

No. 709,724.

Patented Sept. 23, 1902.

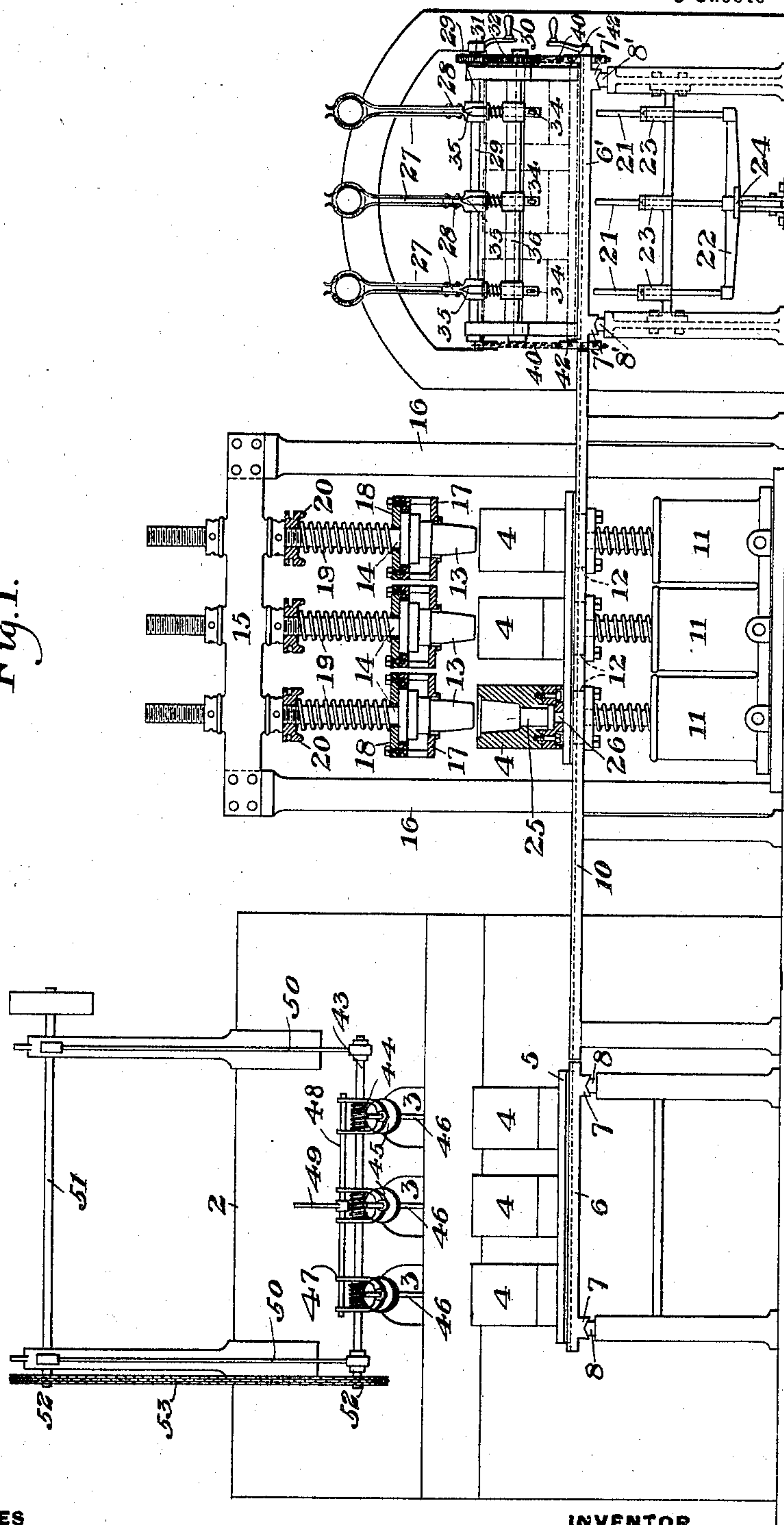
D. C. RIPLEY.
GLASS SHAPING APPARATUS.

