F. CHONÉ.

DRAWING ROOM FOUNTAIN.

APPLICATION FILED JUNE 29, 1911.

1,049,050. Patented Dec. 31, 1912.

Fig. 1.

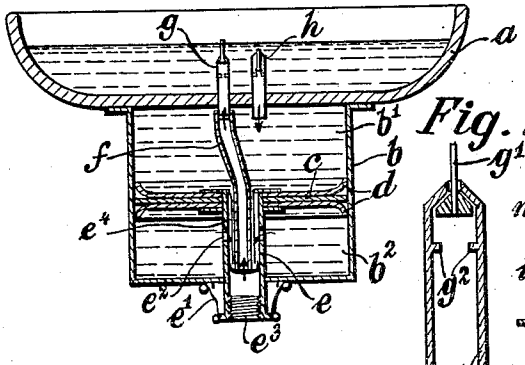


Fig. 7.

Fig. 4.

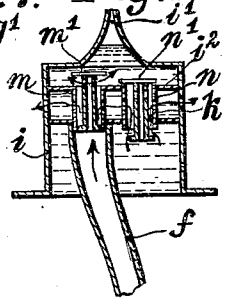


Fig. 2.

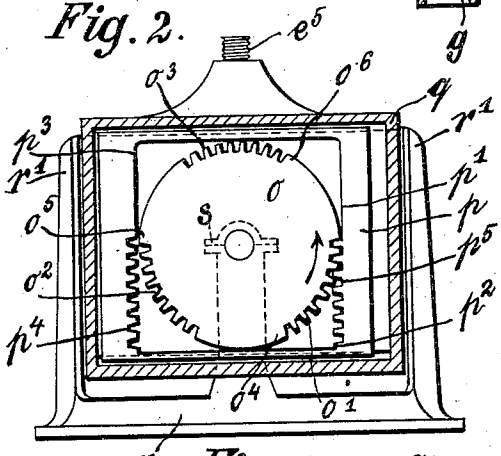


Fig. 5.

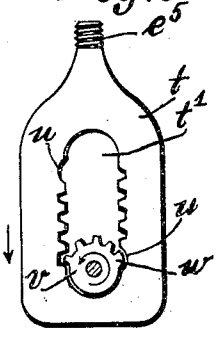


Fig. 3.

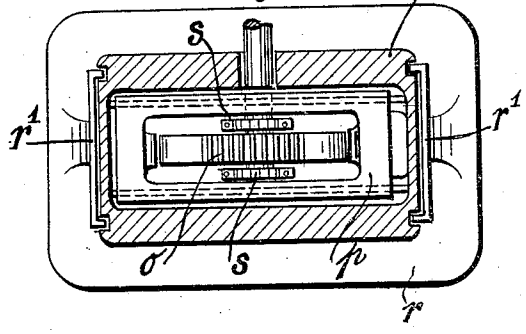
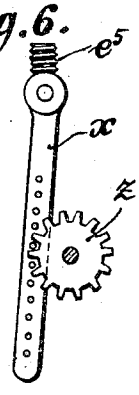


Fig. 6.



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DRAWING-ROOM FOUNTAIN.

1,049,050. Specification of Letters Patent. Patented Dec. 31, 1912.

Application filed June 29, 1911. Serial No. 636,018.

To all whom it may concern:

Be it known that I, FRITZ CHONÉ, subject of the German Emperor, residing at 83 Brunnenstrasse, Berlin, Germany, have invented certain new and useful Improvements in Drawing-Room Fountains, of which the following is a specification.

My invention relates to improvements in fountains of the type used for ornamental or display purposes.

The primary object of the invention is to provide a fountain having a valveless piston reciprocated by suitable gearing, the valves for controlling the flow of water into and out of the basin of the fountain being arranged within the jet pipes.

The accompanying drawing shows the fountain and the operating means for the piston in several forms by way of example.

