(No Model.) 2 Sheets—Sheet 1.

R. J. GILMORE & C. A. DUNLAP.

FOUNTAIN.

No. 557,263. Patented Mar. 31, 1896.

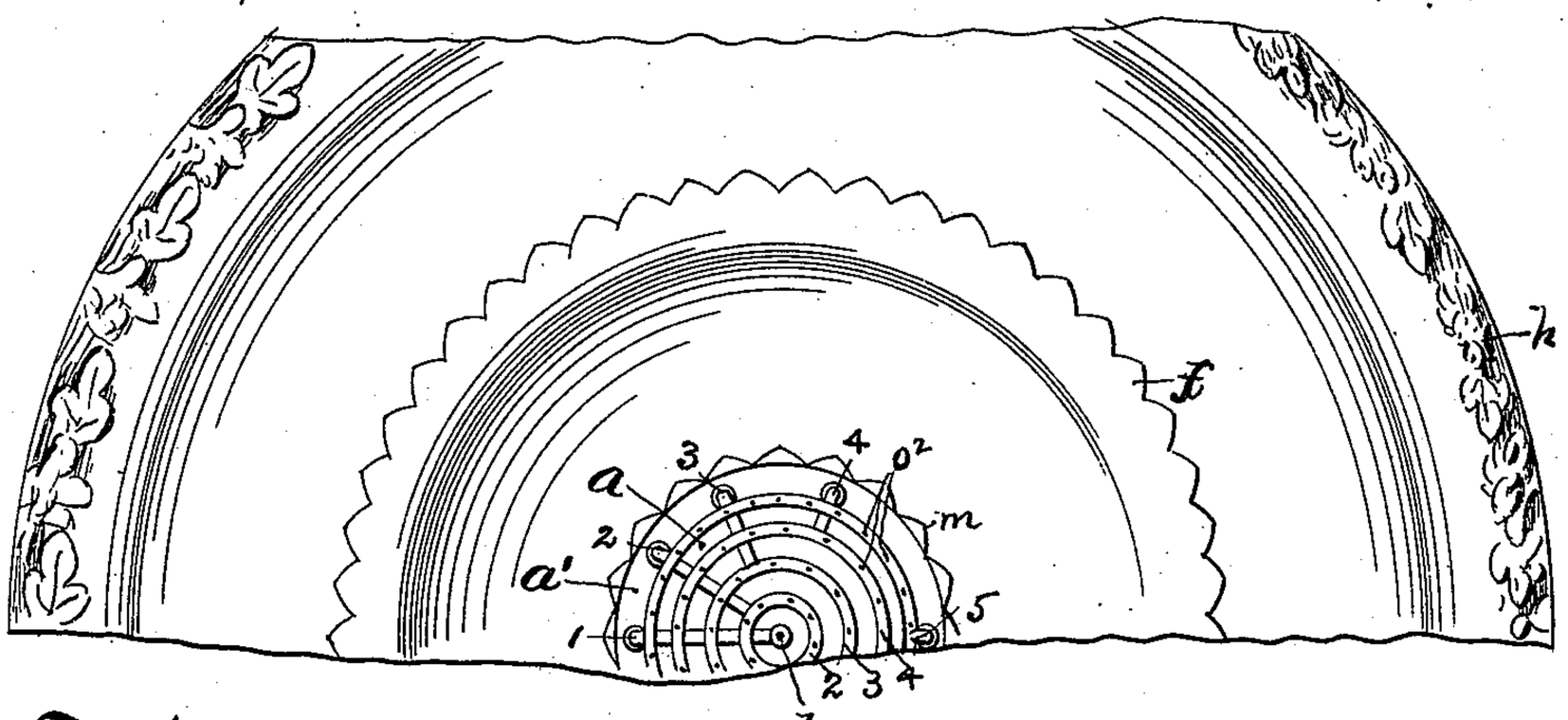

Fig 1.

