(No Model.)

W. H. FRUEN.

AUTOMATIC LIQUID DRAWING DEVICE.

No. 309,219. Patented Dec. 16, 1884.

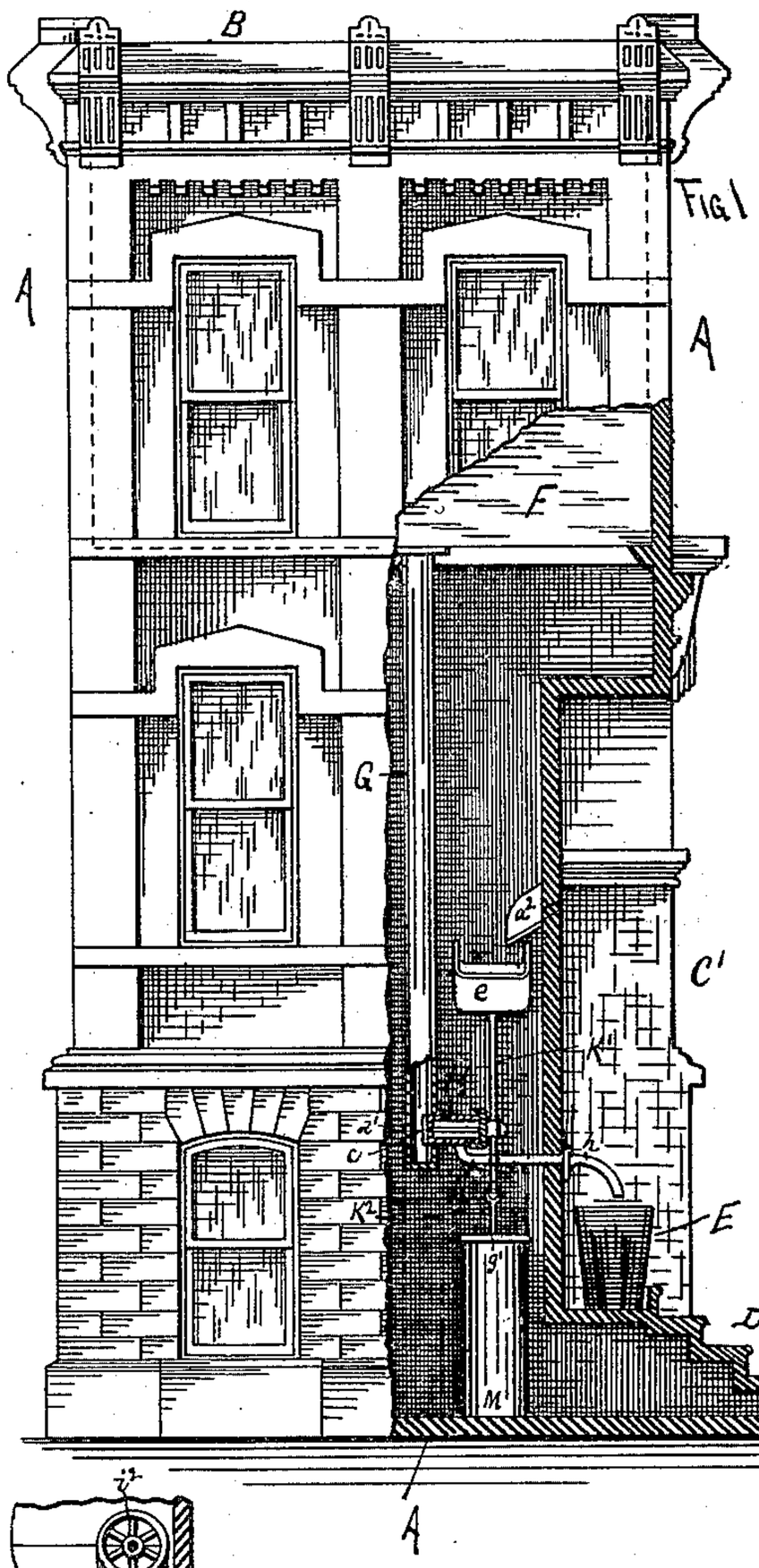

FIG. 1

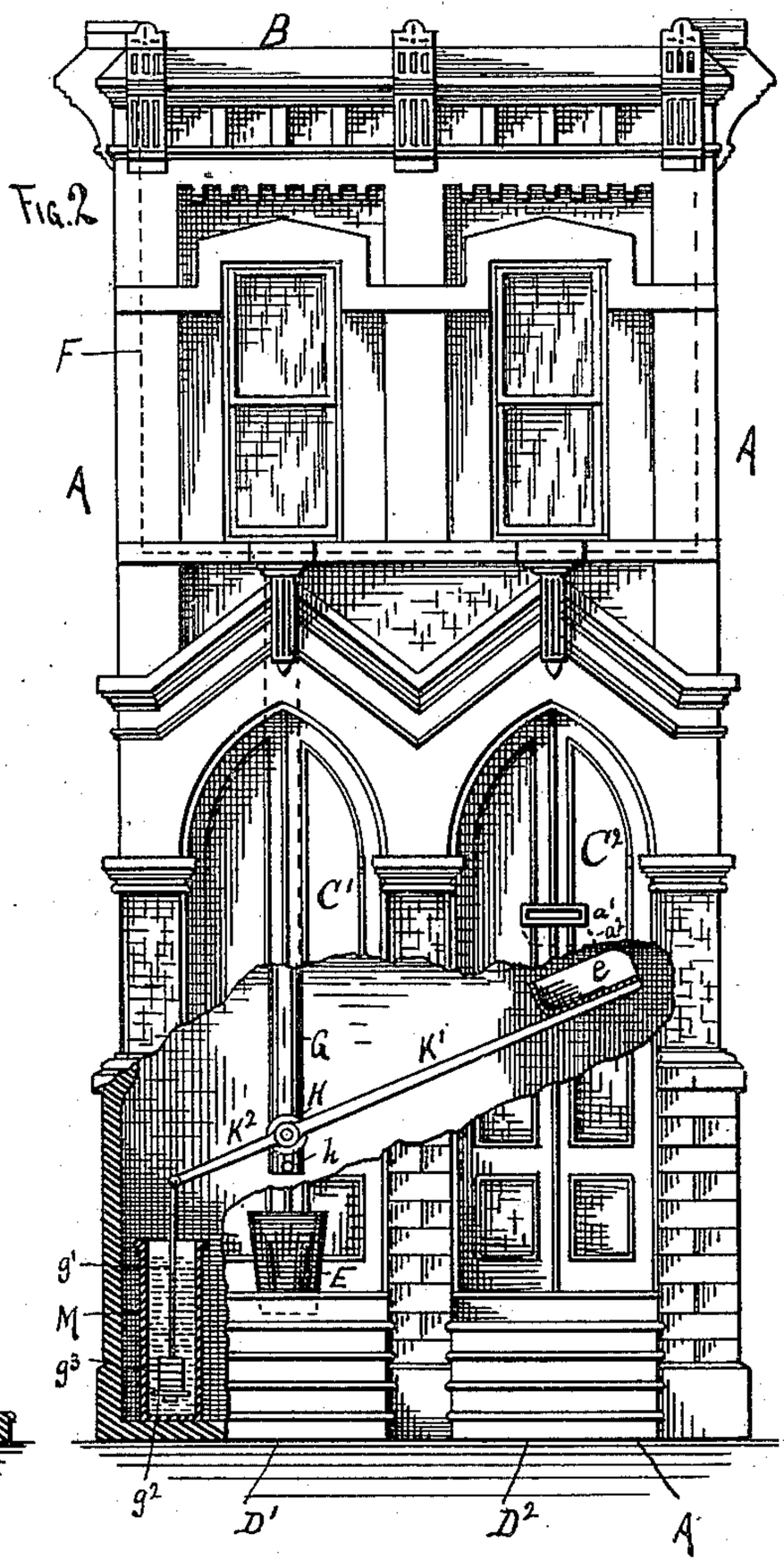

FIG. 2

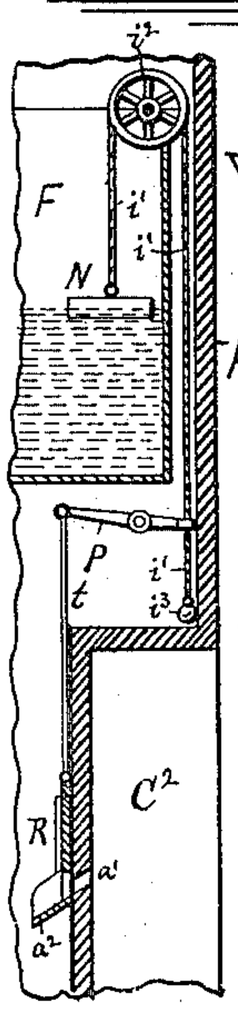

