

No. 703,325.

Patented June 24, 1902.

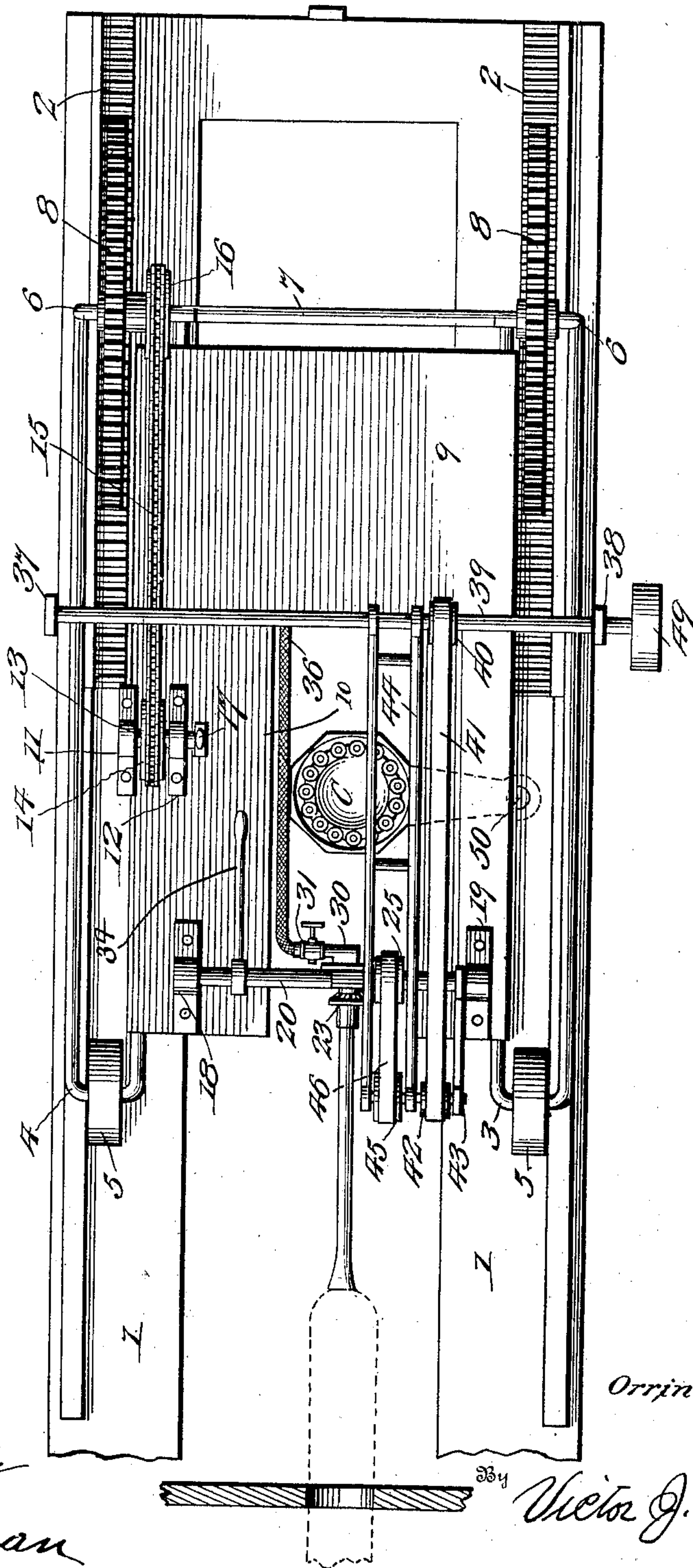
O. E. WALTON.  
MACHINE FOR BLOWING GLASS.