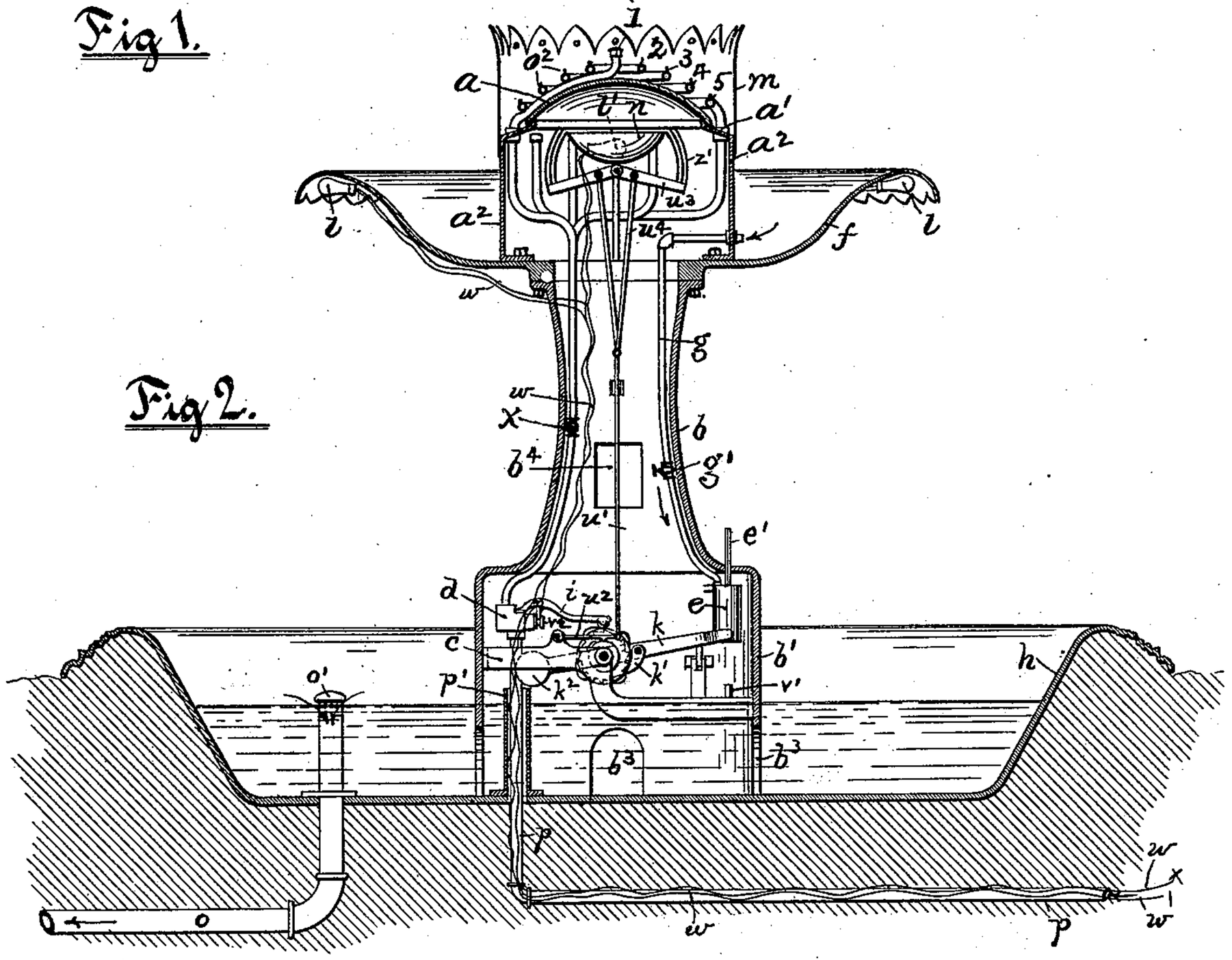

Fig 2.

Witnesses.

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(No Model.) 2 Sheets—Sheet 2.

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Fig 3.

