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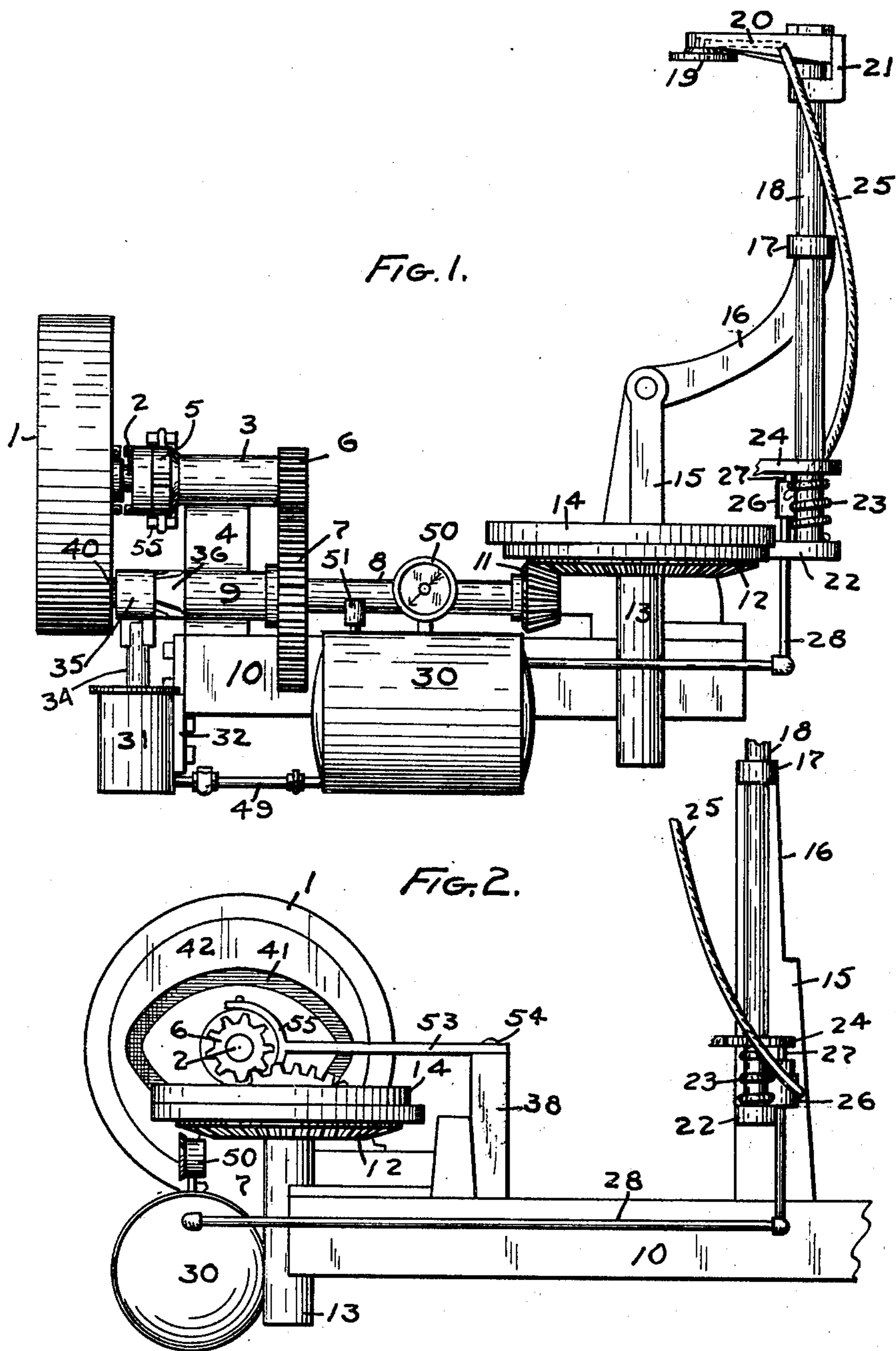
Patented Feb. 26, 1901.

