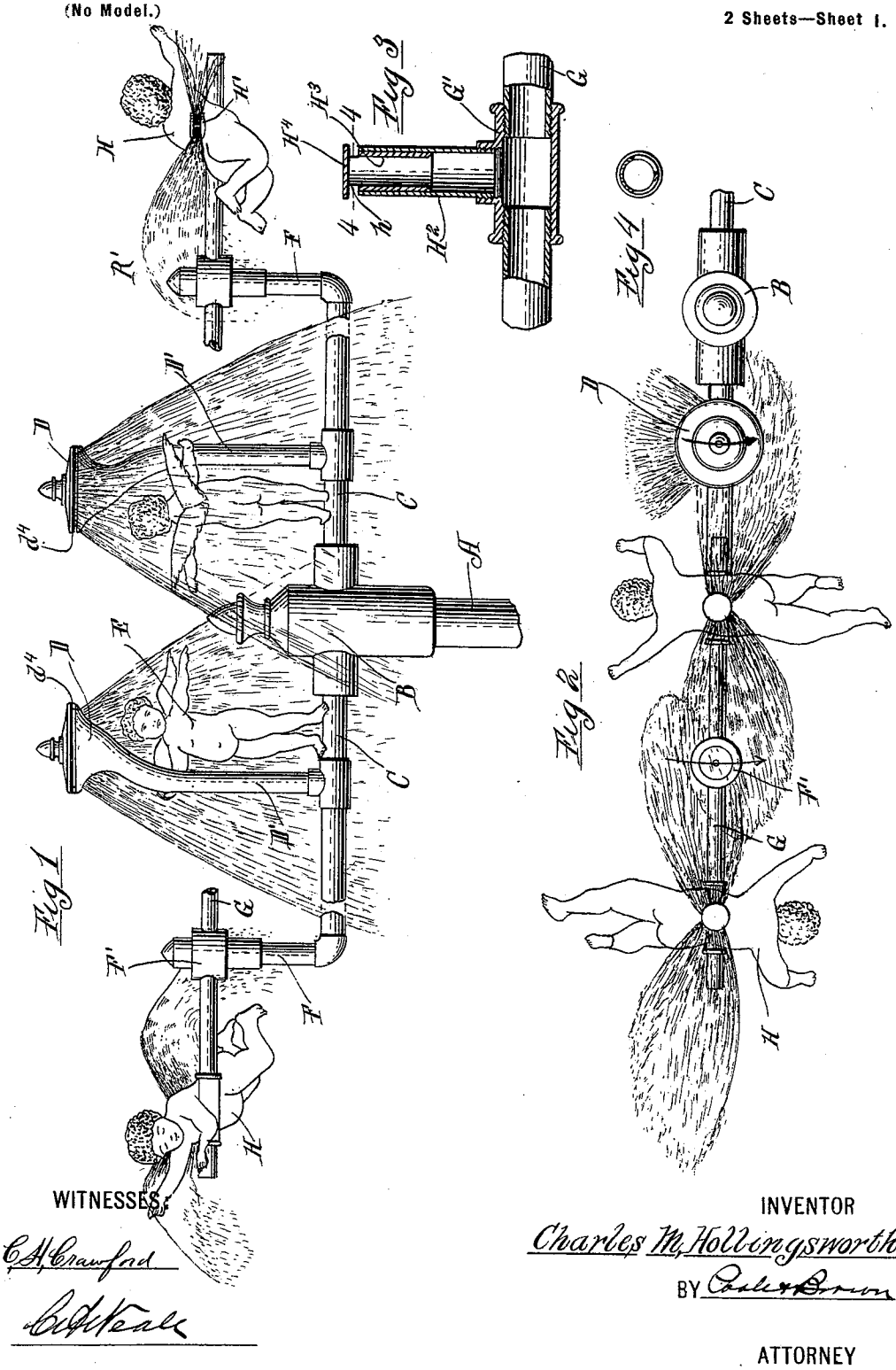
No. 636,803. Patented Nov. 14, 1899.