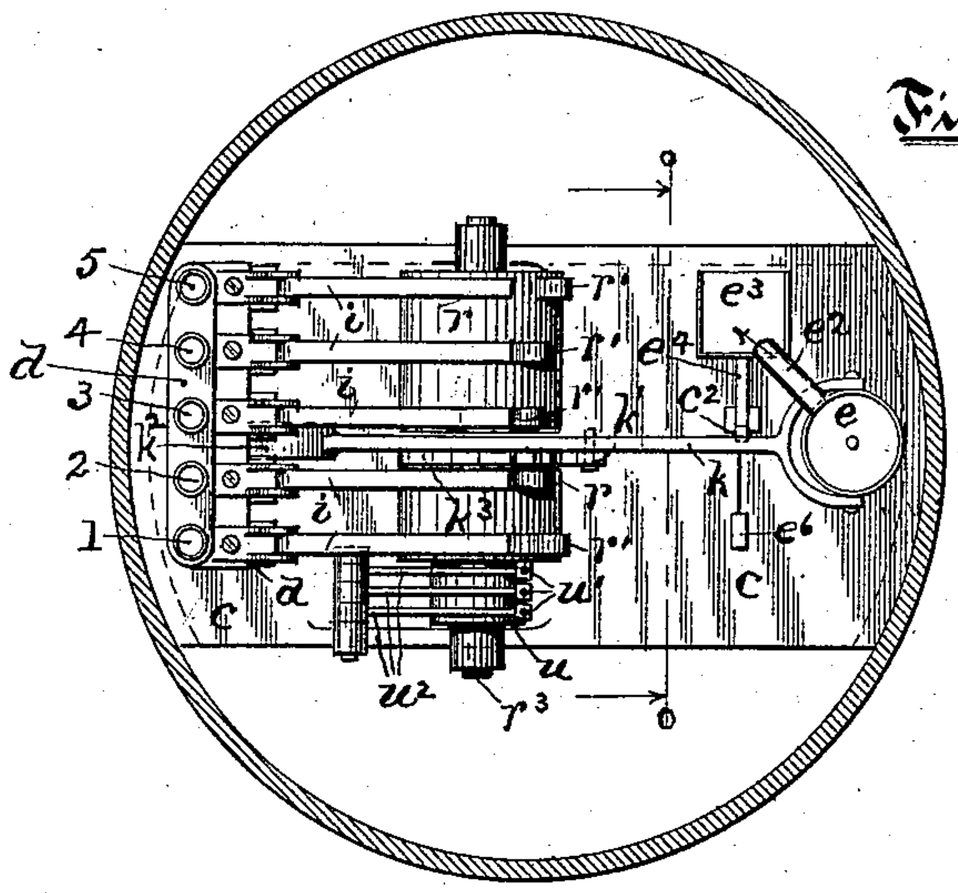
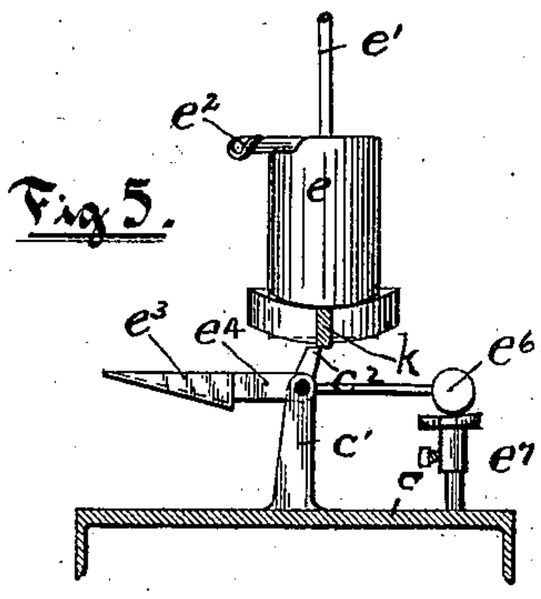


Fig 5.