G. C. PYLE.  
GLASS BLOWING MACHINE.

(Application filed Sept. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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INVENTOR.  
George C. Pyle,  
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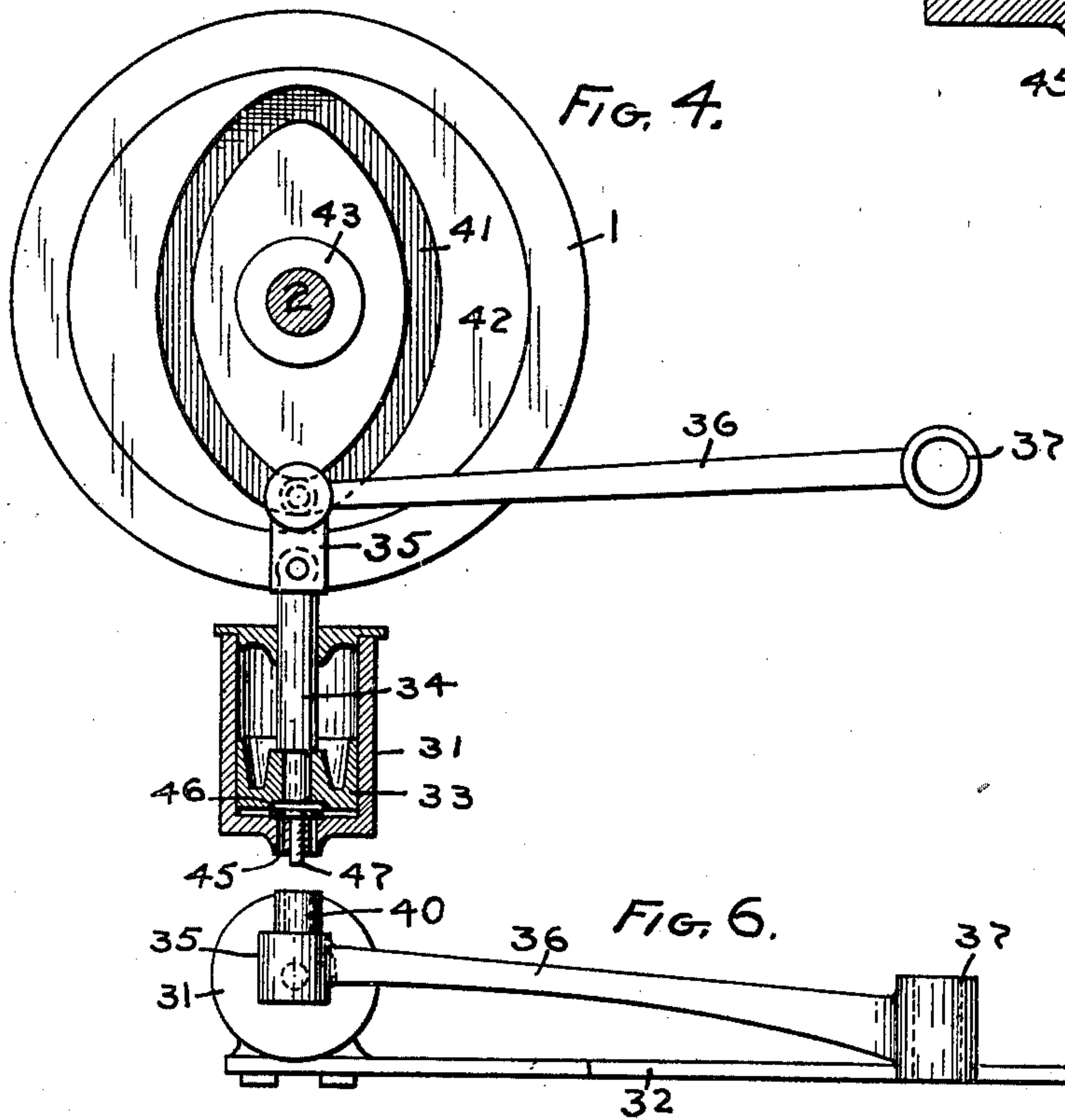
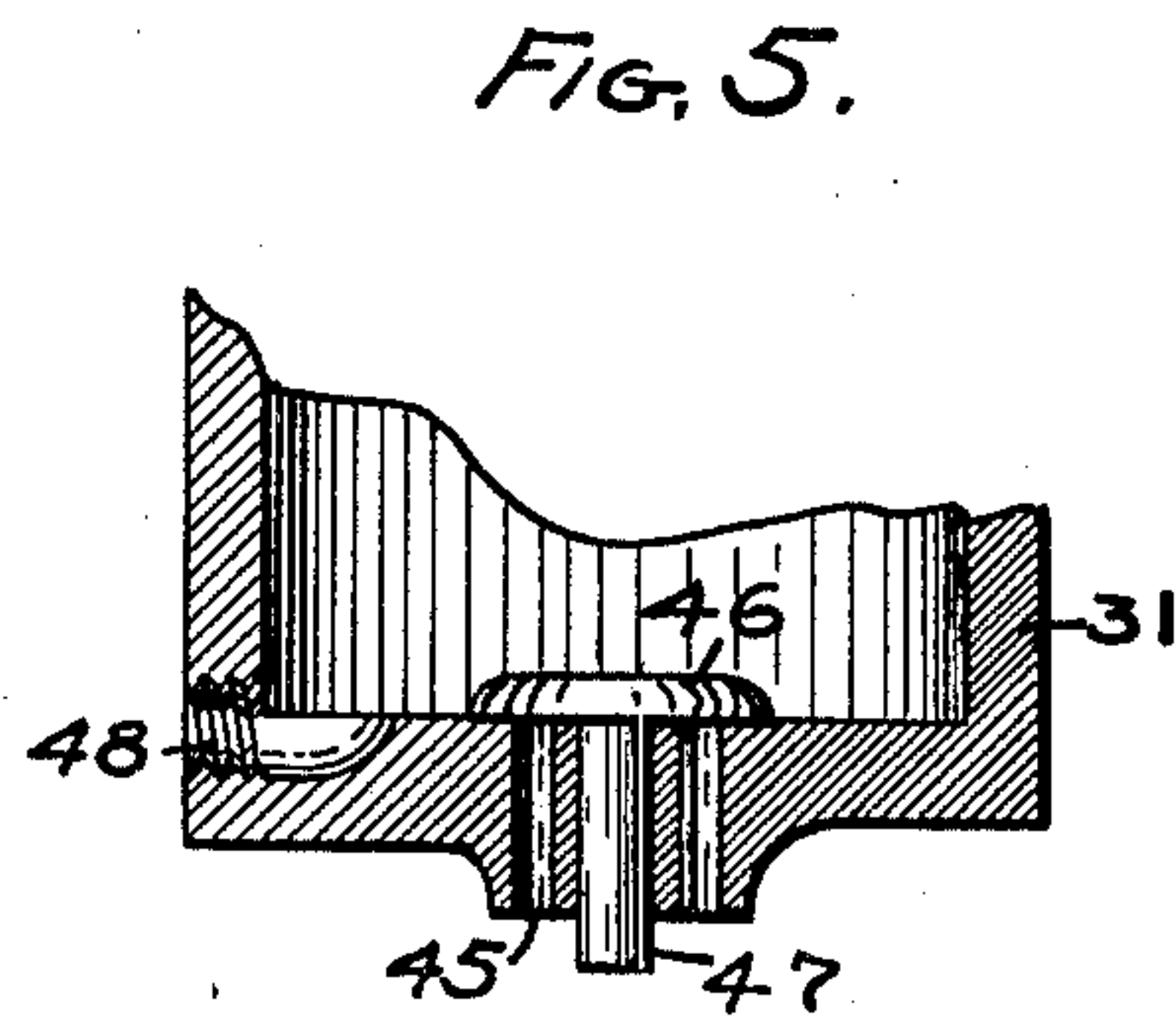
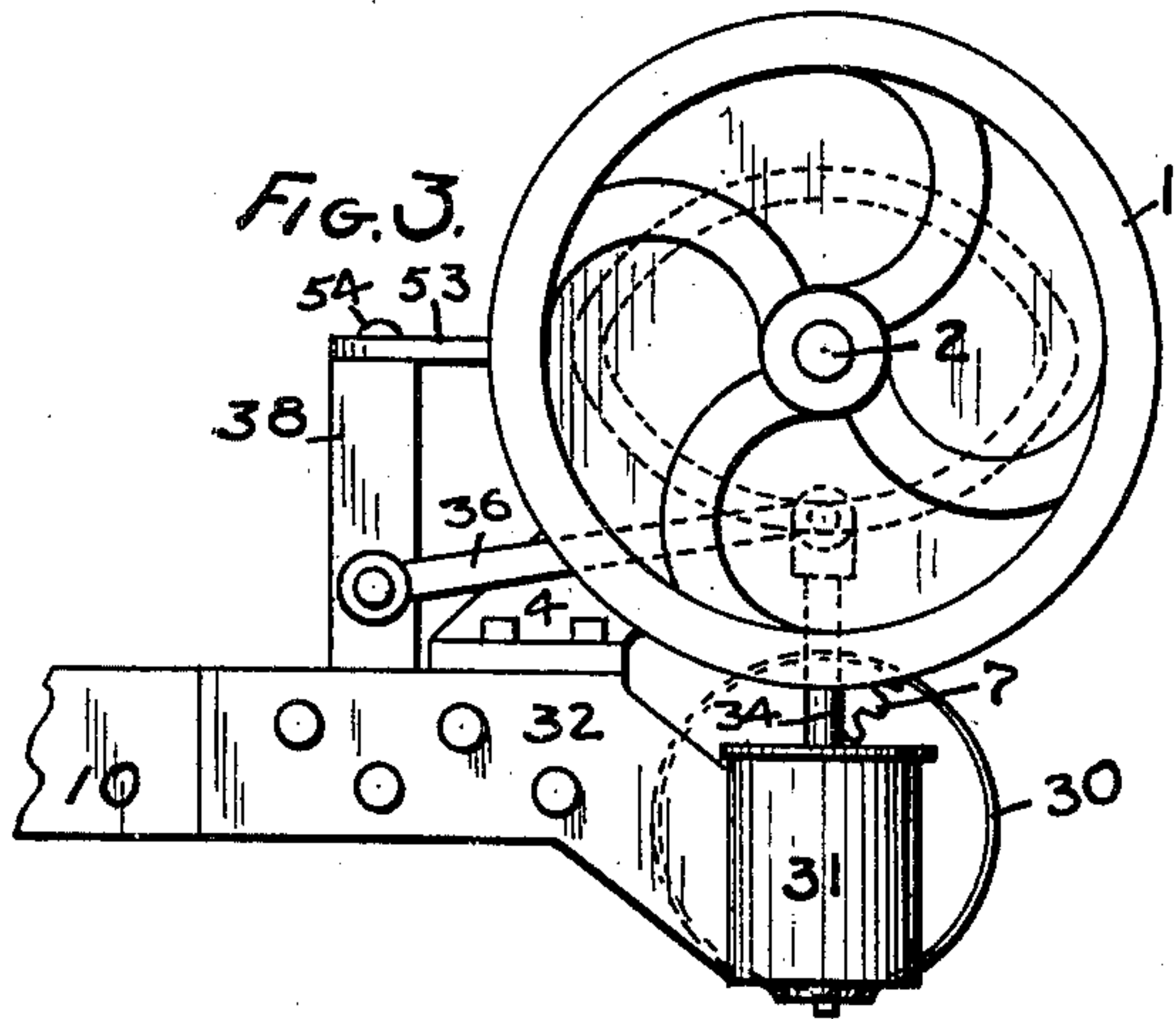
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# UNITED STATES PATENT OFFICE.

