

No. 844,115.

PATENTED FEB. 12, 1907.

E. FOURCAULT.
ROLLERS FOR DRAWING SHEETS OF GLASS.
APPLICATION FILED MAY 21, 1906.

Fig.1.

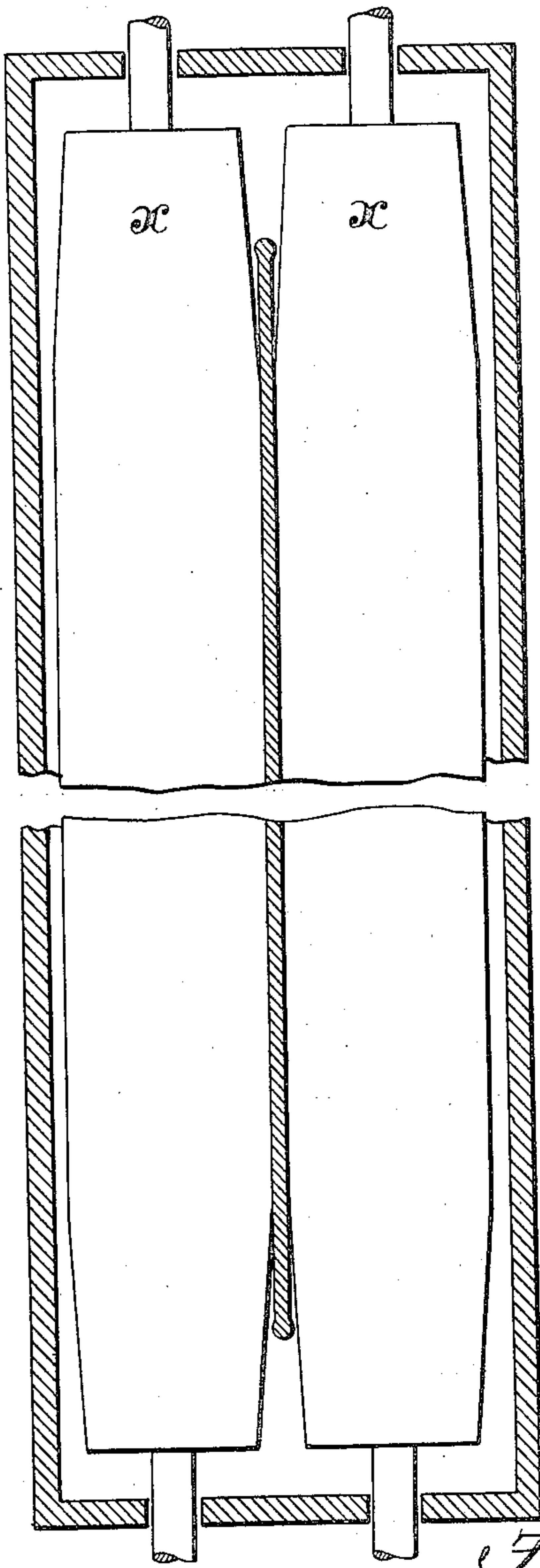


Fig.2.