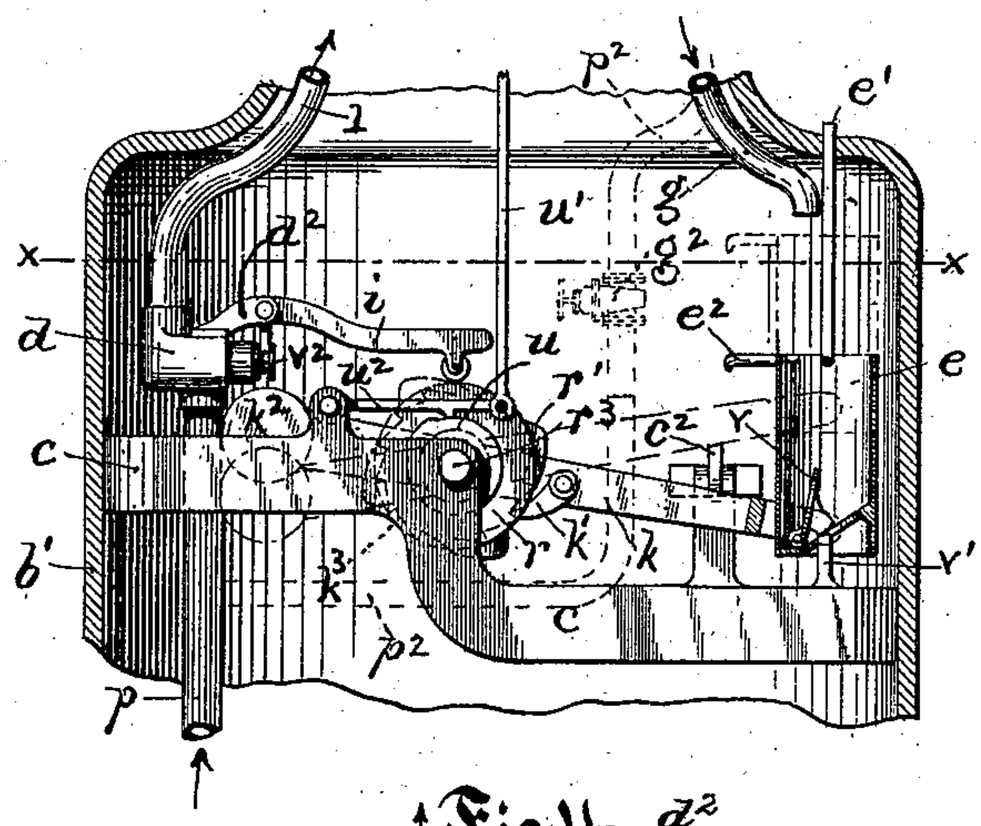


Fig 4.

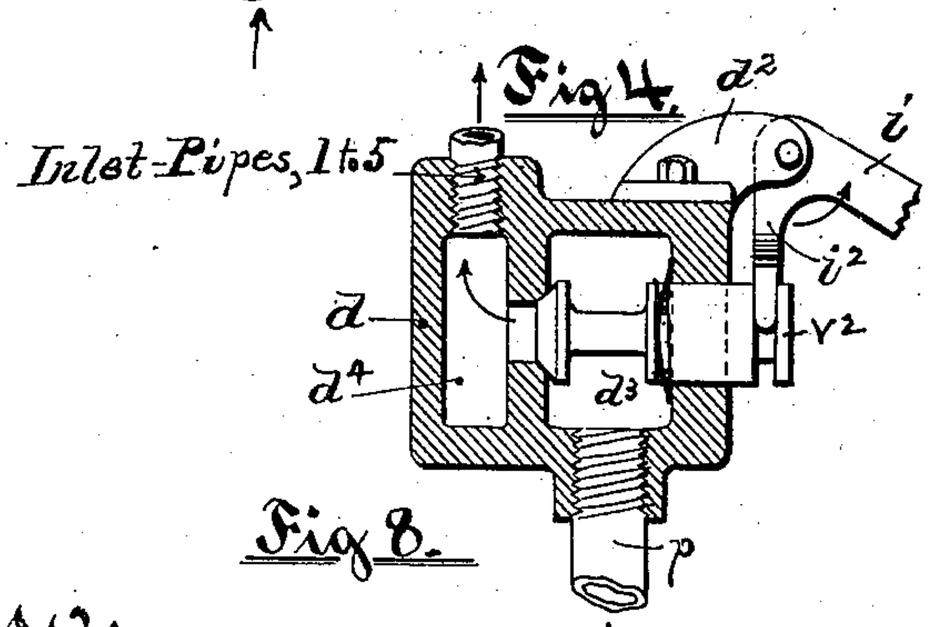


Fig 8.

Fig 6.

