A. G. IONIDES.

AUTOMATIC FOUNTAIN.

APPLICATION FILED APR. 3, 1908.

914,419.

Patented Mar. 9, 1909.

4 SHEETS—SHEET 1.

FIG. 1.

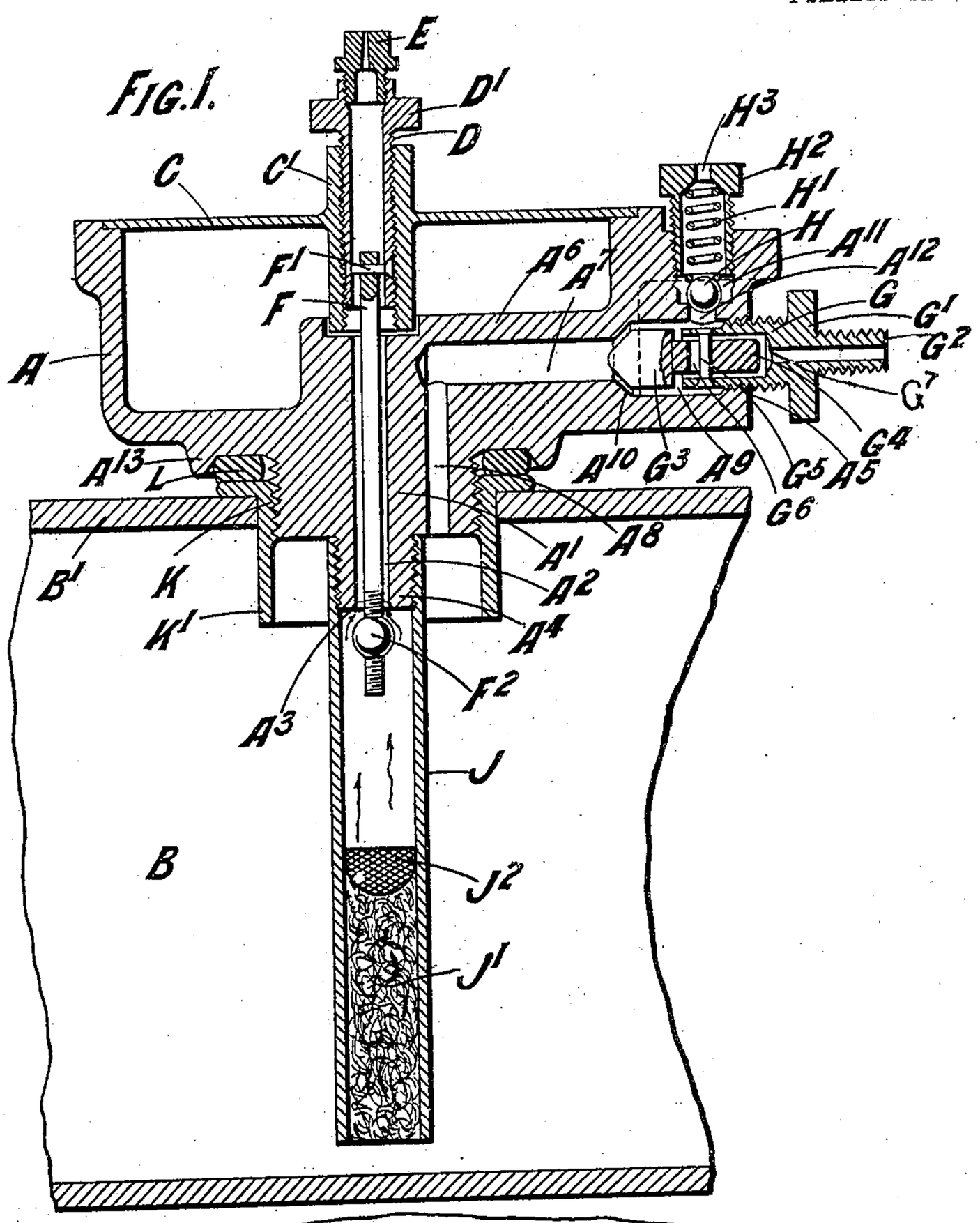
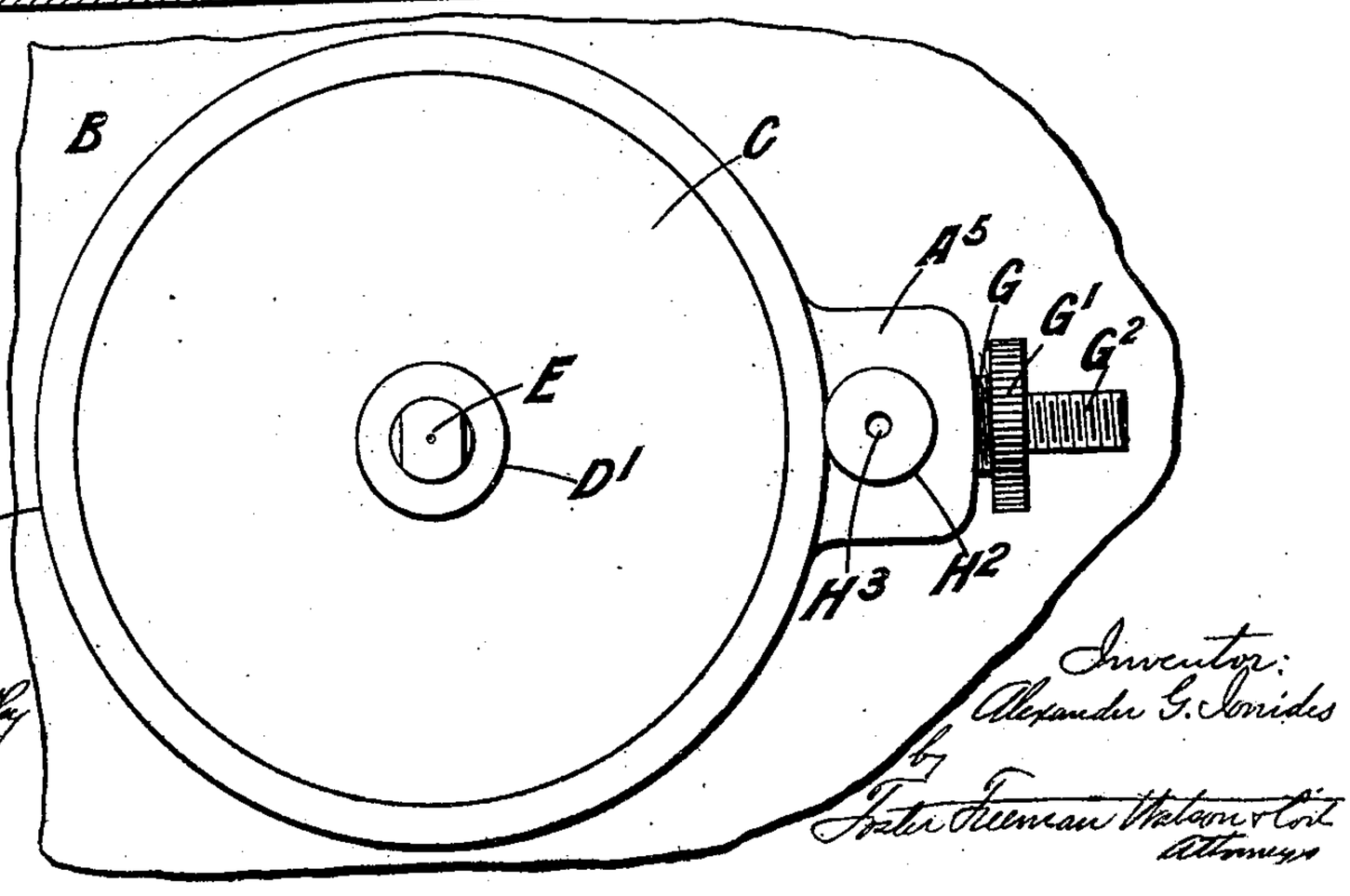