C. M. HOLLINGSWORTH.

ORNAMENTAL FOUNTAIN.

(Application filed Oct. 19, 1898.)

(No Model.) 2 Sheets—Sheet 1.



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Fig 5

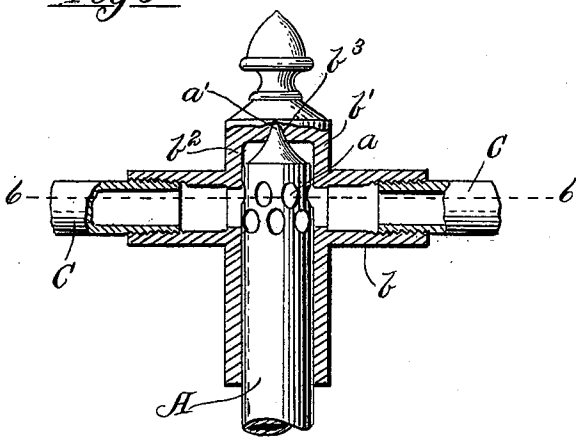


Fig 7

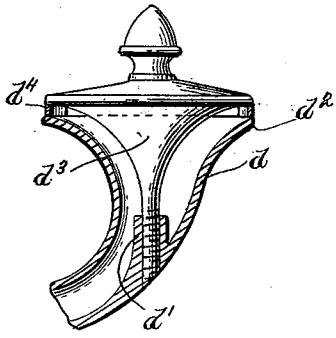


Fig 6

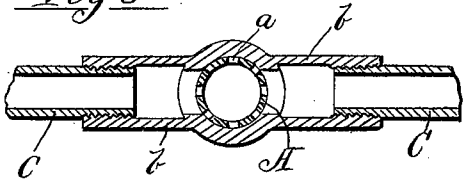


Fig 8

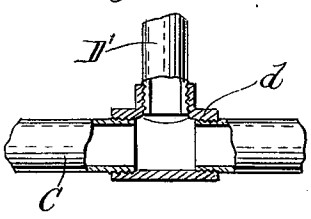


Fig 9

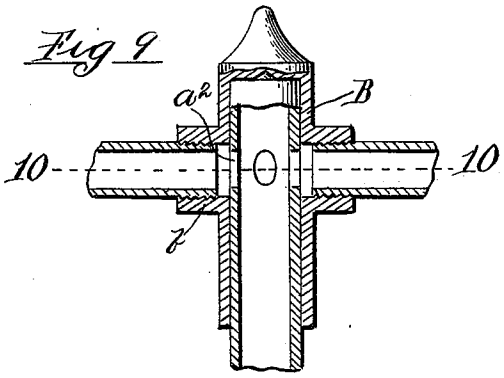
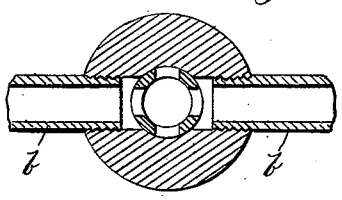


Fig 10



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UNITED STATES PATENT OFFICE.

CHARLES M. HOLLINGSWORTH, OF NEWBURG, NEW YORK.

ORNAMENTAL FOUNTAIN.

SPECIFICATION forming part of Letters Patent No. 636,803, dated November 14, 1899.

Application filed October 19, 1898. Serial No. 694,053. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. HOLLINGSWORTH, a citizen of the United States, and a resident of Newburg, in the county of Orange and State of New York, have invented certain new and useful Improvements in Ornamental Fountains; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in ornamental fountains, and refers more particularly to that class of fountains in which jets or sprays of water are discharged from an artistic figure attached to a moving part of the fountain in such manner as to give movement to said figure and other moving part of the fountain—such, for instance, as in the well-known reaction-fountains.

The object of the invention is to give life-like motion and appearance to artistic figures, of human or other form, mounted on a movable part of the fountain, such as a water-pipe, by the reaction of water issuing under pressure from suitably-shaped orifices in said figure.

