Aug. 24, 1926. 1,597,101

E. C. MUELLER

AIR VALVE

Filed April 23, 1923

Fig. 1.

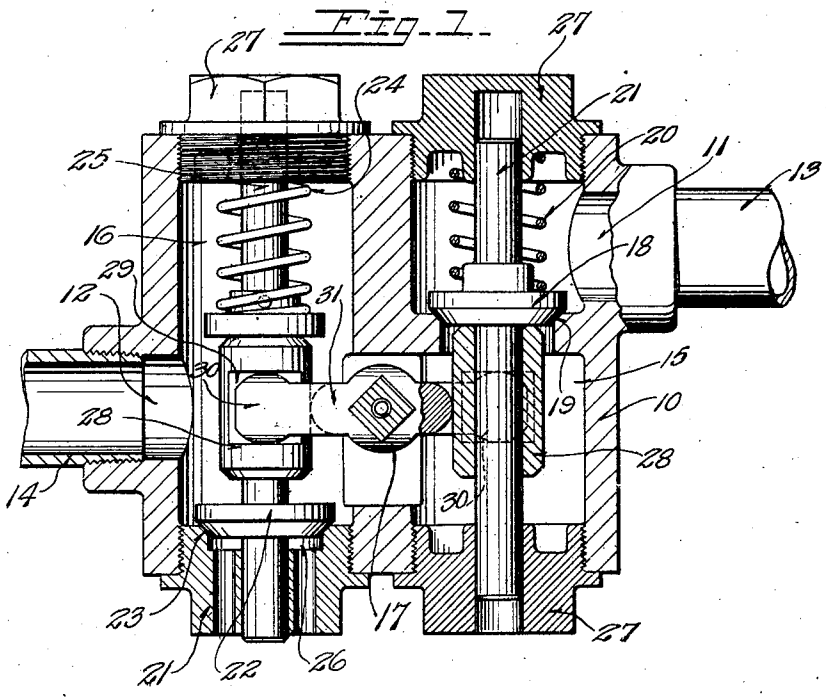
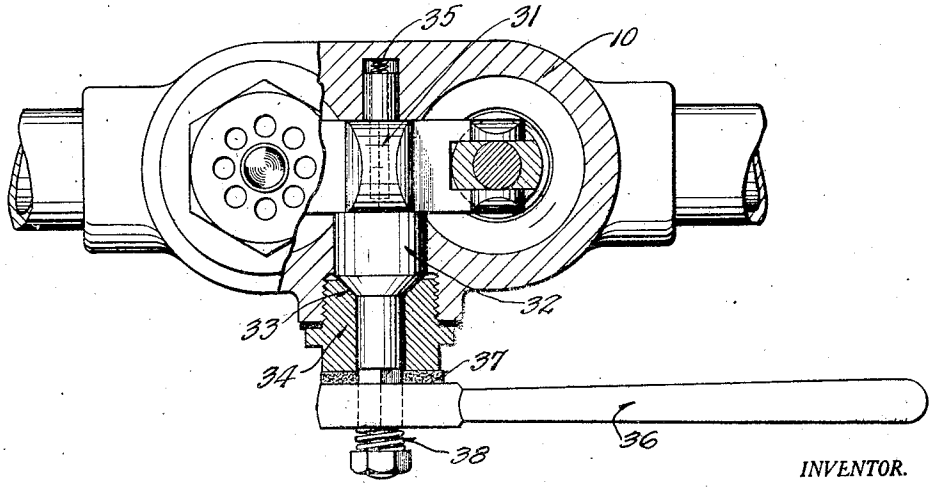


Fig. 2.



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AIR VALVE.

Application filed April 23, 1923. Serial No. 633,940.

This invention relates to improvements in air valves and more particularly to air valves adapted to control the admission of air to casting machines, molding machines, and drill and punch presses, in which it is desired to admit air to actuate the same by, for instance, the movement of a lever, and upon a reverse movement of the lever, to shut off the supply of air and exhaust the air from the machine.

The novel combination, construction and arrangement of parts of this invention will be made more apparent as the description proceeds, especially when considered in connection with the accompanying drawings, wherein;

Figure 1 is a vertical sectional view of the device; and,

Fig. 2 is a bottom plan view, partly in section.

Referring now more particularly to the drawings, wherein like reference characters indicate like parts, it will be noted that there is provided a valve casing 10, formed with an air inlet opening 11, and an outlet opening 12, which openings are suitably connected by pipes, 13 and 14, to the source of air supply and the machine to be operated, respectively.

