

No. 844,398.

PATENTED FEB. 19, 1907.

L. A. PLATT & W. T. ABEL,

STAPLE FASTENER.

APPLICATION FILED JAN. 30, 1906.

Fig. 1.

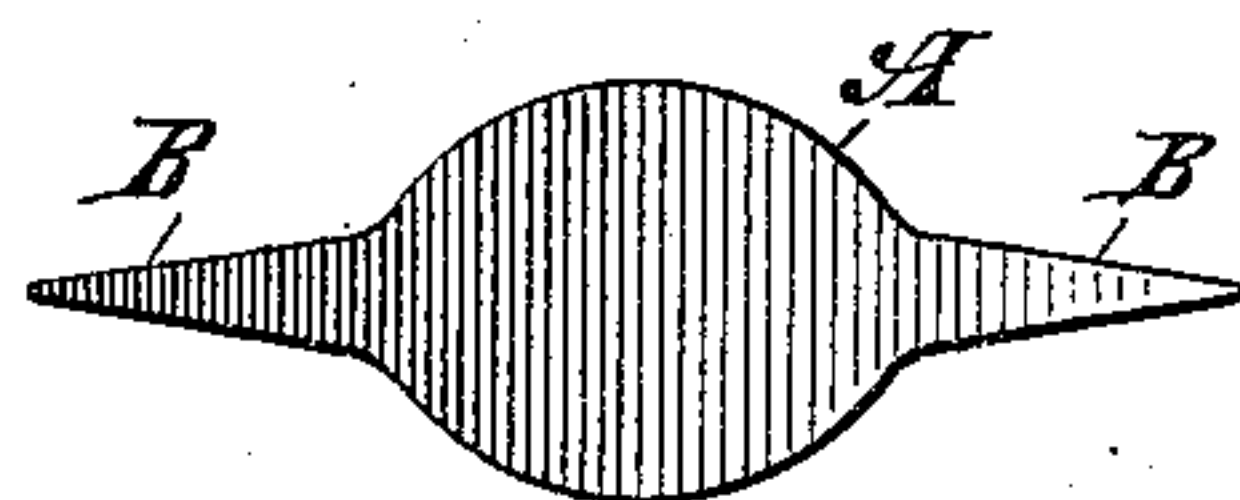


Fig. 2.

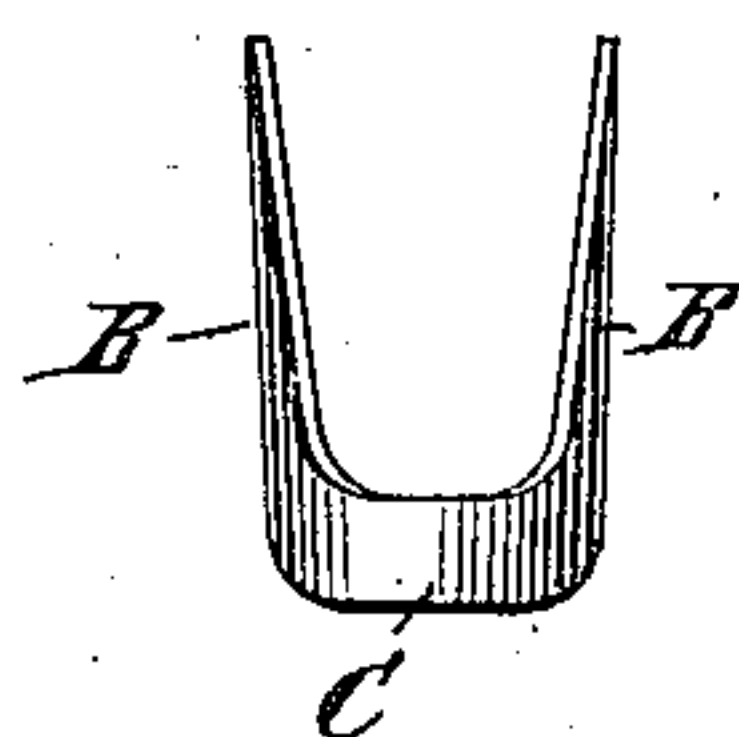


Fig. 3.

