

(No Model.)

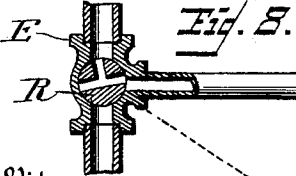
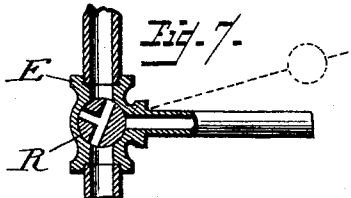
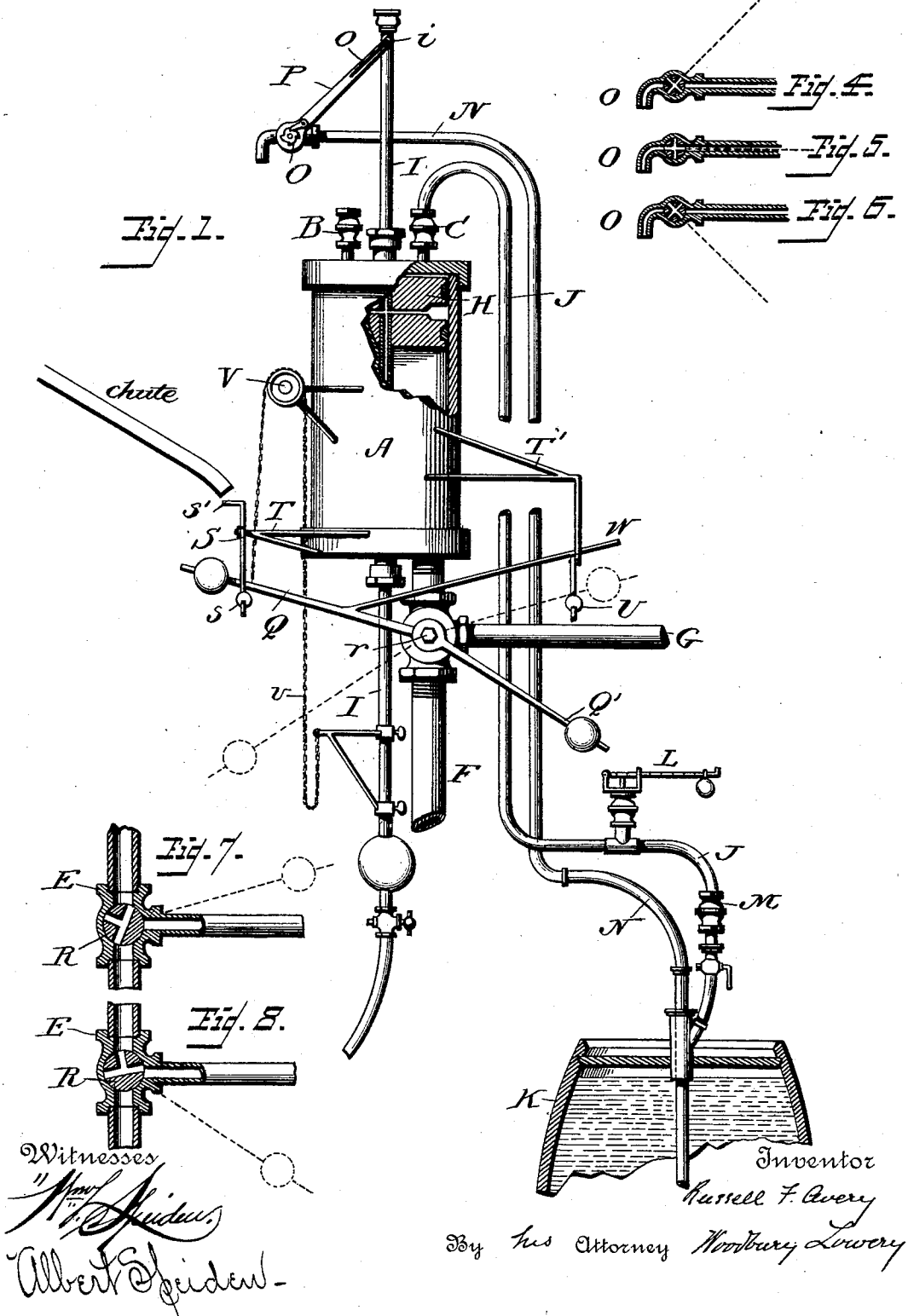
2 Sheets—Sheet 1.