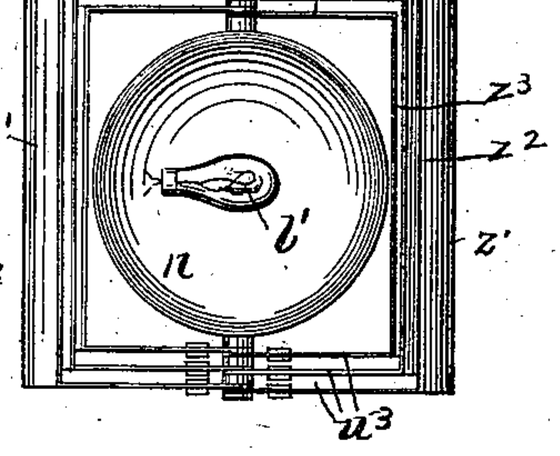
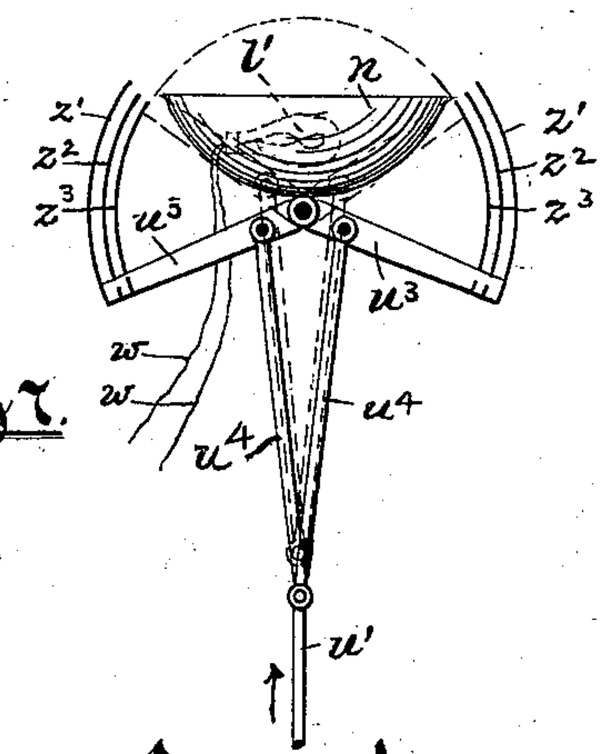


Fig 7.



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UNITED STATES PATENT OFFICE.

ROBERT J. GILMORE AND CHARLES A. DUNLAP, OF PROVIDENCE, RHODE ISLAND.

FOUNTAIN.

SPECIFICATION forming part of Letters Patent No. 557,263, dated March 31, 1896.

Application filed September 8, 1894. Serial No. 522,426. (No model.)

To all whom it may concern:

Be it known that we, ROBERT J. GILMORE and CHARLES A. DUNLAP, citizens of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Fountains; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to fountains adapted and arranged to produce various designs in the discharge-water issuing from the fountain. A fountain of this class is shown and described in United States Patent No. 469,683, issued to Charles A. Dunlap March 1, 1892. The present invention, however, differs from said patented fountain in that the changes or effects are produced automatically at predetermined intervals; and it consists, essentially, in the combination with a series of suitably mounted and arranged discharge-orifices constituting the fountain proper and a main supply-pipe or connection of valves interposed between and communicating with the supply-pipe and discharge-orifices and mechanism connected with the valves for opening and closing them automatically.

It further consists in providing the fountain with an electric or other lighting system for illuminating the same, combined with means for controlling said light and producing colored effects automatically, all as will be more fully hereinafter set forth and claimed.

By means of our invention the controlling mechanism of the fountain may be adjusted or set so as to produce a series of continuously-repeated different designs or effects automatically. The power or means employed for actuating said mechanism may be effected through the medium of a slowly-flowing stream of the discharge-water of the fountain. The water passed through the fountain, in lieu of running to waste, may be repeatedly reused by conducting it to a suitably-actuated force-pump.

The fountain does not require the constant presence of an attendant, it being simply necessary to turn on the water when starting the display and subsequently shutting it off.

The device is comparatively simple and not liable to become inoperative accidentally. Moreover, its cost is not great when considered with respect to the range of changes or variations which may be produced.

In the two accompanying sheets of drawings, illustrating the invention, Figure 1 is a partial plan view. Fig. 2 is a vertical central sectional view taken longitudinally of the fountain and showing interiorly the arrangement of the several parts. Fig. 3, Sheet 2, is a horizontal sectional view taken on line *x x* of Fig. 4. Fig. 4 is a partial sectional view, enlarged, taken through the center of the lower portion of the fountain-standard. Fig. 5 is a transverse sectional view taken on line *o o* of Fig. 3, showing the device for tripping the valve-operating mechanism. Fig. 6 is a plan view of the illuminating and shading mechanism. Fig. 7 is a side view of the same; and Fig. 8 is a transverse sectional view of the valve-casing, enlarged.