The invention also relates to the shape and connections of the water-pipes and other fittings and to the location of the artistic figures thereon and the location and form of the outer orifice, whereby life-like appearance and movements are given to said figures.

The general form and relation of the parts of the mechanism which has been found most suitable for the purpose is that in which horizontal cross pipes or arms are mounted on vertical pipes by means of loose fittings which permit said horizontal pipes to rotate freely in horizontal planes upon the vertical pipes as pivots or axes, the artistic figures being supported in proper positions on such horizontal pipes. Such revolving movements of the figures may be either simple or compound—that is to say, the figures may merely revolve about a fixed axis or certain of the figures may be mounted to revolve about a secondary axis which is itself mounted to revolve about the primary axis. A portion of the figures may therefore have a simple movement and the remaining portion a compound movement. The artistic figures or groups mounted on the pipe-arms are made so as to be deficient in some one of their parts or members, and the discharge-orifices are so located and formed that the issuing jets or sheets of water will supplement or unite with the forms of the solid figures or groups so as to constitute the lacking part thereof, while at the same time serving to impel the same forward, the solid figures or groups and the liquid jets or sprays forming moving combinations which are suggestive and pleasing. As herein shown, the figures represent cupids or cherubs, which are ordinarily represented as having outstretched wings. Wings are omitted from the figures and replaced by sprays or jets of water representing wings. For this purpose the discharge-orifices are located upon the backs or shoulders of the figures and are so formed that the water issues from them in wing-like sheets, which for the greater part are directed tangentially backward with respect to the circular or other path in which the figure moves. Moreover, by a suitable arrangement and shape of the parts through which the water passes from the vertical to the horizontal pipes such sheets of water may be caused to alternately expand and contract in simulation of the flitting movements of wings. Thus the cupids or other similar figures appear to be propelled by the active movements of their own wings of water.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of the upper part of a reaction, fountain embodying my invention, with parts broken away. Fig. 2 is a plan view of one side of the fountain shown in Fig. 1. Fig. 3 is a detail section of one of the horizontal pipe-arms and the nozzle from which the water issues to simulate wings of the figures. Fig 4 is a cross-section on line 4 4 of Fig. 3. Fig. 5 is a vertical section taken through the main supply-pipe and the revolving head, the parts being so arranged as to give a continuous flow of water to the discharge-nozzles. Fig. 6 is a section taken on line 5 5 of Fig. 5. Fig. 7 is an enlarged detail view, in vertical section, of one of the discharge-nozzles. Fig. 8 is a view, partly in ele-

vation and partly in section, of the junction of one of the horizontal supply-pipes and vertical discharge-pipes. Fig. 9 is an enlarged transverse vertical section of the supply-pipe and revolving head, the parts being arranged to give a varying flow of water to the discharge-nozzles. Fig. 10 is a horizontal section taken on line 9 9 of Fig. 9.

In said drawings, A designates a vertical supply-pipe, which also constitutes a standard on which is supported a revolving head B, said head being connected with radial arms C C, which are fitted outside of said head with discharge-nozzles D D to discharge a stream or jet of water tangentially with respect to a circle in which the nozzles D revolve about the standard A.

Referring more particularly to the form of fountains shown in Figs. 1 to 7, the upper end of the supply-pipe A is provided with one or more circular series of radial openings *a*, Fig. 5, which register with the tubular boss *b* of the revolving head B, mounted to rotate on said upper end of the pipe A and with which tubular boss the arms C have screw-threaded connection. In order that the head B may rotate freely on the pipe or standard A, the latter is turned at its upper end to a true cylindrical form and its closed upper end terminates in a conical point *a'*, coincident with the longitudinal axis of said cylindrical portion of the pipe A, and the vertical sleeve *b'* of the head B is bored to form a cylindrical socket b^2 of such diameter as to fit snugly upon the cylindrical portion of the pipe A without binding. The inner end of this cylindrical socket b^2 is provided centrally with a recess b^3 to receive the conical point *a'* of the pipe A, thereby forming a step-bearing, as more clearly shown in Fig 5.