(Application filed May 10, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



WITNESSES

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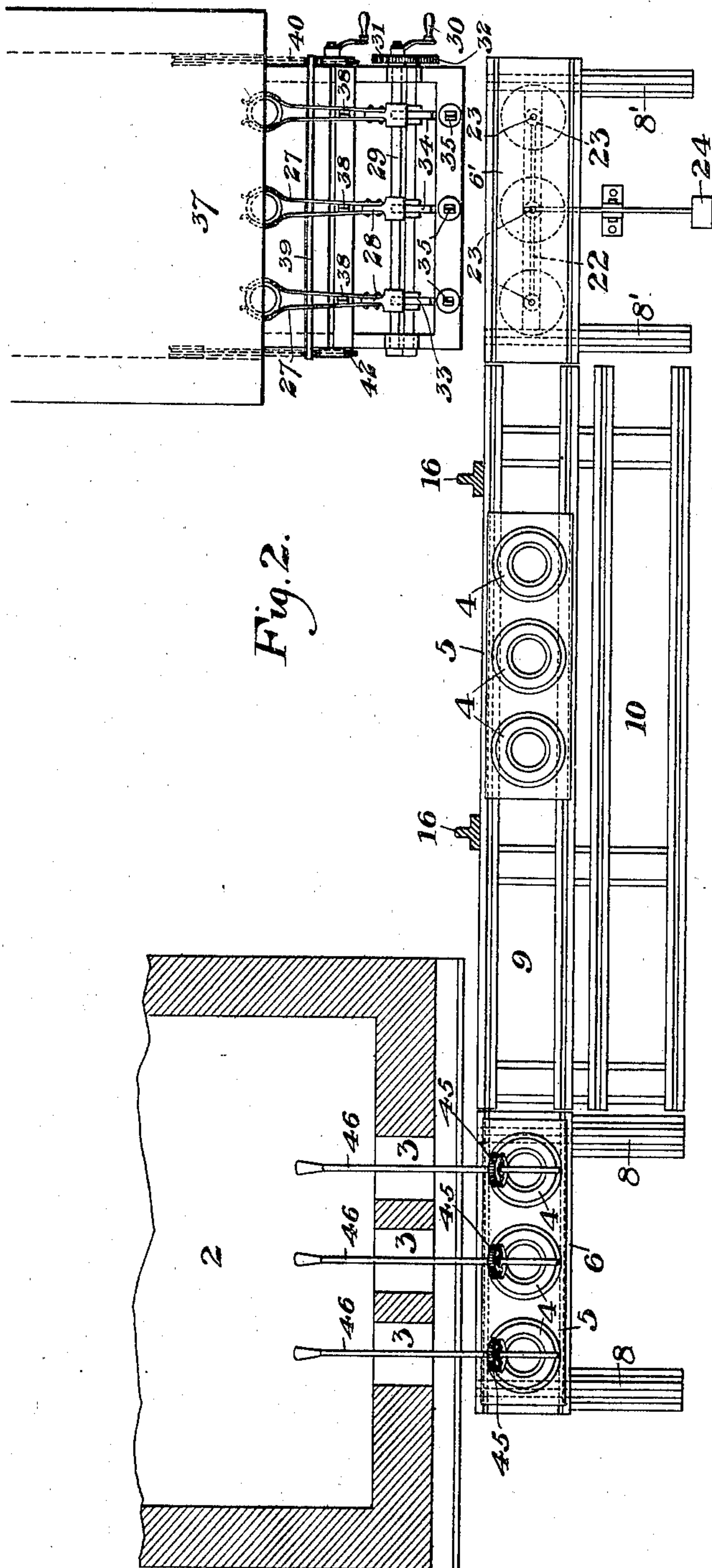


Fig. 2.