In this invention the series of independent tubular rings 2 3 4 5, provided with suitable discharge-orifices o^2, constituting the fountain proper, are substantially as set forth in Patent No. 469,683, before referred to. The present fountain is provided with a hollow standard or frame *b*, having an enlarged base portion *b'*, said standard being located at the center of a suitably-mounted ornamental basin, as *h*, arranged to contain more or less of the water discharged from the fountain. To the upper portion of the standard is secured a suitably-shaped smaller basin or pan *f*, at the center of which latter is fixed a wide hoop or ring a^2 extending above the top of the basin *f*. The said ring is provided at the top with the perforated annular ornamental shield or guard *m*. By this arrangement it will be seen that the interior or chamber of the standard is practically isolated from the water filling the upper basin and surrounding said extension a^2. At or near the point where the parts

a^2 and m are united is secured an interiorly-located cone-shaped ring or frame a' arranged to form a support for the transparent or translucent concavo-convex plate a. While the said parts a' a may be shaped as shown, it is clearly obvious that other suitable forms can be employed. The several rings of pipes 2, 3, 4 and 5, as well as the center pipe 1, are arranged above and in close proximity to the plate a. The corresponding inlet-pipes leading to and communicating with said fountain-rings pass downwardly through the frame a' into the interior of the standard, where they are arranged in a row and communicate with a hollow casting d, about to be described. This casting d is, as drawn, provided with a series of five horizontal inlet-valves v^2, one for each pipe. Each valve-stem extends outwardly through the casting and is grooved or otherwise arranged to receive and be actuated by a short arm i^2 of the pivotally-mounted cam-lever i, a lever being employed for each valve. The casting is divided into a series of chambers d^3 d^4, the former being the inlet-chamber communicating directly with the main supply-pipe p. The other or discharge chamber d^4 consists of five independent chambers, each communicating directly with its respective pipe leading to the fountain-rings. (See Fig. 8.) Thus it will be seen that communication between the supply-pipe p and the said inlet-pipes is effected only upon opening one or more of the inlet or controlling valves v^2. As drawn, the pressure of water upon the valves in chamber d^3 serves to keep them seated when not in operation.

The main supply-pipe p passes upwardly through the base of basin h and is tapped into the casting d. In order to prevent the waste or discharged water from coming in contact with the pipe p, the basin is provided with an enlarged vertical sleeve p' extending above the water-line, said sleeve forming a water-tight joint. (See Fig. 2.) The water from the basin escapes through a waste-pipe o, having a suitable strainer or cap o' located at the water-line.

The mechanism for automatically controlling the valves v^2, &c., is mounted on a suitable bracket c secured to the interior of the standard-base b'. A horizontal cylinder or drum r is secured to a shaft r^3 mounted to revolve in bearings formed in the bracket c, the said cylinder being provided with a series of suitably-located projecting lugs or cams r', arranged to form circular paths for the respective levers i. At or about midway of the cylinder is located a ratchet-wheel k^3, the same being fixed to the shaft. Rotary motion is imparted to the wheel, &c., through the medium of a spring-pawl k', jointed to the pivotally-mounted operating-lever k. The latter is counterweighted, as at k^2, and is yoked at its front end to a vertically-guided bucket or vessel e, arranged to be filled with water at predetermined intervals. Said bucket is provided with a self-closing bottom valve v, arranged to be automatically opened upon its engagement with a suitable stop v', thereby causing the water to be quickly discharged.

In the drawings the bucket is represented as adapted to be filled with waste water from the upper basin f, said water passing from the basin through the small pipe g, a valve g' being located in the pipe for controlling the volume or flow of water used in the bucket. An opening b^4 is formed in the standard b, through which access to the valves is effected. In lieu of using waste water for filling the bucket water may be taken direct from the main supply-pipe p through a branch pipe p^2 leading therefrom, said branch pipe being provided with a controlling-valve g^2, all as indicated by dotted lines in Fig. 4.