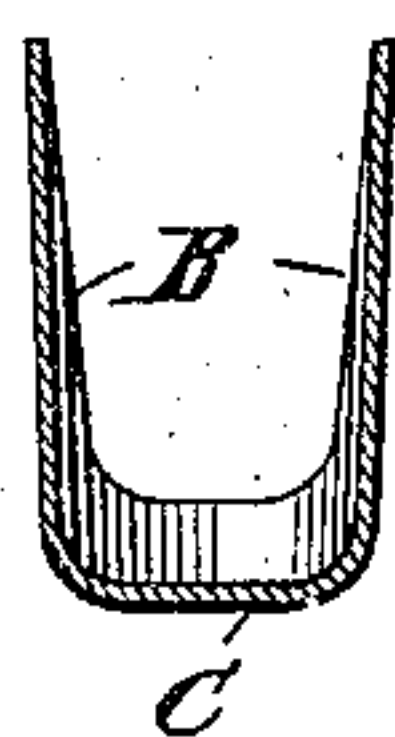


Fig. 4.

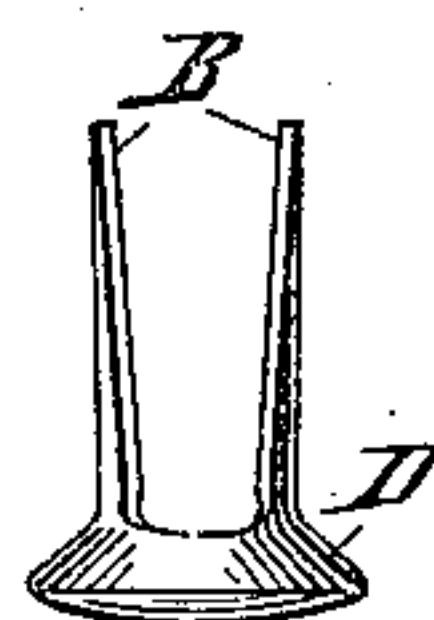


Fig. 5.

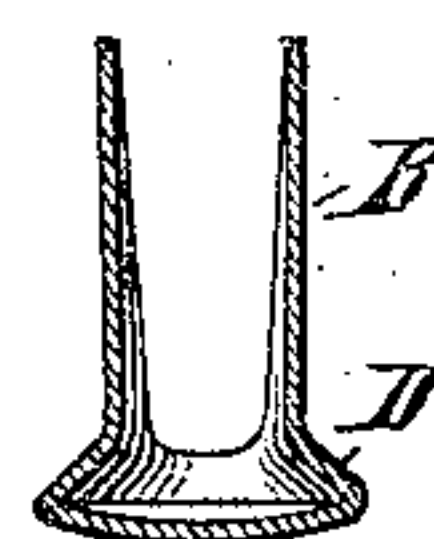


Fig. 6.

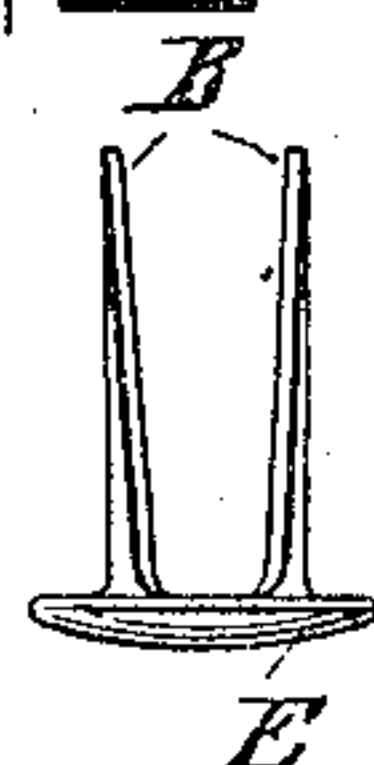


Fig. 7.