WITNESSES

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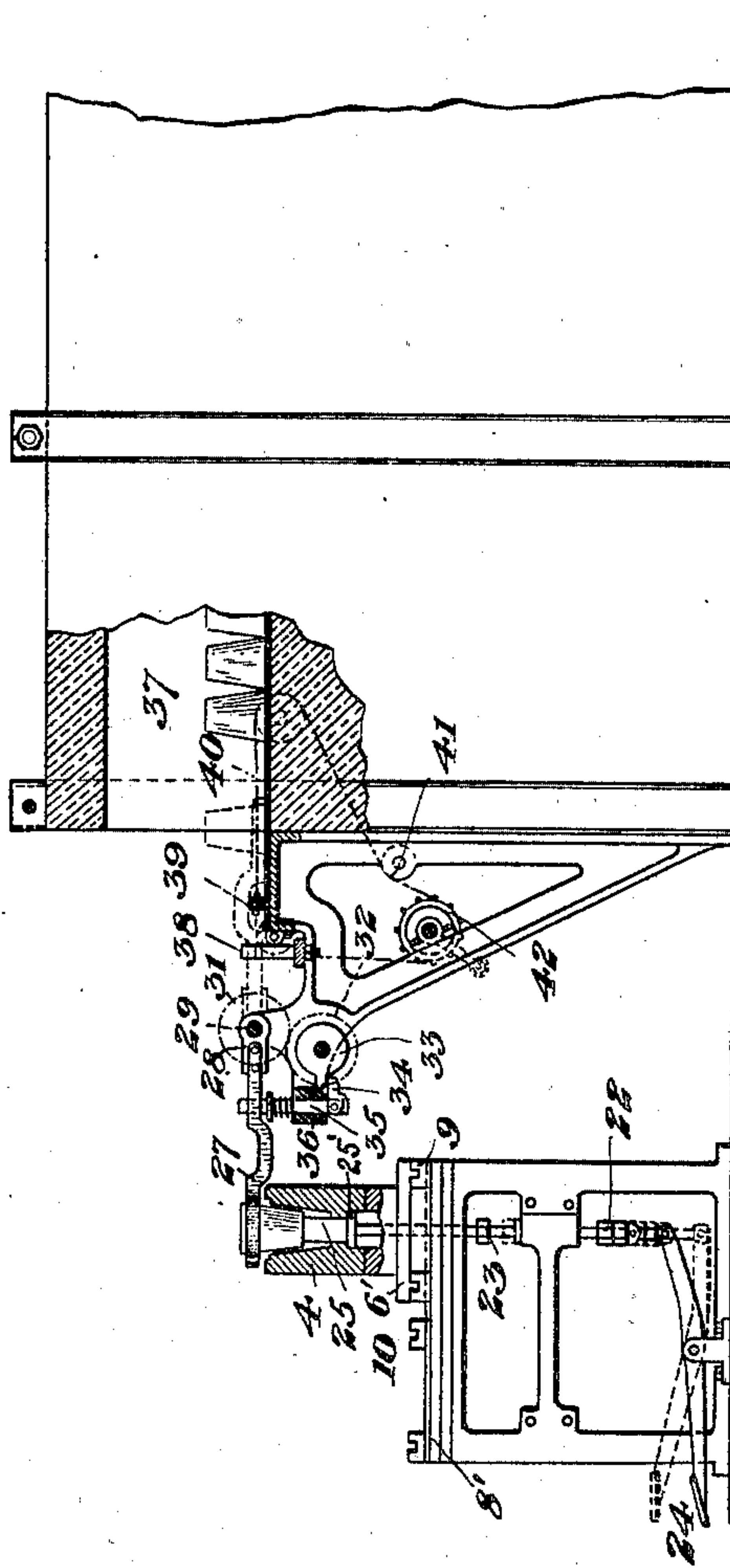
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(No Model.)

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Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

DANIEL C. RIPLEY, OF PITTSBURG, PENNSYLVANIA.

GLASS-SHAPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 709,724, dated September 23, 1902.

Application filed May 10, 1902. Serial No. 106,734. (No model.)

To all whom it may concern:

Be it known that I, DANIEL C. RIPLEY, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Glass-Shaping Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation, partly in section, of a glass-shaping apparatus constructed in accordance with my invention. Fig. 2 is a plan view of the same, partly broken away; and Fig. 3 is a sectional elevation at the leer end of the system.