FIG. 2.



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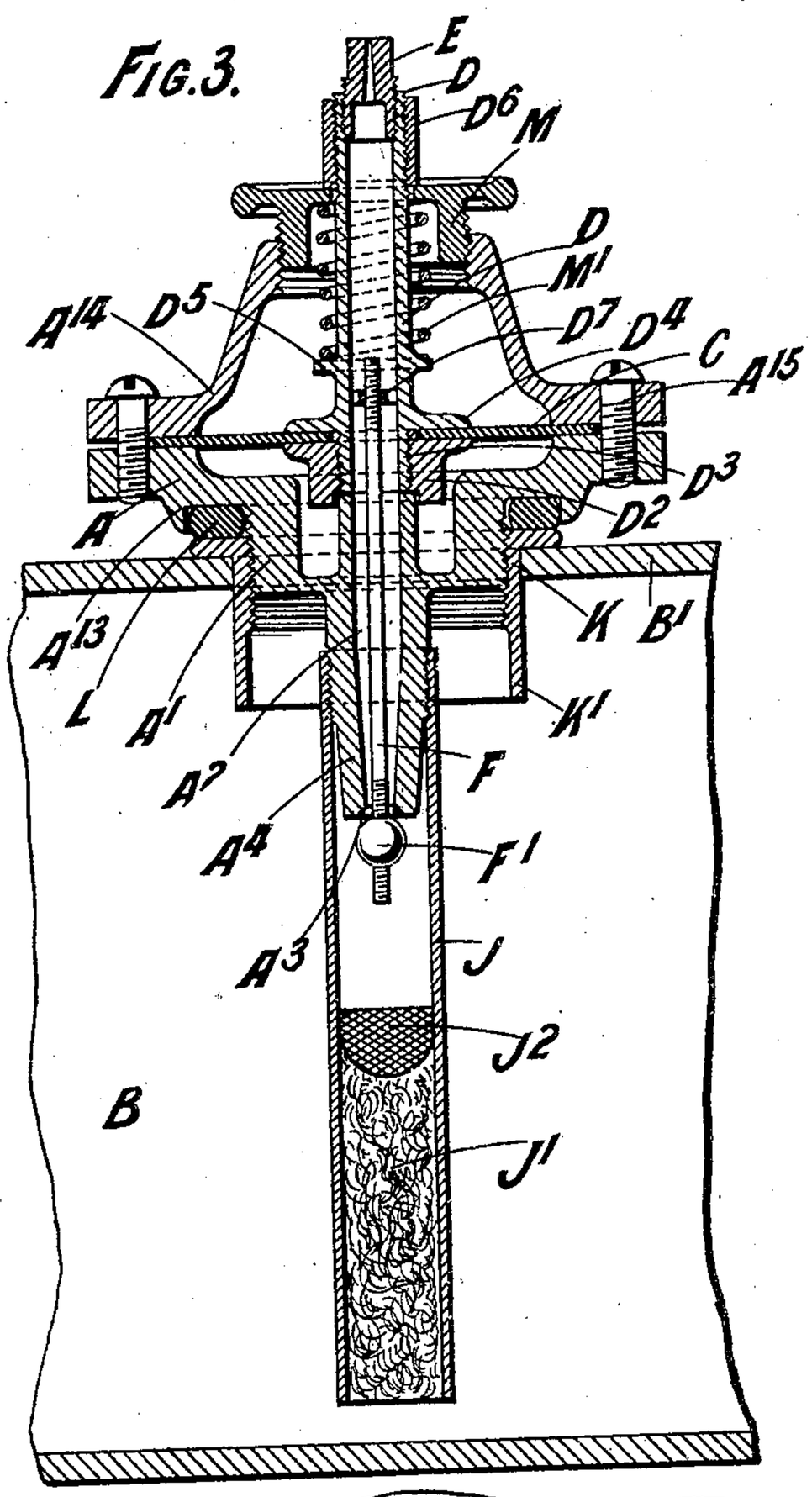
4 SHEETS—SHEET 2.

FIG. 3.