The bucket e is jointed at its lower portion to the yoked end of the operating-lever k, as before stated. At or near the top of the bucket is located an overflow pipe or spout e^2, arranged with respect to the pivotally-mounted tripping-lever e^4, the latter having a small pan or basin e^3 at one end and a counterweight e^6 at the other. The lever is further provided with a short upwardly-extending tripping arm or dog c^2, arranged to engage and support the operating-lever k, all as clearly shown in Fig. 5. By means of the construction just described it will be apparent that after the elevated bucket is filled with water the overflow therefrom falling into the pan e^3 will soon depress the corresponding end of the lever e^4, thereby withdrawing the dog c^2 from the lever k, thus freeing or tripping the latter. The water-filled bucket e then instantly drops to its limit, the valve v at the same time being opened by striking the stop v', thus causing the water to be quickly discharged. While the operating-lever k is being depressed through the medium of the bucket, as stated, the cam-cylinder r will be rotated a distance corresponding to the angular movement of said lever by means of the ratchet-wheel and its pawl, thereby bringing one or more of the several cam-lugs r' into engagement with the free ends of the corresponding levers i and thus opening the respective valves v^2 and allowing water to pass from chamber d^3 into the thus opened inlet-pipes communicating each with a discharge-ring at the top of the fountain. These valves, &c., remain open until a subsequent action of the bucket causes the cylinder r to be further rotated, thereby opening one or more of the previously-closed valves and closing one or more, as the case may be, of the previously-open ones.

We would add that the counterweight k^2 of lever k exceeds the weight of the empty bucket and its connections. Therefore the latter automatically returns to its normal or elevated position (shown in Fig. 2) after the water has escaped therefrom. In like manner the tripping-lever e^4 is depressed by water falling into its pan e^3 and is automatically reset by the counterweight e^6, an adjustable

stop e^7, Fig. 5, serving to so arrest the lever that the relation of the dog or trip c^2 to the lever k may be maintained.

The manner of illuminating the fountain and means for automatically changing the color-shades may be described as follows:

Referring to Fig. 2, it will be seen that an inverted reflector n is located below the said concavo-convex plate a. The reflector, as drawn, is upturned and contains an incandescent lamp arranged to be lighted through the medium of an electric current passing through the conducting-wires w w. (See also Figs. 6 and 7.) The reflector is provided with a series of independently-movable color shields or shades z' z^2 z^3 attached to a corresponding number of pivotally-mounted arms u^3. The said shades may be composed of mica, gelatin, or other suitable transparent, translucent or semiopaque material. The shades, as drawn, are bent, each forming a portion of a circle. They are oppositely arranged in pairs, so that when they are swung upwardly into position, as in use, they form approximately a semicircle, the adjacent edges of each pair meeting at the center of the fountain. To each of the said arms u^3 is jointed a downwardly-extending link u^4, which in turn are jointed to vertically-guided bars or rods u', the latter being jointed to independent cam-levers u^2. These levers u^2 are arranged to be actuated by a series of cams u secured to the shaft r^3 carrying the cam-drum r, before described. (See also Figs. 3 and 4).

Now assuming that the several pairs of shades are unlike in color, and that the said cams u are so set or arranged that the working periphery of each is, say, one-third of a circle, it follows that each pair of color-shades will be swung into and maintained in position over the lamp and its reflector, while more or less of the fountain designs are being played during the corresponding angular movement of the drum, the latter being effected by the intermittent action of the bucket e and its connections. The said current-conducting wires w are adapted to lead from any suitable source or generator of electricity. If desired, the under side of the rim or flange of the upper basin f may be provided with a series of lamps l for illuminating the water overflowing from the basin, said lamps being adapted to be lighted electrically by the branch current-conducting wires w, as represented in Fig. 2.

While changes in the designs or effects produced by the water flowing through the discharge-outlets of the fountain may be made automatically at fixed intervals of time, such intermittent action can be readily varied by means of the valve g', located in the small waste-pipe g—that is to say, a full open valve will produce comparatively rapid changes and a nearly-closed valve will cause the changes to be made much less frequently. The same suggestions also apply to the color-changing mechanism.

We may state that if desired the automatic devices may be rendered temporarily inoperative at any time by simply closing the valve g'. In such case all the valves v^2 may be left open and the various designs produced by manipulating the stop-valves x, located in the several inlet-pipes communicating with the main discharge-pipes. These valves x may be reached through said opening b^4, formed in the base-standard. A door or cover closes the opening.

