and in which my invention is illustrated, Figure 1 is a plan view of my improved machine; and Fig. 2 is a longitudinal vertical section thereof.

Like numerals are used to designate like parts.

In the practice of my invention I form a layer of hot and plastic glass upon a suitable sustaining or forming surface, the exposed surface of the glass having protrusions preferably regular in form and extending substantially transversely of such layer; and I sink a web of wire through the body of such protrusions preferably to the bottom of the spaces or depressions between adjacent protrusions, without disturbing or distorting their form except in so far as they are cut by the wire which enters therein. In order to thus sink the wire through the body of the protusions, I preferably engage the web of wire at points spaced equal to their width so that the engaging means will, when sinking the wire through the protrusions, extend into the intervening spaces. Means are also provided for smoothing or otherwise surfacing the roughened surface of the glass after the wire has been sunk through the protrusions thereof.

The forming surface may, as illustrated in the drawing, be a plane faced table 1; the spreading of the glass into a corrugated faced sheet may be effected by means of a roll 2; the embedding of the web of wire into the protrusions or corrugations of such sheet may be effected by a second roll 3; and the final smoothing or surfacing of the sheet may be effected by means of a roll 4. The several rolls 2, 3 and 4, may be mounted in a suitable housing (not shown herein) and the table 1 moved relatively to said housing in a manner well understood by those skilled in the art.

The face of the sheet forming roll 2 is provided with corrugations which extend in a general longitudinal direction with relation to the axis of such roll, but which extend spirally about said axis. Adjacent to said roll 2 I provide a receptacle 5 for water or other fluid, which may be fed upon the surface of the roll by means of the wick 6, such surface moistening of the roll being desirable in order to form a film between the plastic mass of glass and the surface of the roll adjacent thereto, thereby preventing a cooling of the surface of the sheet of glass.

The wire embedding roll 3 is preferably of the same diameter as the roll 2, and the surface thereof is provided with corrugations of the same width and extending in the same direction as the corrugations of the roll 2. Preferably, however, the grooves in the roll 3 are deeper than those in the sheet forming roll 2. The rolls 2 and 3 are so arranged that the protrusions formed by roll 2, in the progress of the operation, register with and enter the grooves of roll 3; but, the protrusion on the surface of the glass being formed by the shallower grooves of the roll 2 will not fill the grooves of the roll 3. The surface of the sheet, therefore, will not be materially chilled or materially disturbed by roll 3 except in causing the wire to cut through the body of the protrusions and come to a position within the sheet approximately at the low points of the surface of the glass, between them.

The web of wire 7 is preferably fed over the face of the roll 3 as indicated in Fig. 2. In order to effect an accurate and satisfactory placement of the wire within the glass, the wire, as it is fed to the glass over the surface of the roll 3, is held under tension by means of a small roll 8. The web of

wire 7 is engaged simultaneously by the surfaces of the rolls 3 and 8 and is thereby held against free descent.

The surfacing roll 4 shown herein has a smooth face and is adapted to smooth the corrugated face of the glass.

It will be understood that the spirally corrugated roll 2 will spread a layer of glass with an obliquely corrugated surface, and that these corrugations by virtue of their oblique arrangement will come progressively beneath the surfacing roll 4. This is advantageous, in that the danger of having one of the ridges fold over into one of the troughs, and of entrapping air in folding over, is guarded against.

In the operation of the machine my improvement in methods is effected. A batch of molten glass 9, teemed upon the table 1, is spread to sheet form beneath the corrugated roll 2, the moistening of the surface of such roll preventing a chilling of the surface of the glass formed thereby. The layer so spread then comes beneath the corrugated wire-embedding roll 3, and the web of wire 7, engaged by the projections of said roll is sunk into the body of each protrusion to the bottom of the intervening depressions. The wire is thereby placed definitely into the surface of the glass within a minimum amount of contact between the wire embedding roll and the surface of the glass.

I claim herein as my invention:

1. The method herein described of making wire-glass which consists in, first, spreading a batch of molten glass to layer form with protrusions upon its surface, second, while maintaining such protrusions free from chilling contact with any instrumentality, sinking a web of wire through such protrusions by pressure localized and concentrated upon the web at intervals corresponding to the intervals between the successive protrusions, and, third, surfacing the layer.

2. In a machine for making wire-glass, the combination of a forming surface, means for spreading thereon a layer of glass with protrusions upon its surface, means for engaging a web of wire at intervals corresponding to the intervals between successive protrusions on such layer and, without chilling contact with said protrusions, pressing such web into such layer causing the wire to cut into the body of said protrusions, and means for surfacing the layer, substantially as described.

3. In a machine for making wire glass, the combination of a forming surface, a roll provided with corrugations extending continuously thereon from end to end, such roll arranged to coöperate with said forming surface and to spread thereon a layer of glass with ridges extending upon its surface continuously from edge to edge, a second corrugated roll whose corrugations correspond in space, width, and direction with the corrugations of said first named roll, said second corrugated roll also arranged to coöperate with said forming surface and to sink a web of wire through the ridges upon the surface of a layer of glass formed beneath said first named roll.

4. In a machine for making wire glass, the combination with a glass-sustaining surface, of a roll provided with continuous spiral corrugations coöperating with said surface to sink a web of wire into soft glass, and means for gradually closing from one end to the other the grooves formed in such surface, and covering the wire contained therein, substantially as described.

5. In a machine for making wire-glass, the combination with a forming surface, of two rolls arranged parallel one with the other and with the forming surface and spaced at intervals from the forming surface, the said surface on the one hand and the said rolls on the other being mounted and adapted for relative movement, the leading roll being spirally grooved and the following roll being ungrooved and spaced at a greater interval from the table than the outermost periphery of the leading roll, substantially as described.

In testimony whereof I have hereunto set my hand.

NICKLAS FRANZEN.

Witnesses:
FRANCIS J. TOMASSON,
PAUL N. CRITCHLOW.