My invention relates to the forming of glass articles, preferably by pressing, and is designed to provide an improved system or apparatus wherein the molds may be supplied with glass, transferred to a pressing or shaping station, and then returned to the filling-station.

In the drawings, in which I show my invention in connection with the improved gathering device set forth in my Patent No. 697,886, granted to me on April 15, 1902, 2 represents a glass-melting furnace having gathering-holes 3 in its side. Beneath these holes I show a group of three molds 4, of which any desired number may be used, these molds being mounted on a sliding support 5, having shoes which rest upon track-sections 6. The track-sections 6 form part of a frame having transverse lower shoes 7, which travel upon rails 8, extending substantially at right angles to the shoes of the mold-support. Two tracks 9 and 10 extend from the gathering-station in parallelism, and at the other end of these tracks is provided another movable track-section 6', formed as part of a frame having transverse shoes 7', which travel upon transverse rails 8'. At an intermediate point of the inner fixed track is a pressing-station. I show at this station lower motive cylinders 11, the plungers of which are provided with upper disks 12, arranged to move between the track-rails and force the molds 4 upwardly. Above each mold is a plunger 13, mounted on a stem 14, extending through and adjustably secured to a cross-bar 15, carried on supports 16. The mold-ring 17 for each mold is carried on a cage 18, arranged to slide

upon the stem of the plunger against the action of a spiral spring 19, the upper end of which rests against an adjustable follower 20. After the articles are pressed the molds are lowered upon their support, which is then moved upon the track-section 6', where the articles are ejected. For lifting the articles from the molds I show a series of vertical pins or rods 21, secured to a lower cross-head 22 and moving through guides 23. A foot-lever 24 is arranged to force the pins upwardly. Each mold 4 is provided with an ejecting-plug 25, having a lower enlarged portion 25', which is guided within an enlarged bore in the mold. The pins 21 move up through holes 26 in the lower ends of the molds and force the plugs upwardly, thus lifting the articles, which are then seized by swinging clamps 27. These clamps are preferably formed of spring-arms secured in pairs to levers 28, projecting from a horizontal rock-shaft 29. The shaft is rocked by a crank 30, which is provided with a pinion 31, intermeshing with a similar pinion 32 upon a lower shaft having cams 33. These cams are arranged to engage swinging latches 34, pivoted to the lower ends of vertically-sliding spreaders or splitters 35, which slide in bearings in a cross-support 36. The spreaders are spring-pressed upwardly and have wedge-shaped upper ends. As the operator swings the clamps in the position shown in full lines in Fig. 3 the spreaders open the clamps and allow them to surround the elevated articles. The operator then reverses the movement of the crank, and thus draws the spreaders down against the action of their springs, allowing the clamps to engage the articles. As he continues this movement the arms of the clamps are oscillated vertically, thus carrying the articles over until they reach the position shown in dotted lines in Fig. 3 within the mouth of a leer 37 upon the leer-pan or other support. As the swinging clamps reach the position shown in dotted lines in Fig. 3 they are engaged by stationary spreaders 38, which disengage the clamps and release the articles. After the clamps are swung back the articles may be pushed along within the leer by a sliding cross-bar 39, actuated by endless sprocket-chains 40, movable over wheels 41

and over driving-wheels 42. The clamp-arms are preferably bent upwardly to allow passage of this bar for shifting the article. When the articles have thus been removed, the track-section 6' is moved into alinement with the outer track 10, and the mold-frame is moved back along the track 10 to the end next to the gathering-station. It is then taken upon the movable track-section at this end and moved into the position shown in Fig. 2.

In the gathering-machine shown 43 is a shaft carrying a series of worms 44, meshing with worm-wheels 45, formed on or fixed to the gathering-irons 46. These gathering-irons are held in brackets 47, mounted on a shaft 48, and are provided with a handle or pilot 49. The shaft 43 is supported on the end of a frame 50, which is journaled concentrically to a driving-shaft 51, from which motion is communicated by sprockets 52 and a chain 53 or otherwise to the shaft 43. The workman by means of the handle 49 can swing the frame 50 so as to introduce the gathering-irons into the glass tank or pot and when the glass has been gathered thereon can withdraw them and swing them out directly over the molds 4, into which the glass is dropped. The molds are between the position of the operator and the gathering-hole, so that no skill is required in filling them.