FIG. 8

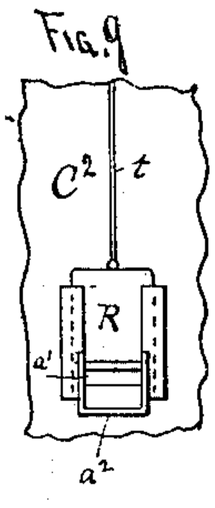

FIG. 9

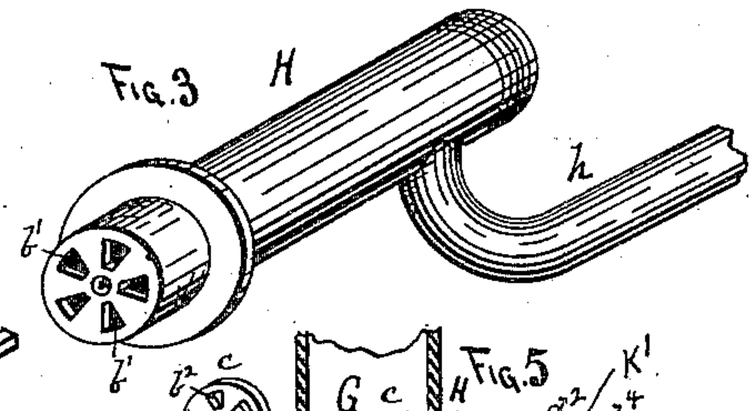

FIG. 3

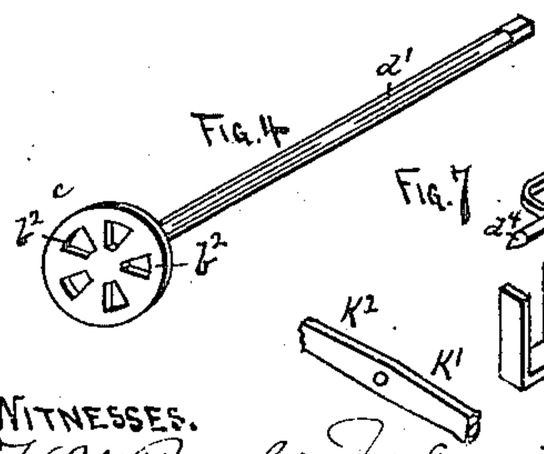

FIG. 4

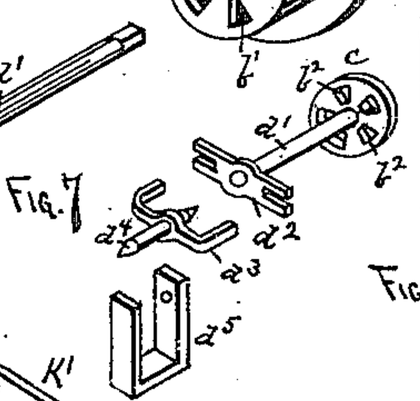

FIG. 7

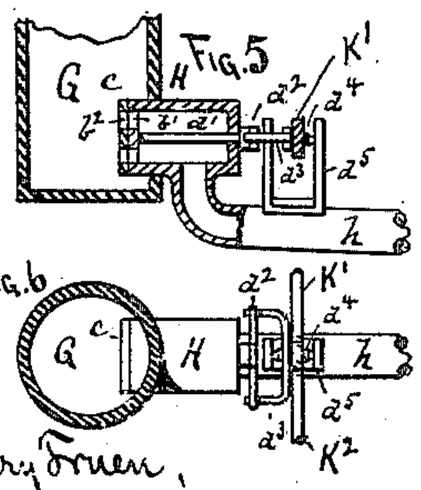

FIG. 5

FIG. 6

WITNESSES.
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Louis Fraser & Geo. Attys.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY FRUEN, OF MINNEAPOLIS, MINNESOTA.