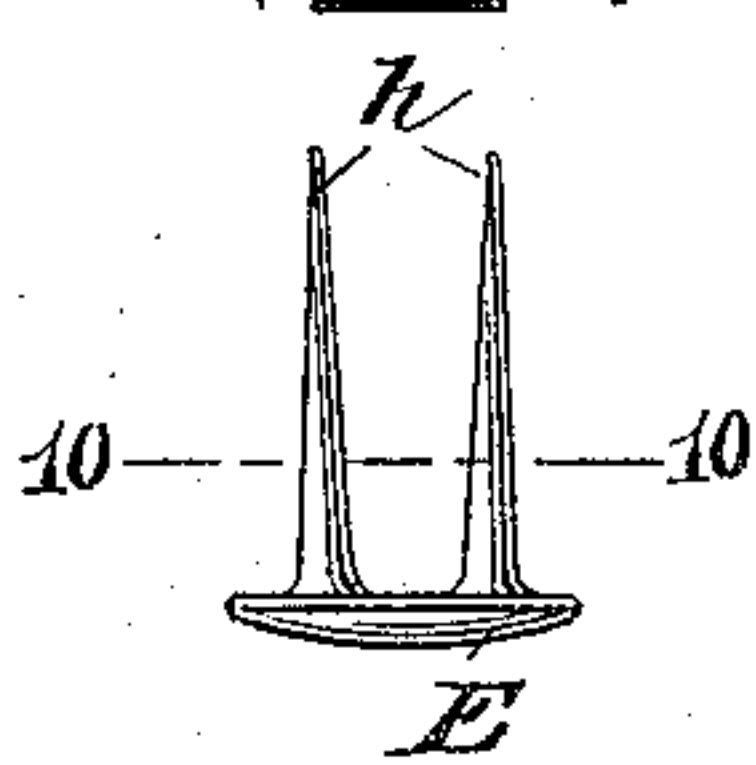


Fig. 8.

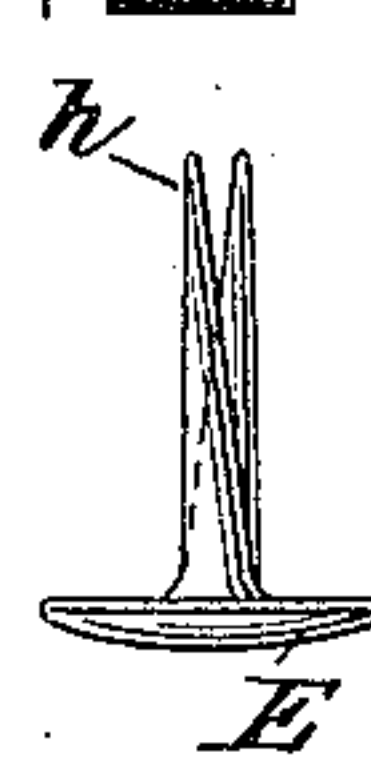


Fig. 9.