In order to insure a continuous flow of water through the apertures *a* of the pipe A to the tubular boss *b* of the head B, the interior diameter of said boss should bear such relation to the imperforate spaces between said openings *a* that said imperforate spaces will never entirely close the inner ends of the tubular bosses. This result is attained by the arrangement shown in Fig. 5, wherein the pipe A is provided with two circular series of apertures *a*, the openings of one series alternating with those of the other series, so that when the imperforate spaces between two of the openings *a* in the upper series are opposite the inner end of the tubular boss *b* of the head B an opening *a* of the lower series will register with said inner end of the tubular boss, thus insuring a free and uniform discharge of water therethrough at all times, irrespective of the position of the head B on the standard A.

The arms C may be continuations of the boss *b*, but for convenience they are separated therefrom and connected with said tubular bosses in any suitable manner—as, for instance, by screw-threads, as shown. With said arms C outside the said head B are connected vertical pipes D', provided at their upper ends with the discharge-nozzles D. Said pipes D' are connected with the arms C by means of the usual T-coupling *d*. Upon said arms C and adjacent to the vertical discharge-pipes D' are located artistic or ornamental figures, said figures in the instance shown being cupids or cherubs, which are shown as standing upon the arms C, with one hand of each figure resting upon the adjacent discharge-pipe D'. The discharge-orifices D of the pipes D' are desirably curved inward, so as to partially overhang the figures E. The nozzles D are constructed to discharge a semicircular sheet of water to the rear of the figures E, which falls in the form of a thin vail or film, the whole constituting, in effect, a statuette arranged in a niche, the niche being formed by a sheet of water issuing from the nozzle.

A desirable form of the discharge-nozzle D is shown in detail in Fig. 7, wherein the pipe D' is curved at its outer end and terminates in a flaring mouth. The longitudinal concave interior wall of this flaring mouth is provided with a tapped boss *d'*, arranged in alinement with the radial center of the annular lip d^2 of the nozzle. Said boss is adapted to receive the screw-threaded end of a tapered plug d^3, the larger end of which is of substantially the same diameter as the annular lip d^2 of the nozzle. This construction admits of adjustment of the plug d^3 to regulate the size of the discharge-orifice. A packing d^4, of rubber or other suitable material, is confined between the annular lip d^2 of the nozzle and the end of the plug d^3, this packing being of such form as to prevent the escape or discharge of water except at the rear side of the nozzle. With this construction the nozzles D and figures E on the arms C are caused, when water under pressure is discharged from the nozzles, to revolve about the pipe or standard A. Obviously the nozzles D may be connected with the figures E and the water-pipe D' contained within said figures.

As a further and separate improvement the arms or pipes C are continued outwardly beyond the discharge-pipes D' and are provided at their opposite ends with other vertical discharge-pipes F, which support at their upper ends revolving heads F', similar to the head B, said heads being constructed to rotate upon the upper ends of said pipes in a manner similar to the heads B. To the opposite sides of said heads F' are attached pipes or arms G, which support at their opposite ends artistic figures H. Said figures in the instance shown represent cherubs or cupids attached to said arms in the conventional position which they are supposed to assume when in the act of flying. Said figures are provided with internal water-passages leading to suitable discharge-orifices H', which are so located and formed that the jets or films of water issuing from said orifices simulate

wings, thus representing flying cupids. It will of course be understood that the figures H may have other suitable forms—as, for instance, that of a butterfly, bird, or other winged figure—and that the discharge-orifices will be so located that the jets issuing therefrom will constitute the wings of the figure. Whatever the form of the figure, the wings or other parts simulated by the jet of water will be omitted from the solid figure and the jet or stream of water will supplement or unite with the figure to supply such missing part.