(Application filed Oct. 18, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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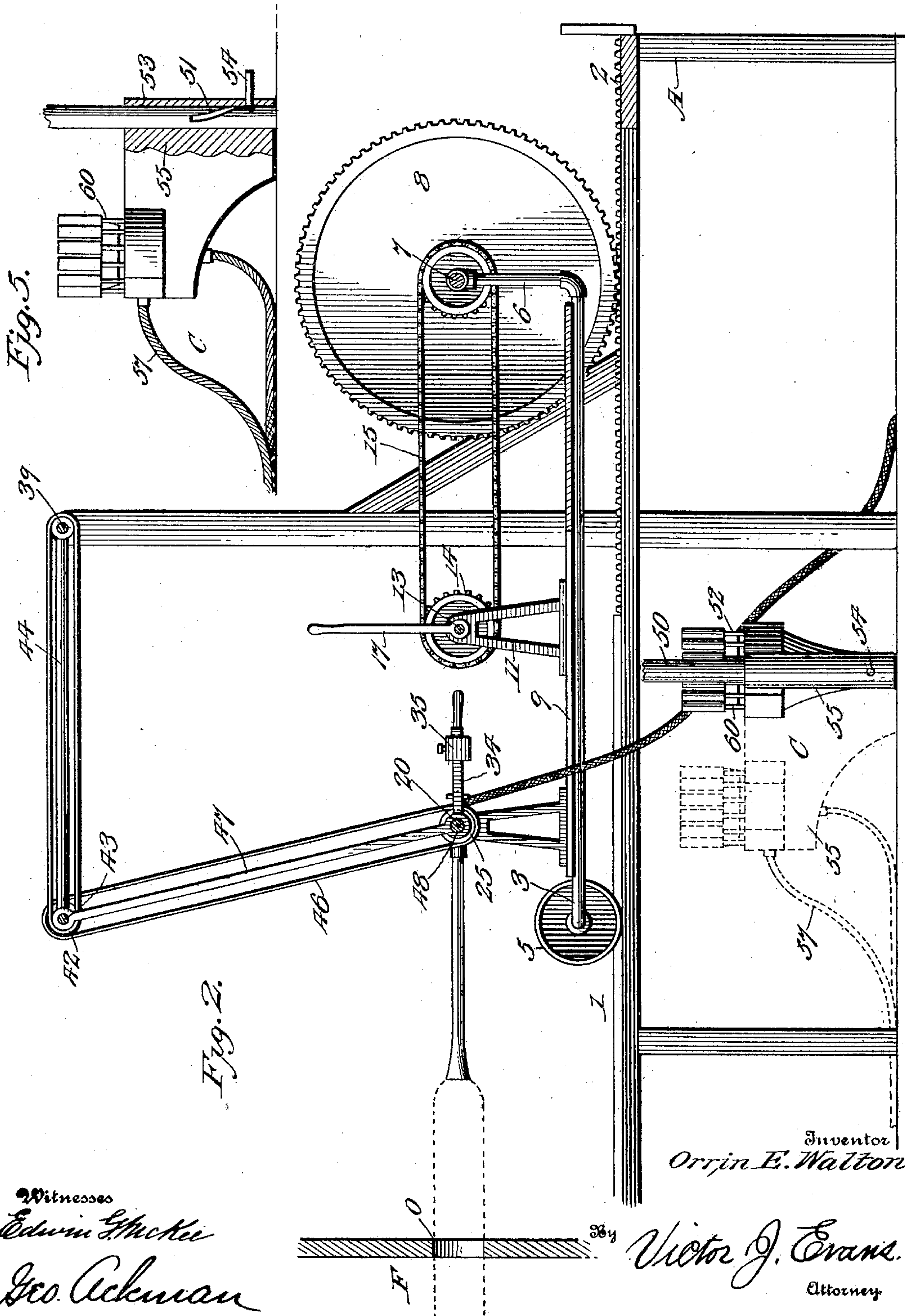
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Fig. 4.