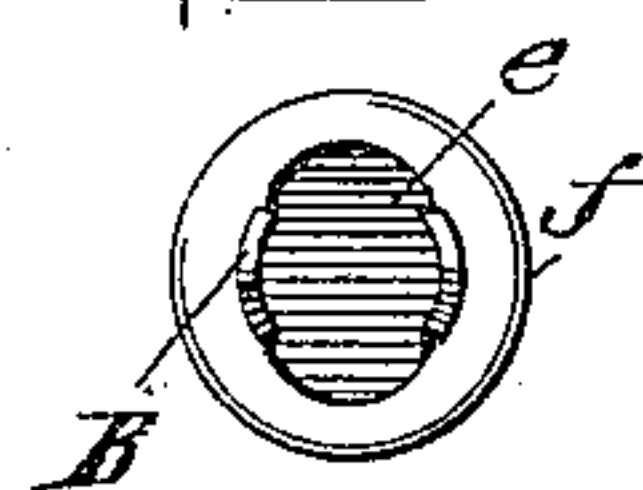
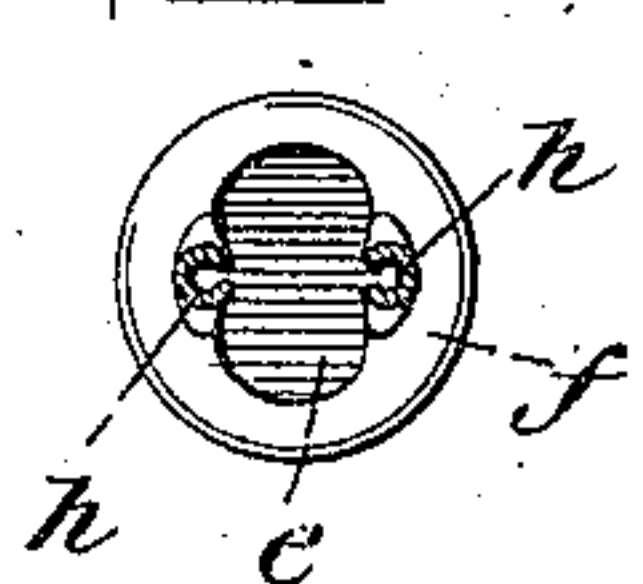


Fig. 10.



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F. L. O. WADSWORTH.
MANUFACTURE OF WIRE GLASS.

APPLICATION FILED JAN. 30, 1905.

2 SHEETS—SHEET 2.

FIG.3.

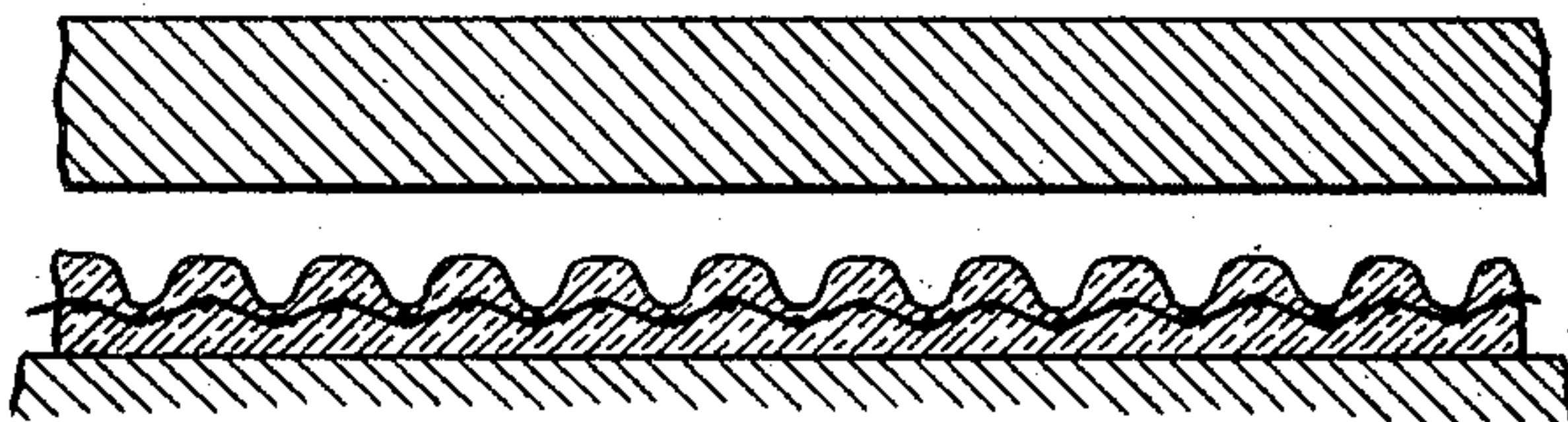


FIG.4.