Figure 1 shows the fountain basin with pump-cylinder and double-nozzle, Fig. 2 shows an operating device from the side, Fig. 3 shows the same as seen from above, Fig. 4 shows another modification for the double-valve, Figs. 5 and 6 show two further operating devices and Fig. 7 is a detail sectional view of a form of jet pipe employed as a part of the device.

Two small tubes g and h are fitted into the bottom of the basin a (Fig. 1) and extend into the pump-cylinder b provided under the basin. They are conically tapered at the top and have inner small lugs or projections g^2. A thin tube g' is fitted into the opening and is provided at its lower part with a conical lug or attachment. Instead of these two tubes, a small casing i (Fig. 4) may be mounted over an opening in the bottom of the basin, the cover of such casing having one or more nozzles i'. The casing i is divided by two transverse walls or partitions into the two chambers k and i^2, the chamber k having several lateral openings. The two partitions are connected by two small tubes m and n, which have openings communicating with the chamber k. They form valves with the two tubes m' and n', which valves are closed above by a cover extending across the tubes m and n, while at the lower end, they are provided externally with a disk-shaped lug or attachment, which is adapted to shut off the tubes m and n from below. They have also a few holes under the cover.

The pump-cylinder b (Fig. 1) is provided under the basin a. The piston is fitted into this cylinder and consists of the guide-plate c, whereon plates d of prepared felt bear on both sides for packing purposes. The piston rod consists of the tube e, which has several holes e^2 underneath c and is closed at the lower end, wherein a screw-thread e^3 is cut. At the bottom of the cylinder, an extensible rubber tube e' is placed over the tube e and is secured on the end of e and on an attachment or lug at the bottom of the cylinder. A small tube e^4 is secured inside the tube e in such a manner that it shuts off the tube e upwardly and only leaves its own opening free. An extensible rubber tube f leads through this tube e^4. The end of the rubber tube f extends around the lower end of the tube e^4 and is secured there, while the other end is secured to one of the tubes g or h and m or n respectively.

The operating device consists in a toothed wheel z (Fig. 6) which engages in an oscillating rod. It is screwed by means of the threaded part e^5 movably connected therewith into the end e^3 of the piston rod e.

Instead of the rod x, the small frame (Fig. 5) may be provided, in whose inner chamber t' the longitudinal sides contain teeth, while the short sides are of semi-circular shape above and below. With regard to the indented tooth-gaps, the top one u on the one side and the bottom one u on the other side is rounded off and larger than the remaining tooth-gaps. There is mounted in this recess t' a wheel v, one half of which is provided with teeth, while the distance of the bottom of the tooth-gaps and that of the toothless edge from the center of the wheel are equivalent to the radius of the semi-circular outward bulges in the frame t. The last tooth w is enlarged and rounded off in accordance with the tooth-gaps u. The frame t is provided at its upper end with the threaded piece e^5.

The rack frame t may be replaced by the device according to Figs. 2 and 3. On a stand r, the wheel o is mounted in the bearings s, the rim of the wheel being preferably divided into 6 parts, three parts o^4 o^5 o^6 being solid while the intermediate parts o' o^2 o^3 have teeth indented therein. The stand r is provided on two opposite sides with guides r' between which a frame q is adapted to slide up and down. The frame q carries the threaded piece e^5. A second

frame p is also slidably mounted in the frame q and is adapted to slide horizontally and is thus shorter than the frame q. Teeth are indented in the vertical sides of the frame p on the inside from the middle downward in such a manner that on the one side the frame piece is recessed above the teeth at p' in accordance with the depth of the tooth-gaps and beneath the same is an attachment or lug p^2 corresponding to the height of the teeth, while the opposite frame-piece is solid above the teeth at p^3 in accordance with the height thereof.