AUTOMATIC LIQUID-DRAWING DEVICE.

SPECIFICATION forming part of Letters Patent No. 309,219, dated December 16, 1884.

Application filed January 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY FRUEN, a citizen of the United States, and a resident of Minneapolis, in the county of Hennepin, in the State of Minnesota, have invented certain new and useful Improvements in Automatic Liquid-Drawing Devices, of which the following specification is a full, clear, and exact description, reference being also had to the accompanying drawings, in which—

Figure 1 is a semi-sectional side view, and Fig. 2 is a semi-sectional front view. Fig. 3 is an enlarged perspective view of the valve-casing. Fig. 4 is an enlarged perspective view of the valve. Fig. 5 is an enlarged sectional side view, and Fig. 6 is an enlarged plan view, of the valve-casing and its actuating mechanism. Fig. 7 shows detached perspective views of the valve and its actuating mechanism. Fig. 8 is a sectional side view of a portion of the casing and reservoir, illustrating the manner of arranging and constructing the automatic coin-chute-closing mechanism. Fig. 9 is a view of the coin-chute-closing slide.

A is an outer casing or frame, made in the form of a building, with the top or roof B adapted to be removed, and with two recesses, C' C^2, in the form of "doorways" or "vestibules," formed in its front, as shown. In the lower part of each of the vestibules steps D' D^2 are arranged, the step D' having a recess in its top to receive a drinking glass or cup, E, and the back part of the vestibule C^2 provided with a slot, a', through which small coin may be passed, as hereinafter shown.

F is a tank or reservoir suspended in the upper part of the casing A, and having a long tube, G, leading downward therefrom, the latter supplied with a smaller tube, H, at right angles to it, near its lower end.

h is a still smaller tube leading from the under side of the tube H out through the back of the vestibule C', and ending above the vessel E', as shown. The inner end of the tube H is provided with radiating ports b', adapted to be covered with a disk-valve, c, having corresponding ports, b^2. A valve-stem, d', leads from the valve c through the center of the inner end of the tube H and out through the other end of the same. Upon the outer end of the valve-stem d' is secured a cross-bar, d^2, having slots in its ends, in which the bent ends of another cross-bar, d^3, fit, the latter being mounted upon a small shaft, d^4, supported by its ends in a frame or hanger, d^5, secured to the pipe h or to the frame or casing A. Upon this small shaft d^4, outside of the bar d^3, is secured a lever consisting of a long arm, K', and short arm K^2. By this arrangement the valve c and its stem will be left free to move endwise independent of the lever K' K^2, while at the same time, by means of the ends of the cross-bar d^3 fitting into the slots in the ends of the bar d^2, the valve-stem will be oscillated by the upward and downward movement of the lever to open and close the valve c'. This is a very important feature of my invention, as it prevents the friction or weight of the lever from preventing the perfect seating of the valve. Upon the end of the long arm K' of the lever is a small disk or trough, e, and upon the other or short arm is secured by a piston-rod, g', a piston-head, g^2, moving up and down with a cylinder, M, filled with water or other liquid. The trough e, when the long arm K' is raised upward, as shown in Figs. 1 and 2, will come directly beneath the inner end of a small chute, a^2, leading from the slot a', so that a coin dropped through the slot will be carried by the chute into the trough e, as hereinafter shown. The valve c will be so constructed that when the long arm K' is at its highest point the valve will be closed, and will be wide open when the same arm is at or near its lowest point, and the ports b' b^2 will be so graduated as to size that enough liquid will pass through them to fill the vessel E while the lever K' K^2 is moving downward and upward again one full stroke within a certain time, as hereinafter explained. Small movable weights g^3 will be attached to the piston-rod g', to regulate the movement of the lever, it being necessary to the proper action of the lever that the short arm K^2 and its attached parts should be heavier than the long arm K' when the trough e is empty, while at the same time it must be so delicately poised that the weight of a small coin will overcome the extra weight of the short arm and move the long arm downward until the inclination of the trough will cause the coin to slide off.