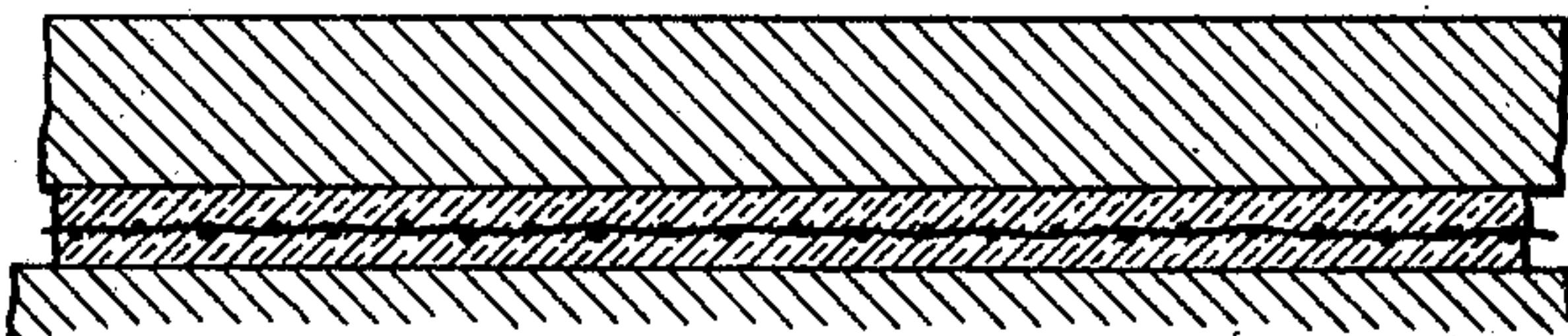


FIG.5.

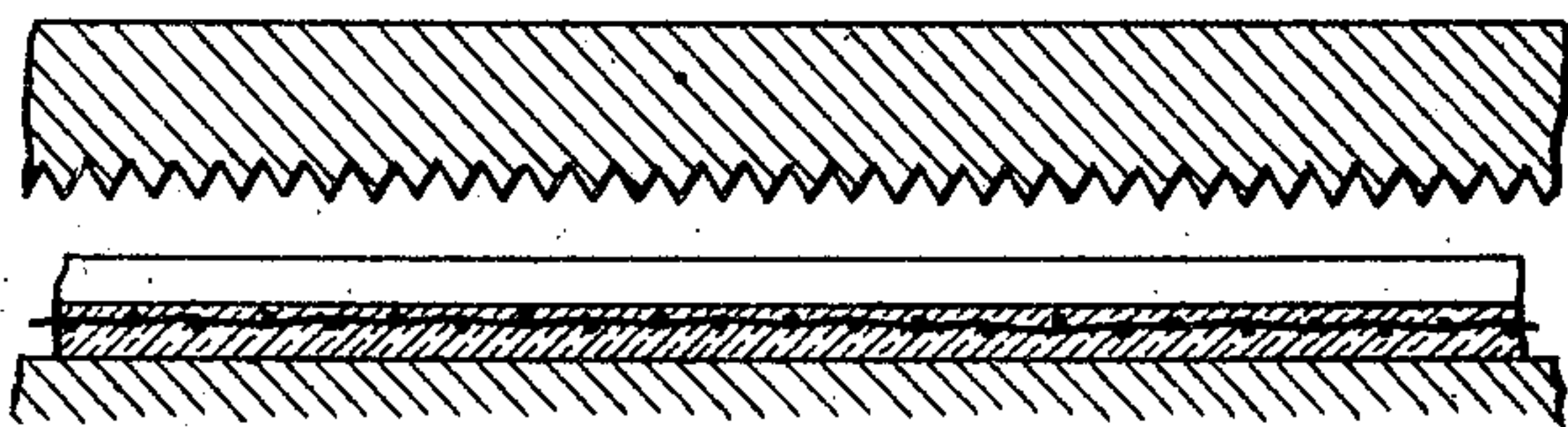


FIG.6.