R. F. AVERY.

COIN OPERATED AUTOMATIC HYDRAULIC AIR COMPRESSOR.

No. 482,775.

Patented Sept. 20, 1892.



Witnesses

"Amos Stevens."

Albert Spinden.

Inventor

Russell F. Avery

By his Attorney *Woodbury Lowrey*

(No Model.)

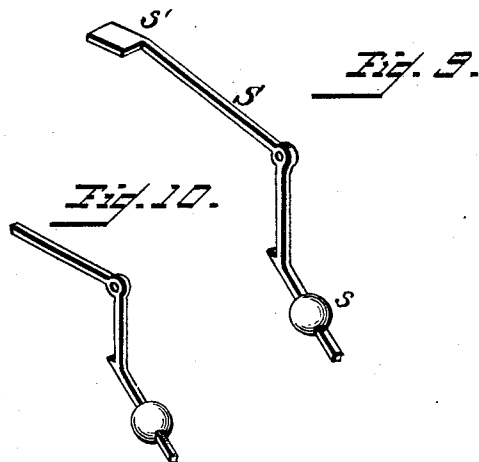
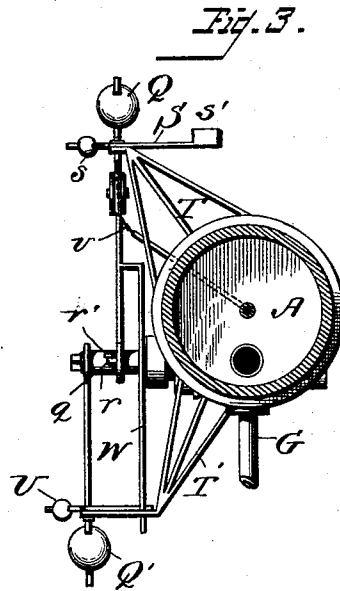
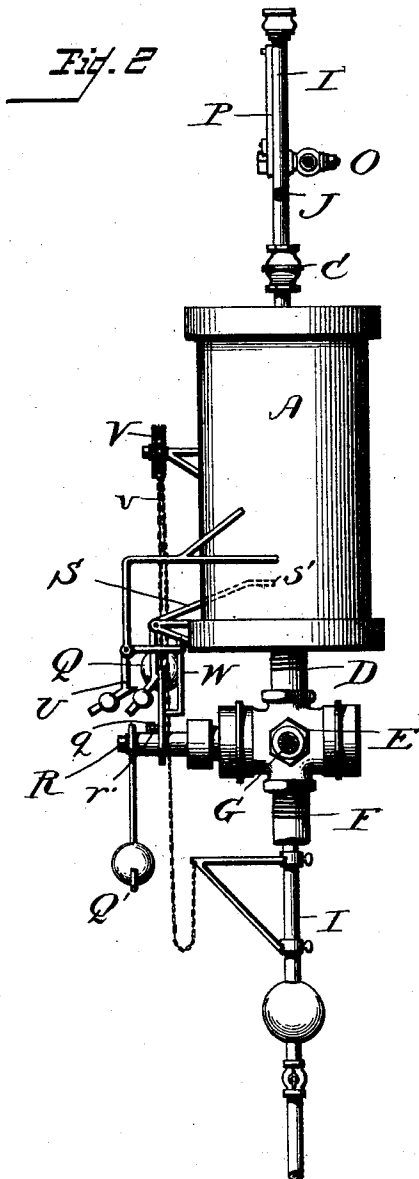
2 Sheets—Sheet 2

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By his Attorney *Woodbury Lowery*

UNITED STATES PATENT OFFICE.

RUSSELL F. AVERY, OF SPOKANE FALLS, WASHINGTON, ASSIGNOR TO JACOB GOETZ, TRUSTEE, OF SAME PLACE.

COIN-OPERATED AUTOMATIC HYDRAULIC AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 482,775, dated September 20, 1892.