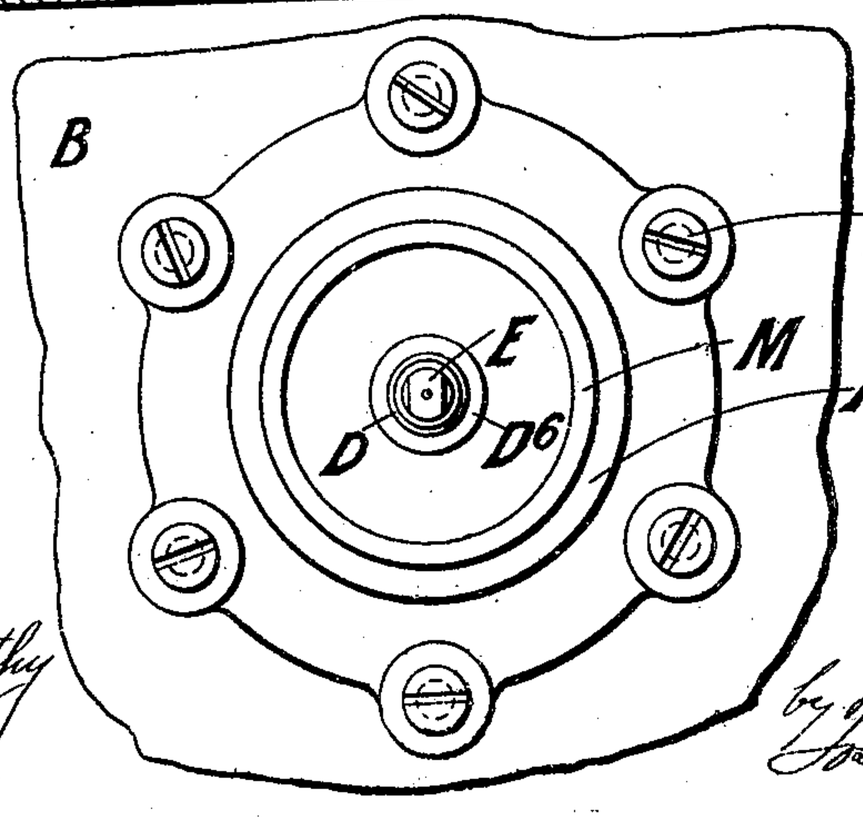


FIG. 4.

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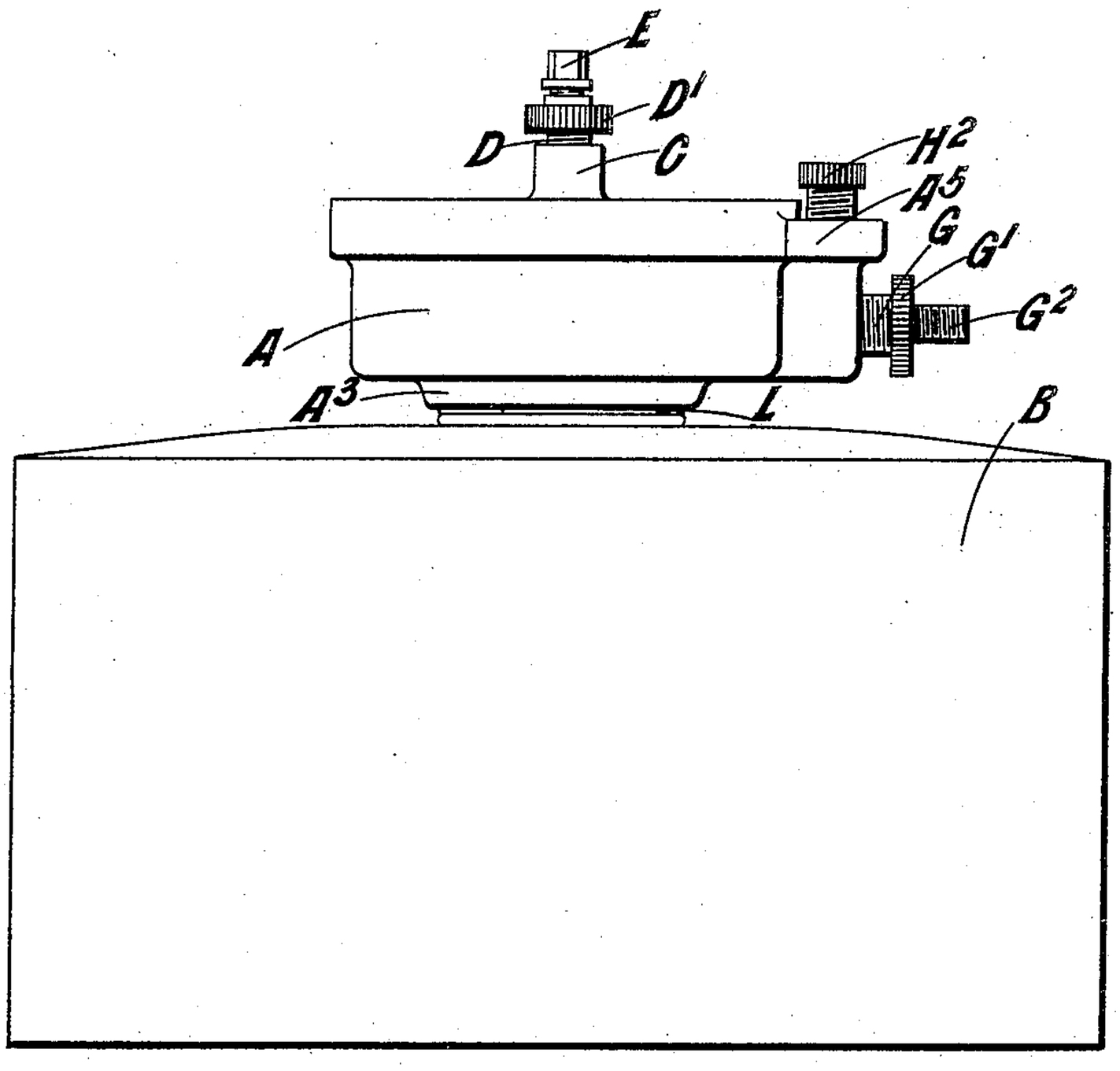
4 SHEETS—SHEET 3.

FIG. 5.



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4 SHEETS—SHEET 4.

