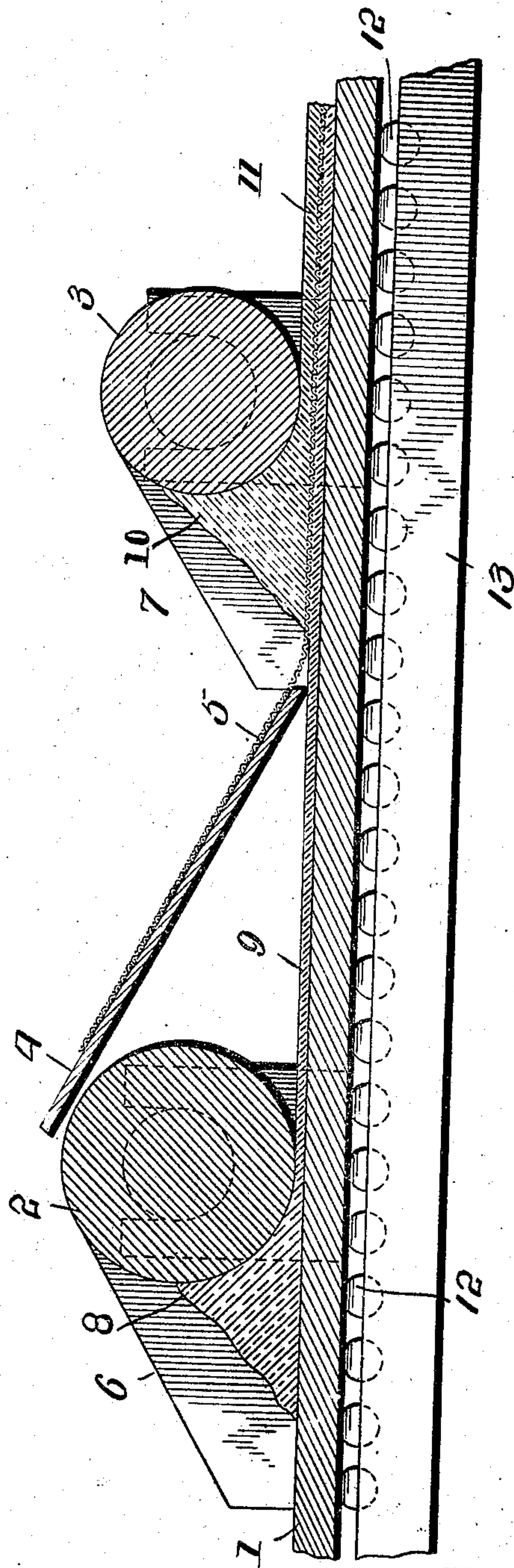


J. A. SWEARER & C. E. TOYNBEE.  
 APPARATUS FOR MAKING WIRE GLASS.  
 APPLICATION FILED JAN. 30, 1903.

915,805.

Patented Mar. 23, 1909.



WITNESSES

*W. F. Doyle*

*F. N. Barber*

INVENTORS

*James A. Swearer and  
 Charles E. Toynbee*

BY

*Wm L. Pierce* Attorney



# UNITED STATES PATENT OFFICE.

JAMES A. SWEARER, OF BEAVER, PENNSYLVANIA, AND CHARLES E. TOYNBEE, OF MORGANTOWN, WEST VIRGINIA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE MISSISSIPPI WIRE GLASS COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## APPARATUS FOR MAKING WIRE-GLASS.

No. 915,805.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed January 30, 1903. Serial No. 141,168.

*To all whom it may concern:*

Be it known that we, JAMES A. SWEARER, a citizen of the United States, residing at Beaver, in the county of Beaver and State of Pennsylvania, and CHARLES E. TOYNBEE, a citizen of the United States, residing at Morgantown, in the county of Monongalia and State of West Virginia, have invented or discovered new and useful Improvements in Apparatus for Making Wire-Glass, of which the following is a specification.

The figure shows in longitudinal section one form of apparatus for making wire-glass.

Our invention relates to the manufacture of glass with a wire netting or trellis embedded therein.