The casing is further formed with a chamber 15 in immediate communication with the inlet opening, and a chamber 16 in immediate communication with the outlet opening. Communication between these two chambers is afforded by a passageway 17, formed in the dividing wall of the casing. The chamber 15, the passageway 17 and the chamber 16 form a substantial passageway connecting the inlet opening of the valve with the outlet opening.

The air supply is controlled by an inlet valve 18, normally seating on a seat 19, formed in the valve casing. A spring 20 surrounding the valve stem 21 tends to normally maintain this valve 18 in its closed position in addition to the pressure of the air.

An outlet or exhaust valve 22 is normally caused to engage a seat 23 by means of a coil spring 24 surrounding its valve stem 25, in addition to the pressure of the air, this valve normally closing an exhaust opening or port 26.

The valve stems 21 and 25 extend from both sides of the valves 18 and 22, as is clearly shown in Fig. 1, these valve stems engaging caps 27 to guidingly support the valves. One of the threaded caps 27 is apertured to form the exhaust openings of the exhaust port 26.

Each valve stem is provided with a collar 28, slidably mounted thereon, each collar being formed with slabbed or flattened portions 29, adapted to be engaged by the bifurcated ends 30 of a lever 31. The lever 31 is mounted on a squared portion of a shaft 32 which extends into the casing 10, this shaft 32 being journalled therein. The shaft 32 is formed with a bevelled portion 33, adapted to engage a similar shaped face formed on a bushing 34. A spring 35 bearing on the other end of the shaft 32, keeps the bevelled surface 33 of the shaft against the similar shaped face of the bushing. An operating handle 36 is pressed against a packing 37 by means of a spring 38.

As mentioned hereinbefore, the valves are maintained normally in their closed position by means of their associated springs. The collars 28 arranged on the valve stems are so constructed as to provide for lost play, so that when the handle 36 is swung upwardly, the shaft 32 will be rotated and the lever 31 rocked. The bifurcated end of this lever which engages the collar 28 of the valve stem 21, will lift the valve 18 off its seat by reason of its engagement therewith. The other valve 22 will, however, remain closed.

With the valve 18 open, air is permitted to pass through the inlet opening 11, through the passageway controlled by the valve 18, out through the outlet opening 12, to the machine to which this valve device is connected. When sufficient air has been permitted to pass through the valve casing the handle is swung in the opposite direction to close the valve 18, and then, if desired, a further movement of the handle 36 in the same direction will open the valve 22 and exhaust the air from the machine through the exhaust port 26.

Obviously, therefore, the valves may be selectively operated, one of the valves being closed prior to the opening of the other. The arrangement of parts is such that the valves may be cheaply and easily constructed with a minimum number of parts. The

screw caps, 27, may be removed so that access may be had to the interior of the casing, to make such repairs as may be necessary, or to replace parts thereof.

Particular attention is directed to the fact that both valves close with the pressure and are held in closed position by said pressure, and furthermore, when the exhaust valve is closed under pressure, the inlet valve is practically balanced.

Reservation is made to make such changes in the details of construction as may come within the purview of the accompanying claims.

Having thus described the invention, what is claimed is:

1. In a valve, a casing formed with a passageway connecting inlet and outlet openings and an exhaust port, pressure valves for closing said passageway and said exhaust port, stems formed on said valves, slidable collars on said stems, a lever mounted in said passageway and engaging said collars and means for actuating said lever for selectively opening said valves.

2. In a valve, a casing formed with a passageway connecting inlet and outlet openings and an exhaust port, valves arranged in said passageway and said exhaust port, stems formed on said valves, springs normally closing said valves, collars on said valve stems, a lever formed with bifurcated ends mounted within said casing, said bifurcated ends engaging said collars and means for rocking said lever to open either of said valves against the action of its spring.

3. In a valve of the class described, a casing formed with a passageway connecting inlet and outlet openings and an exhaust port, pressure valves arranged in said passageway and said exhaust port, stems formed on said valves, springs normally closing said valves, collars on said valve stems, a lever formed with bifurcated ends mounted within said casing, said bifurcated ends engaging said collars and an operating handle arranged on the outside of said casing for rocking said lever to open either of said valves against the action of its spring.

4. In a valve of the class described, a casing formed with a passageway connecting inlet and outlet openings and an exhaust port, valves arranged in said passageway and said exhaust port, stems formed on said valves, springs normally closing said valves, collars on said valve stems, a lever formed with bifurcated ends mounted within said casing, said bifurcated ends engaging said collars, a shaft journalled in said casing and carrying said lever, packing for said shaft and a handle for said shaft whereby said lever may be rocked to selectively actuate said valves.

In testimony whereof, I affix my signature.

EDWARD CARL MUELLER.