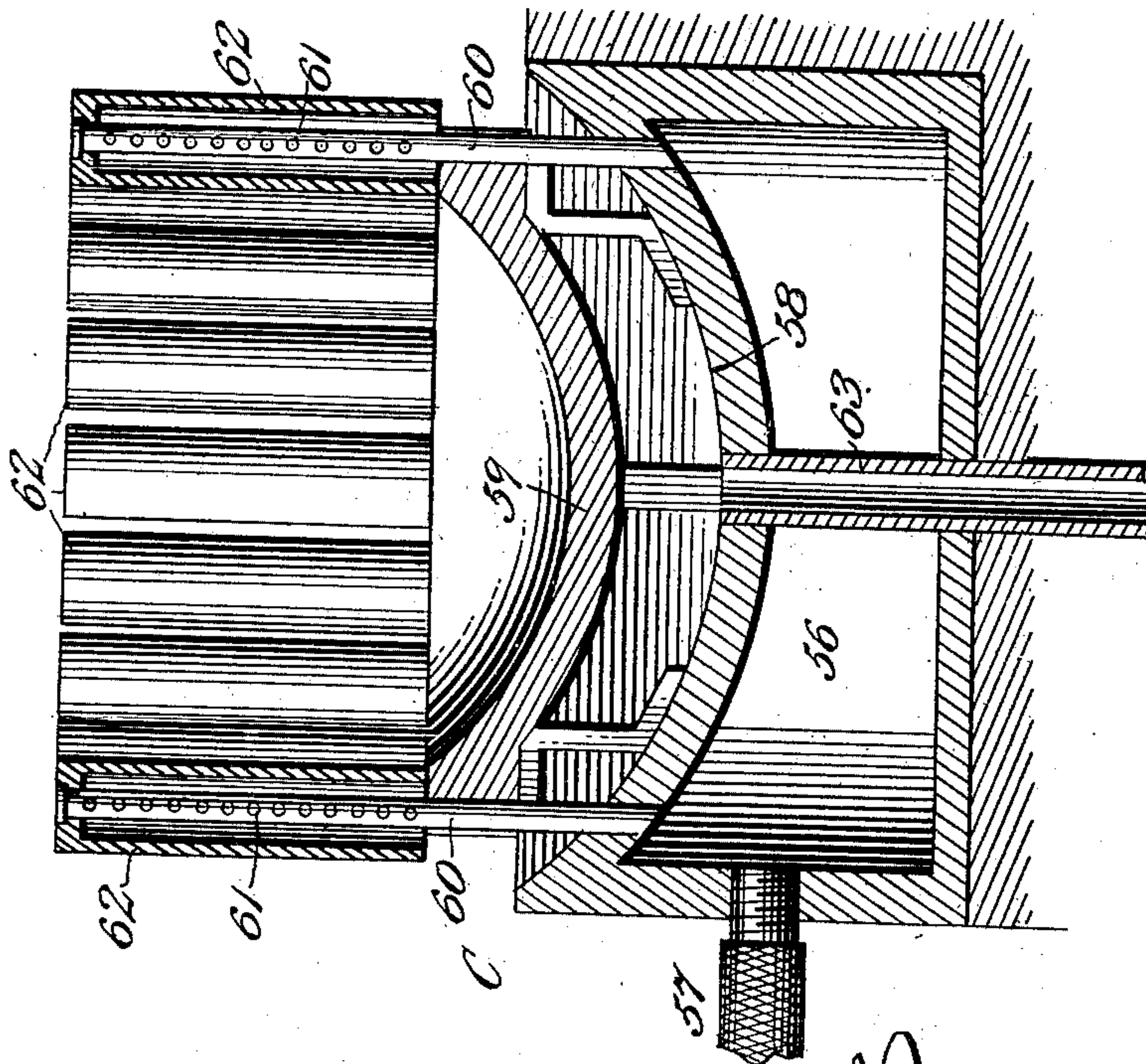