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MANUFACTURE OF WIRE-GLASS.

No. 844,485.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed January 30, 1905. Serial No. 243,331.

To all whom it may concern:

Be it known that I, FRANK L. O. WADSWORTH, residing at Morgantown, in the county of Monongalia and State of West Virginia, a citizen of the United States, have invented or discovered a certain new and useful Improvement in Manufacture of Wire-Glass, of which improvement the following is a specification.

10 The purpose of my invention is to provide for the manufacture of wire-glass in one operation with a single layer or body of glass; and it consists in a new and improved method of attaining such results.

15 It has been attempted heretofore to make wire-glass by rolling the glass into the form of a sheet with a corrugated roll and by means of the corrugations on the roll forcing the wire mesh into the body of the sheet, a plain roll being employed to follow the corrugated roll and close the grooves formed by the corrugations. This method has been found to be unsatisfactory, because the second plain roll will not completely efface these
25 grooves.

I have discovered that the desired end may be attained with entire success by employing a corrugated roll for the purpose of embedding the wire mesh in the sheet and
30 then using a die or platen by which pressure is applied to the sheet for the purpose of flattening out the grooves or corrugations therein. This not only effaces the grooves formed by the corrugated roll and completely embeds the wire mesh in the glass, but it also causes the wire mesh, which was originally pressed into the glass by the corrugated roll in a somewhat wavy and irregular form, to assume a more even and substantially level
40 position. The compression of the glass between the dies also greatly reduces in both number and size the bubbles of gas which are apt to form along the surface of the wire mesh. I thus produce a sheet of wire-glass
45 which is not only better than those which are made by the use in succession of a corrugated and a plain roll, but is better than those made by other methods of manufacture.

50 This improved method is also particularly well adapted to the manufacture of prism wire-glass. This is accomplished by forming on the surface of the die or platen upon which the sheet is pressed a prism-pattern running

transversely to and preferably at right angles to the direction of the corrugations previously formed in the sheet by the roll. 55

In the accompanying drawings I have shown in Figure 1 a side elevation, partly in section, of an apparatus adapted to the practice of my improved method of manufacture. 60 Fig. 2 is a vertical cross-section on the line II II of Fig. 1, showing one end of the roll in section. Fig. 3 is a detail, on an enlarged scale, of the corrugated sheet containing the wire mesh in position under a smooth-surfaced pressure die or platen, and Fig. 4 shows the same sheet pressed to finished form under the platen. Fig. 5 is a detail, on the same scale, of a similar corrugated sheet in position under a prism-faced die or platen, but from a point of view at right angles to that of Fig. 3 in order to show the prism-face of the platen. Fig. 6 illustrates the finished sheet of prism wire-glass. 65

The apparatus illustrated in Figs. 1 and 2 75 is of the form which I prefer to employ for the practice of my improved method; but the invention is not limited in respect of the particular apparatus employed, since such may be modified or changed without material alteration or variation of the method itself. 80

Referring to the drawings, 2 is a table on which the body of plastic glass to be molded is placed. This table is mounted upon standards 4, adapted to be moved vertically, preferably by a cylinder 5 and intermediate connecting mechanism, which consists of a pitman 19, connected to the piston and also connected by levers 6 and rods 20 to shafts 21, which by levers 22 and links 23 are connected to vertical slides 24, by which the table is guided in its vertical motion. The cylinder has suitable fluid-supply connections, the rise of the table being effected by the admission of fluid and its descent being effected by gravity. The position of the table when at its lowest point is determined by an adjustable stop consisting, preferably, of an eccentric 7, which is adapted to be engaged by part of the connecting mechanism 6. 85 90 95 100

8 is a carriage on which a molding-plate 9 is mounted and is preferably backed yieldingly by springs 10, and on the carriage is the grooved or corrugated roll 11, which is rotated by suitable power connections 12. The carriage is capable of horizontal motion 105

to bring the roll 11 and plate 9 successively over the table 2, and for this purpose I may employ on the table driven pinions 13, which engage with stationary racks 14.