In operating the apparatus the gathering and feeding of one set of molds may be carried on while the glass is being pressed in another set, the operation thus going on continuously.

The advantages of my invention result from the doing away with the necessity for skilled labor and from the large output which may be obtained.

The tracks may extend in any desired direction, the molds may be returned on a higher or lower track instead of a track at one side, or overhead carriers may be provided for the molds, the gathering apparatus may be changed, and many other variations may be made in the form and arrangement of the apparatus within the scope of my invention.

I claim—

1. A furnace, a gathering-station adjacent thereto, a track extending from the gathering-station to a pressing-station, and means for returning the molds to the gathering-station; substantially as described.

2. In glass-shaping apparatus, a gathering-station, a pressing-station having pressing apparatus, press-molds, a track extending between the gathering-station and pressing-station, and another track for returning the molds to the gathering-station; substantially as described.

3. In glass-shaping apparatus a group of molds, a support therefor, a gathering-station having gathering apparatus, a pressing-station having pressing apparatus, and mechanism for transferring the support from the

gathering to the pressing station, and vice versa; substantially as described.

4. In glass-shaping apparatus, a support having a group of molds thereon, a gathering-station having gathering apparatus, a pressing-station, and an ejecting-station, mechanism for transferring the molds from the gathering-station successively to the pressing and the ejecting station, and mechanism for returning the molds to the gathering-station; substantially as described.

5. In glass-shaping apparatus, a gathering-station, a plurality of tracks extending therefrom to a pressing-station, and a movable track-section at the gathering-station arranged to be brought into alinement with either track; substantially as described.

6. In glass-shaping apparatus, a pair of tracks, a movable track-section at each end of the tracks, glass-molds supported upon the tracks, and a pressing-station along one of the tracks; substantially as described.

7. In glass-shaping apparatus, a gathering-station having gathering apparatus, a pressing-station, an ejecting-station, mechanism for transferring the molds between said stations, and ejector mechanism arranged to lift the articles from the molds; substantially as described.

8. In glass-shaping apparatus, a furnace having a gathering-hole, a mold beneath the gathering-hole and between it and the operator's station, a glass-shaping station having shaping apparatus, and mechanism for transferring the filled mold from the gathering-station to said shaping-station; substantially as described.

9. The combination with a glass-furnace having a gathering-hole, of gathering apparatus, a mold beneath the gathering-hole and between it and the operator's station, a glass-shaping station having shaping apparatus, and mechanism for transferring the filled mold from the gathering-station to the shaping-station; substantially as described.

10. A glass-mold, an ejector arranged to lift the article therefrom, a clamp, and mechanism for causing the clamp to engage the article and for moving the clamp; substantially as described.

11. In glass-shaping apparatus, a leer, a glass-mold, an ejector for the mold, a clamp arranged to seize the article lifted by the ejector, and mechanism for moving the clamp to deposit the article in the leer; substantially as described.

12. In glass-shaping apparatus, a mold, an ejector therefor, a leer having an entrance-opening, a swinging clamp arranged to seize the article lifted by the ejector, and mechanism for swinging the clamp and opening it to deposit the article at the leer-entrance; substantially as described.

13. In glass-shaping apparatus, a glass-mold, a leer, mechanism for transferring the article from the mold to the leer-opening, a pusher arranged to move the articles longi-

tudinally into the leer, and connections for actuating the pusher; substantially as described.

14. A glass-mold, an ejector therefor, a movable clamp, mechanism for moving the clamp, an opening device, and mechanism for disengaging the opening device to allow the clamp to seize the article; substantially as described.

15. A glass-mold, a lifter for the article, a separate swinging clamp device, a leer, mech-

anism for swinging the clamp to bring the article to the leer-opening, and mechanism for disengaging the clamp; substantially as described.

In testimony whereof I have hereunto set my hand.

DANIEL C. RIPLEY.

Witnesses:

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H. M. CORWIN.