FIG. 6

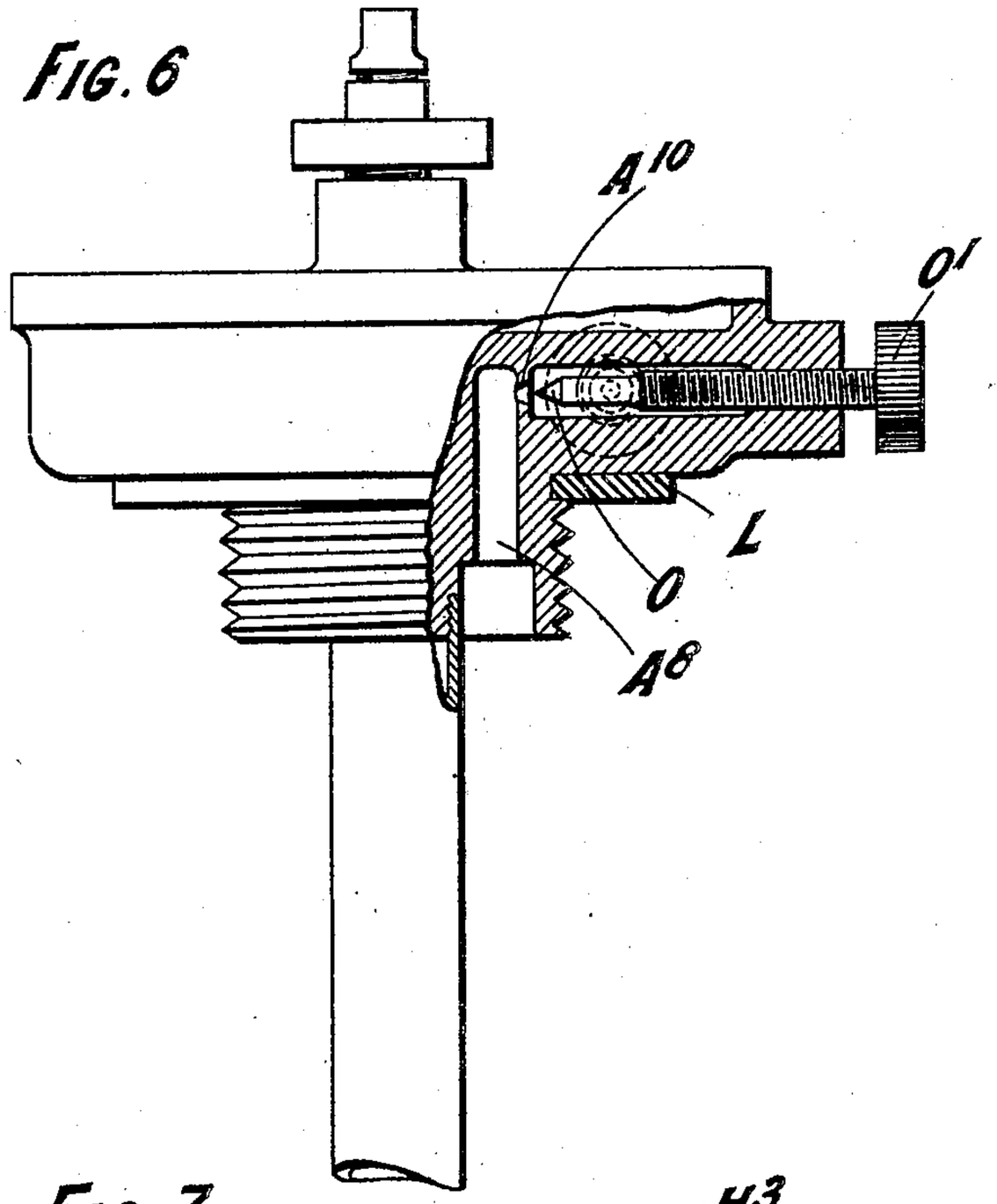
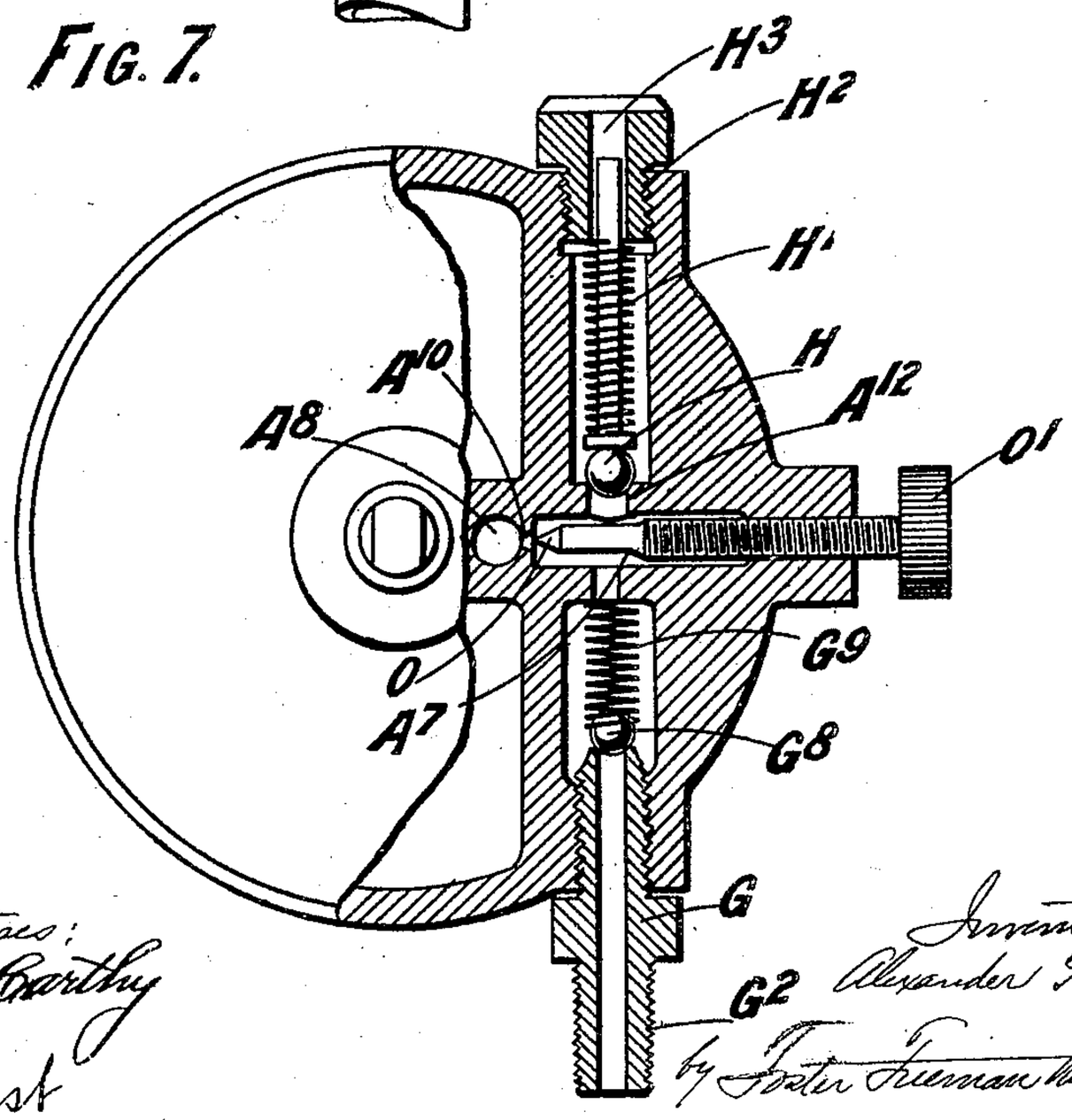