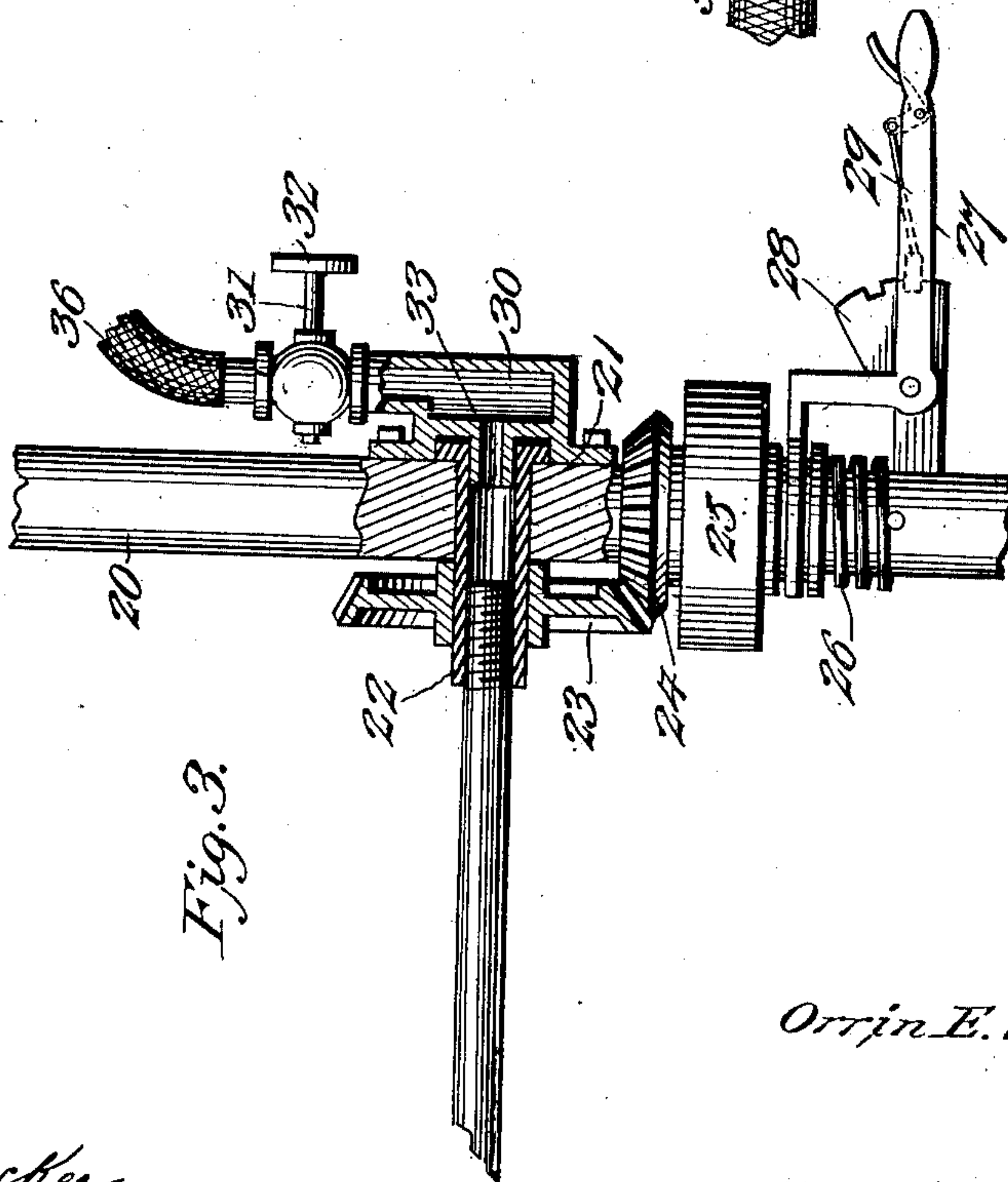