This device is intended to be used more particularly in drawing mineral waters, &c.; but

may be used in drawing nearly any kind of liquids.

The lever K′ K² may be adjusted by the small weights g^3 to adapt it to be operated by any desired value of coin, but usually adapted to be operated by one single cent. Being thus adjusted, when a cent is dropped through the slot a' it will fall into the trough e and cause the lever K′ to fall. The lever will fall until the inclination of the trough is sufficient to cause the cent to drop off, and thus open the valve c and allow the liquid to run into the glass E. Then the short arm K², being heavier without the cent than the long arm, will fall again and close the valve.

In Figs. 8 and 9 is shown the mechanism for automatically closing the slot a' when the liquid in the reservoir is exhausted, so that no coins can be passed through the slot except when the reservoir is supplied with liquid. This mechanism consists of a float, N, resting in the liquid in the reservoir F, and having a cord, i', attached to it and passing up over a pulley, i^2, on the top of the reservoir and down outside the reservoir through an eye in one end of a small lever, P, pivoted to the casing A and ending in a ball or enlargement, i^3, as shown. The other end of the lever P is connected by a rod, t, to a slide, R, adapted to rise and fall behind the slot a', to open or close it. The cord i' runs freely up and down through the eye on the lever P, when the float N rises and falls with the varying height of the liquid in the reservoir without affecting the lever, except when the liquid in the reservoir is so nearly exhausted as to cause the float to fall so low as to raise the ball or enlargement i^3 far enough to strike the lever P and close the slide, the lever P thus being actuated only when the liquid is exhausted from the reservoir. By this means the coin-slide will be closed when the liquid is exhausted from the reservoir, thereby avoiding the danger of the dropping of coins into the slot when no returns of liquid can be had for it.

I do not wish to confine myself to this precise method of connecting the float N and slide or door R, as I am aware that many simple devices may be used for that purpose. The piston g^2, rising and falling in the liquid in the cylinder, acts as a brake to the lever, and causes it to move slowly up and down, and thereby hold the valve c open much longer than it would be held otherwise. By increasing or decreasing the diameter of the piston-head, so as to leave a greater or less space between its edges and the sides of the cylinder, it will move with greater or less speed through the liquid. The less space there is between the piston-head and the cylinder the more slowly will the piston-head pass through the liquid, and vice versa. This is a very important feature of my invention, as I am thereby enabled to very easily and perfectly regulate the flow of the liquid into the vessel E, as the more slowly the piston moves up and down the longer the valve c will be held open and the larger quantity of liquid be drawn from the reservoir F within a given time.

As before stated, the mechanism will be so adjusted that the vessel E will be filled while the lever K′ K² is making one full stroke, or during the time the cent in the trough is moving the arm K downward and until the lever returns to its former position.

Another important feature of my invention is the long tube G, by which I am enabled to always secure a nearly uniform "head" of liquid above the valve c, and thereby secure a more even flow than could be otherwise obtained.

Having described my invention and set forth its merits, what I claim is—

1. The combination of the reservoir F, having the discharge-tubes G, H, and h, valve c, lever K′ K², pivoted to and adapted to open and close said valve, trough e, piston-rod g', piston-head g^2, and cylinder M, substantially as and for the purpose set forth.

2. A casing, A, having recess C′, adapted to support a drinking-vessel, recess C², provided with coin-slot a', a reservoir for holding liquids, discharge-tubes G, H, and h, leading from said reservoir and provided with valve c, and means, substantially as described, for opening and closing said valve.

3. A reservoir for holding liquids, a discharge-pipe leading from said reservoir and provided with a valve, a lever adapted to open and close said valve, means for moving said lever, and a piston attached to said lever and moving in liquid simultaneously with said valve and lever, substantially as and for the purpose set forth.

4. In an automatic liquid-drawing device, and in connection with the co-operative parts thereof, the combination of a casing, A, provided with a coin-slot, a', a reservoir, F, a float, N, within said reservoir, a slide, R, and means for connecting said float with said slide, whereby the exhaustion of the liquid in said reservoir will cause said slide to cover and close said coin-slot, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM HENRY FRUEN.

Witnesses:
C. N. WOODWARD,
LOUIS FEESER, Sr.