A desirable form of discharge-orifice for such figures is shown in detail in Fig. 3. In said figure a short discharge-pipe H^2 is connected with the arm or pipe G, adjacent to its outer end, by means of a T-coupling G'. Said discharge-pipe H^2 constitutes the internal water-passage of the figure and projects at its upper end from the back of said figure, between the shoulders thereof. In the upper end of said pipe is inserted a removable section H^3, which is of such size as to be held in said pipe by friction and is provided at its outer end with a cap H^4. Just underneath the cap are provided two horizontal slits *h*, which are separated from each other at their rear ends by a small imperforate section, but are more widely separated at their opposite ends, as shown in Fig. 4. The adjacent ends of the slits *h* are directed rearwardly with reference to the direction of movement of the figures, and the relation of said slits produces two divergent streams or jets which simulate the form of wings. By moving the section H^3 farther into or out of the discharge-pipe H^2 the slits *h* may be made larger or smaller, thus varying the thickness of the sheets or jets of water which form the wings of the figure. With the construction described, the figures H on the opposite ends of the pipes or arms G will be caused to revolve about the pipes F as axes, while at the same time said figures and pipes F will together revolve about the pipe or standard A as an axis, thus producing in said figures H a compound motion similar to the dual motion of the moon around the earth and sun. This will obviously result in greatly enhancing the beauty and artistic effect of the fountain as a whole.

In Figs. 9 and 10 is shown a construction by which jets or sheets of water may be momentarily interrupted or cut off, so as to cut off the supply of water at intervals, whereby the water will issue from the discharge-orifices with a pulsating movement and be projected at varying distances and at varying angles. Such pulsating movement of the sheets or jets of water will give to the same the appearance of being raised or lowered to simulate the flitting or flapping of wings. In said figures the openings a^2 in the upper end of the pipe F are separated by imperforate spaces equal, or nearly so, in width to the openings in the inner ends of the bosses *f* of the head F', so that the passage of water will be nearly cut off in the movement of said openings past said imperforate spaces.

By constructing a fountain, as hereinbefore described, with movable figures having discharge-orifices so shaped and located as to afford to the jets of water which form constituent or component parts of the figures and act to impel the same I am able to obtain strikingly novel and pleasing results, it being obvious that when said figures are mounted separately apart from each other and are given bodily motion or translation through considerable distances and in constantly-varying directions exceedingly life-like effects are produced and the same effects are afforded as though the movements were free and independent for the different individuals, like those of children in animated play. Moreover, by multiplying the figures the life-like appearance is made very striking and the general effect very pleasing, and by making the motion more composite the pleasing effect produced by means of the figures will be greatly enhanced. It will also be obvious that by the construction described I obtain by simple mechanical means and through the use of water under pressure as a source of power to impel the figures a simulation of motion, both in the figures themselves and in the issuing sheets or jets of water which form wings or other parts of the figures, which could otherwise be secured only by mechanical means or by the employment of a mechanical motor and a complicated system of actuating devices. One of the most suggestive and pleasing features of the novel fountain described is the simulation of the oscillations or beatings of the wings of artistic figures that are ordinarily represented as having fixed outspread wings—such as cupids, cherubs, or birds—but in which the ordinary solid wings are replaced with wings of water which are caused to move or pulsate by variations in the pressure of water at the jet-orifices by the rotation of the revolving parts of the apparatus, as hereinbefore described. Obviously by this feature of the construction the cupids or other similar figures which appear to be propelled by the active movement of their own wings of water and the flitting movements of wings, such as birds in flight, are imitated in a most striking and attractive manner.

I claim as my invention—

1. An ornamental fountain provided with a rotative arm and with an ornamental figure which lacks a part or parts necessary for making it complete, and which is mounted upon said arm and has a water-passage leading to a rearwardly-directed discharge-orifice so arranged that water issuing therefrom will form the lacking part or parts of said figure and serve to give rotary movement to the figure.

