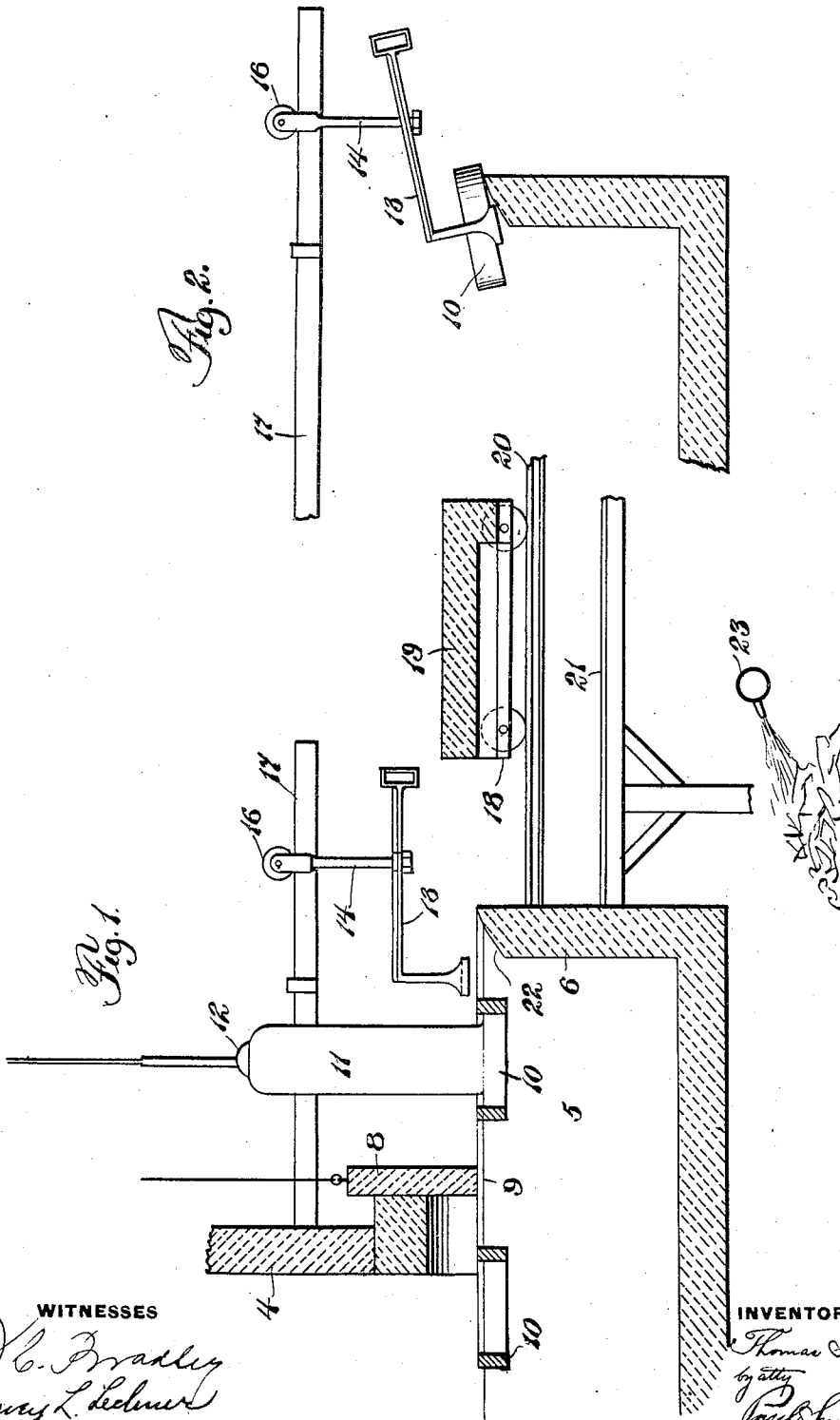


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 METHOD OF AND APPARATUS FOR DRAWING GLASS.
 APPLICATION FILED APR. 14, 1909.

962,925.

Patented June 28, 1910.