FIG. 7.



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UNITED STATES PATENT OFFICE.

ALEXANDER GEORGE IONIDES, OF LEICESTER, ENGLAND.

AUTOMATIC FOUNTAIN.

No. 914,419. Specification of Letters Patent. Patented March 9, 1909.

Application filed April 3, 1908. Serial No. 424,980.

To all whom it may concern:

Be it known that I, ALEXANDER GEORGE IONIDES, a subject of the King of England, residing at Leicester, in the county of Leicester, England, have invented certain new and useful Improvements in Automatic Fountains, of which the following is a specification.

This invention relates to automatic fountains and the like and more particularly to the type of fountain which comprises a reservoir containing the liquid with air under pressure, the air causing the ejection of the liquid through a nozzle and the flow of liquid being controlled automatically.

In prior constructions difficulty was experienced in adjusting the controlling or regulating valves and this invention has for its object to provide a construction which will enable adjustment to be readily effected while moreover the structure of the fountain as a whole is improved and simplified.

According to this invention the water on its way to the nozzle passes an orifice controlled by a valve into a chamber within which a constant pressure is maintained by the movement of a yielding portion of the wall of this chamber, this movement being communicated to the valve which controls the flow of water from the main chamber into the pressure reducing chamber and consequently the pressure at which the water passes to the nozzle.

In one construction the delivery nozzle is mounted on a tube adapted to be screwed in or out of a sleeve carried about the center of a diaphragm which forms the wall of a chamber or casing which is mounted in a detachable manner on the main chamber or reservoir. This diaphragm is conveniently formed of metal. The nozzle tube carries a rod which extends downward into the passage leading to the reservoir where it is connected to a valve so disposed that pressure on the diaphragm will move the valve toward or on to its seat and reduce or check the flow of water into the auxiliary chamber and consequently that passing to the nozzle. By altering the position of the nozzle tube by screwing it in the sleeve carried by the diaphragm the position of the valve with relation to its seat and with relation to the diaphragm can be adjusted and consequently the flow of water regulated so as to maintain the required height of jet.

In a modification the delivery nozzle is mounted on a diaphragm formed of leather or other suitable material disposed within the detachable casing so as to divide it into two chambers. The lower chamber is in communication with the water reservoir and the valve is carried on a rod connected to the diaphragm or nozzle tube which is mounted on the diaphragm. In the upper chamber is arranged around the nozzle tube a spring one end of which bears against a collar or the like adjacent to the diaphragm while the other butts up against a flange on a sleeve or gland which can be screwed or otherwise moved in or out of the casing. The nozzle tube projects through this gland. By screwing the gland in or out the position of the diaphragm center is adjusted and consequently the relationship between the valve and its seat, the diaphragm however being in all cases free to move under the influence of the pressure of water in the lower chamber but dependent on the variable resistance offered by the spring. In each of the constructions the valve is preferably a ball which is screwed on to the rod so as to allow of adjustment.

A safety valve is provided and either mounted on the reservoir or preferably disposed on the detachable pressure reducing fitting. In this case the passage through which air is forced into the reservoir is formed in this casing and provided with a nonreturn air valve. The arrangement is such that when the predetermined pressure has been reached the safety valve will blow off.

In either of the constructions mentioned the arrangement is such that the pressure reducing device is removable as a whole from the reservoir the latter being filled with water through the orifice into which this fitting screws. In order to prevent the reservoir from being filled with water beyond the predetermined point a short length of tube is mounted inside the orifice into which the detachable fitting screws. This tube projects inward into the reservoir and by forming an air lock prevents water from rising in the reservoir beyond a predetermined level so that an air space of the required volume is automatically reserved.

In the accompanying drawings, Figure 1 is a sectional elevation of one construction of detachable fitting for a table fountain. Fig. 2 is a plan of the same. Fig. 3 is a sectional elevation of another construction of detachable fitting. Fig. 4 is a plan of the same. Fig. 5 is an elevation of a complete fountain.

Fig. 6 is an elevation partly in section of a modified form of detachable fitting. Fig. 7 is a plan thereof also partly in section.

Like letters indicate like parts throughout the drawings.