GEORGE C. PYLE, OF INDIANAPOLIS, INDIANA.

## GLASS-BLOWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 668,858, dated February 26, 1901.

Application filed September 17, 1900. Serial No. 30,319. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. PYLE, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Glass-Blowing Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

The object of this invention is to provide means for compressing air for use in blowing glass articles in a glass-blowing machine that is actuated by the driving mechanism of the machine.

The full nature of this invention will be understood from the accompanying drawings and the description and claims following.

In the drawings, Figure 1 is a rear elevation of a portion of a glass-blowing machine. Fig. 2 is an elevation of the right-hand side of what is shown in Fig. 1. Fig. 3 is an elevation of the left-hand side. Fig. 4 is an elevation of the right-hand side of the cam-disk for driving the air-pump and a vertical central section of the air-pump. Fig. 5 is an enlarged vertical central section of the lower end of the air-pump. Fig. 6 is a plan of the air-pump and the pivoted lever that controls the vertical movement of the piston of the air-pump.

To illustrate the nature of this invention, I have shown a part of a machine adapted for making fruit-jars.

1 is a driving-wheel mounted on a shaft 2 in a bearing 3 on a post 4. The driving-wheel 1 is thrown in and out of gear with the shaft 2 by the clutch 5, the details of the construction of said clutch being immaterial to this invention. On the inner end of the shaft 2 there is a pinion 6, that meshes with the spur-gear 7, secured on the shaft 8, mounted in a bearing 9 in the post 4, that extends upward from the frame 10 of the machine. The shaft 8 carries a bevel-pinion 11, which meshes with the bevel-gear 12, secured to a vertical shaft (not shown) that is mounted in a vertical bearing 13, secured to the framework 10. The bevel-gear 12 carries a wheel 14, used for actuating most of the parts of the glass-blowing machine, which, however, are not here shown, as they bear no immediate relation to this invention.