Application filed April 13, 1891. Renewed July 19, 1892. Serial No. 440,518. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL F. AVERY, a citizen of the United States, residing at Spokane Falls, county of Spokane, State of Washington, have invented a new and useful Coin-Operated Automatic Hydraulic Air-Compressor for Drawing Liquids from Inclosed Vessels, of which the following is a specification.

10 The object of my invention is to provide an automatic hydraulic apparatus for dispensing liquids in which on the release of the mechanism by the operation of a coin or other token a given quantity of liquid is automatically discharged and the apparatus thereupon
15 adjusts itself to repeat the same operation so long as the liquid is replenished or until it is exhausted.

My invention consists more particularly in
20 a modified form of the hydraulic pump described in my application, Serial No. 388,770, filed April 13, 1891, in which a vertical cylinder having a piston-head actuated by hydraulic or other pressure and a weighted piston-rod supplies the requisite air-pressure to the
25 liquid-dispensing vessel, in connection with a coin-operated latch, which releases the closing and opening mechanism of the cylinder and pressure-valve to actuate the piston, and connections between the piston-rod and a faucet
30 communicating with the liquid-dispensing vessel, whereby the fall and rise of the piston opens and closes the faucet.

In the drawings I have illustrated the latch
35 as operated by a coin falling from the end of the coin-chute described by me in my application, Serial No. 389,260, filed April 16, 1891; but I do not limit myself to any particular form of coin-chute or latch, as it is evident
40 that the same may be greatly varied without departing from the spirit of my invention.

In the accompanying drawings, which illustrate my invention, Figure 1 is a side view, partly in section, of my coin-operated automatic liquid-dispensing apparatus in its normal position ready for operation. Fig. 2 is a rear view of the same. Fig. 3 is a top plan view of the same with the pipes and the top of the cylinder removed. Figs. 4, 5, and 6
50 show the different positions of the faucet-

valve corresponding to the fall and rise of the piston head and rod, and Figs. 7 and 8 show the corresponding different positions of the pressure or three-way valve. Figs. 9 and 10 are enlarged views of the latches. 55

A is the cylinder in which the air is compressed, having the air inlet and outlet valves B and C.

D is the pressure-inlet, communicating by means of the three-way valve E through the tube F with the outlet and through the tube G with the source of pressure. 60

H is a piston rising and falling vertically in the cylinder and having a weighted piston-rod I reciprocating through both the cylinder-heads. 65

J is a tube connecting the air-outlet valve C with the vessel K, in which the liquid is contained, and having the regulating-valves L M, as described in the application above referred to. 70

N is a pipe conducting the liquid in the vessel to the faucet O.

P is a lever-arm for actuating the faucet, and is connected to the piston-rod I by means of the pin *i*, playing in the slot *o* in the lever-arm. It follows that with the rise and fall of the piston-head H and its rod I the valve of the faucet O assumes the various positions indicated in Figs. 4, 5, and 6. 80

Q is a weighted lever-arm mounted to swing freely on the spindle *r* of the plug R of the three-way valve E and having a tooth *q*, which engages with a tooth *r'* on the spindle *r* when the plug R is in position to admit the pressure to the cylinder through the tubes G and B and the lever-arm Q also in the raised position, as shown in Fig. 1. 85

S is a coin-operated latch pivoted to a standard T, projecting from the cylinder, one end of which *s* supports the weighted lever-arm Q in its raised position and the other end of which *s'* when struck by a coin falling from the chute swings the latch from under the lever Q, allowing the latter to fall and close the pressure-tube G, opening the outlet F. A second lever Q' is rigidly secured to the spindle *r* of the plug R in such relation to the weighted lever Q that the fall of the latter in turning the spindle to open the outlet F 100

raises the lever-arm Q', which is shorter or less heavily weighted than the lever-arm Q. Lever-arm Q' when in the raised position also engages with and is held by a detent U, secured to a standard T', projecting from the cylinder.

In order to return the weighted lever-arm Q into engagement with the coin-operated latch S by the descent of the piston-head H and its rod I, and at the same time to close the pressure-outlet F and open the inlet G at the bottom of the piston-stroke, a chain *v*, of suitable length, passing over a pulley V, attached to the cylinder A, is secured at its ends to the lever-arm Q' and the piston-rod I, respectively, so that the descent of the latter raises the lever-arm Q until it engages with the coin-operated latch S, and at the same time a rod W, projecting laterally from the lever-arm Q, releases lever-arm Q' from its engagement with the detent U, whereupon it falls into the position shown in Fig. 1, rotates the spindle of plug R, closes the pressure-outlet F, opens pressure-inlet G, and brings the tooth *r'* on the spindle *r* into position to engage again with the tooth *q* on the lever-arm Q whenever the latter is again released by the fall of a coin from the chute.