It has been proposed to start the first layer with the wire embedded in the top thereof, and then pour and roll the second layer on the first as soon as the leading roll has passed sufficiently far to permit the second pouring. The trellis is embedded in the first layer simultaneously with its formation and while this layer is still too fluid to support the trellis without its becoming embedded. To the first layer in substantially this condition the second layer is applied, the trellis being between the two layers of glass before either has become set or chilled to any appreciable degree.

In using our apparatus the trellis is not applied until the first layer will support it. We embed the trellis in the under side of the upper layer and apply the two to the set or chilled surface of the first layer.

In the drawing, 1 represents the casting bed; 2 the leading roll; and 3, the finishing roll.

4 is a chute for the trellis 5 and terminates a short distance behind the finishing roll 3. 6 and 7 are the usual knives or guides for the melted glass.

The operation is as follows: A batch of glass is poured behind the leading roll 2 at 8 and the table 1 is moved to the right, a sheet or layer 9 of glass being formed. A second pouring of glass is made at 10 behind the roll 3. When the advanced end of the sheet 9 reaches the second pouring the trellis 5 is introduced in front of the pouring and the roll 3 rolls out on top of the sheet 9 a second layer with the trellis embedded in the latter. The second layer with the trellis is not applied until the first layer is sufficiently hard to per-

mit the trellis to lie on its surface without being embedded therein or until after the first layer has been completed.

It is clear that the table may be stationary while the rolls with their knives and the chute may be movable.

It is to be noted that by our apparatus, the trellis is not exposed to the oxidizing action of the air after it has been assembled with the glass, as is the case where the trellis is embedded in the first layer by the leading roll. When the trellis is thus embedded with its upper incandescent surface exposed to the air in the space between the leading roll and the second pouring of glass, its upper surface is dark with scale and its life is burned out and its utility impaired. Furthermore, during the interval from the time the embedded trellis leaves the first roll until it arrives at the second pouring, the trellis becomes melted and as it enters the second pouring the melted metal smears the glass, rendering it unsightly and unmarketable. If the second pouring is made before the first layer is sufficiently hard, as is done when the second pouring is made as soon as possible after the leading roll has passed, the trellis will not be rigidly held in the first layer when the second layer is applied, the result being that the trellis is distorted and its level disturbed.

By stating that the first sheet must become sufficiently hard to support the trellis before the latter is applied thereon, it is not to be understood that the trellis may not to a slight degree be in the said sheet. It is essential only that the first sheet should be sufficiently hard to hold the trellis from becoming irregularly seated.

Having described our invention what we claim is:—

1. In an apparatus for making wire-glass sheets, a roll for rolling the lower portion of a sheet, a second roll behind the first named roll for rolling the upper portion of the sheet, a trellis chute between the rolls and located sufficiently far behind the first roll to feed the trellis upon the lower portion of the sheet after it has become hard enough to support the same, the chute being also arranged so as to direct the trellis into the lower part of the glass from which is formed the upper portion of the sheet at such a place as to be covered by the said upper portion



substantially as soon as it contacts with the said lower portion.

2. In an apparatus for making wire-glass sheets, a horizontal bed, a roll for rolling the lower portion of a sheet thereon, a second roll for rolling thereon the upper portion of the sheet, a chute so arranged as to direct the trellis into the upper portion of the sheet simultaneously with its formation, the chute and the second roll being separated so as to permit the first portion of the sheet to sufficiently harden to support the trellis before its application thereon so as to prevent the trellis from oxidation while in contact with the said lower portion.

3. In an apparatus for making wire-glass sheets, a roll for rolling the lower portion of a sheet, a roll for rolling thereon the upper portion of the sheet, a chute so arranged as to

feed a trellis upon the said lower portion of the sheet and into the bottom of the glass from which the upper portion of the sheet is formed simultaneously with its formation so as to prevent the trellis from oxidation while in contact with the said lower portion.

Signed by the said JAMES A. SWEARER at Beaver this 17<sup>th</sup> day of January, 1903, and by the said CHARLES E. TOYNBEE at Morgantown this 22nd day of January, 1903.

JAMES A. SWEARER.  
CHARLES E. TOYNBEE.

Witnesses for J. A. Swearer:

RICHARD R. HILL,  
HARRY D. ANDERSON.

Witnesses for C. E. Toynbee:

W. E. CHASE,  
SAMUEL GOODWIN.