2. An ornamental fountain provided with a rotative arm and with an ornamental figure, a water-passage communicating with said arm and leading to a rearwardly-directed dis-

charge-orifice having the form of angularly-arranged narrow slits, whereby the water issuing therefrom will have the forms of wings, and means for intermittingly varying the pressure of the water in said passage whereby the issuing water will be given a pulsating motion in imitation of the motion of wings.

3. In an ornamental fountain, the combination with a rotary pipe-arm and an ornamental figure thereon, of a discharge-pipe connected with said pipe-arm and passing through and projecting from the back of said figure, said discharge-pipe having its rear end closed and having as discharge-orifices two slits opening for the greater part from its rearward side.

4. The combination with a vertical supply-pipe, a rotative horizontal pipe-arm mounted thereon, and a rearwardly-directed discharge-orifice in communication with said horizontal pipe-arm, of a second horizontal pipe-arm rotatively mounted on a vertical pipe connected with and carried by the first horizontal pipe-arm, and an ornamental figure or group on said pipe-arm provided with a water-passage which is of such form and location as to cause the discharge of the water to impel forward the figure or group and to form an essential constituent part of the group or figure.

5. The combination with a vertical supply-pipe and a rotative horizontal pipe-arm, an ornamental figure or group placed on said arm and a vertical discharge-pipe adjacent to said figure or group and provided with a narrow horizontal discharge orifice or nozzle so arranged that a sheet or film of water issuing therefrom will form a niche partially inclosing said figure or group and serve at the same time to rotate said pipe-arm, of a second horizontal pipe-arm mounted on a vertical pipe connected with and carried by the first horizontal pipe-arm, and an ornamental figure or group on said second arm provided with a discharge-orifice of such form and location as to cause the discharged water to impel the figure or group forward and form an essential constituent member or part of the figure or group.

6. In an ornamental fountain, the combination of a vertical supply-pipe and a rotative horizontal pipe-arm mounted thereon, said vertical pipe being provided at the part where the rotative pipe radiates from it, with a series of apertures separated by imperforate sections, which apertures and sections are substantially equal in width to the interior diameter of the rotary pipe-arm, an ornamental figure carried by said pipe-arm, and a discharge-pipe connected with said pipe-arm and passing through and projecting from the back of said figure, said discharge-pipe having its end closed and having as discharge-orifices two slits opening for the greater part from its rearward side.

7. In an ornamental fountain, the combination with a rotating arm and an ornamental figure thereon, of a discharge-pipe connected with said arm and passing through and projecting from said figure, said discharge-pipe being provided in its outer end with a sleeve which has sliding engagement therewith, which sleeve is provided in its outer end with a cap, and, inside of said cap, with rearwardly-directed slits which are separated at their rear ends by a narrow imperforate section.

8. The combination with a vertical supply-pipe, a rotating horizontal pipe-arm mounted thereon, a rearwardly-directed discharge-orifice between the end of said horizontal pipe-arm and the vertical pipe, a second horizontal pipe-arm rotatively mounted on the outer end of the first horizontal pipe-arm, and an ornamental figure or group on said second pipe-arm provided with a water-passage which is of such form and location as to cause the discharged water to impel forward the figure or group and to form an essential constituent part or member of the group or figure.

9. The combination with a vertical supply-pipe and a rotating horizontal pipe-arm, an ornamental figure or group between the end of said horizontal arm and the vertical pipe, a vertical discharge-pipe adjacent to said figure or group and provided with a narrow horizontal discharge-orifice, or nozzle, so arranged that a sheet or film of water issuing therefrom will form a niche partially inclosing said figure or group and serving at the same time to rotate said pipe-arm, a second horizontal pipe-arm mounted on the end of the first horizontal pipe-arm, and an ornamental figure or group on said second arm provided with a discharge-orifice of such form and location as to cause the discharged water to impel the figure or group and to form an essential constituent member or part of the figure or group.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 3d day of October, A. D. 1898.

CHARLES M. HOLLINGSWORTH.

Witnesses:
C. L. BELCHER,
ALBERT STETSON.