Referring to the construction illustrated in Figs. 1 and 2 the detachable fitting comprises a casing A preferably formed cylindrical and closed at its lower end which is provided with an extension A′ which is externally screw threaded for attachment to the reservoir B. The upper wall of the casing A is formed by a metallic diaphragm C soldered or otherwise secured in place. In the center of this diaphragm is mounted a sleeve C′ internally screw threaded to receive the nozzle tube D which is correspondingly screw threaded externally. The upper end of the tube D is formed with an enlargement D′ milled or otherwise formed for convenience of manipulation and beyond this in the upper end of the tube D is screwed the nozzle E. To the lower end of the nozzle tube D is attached the valve rod F the attachment conveniently being by a pin F′ which passes through the tube and the end of the valve rod F which thus lies within the bore of the tube D leaving however sufficient clearance around it for the free passage of the water. The valve rod F extends downward through a central hole A^2 formed in the extension A′ of the casing A, the end of the valve rod F projecting beyond this water passage A^2 and having mounted thereon conveniently by screwing a valve F^2 preferably of ball form. The valve spindle is free to move sidewise so as to allow the valve to seat itself truly and easily. The seat for this valve F^2 is formed at A^3 on a reduced prolongation A^4 of the extension A′ of the casing A. This prolongation A^4 is externally screw threaded for a purpose to be hereinafter referred to. By turning the nozzle tube D the position of the valve F^2 can be adjusted or it can be drawn on to its seat and the flow of water to the nozzle cut off.

The wall of the casing A is thickened or an enlargement formed on its side as at A^5 and a rib or thickened portion A^6 is formed in the base this rib extending from the projection A^5 to the center of the base. A hole A^7 is drilled through the projection A^5 and rib A^6 and another hole A^8 is drilled through the boss or extension A′ to join the hole A^7. The outer end of the latter hole is enlarged as at A^9 and screw-threaded toward its outer end and into this is screwed a hollow plug G provided with a milled enlargement G′ and a screw threaded extension or nozzle G^2. At the inner end of this plug G is carried a valve G^3 conveniently formed of vulcanite or other suitable material and having a conical or square head adapted to lie on a correspondingly shaped seat A^{10}. An extension G^4 of the valve G^3 lies within the plug G being retained there by a pin G^5 which passes through a slot G^6 in the extension G^4. The nozzle G^2 is adapted to be connected to an air pump as for example one such as is usually employed for inflating the pneumatic tires of bicycles. Air forced through the nozzle G^2 is free to pass beyond the valve G^3 so long as the plug G is screwed slightly out of the hole A^9 the valve G^3 G^4 being free to move away from the end of the plug G as this air is forced in. Owing to the plug G being slightly screwed out the head of the valve G^3 is kept off the seating A^{10} and the air consequently passes through the passages A^7 A^8 into the reservoir B, but is prevented from escaping therefrom by the valve G^4 engaging the seating G^7. When the air pressure in the reservoir has been raised to the predetermined point the plug G is screwed in until the valve G^3 is on its seat A^{10} where it is securely held by the plug G. A safety valve is provided which indicates when air pressure in the reservoir has reached a predetermined point and in the construction at present being described this safety valve is conveniently arranged in communication with the passages through which air is forced into the reservoir. Above the portion A^9 of the passage A^7 and at right angles thereto is formed a chamber A^{11} which communicates by a short passage A^{12} with the hole A^9. A ball or other suitable valve H is seated at the end of the passage A^{12} being kept on its seat by a spring H′ carried in a hollow plug H^2 which screws into the chamber A^{11}. The plug H^2 has a blow off orifice H^3. By screwing the plug H^2 in or out the pressure at which the valve will blow off can be adjusted.

A tube J is screwed on to the reduced portion A^4 of the casing boss A′ and thus incloses the valve F^2 and enables the water to be forced out of the reservoir until it is practically empty. Within this tube J is disposed some cotton wool or like material J′ preferably with a piece of wire gauze J^2 on the upper side thereof. This constitutes a filter for the water which has to pass from the reservoir through the lower end of the tube J to the passage A^2 leading to the nozzle. The opening in the reservoir into which the detachable fitting is screwed is conveniently formed in the center of the upper wall B′ of this reservoir and a sleeve K is inserted in this opening being conveniently secured there by soldering or otherwise. The sleeve K is screw-threaded internally to engage with the screw threaded extension A′ of the detachable fitting. The sleeve also has a tubular prolongation K′ which extends into the reservoir for the purpose of forming an air lock when the latter is being filled with water and insuring the preservation of the necessary air space and thus preventing the reservoir from being

overfilled. It will be apparent that when pouring water into the reservoir as soon as the level in the latter rises to meet the lower end of the tube K′ the air locked in around this tube will prevent the reservoir from being filled to a further point. To insure a tight joint where the detachable fitting is screwed into the reservoir a leather or other washer L is conveniently disposed around the extension A′ being kept in place by an annular rib A^{13} formed on the base of the casing.

Dealing now with the construction illustrated in Figs. 3 and 4 the diaphragm is in this case constructed of leather or like material and is mounted on the casing A by clamping the edge of the diaphragm between the upper edge or flange of the casing A and the corresponding part of a supplementary casing A^{14} which forms a second chamber beyond the diaphragm. The part A^{14} of the casing is secured to the main casing A by a series of screws A^{15}. The nozzle tube D is rigidly secured to the center of the diaphragm by a nut D^2 screwed on to an extension D^3 of the nozzle tube which passes through an orifice in the center of the diaphragm the latter being held securely between the nut D^2 and the flange or collar D^4 formed on the nozzle tube. Into the upper part of the extension A^{14} of the casing is screwed a gland or collar M, through the center of which freely passes the nozzle tube D. Between the gland M and a collar or flange D^5 formed on the nozzle tube is disposed a spring M′, the arrangement being such that by screwing the gland M in or out of the casing A^{14} the pressure which the spring M′ exerts on the diaphragm C can be varied. A sleeve D^6 screwed on the nozzle tube outside the gland limits the inward movement of the nozzle tube through this gland M. The valve rod F carrying the ball valve F^2 has its upper end screwed into a cross piece D^7 in the nozzle tube D or this rod may be connected to the nozzle tube by a pin in the same way as in the construction illustrated in Fig. 1. It will be seen that adjustment of the gland M not only regulates the pressure required to lift the diaphragm C and consequently seat the valve F^2 but by screwing back the gland M against the sleeve D^6 the nozzle tube D diaphragm C and valve rod F with valve F^2 are all lifted so that the latter is drawn on to its seat and the supply of water to the nozzle E entirely shut off.