The operation of the various parts is as follows: The toothed wheels are set in rotation by a spring or motor. The rod x is advanced in its longitudinal direction by the toothed wheel z (Fig. 6). As soon as the last pin engages with the toothed wheel, the rod is advanced to the other side of the wheel and past the latter, where it is moved in an opposite direction, until at the end of the row of pins, the direction of movement is reversed again. As the rod x makes an oscillatory movement in addition to the upward and downward movement, it must be rotatably connected to the threaded piece e^5 so that the latter only moves upward and downward in a straight line. During the rotation of the toothed wheel v (Fig. 5) in the direction of the arrow, the frame t is moved downward by the engagement of the teeth in the left side. As soon as the last tooth w has entered the last enlarged tooth-gap u, the toothless edge enters the upper semicircular outward bulge of the recess t' and the first tooth immediately engages in the uppermost gap of the right side, whereby the frame t is moved upward until when entering the bottom outward bulge, the same operation is repeated and the direction of movement of the frame is again reversed. In order that the upward and downward movement may be completed, the last tooth w must be enlarged accordingly and the top or bottom tooth-gap u must be beveled toward the neighboring tooth in such a manner that notwithstanding the opposite direction of movement of the frame, the tooth w can pass out of the gap. In this construction, the threaded piece e^5 need not be movably connected to the frame, because the latter can only move upward and downward in a straight line.

In the modification according to Figs. 2 and 3, the frame p is moved upward during the rotation of the toothed wheel in the direction of the arrow and the frame q with the threaded piece e^5 slides upward with the frame p. As soon as the last tooth of the row of teeth o' is in engagement, the solid edge o^4 passes on to the frame-piece p^2 and moves the frame p laterally to the extent of the length of a tooth. On the opposite side of the frame p, the range of teeth p^4 has passed along the solid edge o^5 of the oppositely rotating wheel during the upward movement of the said frame, whereby the wheel on the other side has been maintained in active engagement with the teeth of the range of teeth p^5. When the frame p is pushed aside by the solid edge o^4, the first tooth of the range of teeth o^3 enters into engagement with the bottom tooth-gap of the range of teeth p^4, which are now both on a level with the wheel-shaft, and pushes the frame p downward. During this action, the frame p is kept in its position by the edge o^4 sliding along the range of teeth p^5. When the last tooth of o^3 is in engagement, the solid edge o^6 passes on to the frame piece p^3 which is here in alinement with the range of teeth p^4 and again pushes the frame p into the initial position, whereupon the operation is repeated with the aid of the following range of teeth of the wheel. The frame p is thus constantly moved upward and downward and changes its position during every change of the direction of movement within the frame q, while the latter with the threaded piece e^5 is moved upward and downward in a straight line.

While in the construction according to Fig. 6, a retardation of the movement of the threaded piece e^5 takes place twice every time the toothed wheel z leads the rod x to the other side, the upward and downward movement is uniform in the other two modifications without a stoppage occurring during each reversal of the movement. The upward and downward movement of the threaded piece e^5 is transmitted through connection with the piston rod e^3 to the piston. If the latter moves downward in the direction of the arrow, the water contained in the lower cylindrical part b^2 will be forced through the holes e^2 into the tube e and thence into the tube f wherein the water ascends. The water enters the tube g and meets the enlarged lower end of the tube g', whereby the latter is pressed against the conical constricted part of g, a jet of water simultaneously passing out through the small tube g'. At the same time, a suction of the small tube g' located in the tube h is effected by the downward movement of the piston and the tube g' drops on the attachments g^2 while water is drawn through its opening out of the basin a to the upper part b' of the cylinder. As the movement of the piston is reversed, both tubes g' undergo a change in their action in that water is now forced out of b' while water is drawn in to b^2 through g, f and e. The water level always remains the same and corresponds with the level of the tube g' located on the attachments g^2. The small tube adapted for the exit of the water consequently always protrudes above the water level.