Fig. 3.



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# UNITED STATES PATENT OFFICE.

ORRIN E. WALTON, OF SYCAMORE, OHIO.

## MACHINE FOR BLOWING GLASS.

SPECIFICATION forming part of Letters Patent No. 703,325, dated June 24, 1902.

Application filed October 18, 1901. Serial No. 79,161. (No model.)

*To all whom it may concern:*

Be it known that I, ORRIN E. WALTON, a citizen of the United States, residing at Sycamore, in the county of Wyandot and State of Ohio, have invented new and useful Improvements in Machines for Blowing Glass, of which the following is a specification.

My invention relates to improvements in machines for blowing glass; and the objects are to improve and simplify the existing art by providing improved means for mechanically actuating the blowpipe in its requisite movements and to provide novel means for carrying the blowpipe from the shaper to the furnace, where the material is reheated and swung in the pit. This operation is repeated until the cylinder is swung out the required length.

With these objects in view my invention consists in the novel construction of parts and their arrangement or aggroupment in operative combinations, as will be hereinafter fully described and then particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings, to be taken as a part of this specification, and wherein—

Figure 1 is a plan view of the complete machine, wherein the cylinder of glass is indicated in dotted lines and showing the shaping-pot as turned to stand in the path of the blowpipe. Fig. 2 is a side view in elevation, partly in section, also showing the shaping-pot and indicating in dotted lines its position when turned aside from the path of the blowpipe. Fig. 3 is a detail view, partly in central section, of the means for rotating the blowpipe, also showing the valve and the air-conduit leading to the blowpipe. Fig. 4 is a central vertical section through the shaping-pot. Fig. 5 is a detail view, partly in section, of the shaping-pot, showing the supporting-standard with spiral groove.

Referring to the drawings, A designates a substantial supporting-frame erected over the pit and of such length and width as may adapt it for the purposes intended and to support the mechanism for operating the blowpipe. On this supporting-frame is laid and secured a track 1 1, the rails of which support a car, hereinafter described. The floor of the frame

is open for the greater part of its length to afford room for the movements of the blowpipe. For a proper distance at the front portion of the floor of the frame the track consists of parallel rack-rails 2 2, in which the teeth of the large front wheels of the car engage. A car is provided which is movable back and forth on these tracks. This car is made, preferably, of suitable pipe-iron bent into loops 3 4, the bars of which are parallel with each other, and on the end bars thereof are journaled proper wheels 5, adapted to run on or inside of the plain rails of the track, as indicated in the drawings. At the front of the car the side bars of the car-frame extend vertically, as at 6, and are connected by a cross-bar 7, constituting a shaft on which are journaled the large front wheels 8, the cogs or teeth of which engage the track-racks and carry the car back and forth on the track. On the car-frame is secured a floor or platform 9, having an opening 10 to provide room for the swing of the blowpipe and access to the shaping-pot and pit, and on this floor or platform the workman stands during the operation of the machine. On the floor 9 are mounted and secured oppositely-arranged supports 11 12, formed with bearings in their upper ends, in which is journaled a shaft 13, on which is mounted a sprocket-wheel 14, carrying a chain 15, arranged about a sprocket-wheel 16, journaled on the fixed shaft 7, the hub of the wheel 16 being rigidly connected to the car-wheel 8, so as to turn therewith. On the shaft 13 is fixed a hand-lever 17, by which the wheels and chain may be rotated, and thus the car-wheel to which the wheel 16 is connected is caused to rotate and propel the car in either direction to reciprocate the blowpipe to carry the cylinder into and out of the furnace. The other wheel 8 on the shaft 7 is made to revolve on the shaft by its engagement with the rack.

On the platform of the car are mounted opposite standards or benches 18 19, having bearings in their upper ends, in which is journaled a shaft 20, having a diametrical opening 21 therethrough, wherein is revolvably placed a sleeve 22, having interior screw-threads at one end and an annular flange at the other, and in this sleeve the screw-threaded end of the blowpipe engages and is held,



substantially as seen in Fig. 3 of the drawings. On the projecting end of the sleeve 22 is mounted the hub of a beveled pinion 23, which meshes with a counter beveled pinion 5 24, mounted loosely on the shaft 20, which pinion 24 is integral with a pulley 25 on said shaft. The pulley, with the beveled pinion 24, is loosely mounted on the shaft and the 10 two have a limited sliding movement on the shaft in order that they may be thrown into and out of engagement with the pinion 23, so that the blowpipe may be rotated as desired. The beveled pinion 24 is held in operative engagement with the pinion 23 by means of 15 an expansive spring 26, arranged on the shaft 20, and the sliding movement is attained by means of a clutch-lever 27, fulcrumed on a support extending from the shaft, as shown in Fig. 3 of the drawings, and the engage- 20 ment and disengagement of the lever being effected by means of a notched plate 28 and thumb-bar 29.