15 is the hopper, which forms a guide for the wire mesh 16.

The operation is as follows: The table 2 is set in its highest position by the eccentric 7, which has been adjusted by a handle 7' to secure the desired thickness of glass. The plastic glass is placed on the table between the usual guns 18, and the carriage is advanced so as to move the roll 11 over the glass and to spread it upon the table into a sheet, the corrugations of the roll 11 pressing the mesh 16 into the body of glass. Further advance of the carriage moves the roll beyond the table 2 and brings over the grooved glass the molding-plate 9. Then by actuating the cylinder 5 the table is raised, and the glass sheet is pressed thereby against the plate 9, and the grooves formed by the roll 11 are closed. The table is then lowered by reverse operation of the cylinder, and the stop 7 is adjusted so as to permit it to descend farther than the position which it occupied during the operation of the roll.

As already stated, the molding-surface of the plate 9 may be smooth, as shown in Figs. 3 and 4 of the drawings, or of the prism form. (Shown in Fig. 5.)

I am aware that it has been proposed heretofore to manufacture wire-glass by a method in which the wire mesh is first laid upon corrugations formed on the surface of the casting-table, the glass then poured thereon and rolled through the meshes of the wire and into the corrugations on the surface of the table, and the corrugated sheet is then moved to another portion of the table having a smooth surface and there compressed under a smooth-faced die or platen. In such process, however, the corrugated face of the sheet becomes so chilled from contact with the table and the delay incident to moving it from one point to another that it is practically impossible to satisfactorily close up the initially-formed grooves. In the practice of my invention the corrugated roll is in but momentary contact with each portion of the sheet, and any chilling tendency is therefore reduced to a minimum, and the rolling operation is immediately followed by the pressing operation without any transfer or disturbance of the sheet.

It is characteristic of my improved method

that by employing a flat or plane pressing surface the ribs formed in the glass by the rolls are caused to spread out laterally toward each other, and thereby completely cover the mesh and fill the spaces between adjacent ribs, whereas when a roller is used for flattening the ribs the glass in the ribs will flow mainly in the direction of movement of the roller and will not spread out laterally to a sufficient extent to completely cover the wire mesh or fill the spaces between adjacent ribs.

I claim herein as my invention—

1. The method of making wire-glass which consists in forming a sheet of plastic glass, simultaneously embedding the wire mesh therein and pressing the sheet between dies without moving it from its point of initial formation.

2. The method of making wire-glass which consists in forming a sheet of plastic glass, simultaneously embedding a wire mesh therein and pressing the sheet between dies having substantially flat or uncorrugated surfaces without moving it from the point of its initial formation.

3. The method of making wire-glass which consists in superimposing the wire mesh over a body of glass, passing a roller provided with ribs over the wire mesh and glass and thereby forcing the wire mesh below the upper surface of the glass, and then subjecting a substantial portion of the area of the surface of the glass to a pressure between dies, thereby effecting a substantial equal spreading of the ribs in all directions to form a substantially flat or plain surface on both sides of the sheet or plate.

4. The method of making wire-glass which consists in superimposing the wire mesh over a body of glass, flattening such wire-glass and forcing the wire mesh into the glass by passing a ribbed roller over the same and then subjecting a substantial portion of the area of the surface of the glass to pressure between dies having flat or uncorrugated surfaces thereby effecting a substantial equal spreading of the ribs in all directions to form a substantially flat or uncorrugated surface on both sides of the sheet or plate.

In testimony whereof I have hereunto set my hand.

FRANK L. O. WADSWORTH.

Witnesses:

CHARLES BARNETT,
HERBERT BRADLEY.