If the construction according to Fig. 4 is

employed, the following action takes place in an analogous manner. If water is forced upward through f, the valve tube m^1 will be lifted so that the small tube m is shut off below. The water must now pass through the holes in m^1 into the upper chamber i^2 whence it passes out of the nozzle i^1. At the same time, the valve tube n^1 sinks and shuts off the small tube n from the chamber i^2. The water is drawn out of the basin a through the opening of the lower water-chamber k into the tube n and passes therefrom into the upper part b^1 of the cylinder. If the piston changes its direction, the valves undergo a change in their action. According to this construction, the water level also always remains the same and corresponds with the level of the openings k while the jet of water uniformly ascends from the nozzle i^1. Instead of i^1, several nozzles or similar devices may be used. During the downward movement of the piston, the two tubes f and e^1 are stretched. The tube e^1 receives the water passing out beside the tube e at the bottom of the cylinder, whereby the use of a stuffing box is obviated.

The fountain is filled by filling the basin with water and winding up the gear; water is filled until a continuous jet ascends. The fountain is tilted for the purpose of emptying the same and the operation of the gear is maintained until no more water passes out.

Having now particularly described the nature of my said invention and in what manner the same is to be performed, I declare that what I claim and wish to secure by Letters Patent is:—

1. In a fountain of the character specified, the combination with a basin, of a fluid reservoir, jet pipes opening into said basin, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, and means for forcing fluid through one of the said jet pipes into said basin and simultaneously draining the fluid out of said basin through another of said jet pipes.

2. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, jet pipes each having one end opening into said basin, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, valves movably mounted in said jet pipes, and means for forcing fluid through one of said jet pipes into said basin and simultaneously withdrawing fluid out of said basin through another of said jet pipes.

3. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, jet pipes each having one end opening into said basin, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, bored valves loosely mounted in said jet pipes, and means whereby fluid is simultaneously forced through one of said valves into said basin and is drained from said basin through another of said valves.

4. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, jet pipes each having one end communicating with said basin and the other end in communication with said reservoir, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, a piston reciprocal in said reservoir, and means for reciprocating said piston to force fluid through one of said pipes into said basin and to simultaneously drain fluid from said basin through another of said jet pipes.

5. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, a plurality of jet pipes each having one end opening into said basin and the other end in communication with said reservoir, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, bored valves movable in said jet pipes, a piston in said reservoir, and means for reciprocating said piston to force fluid through one of said bored valves into said basin and to simultaneously withdraw fluid from said basin through another of said bored valves.

6. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, a piston in said reservoir, a hollow piston rod connected to said piston, a plurality of jet pipes each thereof having one end opening into said basin, a hollow connection from one of said jet pipes to said piston rod, and means for reciprocating said piston to force fluid from the reservoir into the basin through one of said jet pipes and simultaneously withdraw fluid from said basin into said reservoir through another of said jet pipes.

7. In a fountain of the character specified, the combination with a basin, of a liquid reservoir depending therefrom, a plurality of cone shape jet pipes projecting into said basin, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, elongated valve tubes reciprocal in said jet pipes, and means for forcing fluid from said reservoir through one of said elongated valve tubes into the basin and simultaneously withdraw water from said basin through another of said valve tubes into the reservoir.

8. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, valved

jet tubes opening into said basin, each of said jet pipes forming a conduit through which fluid is alternately forced into and drained from said basin, a piston in said reservoir, and gearing removably attached to said piston for actuating the same to force fluid from said reservoir through one of said jet pipes into said basin and simultaneously withdraw fluid from said basin into said reservoir through another of said jet pipes.

9. In a fountain of the character specified, the combination with a basin, of a fluid reservoir associated therewith, jet tubes each having one end opening into said basin, a piston reciprocal in said reservoir, a hollow piston rod attached to said piston, a hollow flexible connection from one of said jet pipes to said hollow piston rod, a rack removably attached to said piston rod, and a gear wheel for operating said rack and reciprocating said piston to force fluid from the reservoir through one of said tubes into the basin and simultaneously withdraw fluid from the basin through another of said jet pipes into the reservoir.

In testimony whereof I affix my signature in presence of two witnesses.

FRITZ CHONÉ.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.