To the shaft 20 is secured a valve box or chamber 30, provided with a suitable valve 25 31, manipulated by means of a hand-wheel 32 or equivalent means, and from the valve the air is admitted to the blowpipe through a conduit opening into a nipple 33, loosely projecting into the sleeve 22, by which it com- 30 municates through the sleeve into the blowpipe and cylinder, as shown in Fig. 3 of the drawings. Projecting in opposite direction to and in the same horizontal plane as the blowpipe and secured to the shaft 20 is a lever 35 34, by which the blowpipe can be turned or swung on its bearing during the blowing, for a purpose well known in the art. A weight 35 is slidably mounted on the lever 34, where- 40 by the weight of the blowpipe, with the attached material, may be counterbalanced, so that the power necessary to swing the pipe is reduced to a minimum. The requisite force to expand the cylinder consists of compressed air let through the valve and blow- 45 pipe through a flexible pipe 36, leading from a compressed-air source located at some convenient point adjacent to the machine.

To rotate the blowpipe, I erect opposite standards 37 38 at the sides of the frame and 50 in suitable bearings at the tops thereof journal a shaft 39, on which is mounted a pulley 40, on which is a belt 41, extending to and arranged on a pulley 42, mounted on a shaft 43, supported by an arm or rod 44, loosely 55 sleeved on the shafts 39 and 43. From a pulley 45 on the shaft 43 extends a belt 46, arranged at its lower end on the pulley 25 on the shaft 20, as shown in Figs. 1 and 2 of the drawings.

60 Loosely hung on the shaft 43 is a rod 47, having an aperture or eye 48 at its lower end, through which the shaft 20 loosely passes.

A pulley 49 is mounted on the shaft 39, which by suitable belt connection communi- 65 cates with the power.

It will be perceived from the foregoing description that by the belt connections the

blowpipe is rotated on its longitudinal axis and that the jointed supporting-arms maintain at all times the tension of the belts as the 70 machine is run back and forth on the track, the upper joint of the rods or arms rising and falling with the swing of the lower end connected to the shaft 20.

C designates the shaping-pot. This is lo- 75 cated at a convenient point under the floor of the frame and so mounted and arranged that it may be swung on a vertical support into the operative position and back there- 80 from, as shown in the drawings. More specifically describing the shaping-pot, 50 designates a substantial standard formed with a spiral groove 51, and 52 the shaping-pot formed with a vertical hole 53, in which the standard fits so that the shaper may turn 85 thereon and be swung in a horizontal plane. It is also essential that the pot shall be movable vertically, and to accomplish this a pin 54 is let through the wall of the body so that its end projects into the spiral groove 51, 90 whereby when the shaper is swung around the pin travels up the spiral and carries the shaper upward. The shaping-pot proper comprises a body 55, having a chamber 56, 95 into which water is admitted through a pipe 57. The upper surface of the body is dished out, as at 58, to receive the water that may run back from the pipes. The pot itself, 59, is supported above this concave or dished- 100 out base. Rising from base and projected vertically through the rim of the pot are a series of pipes 60, having perforations 61 in the part extending above the pot. Revolu- 105 bly mounted on each pipe is a shell 62, of larger diameter than the pipes, having closed upper ends and open lower ends, so that the water ascending in the pipes may be thrown against the inner face of the shells and render them cool and escape through the lower 110 open ends of the shells. By making the shells 62 revoluble on their bearings the liability of fracture of the cylinder is lessened and at the same time they constantly present a cool surface to the revolving cylinder. A drain-pipe 63 is provided to carry the water 115 from the lower basin of the shaping-pot.