As seen in Fig. 2, a post 15 extends upward from the frame 10 of the machine, having at its upper end the inclined arm 16, which in turn at its upper end has a horizontal extension 17, perforated as a guide for the vertical movement of the rod 18, which carries the mold-closing cap 19 on the end of the arm 20. On the upper end of the rod 18 is a stop 21, which engages the end of the arm 20 to limit its horizontal swing or movement. The cap 19 is adapted to close the upper end of the molds rotatable under it and not here shown after the glass in said molds is ready for blowing. When the mold is in place under said cap 19, the rod 18 is depressed by means not here shown. The lower end of the rod 18 is supported movably by the horizontal arm 22 from the post 15, and said rod 18 is lifted so as to lift the cap 19 off the mold by the spring 23, coiled about the rod 18, between the support 22 and the bar 24, that is secured to the rod 18 and partly broken away in the part of the machine here shown.

Air is supplied to the mold when the glass is ready for blowing through a passage-way in the arm 20 and cap 19, centrally located and shown herein by dotted lines, the air entering said passage-way from the tube 25, that leads from a valve 26. The said valve is actuated by the stem 27, that is engaged by the bar 24, as shown in Fig. 2. Air is conveyed to the valve 26 through the pipe 28 from the compressed-air reservoir 30. Air is compressed in said reservoir by the pump 31, the construction of which appears in Fig. 4. It is secured to the frame of the machine by the bar 32, so as to be vertical, and has in it a piston-head 33 and piston-rod 34, that is pivotally connected by the link 35 to the free end of the lever 36, which at 37 is pivoted to the post 38. The free end of said lever is provided with a wrist-pin 40, that enters the groove 41 in the cam-wheel 42, that is secured on the hub 43 of the driving-wheel. The periphery of the cam-wheel 42 as here shown is flush with the inner periphery or rim of the driving-wheel. Any other mounting of this cam-wheel, so it will rotate with the driving-wheel 1 or shaft 2, will suffice, although it is preferable to connect it with the driving-wheel, so that the pump will operate all the time that the driving-wheel is running, whether



the other parts of the machine are in gear or not.

The lower end of the pump-cylinder 31 has two inlet-ports 45, that are closed by a gravity-valve 46, guided by the stem 47. The air passes through the opening 48 of the pump and the pipe 49 to the compressed-air reservoir. On this reservoir I mount a pressure-gage 50 and a safety-valve 51 to relieve the air-reservoir when the pressure therein is too great. The lever 53, pivoted at 54 to the upper end of the post 38, is at its other end provided with a yoke 55, pivoted to the sliding member of the clutch 5. The lever 53 guides the movement of said clutch, and the clutch is operated by means (not here shown) that acts on or through said lever 53.

From the foregoing description of the mechanism herein shown for the purpose of illustrating my invention it is apparent that the pump-piston will be actuated twice during each revolution of the driving-wheel 1 and that it will compress air in the reservoir 30, from which air under pressure can be supplied for blowing the glass, as has been explained, or for any other use in connection with the machine. By combining the air-compressing machine with the driving mechanism of the machine the air will be compressed by the machine in the proper proportion needed in the operation of the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a glass-blowing machine, the combination of a continuously-rotating power-driven means for driving the machine, and an air-compressing mechanism that is actuated by said driving mechanism to furnish compressed air for the use of the machine.

2. In a glass-blowing machine, the combi-

nation of a continuously-rotating power-driven means for driving said machine, means for compressing air that is actuated by said driving mechanism of the machine, and means for conveying the compressed air to the place for its use in the machine.

3. In a glass-blowing machine, the combination of a continuously-rotating power-driven means for driving the machine, an air-pump actuated by said driving mechanism of the machine, a compressed-air reservoir to which air from the pump is conveyed, and means for conveying the air from said reservoir to the place in the machine for its use.

4. In a glass-blowing machine, means for driving the machine, a disk secured to said driving means that is provided with a cam-groove, an air-pump secured to the framework of the machine, means actuated by said cam-groove for operating the piston of said pump, and means for conveying air from said pump to the place in the machine where it is to be used.

5. In a glass-blowing machine, a wheel for driving the machine and disk secured to said wheel having a cam-groove therein, an air-pump with a suitable piston-rod, a lever pivotally mounted, means extending into said cam-groove and to which the free end of said lever and the pump piston-rod are pivotally connected, and means for conveying air from the pump to the place in the machine where it is to be used.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

GEORGE C. PYLE.

Witnesses:

V. H. LOCKWOOD,  
LAURA HITT.