2 SHEETS—SHEET 1.



WITNESSES
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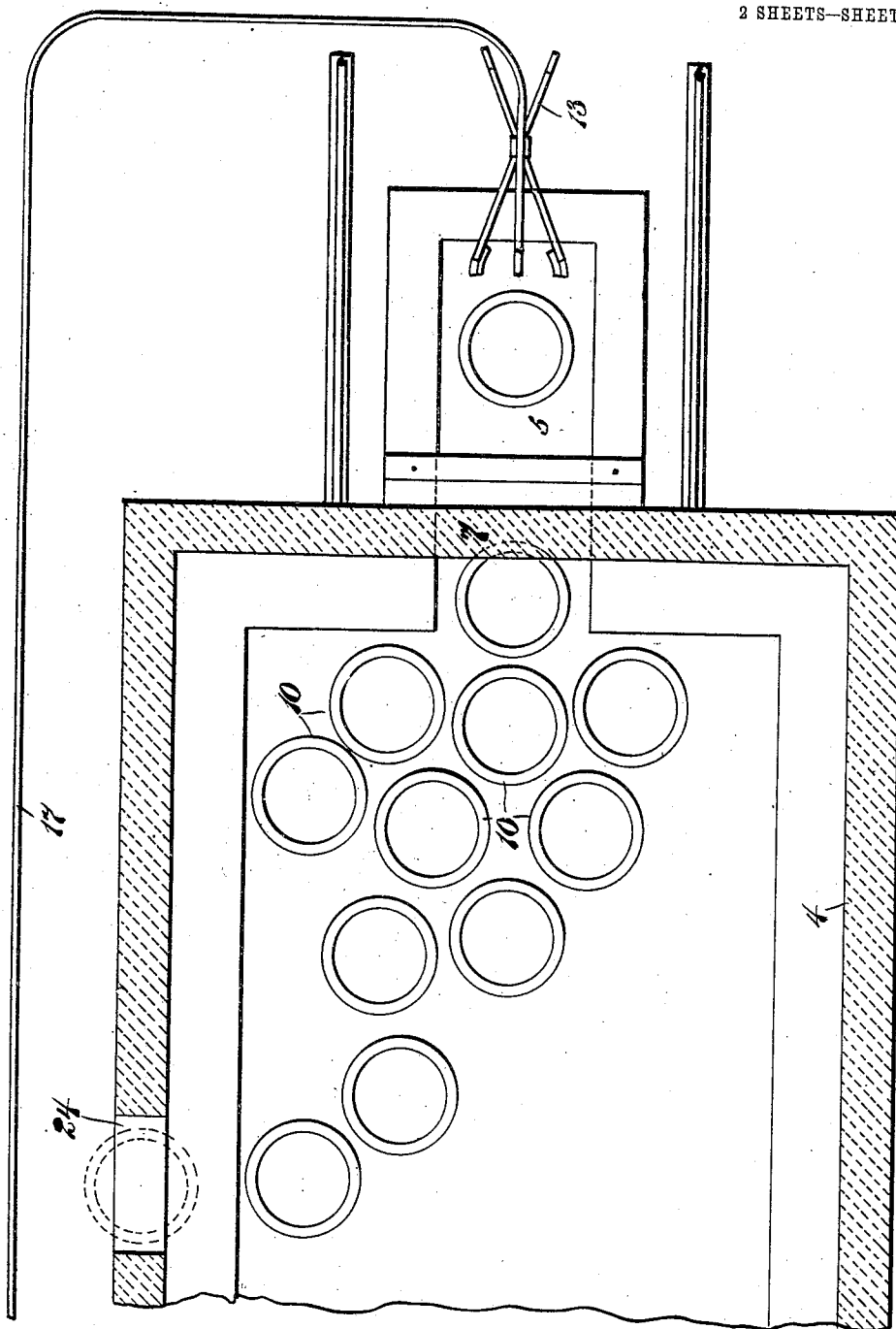


Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS SPILLANE, OF NEW BETHLEHEM, PENNSYLVANIA.

METHOD OF AND APPARATUS FOR DRAWING GLASS.

962,925.

Specification of Letters Patent. Patented June 28, 1910.

Application filed April 14, 1909. Serial No. 489,788.

To all whom it may concern:

Be it known that I, THOMAS SPILLANE, a citizen of the United States, residing at New Bethlehem, in the county of Clarion and State of Pennsylvania, have invented certain new and useful Improvements in Methods of and Apparatus for Drawing Glass, of which the following is a specification.

10 This invention has particular reference to an improvement in the method of and apparatus for drawing glass cylinders, such as are used in the manufacture of window glass particularly, where said cylinders are
15 drawn from a large body of glass in a furnace by the instrumentality of a furnace extension or drawing chamber, or, as it is sometimes commonly termed, a "dog house."

20 It has been found in the manufacture of cylinders of this character where the residue or portion of glass remaining after the cylinder has been severed from the body of the glass is melted down again preparatory to
25 the drawing of another cylinder, that there is thus in time a deterioration in the quality of the glass, because there is generally not sufficient heat available at the point where the remelting has to be done, to bring the
30 glass back to the proper condition, or if sufficient heat be applied then it takes too long a time to cool it down again to a proper temperature for the drawing operation.

In order to overcome the difficulty referred to it has generally been found necessary in practical operation to draw cylinders or articles from a small quantity of glass ladled out into a pot or receptacle, after which the remains in the said receptacle are melted out and thrown again into
40 the furnace with the supply batch.

In my invention I endeavor to overcome the difficulties referred to and still secure the advantages of drawing the cylinder or glass
45 article directly from the main body of glass, by the use of a furnace projection or drawing chamber, and in order that my invention may be better understood I have illustrated the same in preferred form in the
50 accompanying drawing, wherein—

Figure 1 is a sectional view showing a portion of the apparatus in elevation, indicating the drawing portion of a furnace and some of the mechanism employed;

55 Figure 2 is another view on a similar

plane, indicating some of the apparatus in a different position, and

Figure 3 is a plan view of a larger part of the furnace, indicating the location of certain of the parts during the progress of the
60 method employed.