The operation of the machine may be stated as follows: The workman mounts the floor of the car, the main shaft and the connections being in motion, and, as may be, the clutch- 120 pinion in or out of engagement with the pinion on the blowpipe. The shaft carrying the blowpipe is then so turned as to carry the pipe to horizontality. The lever 17 is actuated to run the car toward the furnace 125 F and bring the blowpipe through to extend through the opening o in the furnace for the purpose of heating the material, the pipe being rotated by the rotating mechanism. The heating being accomplished, the car is run 130 back, the blowpipe swung in the pit and tipped or tilted, with the charge, into the shaping-pot, and rotated as may be required. The blowpipe, with the cylinder, is then



swung into horizontal position, the car is run forward, and a second heating made, and this operation may be repeated as often as required. During the operation described the air is let through the valve and blowpipe to inflate the cylinder. The subsequent processes and manipulation of the cylinder form no part of my invention, and being well known in the art require no description.

10 What I claim is—

1. In a glass-blowing mechanism, a shaping-pot mounted in the path of the blowpipe, and comprising a dish-shaped pot, water-pipes rising from the rim thereof, and cylindrical shells revolubly secured over the water-pipes, and means to conduct water to the pipes.

2. In a glass-blowing mechanism, a shaping-pot mounted in the path of the blowpipe and comprising a dish-shaped pot mounted to swing on a vertical support, a series of perforated water-pipes rising vertically from the rim of the pot, cylindrical shells having open lower ends, and their upper ends revolubly secured to the upper ends of the water-pipes, and a pipe to conduct water to the water-pipes.

3. In a glass-blowing mechanism, the combination of a pivotally-mounted blowpipe, and a shaping-pot in the path of the blowpipe, said shaping-pot comprising a body having a concave upper surface, a concave shaping-pot above the body, a series of perforated vertical water-pipes extending around the rim of the shaping-pot, and shells having open lower ends and closed upper ends revolubly journaled to the upper ends of the water-pipes.

4. In a glass-blowing mechanism, the combination of a pivotally-mounted blowpipe, and a shaping-pot mounted to swing and to be moved vertically on its support, said shaping-pot comprising a body having a water-chamber having a concave cover, a shaper having a concave lower portion supported above the body, perforated vertical water-pipes rising through the rim of the shaper, and shells having open lower ends and closed upper ends revolubly secured to the upper ends of the water-pipes.

5. In a glass-blowing mechanism, the combination of a suitably-mounted shaft, means to rock the shaft about its axis to swing a blowpipe, a bearing-sleeve rotatively projected transversely through the shaft, a blowpipe connected to the said sleeve, a pinion on the sleeve, a pinion loose on the shaft, a pulley on the hub of the latter pinion, and means to rotate the pulley.

6. In a glass-blowing mechanism, the combination of a suitably-mounted shaft, means to rock the shaft on its axis to swing a blowpipe, a bearing-sleeve revolubly projected transversely through the shaft, a blowpipe connected to said sleeve, a valve-chamber connected to and having communication with the sleeve, and a valve in the said chamber to control the passage of air through the chamber, the sleeve and the blowpipe.

7. In a glass-blowing mechanism, the combination of a suitably-mounted shaft, means to rock the shaft on its axis to swing a blowpipe, a bearing-sleeve revolubly projected transversely through the shaft, a blowpipe connected to said sleeve, a valve-chamber connected to and having communication with the sleeve, a valve in the said chamber to control the passage of air through the chamber, the sleeve and the blowpipe, and means on the sleeve and shaft to rotate the blowpipe.

8. The combination with a shaft 20 and the blowpipe revolubly mounted therein; of means for rotating the blowpipe on its axis, comprising suitable supports, a shaft 39 journaled therein, a pulley thereon, jointed supporting-rods connecting the shafts 20 and 39 and supporting an intermediate shaft 45, pulleys on the intermediate shaft, belts connecting the respective pulleys, a loose pulley slidingly mounted on the shaft 20, a beveled pinion integral with the sliding pulley, and a beveled pinion on the blowpipe, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ORRIN E. WALTON.

Witnesses:

C. W. MONTGOMERY,  
L. A. GRUBB.