In lieu of making the interior chamber of the standard-base b' open to the water it may be made water-tight or provided with a vertical partition, thereby separating it into two chambers, one of which may be water-tight, for containing the mechanisms or devices for controlling the valves, color-shades, &c.

We do not limit our invention to the exact construction and arrangement of the mechanism represented by the drawings, since it is obvious that without departing from the invention other suitable means may be employed for controlling the water flowing to the perforated fountain-rings and also for actuating the color-shades. The fountain may be made portable or semiportable and adapted to be set up and connected in any suitable manner.

We would add that while our improved fountain is more particularly adapted to be employed on grass-lawns or in conservatories, it may be used as a stage-fountain, thus forming an additional attraction in scenic effects for theatrical representations, &c.

We claim as our invention—

1. In a self-contained automatic fountain, the combination with a series of independent inlet-pipes provided at their upper ends with discharge-orifices constituting the fountain proper, of a corresponding series of independent valves for controlling the admission of water into said pipes, a main supply-pipe communicating with the several valve-chambers of said valves, intermittingly-rotating mechanism through the action of which said valves are opened and closed, and means connected with said rotating mechanism capable of being made operative intermittingly through the medium of a slowly-flowing stream of water, substantially as described.

2. In a self-contained automatic fountain, the combination with a convex-shaped transparent or translucent plate, as a, a series of independent inlet-pipes terminating at their upper ends in discharge-rings constituting the fountain proper located above said plate, a corresponding series of independent valves communicating with said inlet-pipes connected with a suitable water-supply, and intermittingly-operating mechanism for opening and closing said valves through the medium of a slowly-flowing stream of water, of a suitable lamp or lighting device located below said plate a, a reflector mounted below the lamp arranged to throw light-rays upwardly through the plate a onto the water is-

suing from said discharge-rings, a series of independently-movable shades capable of being interposed between said lamp and plate *a*, and mechanism for moving the shades into and out of action, substantially as described.

3. In a self-contained automatic fountain, the combination of a series of independent inlet-pipes provided at their upper ends with discharge-orifices constituting the fountain proper, a corresponding series of independent valves for controlling the admission of water into said pipes, a main supply-pipe communicating with the several valve-chambers of said valves, intermittingly-movable mechanism through the action of which said valves are opened and closed, means for controlling the action of said intermittingly-movable mechanism, a suitably-located electric or other light for illuminating the water issuing from said discharge-orifices, a series of independently-movable shades or color-plates, and automatically-actuated mechanism arranged to interpose said shades between the said light and the said discharge-orifices at predetermined intervals, substantially as hereinbefore described and for the purpose set forth.

4. In an automatic fountain, the combination with a series of suitably-arranged independent outlet or discharge pipes constituting the fountain proper, and a series of independent controlling-valves communicating with said pipes, of mechanism for independently opening and closing said valves at predetermined intervals, and a single controlling device, actuated by a stream of slowly-flowing water, for governing the action of all the valves, whereby the water issuing from the fountain proper and constituting one design is not shut off until the next succeeding water design or effect is displayed, substantially as described.

5. In an automatic fountain, the device for automatically controlling the outflow of water therefrom, the same consisting of a series of independent valves, as v^2, interposed between the main supply-pipe and the series of independent discharge-outlets constituting the fountain proper, a lever for actuating each valve, a series of cams controlling the movement of said levers, and means for intermittingly operating said cams, substantially as described.

6. In an automatic fountain, a series of independent valves for controlling the discharge or outflow of water, a corresponding series of movable cams, and suitably-mounted levers or connections located with respect to said cams and valves, in combination with a ratchet-wheel and pawl-carrying lever for actuating said cams, a movable self-discharging water bucket or vessel, jointed to said pawl-carrying lever, adapted to be made operative through the medium of water flowing thereto and means for tripping or releasing the lever automatically, substantially as hereinbefore set forth.

In testimony whereof we have affixed our signatures in presence of two witnesses.

ROBT. J. GILMORE.
CHARLES A. DUNLAP.

Witnesses:
GEO. H. REMINGTON,
FREDERIC ARNOLD.