When employing the construction illustrated in Fig. 3 it is necessary to provide the reservoir with a nozzle for forcing air thereinto this nozzle being of course provided with a non-return valve which is conveniently constructed similar to the plug and valve G G^2 G^3 illustrated in Fig. 1. A safety valve is also conveniently provided, the safety valve and air valve being conveniently combined in one fitment which is screwed into the top B′ of the reservoir in a way which it is not necessary to more particularly illustrate.

Fig. 5 illustrates the fountain reservoir with a detachable fitting such as illustrated in Figs. 1 and 2 screwed in place in the filling opening. It will be seen that when this fitting is employed only a single perforation need be made in the wall of the reservoir and the construction is thereby simplified as it is not necessary to provide a separate opening for introducing air apart from the central filling opening for the water.

In the modified construction of detachable fitting shown in Figs. 6 and 7 the air passage A^8 is provided with a stop valve O formed on the inner end of a screw threaded rod having a milled head O′ by which the valve is adapted to be screwed down on to its seating A^{10} formed on the junction of the passages A^8 and A^7. As before there is a hollow plug G provided with a screw threaded nozzle G^2 to which the inflater can be attached. The inner end of the plug G has a seating for a ball or other suitable valve G^8 which is normally maintained in contact with its seating by means of a spring G^9. The safety valve, which is arranged in line with the air inlet, comprises a ball or other suitable valve H maintained on its seat A^{12} by a rod surrounded by a coiled spring H′ carried in a hollow plug H^2. The plug H^2 has a blow off orifice H^3 and the pressure at which the valve will blow off can be varied by adjusting the screw plug H^2 in or out of the casing. When air is to be forced into the reservoir the stop valve O is opened and an inflater attached to the nozzle G^2. The incoming air forces the ball valve G^8 from its seat thus compressing the spring and passes through the passages A^7 and A^8 to the reservoir, the return of the air being prevented by the spring G^9 pressing the ball valve G^8 against its seating. When the desired pressure within the reservoir has been obtained the safety valve blows off whereupon the stop valve O is again screwed down into its seating and the inflater detached when the fountain is ready.

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

1. In an automatic fountain the combination of a reservoir, a hollow casing detachably mounted on the reservoir and having a yielding wall, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to its seating as set forth.

2. In an automatic fountain the combination of a reservoir, a hollow casing detachably mounted on the reservoir and having a yielding wall, a communicating passage between this casing and the reservoir, a valve

controlling this passage, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve and means operated from outside the casing for adjusting the position of the valve in relation to its seating as set forth.

3. In an automatic fountain the combination of a reservoir, a hollow casing detachably mounted on the reservoir and having a yielding wall, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on a tube mounted on the yielding wall of the casing, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to its seating as set forth.

4. In an automatic fountain the combination of a water and air reservoir, an air inlet controlled by a non-return valve, a safety valve, a hollow casing detachably mounted on the reservoir, and having a yielding wall, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to its seating as set forth.

5. In an automatic fountain, the combination of a reservoir, a hollow casing detachably mounted on the reservoir and having a yielding wall, a tube extending through and secured to said flexible wall, a valve supported by said tube and adapted to control a passage connecting said tube with the reservoir, and adjustable means arranged outside of said tube for varying the relative positions of the valve and its seat, as set forth.

6. In an automatic fountain, the combination of a reservoir, a hollow casing detachably mounted on the reservoir and having a yielding wall, a tube extending through and secured to said flexible wall, a valve supported by said tube and adapted to control a passage connecting said tube with the reservoir, and rotatable adjusting means for varying the relative positions of the valve and its seat, as set forth.

7. In an automatic fountain, the combination of a reservoir, a hollow casing mounted on the reservoir and having a yielding wall, a tube extending through and supported by said yielding wall, the lower end of said tube communicating with a passage formed in the casing and extending into the reservoir, a valve for closing the inner end of said passage and having a stem extending upwardly within and connected to said tube, a nozzle communicating with the upper end of the tube, and means outside of said casing for effecting a relative adjustment between the valve and its seat at the inner end of said passage.

8. In an automatic fountain, the combination of a reservoir, a hollow casing mounted on the reservoir and having therein a passage which communicates with the interior of the reservoir, one of the walls of said casing being yielding, a tube supported by said flexible wall and communicating with said passage, a nozzle communicating with the outer end of said tube, a valve controlling said passage, and a revoluble adjusting device engaging a threaded section of said tube and adapted to vary the relative positions of said valve and its seat.

9. In an automatic fountain the combination of a water and air reservoir, an air inlet controlled by a non-return valve, a safety valve, a filling aperture in the reservoir, a tube extending from the filling aperture into the reservoir to an extent corresponding to the reserve air space, a hollow casing detachably mounted on the reservoir and having a yielding wall, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve, and means for adjusting the position of the valve in relation to its seating as set forth.

10. In an automatic fountain the combination of a water and air reservoir, an air inlet controlled by a non-return valve, a safety valve, a filling aperture in the reservoir, a tube extending from the filling aperture into the reservoir to an extent corresponding to the reserve air space, a hollow casing detachably mounted on the reservoir and having a yielding wall, a communicating passage between this casing and the reservoir, a valve controlling this passage, an extension of this passage leading to a point near the bottom of the reservoir, a filter between the lower end of said extension and the valve, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to its seating as set forth.

11. In an automatic fountain the combination of a water and air reservoir, a hollow casing detachably mounted on the reservoir having a yielding wall and provided with an air inlet passage controlled by a non-return valve and a safety valve, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to the yielding wall as set forth.

12. In an automatic fountain the combination of a water and air reservoir, a hollow casing detachably mounted on the reservoir having a yielding wall and provided with an air inlet passage controlled by

a non-return valve and a safety valve, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on a tube mounted on the yielding wall of the casing, a connection between the yielding wall and the valve and means operated from outside the casing for adjusting the position of the valve in relation to the yielding wall as set forth.

13. In an automatic fountain the combination of a water and air reservoir, a hollow casing detachably mounted on the reservoir having a yielding wall and provided with an air inlet passage controlled by a non-return valve and a safety valve, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a filter through which the liquid must pass on its way to the nozzle, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to its seating as set forth.