Referring now more particularly to Figure 1 it will be seen that I have therein indicated a glass furnace 4 having a furnace extension or drawing receptacle commonly
65 known as a dog house, marked 5, the outer wall whereof is indicated at 6, and which as shown has communication with the main body of the furnace through an opening in the wall 4, said opening extending at
70 above the surface of the glass and being provided with a rising and falling shade or gate 8 suspended by suitable mechanism, so that it can be manipulated as required. The surface of the body of glass is indicated at
75 9, and floating in said glass are a plurality of draw rings 10 which may be of any preferred or usual construction.

One ring 10 I have shown in position in the furnace extension just below the drawing
80 apparatus which may be constructed in any suitable manner, and within said ring I have indicated a cylinder 11 partially formed by upward movement of the bait 12 which also may be of usual construction
85 with air supplied to the same as is required.

As a means for raising and carrying the rings 10 I have shown a pair of tongs 13 suspended at their pivotal point by a rod 14 which is hung on the trolley 16 and may
90 be operated from any convenient place adjacent the furnace. The trolley 16 that is arranged to travel on a track 17 for a purpose that will be later more fully explained.

Adjacent the furnace I provide a car 18
95 on which may be mounted a suitable hood 19 designed to be placed over the furnace extension or dog house, to cover it if desired at any time, the car 18 being supported upon rails 20 upon a frame-work 21.
100

The outer wall 6 of the furnace extension is arranged with a peculiar sloping upper surface indicated at 22, the object whereof is to permit the ring 10 after the cylinder has been severed from the body of the glass,
105 to be drawn laterally by means of the tongs 13. The ring carries with it the remnants of the cylinder or the part of the glass which is left after the cylinder is severed, such remaining portion resting within the ring,
110

which is thus by means of the ring dragged over the edge or the sloping surface 22, when the major portion of such remaining irregular glass will drop from the ring into the pit below the frame-work 21 where it can be calcined or cooled by means of water supplied through a suitable pipe 23, and can be afterward used again with the batch in the rear of the furnace.

The ring 10 having thus been removed, it is carried by the tongs 13 and the trolley 16 around on the track 17 to an opening 24 at one side or the other of the furnace, called the clearing or melting part, and placed in the furnace through said opening 24, where the heat of the furnace is very much greater than it is where the drawing is taking place, and where any such remnant of glass as adheres to the ring will be immediately melted off and reunited with the body of glass in the furnace. By employing a large number of rings 10 as shown there will always be a certain number of them grouped around the opening 7 as indicated in Figure 3, in position to be drawn out for use in the drawing of a new cylinder. It will be evident that as fast as one ring 10 is removed the slide 8 may be raised and another ring 10 drawn through the opening 7 into position above the furnace extension 5, after which the slide 8 is lowered into the position shown in Figure 1 and another cylinder drawn, when the operation above described is repeated. It will be observed in my arrangement the entire upper surface of the furnace extension or drawing chamber can, if desired, be left exposed ordinarily or while the drawing is taking place and thus the temperature be kept down to within the limit where the best formation of glass takes place, and that it is not necessary at any time to disturb the condition of this mass from which the cylinders are drawn, by increasing the temperature thereof in the way of reheating the remnants or tailings of the cylinder so as to reduce them to a smooth state for another draw.

It will also be evident that with the removal of each ring a certain portion of the glass is also taken from the chamber 5, and this tends to keep the supply in good condition, and said portion is not a serious loss, because a large amount of old glass or cullet must be used in connection with a new batch all the time, in accordance with the well recognized and accepted practice well known to those skilled in the art. The making of the drawing tank 5 or dog house with an open top instead of a top with a drawing opening therein as in the old practice, also involves decided advantages in that (1) the

condition of the glass may be more readily observed and its cooling to the proper temperature regulated and controlled, and (2) the surface of the glass is more readily accessible for skimming preliminary to the drawing of a cylinder. Other advantages incident to the method and apparatus will be apparent to those skilled in the art.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:

1. The herein described method of drawing glass articles, which consists in drawing an article from a ring in a large body of glass, severing the article after it is drawn from the said body of glass and permitting the residue to drop back into the ring, and then withdrawing the ring with said residue therein laterally along the surface of the glass and out of the furnace.

2. The herein described method of drawing glass articles, which consists in drawing an article from a ring in a large body of glass, severing the article after it is drawn from the said body of glass and permitting the residue to drop back into the ring, then withdrawing the ring with said residue therein laterally along the surface of the glass and out of the furnace, and bringing new rings carried by the glass successively into position for the drawing of other articles from the glass contained with the body.

3. An apparatus for drawing glass articles from a body of glass, comprising in combination rings from which the article is drawn, and means for removing said rings laterally from the body of glass after the drawn articles are severed from said body of glass, said means for withdrawing the rings including a sloping outer wall.

4. An apparatus for drawing glass articles from a body of glass, comprising in combination, rings from which the articles are drawn, means for removing said rings laterally from the body of glass together with the glass therein after the drawn articles are severed from said body of glass, and means whereby these rings may be returned to the body of glass at a point remote from that at which drawing occurs, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

THOMAS SPILLANE.

Witnesses:

HARVEY L. LECHNER,
ARCHWORTH MARTIN.