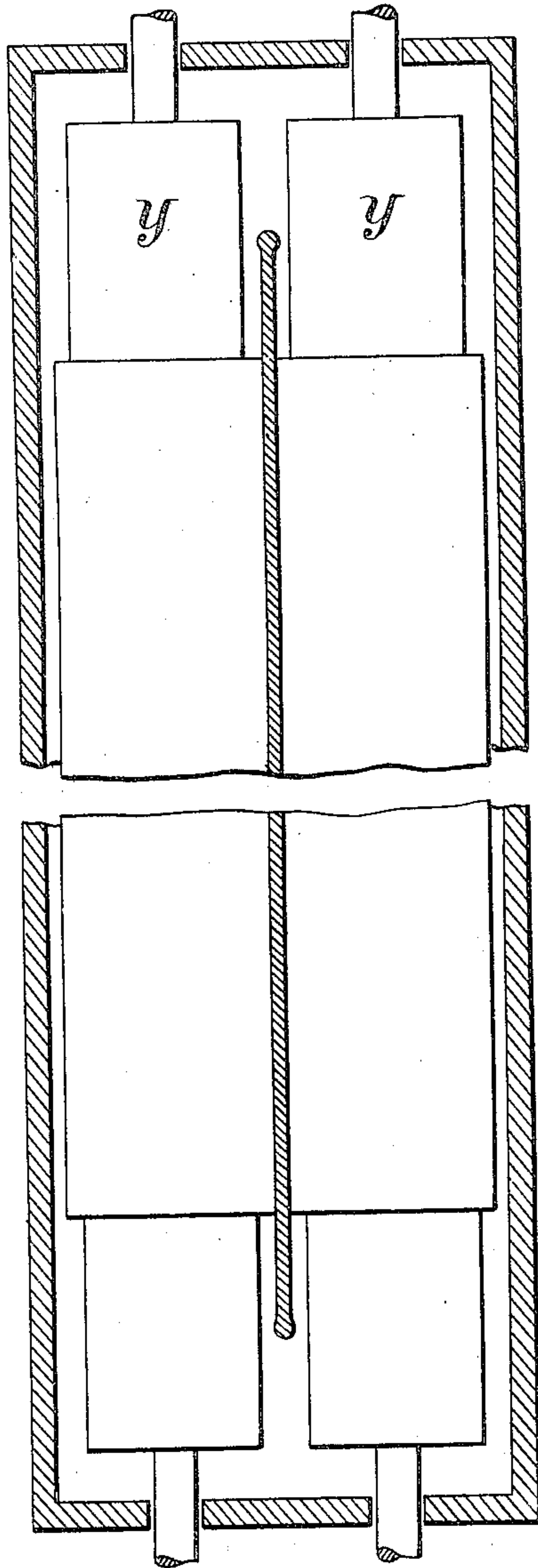
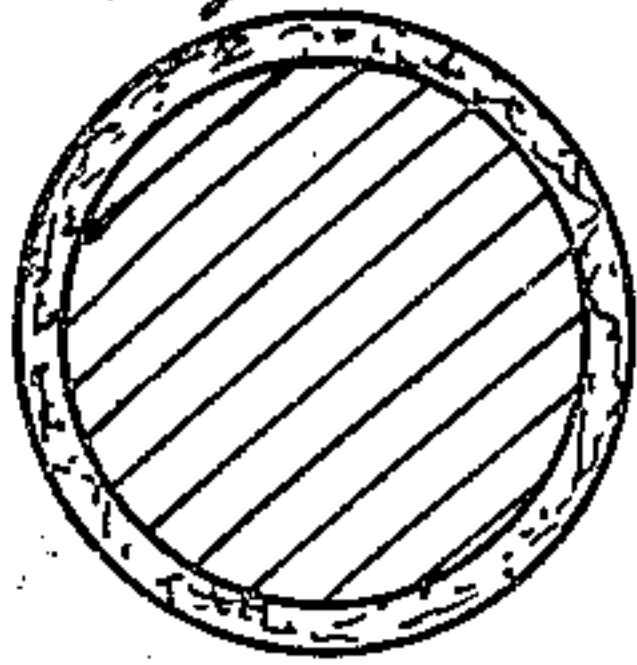


Fig.3.



Witnesses:

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EMILE FOURCAULT, OF LODELINSART, BELGIUM.

ROLLERS FOR DRAWING SHEETS OF GLASS.

No. 844,115.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed May 21, 1906. Serial No. 318,044.

To all whom it may concern:

Be it known that I, EMILE FOURCAULT, glass-manufacturer, subject of the King of Belgium, residing at Lodelinsart, Belgium, have invented certain new and useful Improvements in Rollers for Drawing Sheets of Glass, of which the following is a specification.

This invention has for its object rollers for drawing sheets of glass.