14. In an automatic fountain the combination of a water and air reservoir, a hollow casing detachably mounted on the reservoir having a yielding wall and provided with an air inlet passage controlled by a non-return valve and a safety valve, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a connection between the yielding wall and the valve, means for adjusting the position of the valve in relation to the yielding wall and means for preventing the reservoir being filled with liquid beyond a predetermined point as set forth.

15. In an automatic fountain the combination of a water and air reservoir, a hollow casing detachably mounted on the reservoir having a yielding wall and provided with an air inlet passage controlled by a non-return valve and a safety valve, a communicating passage between this casing and the reservoir, a valve controlling this passage, a nozzle carried on the yielding wall of the casing, a filter through which the liquid must pass on its way to the nozzle, a connection between the yielding wall and the valve, means for adjusting the position of the valve in relation to the yielding wall and means for preventing the reservior being filled with liquid beyond a predetermined point as set forth.

16. In an automatic fountain the combination of a water and air reservoir, a hollow casing detachably mounted on the reservoir having a yielding wall and provided with an air inlet passage controlled by a non-return valve and a safety valve, a filling aperture in the reservoir, a tube extending from the filling aperture into the reservoir to an extent corresponding to the reserve air space, a communicating passage between the hollow casing and the reservoir, a valve controlling this passage, an extension of this passage leading to a point near the bottom of the reservoir, a filter between the lower end of said extension and the valve, a nozzle carried on a tube mounted on the yielding wall of the casing, a connection between the yielding wall and the valve and means operated from outside the casing for adjusting the position of the valve in relation to the yielding wall as set forth.

17. In an automatic fountain the combination of an air and water reservoir, a filling aperture therein and a detachable fitting constituting a closure for this aperture and comprising in itself a chamber with a yielding wall on which is mounted a nozzle, a communicating passage between this chamber and the reservoir controlled by a valve connected to the yielding wall and means for adjusting the position of the valve in relation to its seating as set forth.

18. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, a detachable filling having an extension constituting a closure for the filling aperture, a chamber in the detachable fitting having a yielding wall with a nozzle mounted thereon, a passage from the chamber leading through the extension on the fitting and controlled by a valve, a connection between the yielding wall and the valve and means for adjusting the position of the valve in relation to its seating as set forth.

19. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, and a detachable fitting constituting a closure for this aperture and comprising in itself a chamber with a yielding wall on which is mounted a nozzle, a connecting passage between the chamber and the reservoir controlled by a valve connected to the yielding wall, means for adjusting the position of the valve in relation to its seating and an air inlet passage controlled by a non-return valve and a safety valve as set forth.

20. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, a tube extending from the filling aperture into the reservoir to an extent corresponding to the reserve air space, and a detachable fitting constituting a closure for this aperture and comprising in itself a chamber with a yielding wall on which is mounted a nozzle, a connecting passage between the chamber and the reservoir controlled by a valve connected to the yielding wall, means for adjusting the position of the valve in relation to its seating and an air inlet passage controlled by a non return valve and a safety valve as set forth.

21. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, a detachable fitting having an extension constituting a closure for the filling aperture a chamber in the detachable

fitting having a yielding wall and carrying a tube on which is mounted a nozzle, a passage from the chamber leading through the extension on the fitting and controlled by a valve, a tubular prolongation of the passage leading to a point near the bottom of the reservoir, a filter between the end of this tube and the valve, a connection between the yielding wall and the valve and externally operated means for adjusting the position of the valve in relation to its seating as set forth.

22. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, a tube extending from the filling aperture into the reservoir, to an extent corresponding to the reserve air space, a detachable fitting having an extension constituting a closure for the filling aperture, a chamber in the fitting having a yielding wall and carrying a tube on which is mounted a nozzle, a passage from the chamber leading through the extension on the fitting and controlled by a valve, a tubular prolongation of the passage leading to a point near the bottom of the reservoir, a filter between the end of this tube and the valve, a connection between the yielding wall and the valve and externally operated means for adjusting the position of the valve in relation to its seating as set forth.

23. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, a detachable fitting having an extension constituting a closure for the filling aperture, a chamber in the detachable fitting having a yielding wall and carrying a tube on which is mounted a nozzle, a passage for liquid leading through the extension on the fitting into the chamber and controlled by a valve, an air inlet passage through the extension on the fitting controlled by a non-return valve and a safety valve, a tubular prolongation of the passage for liquid leading to a point near the bottom of the reservoir, a filter between the end of this tube and the liquid controlling valve, a connection between the yielding wall and the valve and externally operated means for adjusting the position of the valve in relation to its seating as set forth.

24. In an automatic fountain the combination of a water and air reservoir, a filling aperture therein, a tube extended from the filling aperture into the reservoir to an extent corresponding to the reserve air space, a detachable fitting having an extension constituting a closure for the filling aperture, a chamber in the detachable fitting having a yielding wall and carrying a tube on which is mounted a nozzle, means for adjusting the nozzle on the tube, a passage for liquid leading through the extension on the fitting into the chamber and controlled by a valve, an air inlet passage through the extension on the fitting controlled by a non-return valve and a safety valve, a tubular prolongation of the passage for liquid leading to a point near the bottom of the reservoir, a filter between the end of this tube and the liquid controlling valve, and a connection between the nozzle and the valve as set forth.

25. In an automatic fountain the combination with a water and air reservoir, a filling aperture therein, a tube extending from the filling aperture into the reservoir to an extent corresponding to the reserve air space, a detachable fitting having an extension constituting a closure for the filling aperture, a chamber in the detachable fitting having a yielding wall and carrying a tube on which is mounted a nozzle, means for adjusting the nozzle on the tube, a passage for liquid leading through the extension on the fitting into the chamber and controlled by a valve, an air inlet formed in the wall of the chamber and leading through the extension, a non-return valve, a safety valve and a screw valve, a tubular prolongation of the passage for liquid leading to a point near the bottom of the reservoir, a filter between the end of this tube and the liquid controlling valve, and an articulated connection between the yielding wall and the valve as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALEXANDER GEORGE IONIDES.

Witnesses:

WALTER W. BALL,

F. HOOD.