The operation of my invention is as follows: The apparatus being in the position shown in Fig. 1, on the falling of a coin from the chute the latch S releases the lever-arm Q, which falls into the position shown in dotted lines in Fig. 1, closes the pressure-inlet G, opens the pressure-outlet F, and simultaneously lifts the lever-arm Q' into the position shown in dotted lines in the drawings into engagement with its detent U. Pressure-outlet F being open, the piston-head H falls. Its rod I in its descent opens and closes the faucet O and lifts the weighted lever-arm Q until it again engages with its latch S, while at the same time lever-arm Q' is dropped, closes the pressure-outlet F, and opens the inlet G, whereupon the piston begins to rise, forcing the compressed air into the vessel K and causing a corresponding volume of liquid to flow from the faucet O, which it gradually opens and closes in its ascent until the first position is again reached.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder having an automatically-controlled pressure inlet and outlet valve, a coin-operated latch for locking and releasing said valve, a piston-head reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said valve and piston-rod, substantially as set forth.

2. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder, an automatically-controlled pressure inlet and outlet valve at one cylinder-head, a

source of pressure connected therewith, an air inlet and outlet valve at the other cylinder-head, a receptacle for liquids, connected with the air-outlet valve, a faucet for drawing the liquid from the receptacle, a piston reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said piston-rod, automatic valve, and faucet, whereby when liquid is drawn from the faucet compressed air is automatically forced into the liquid-receptacle.

3. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder, an automatically-controlled pressure inlet and outlet valve at one cylinder-head, a coin-operated latch for locking and releasing said valve, a source of pressure connected with said valve, an air inlet and outlet valve at the other cylinder-head, a receptacle for liquids, connected with the air-outlet valve, a faucet for drawing the liquid from the receptacle, a piston reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said piston-rod, automatic valve, and faucet, substantially as described.

4. In a coin-controlled apparatus for dispensing liquids, the combination of the cylinder A, the valve E, having inlet and outlet G F, its toothed spindle *r*, the weighted lever Q', permanently secured to the spindle, its latch U, the weighted lever Q, freely mounted on the spindle *r* and adapted to engage with the tooth *r'*, its arm W, the piston-head H, the weighted piston-rod I, the pulley V, and the chain *v*, all connected as described, and for the purpose set forth.

5. In a coin-controlled apparatus for dispensing liquids, the combination of the cylinder A, the valve E, having inlet and outlet G F, its toothed spindle *r*, the weighted lever Q', permanently secured to the spindle, its latch U, the weighted lever Q, freely mounted on the spindle and adapted to engage with the tooth *r'*, its arm W, its coin-operated latch S, the piston-head H, the weighted piston-rod I, the pulley V, and the chain *v*, all connected as described, and for the purpose set forth.

6. In a coin-controlled apparatus for dispensing liquids, the combination of the cylinder A, the valve E, having inlet and outlet G F, its toothed spindle *r*, the weighted lever Q', permanently secured to the spindle, its latch U, the weighted lever Q, freely mounted on the spindle and adapted to engage with the tooth *r'*, its arm W, its coin-operated latch S, the piston-head H, the weighted piston-rod I, the pulley V, the chain *v*, the faucet O, its slotted arm P, a receptacle for liquids, suitable connections between said receptacle, faucet, and air inlet and outlet in the other cylinder-head, and a source of pressure connected with the valve E, substantially as described.

7. In a coin-controlled apparatus for dis-

5 pensing liquids, the combination, with the liquid-containing vessel and a faucet for drawing the liquid therefrom, of an air-compressor, a tube connecting said air-compressor with said vessel, a suitable connecting device between said faucet and said air-compressor, and a coin-operated latch for locking and releasing said compressor, substantially as described.

RUSSELL F. AVERY.

Witnesses:

G. J. DONOVAN,
J. M. KINNAIRD.