In the apparatus for drawing sheets of glass directly from a bath of molten glass the edges of the sheets obtained are provided with a swelling having greater thickness than the sheet. This swelling is produced because the edges of the sheet are formed with glass which is not so fluid as the glass forming the central part of the sheet and because the edges are cooled on three sides—i. e., on the two faces and on the edge—while the central part is only cooled on the two faces. The formation of this swelling is even provoked, being useful for insuring a good and regular formation of the drawn sheet, as these swellings constitute ribs which are more rigid than the rest of the sheet and which prevent the sheet from being contracted or creased in its width. The formation of the swellings presents a great disadvantage if the drawing is effected by sets of two asbestos rollers which are conjugated and movable the one with respect to the other, these sets of rollers being superposed in a vertical annealing and cooling casing. This disadvantage is very great, as this drawing process is indispensable for obtaining a continuous sheet of glass which is cut with a diamond when it comes out at the top of the annealing-casing, this process being the only practical one for obtaining mechanically sheets of glass. In these conditions the drawing-rollers come only into contact with the two edges of the sheet, and it is thus practically impossible to draw sheets of more than thirty centimeters in width. If larger, and consequently heavier, sheets are to be manufactured, the adherence between the rollers and the sheet is not sufficient for lifting the sheet, and the want of friction cannot be counterbalanced by an increasing of pressure without breaking the sheet. Cylindrical rollers the length of which is lower than the width of the sheet cannot be used, as the ends of the axis of the rollers passing through the casing would allow cold air to penetrate into the casing and to act directly on the edges of the sheet, cooling it suddenly.

The sheet thus obtained would break or could not be cut with a diamond. Furthermore, by this disposition in the middle part of the two little faces of the casing corresponding to the edges of the sheet two vertical conduits are formed, causing a draft of heat in these parts to the prejudice of the rest of the apparatus. The cooling and the annealing would not be equalized, and the sheet obtained would be very brittle.

The invention has for its object to guard against these disadvantages.

Figure 1 is a broken sectional view of the improved rollers, shown tapered at opposite ends. Fig. 2 is a similar view showing the rollers cylindrically reduced at opposite ends. Fig. 3 is a detail cross-sectional view of one of the rollers, showing an asbestos covering therefor.

The ends of the asbestos drawing-rollers are tapered or have a lesser diameter than the central part. The asbestos covering or surface of the rollers is indicated in detail by Fig. 3.

The ends x of the rollers shown by Fig. 1 are tapered, and the ends y of the rollers shown by Fig. 2 have less cylindrical diameter than the central or intermediate portions of the said rollers.

With such a disposition the two swellings do not come into contact with the rollers, which grasp the whole of the central part of the sheet.

The drawing-rollers act thus on the sheet with the maximum of adherence, allowing thus their pressure on the sheet to be reduced to the minimum. The end of the metallic axis of these rolls can be coated with a heat non-conducting material. The ends of the axis cannot thus act for cooling the ends of the sheet.

The circulation of the heat is lightly increased along the edges of the sheet or at a part of the sheet which requires more heat to render the annealing and cooling effective. It is known also that the small faces of the casing through which the sheet of glass is drawn have the tendency of cooling more rapidly than the larger faces, and by increasing the heat as set forth this disadvantage is obviated.

Having thus described and ascertained the nature of my invention and in what manner the same may be performed, I declare that what I claim is—

1. Rollers coated with asbestos for draw-

ing continuous sheets of glass, the ends of which have a lesser diameter than their central part, substantially as described.

2. Rollers for drawing sheets of glass having a coating and their ends of less diameter than the intermediate portions between the ends, the intermediate portions of the rollers being of uniform diameter.

3. Rollers for drawing sheets of glass having tapered ends, the intermediate portions of the rollers being of uniform diameter.

4. Rollers for drawing sheets of glass coated with asbestos and having tapered ends.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EMILE FOURCAULT.

Witnesses:

ARTHUR REGNIERS,
LEOPOLD BASTIRE.