June 15, 1965 W. M. BOOTH 3,189,281

FOUNTAIN

Filed May 6, 1963 3 Sheets-Sheet 1

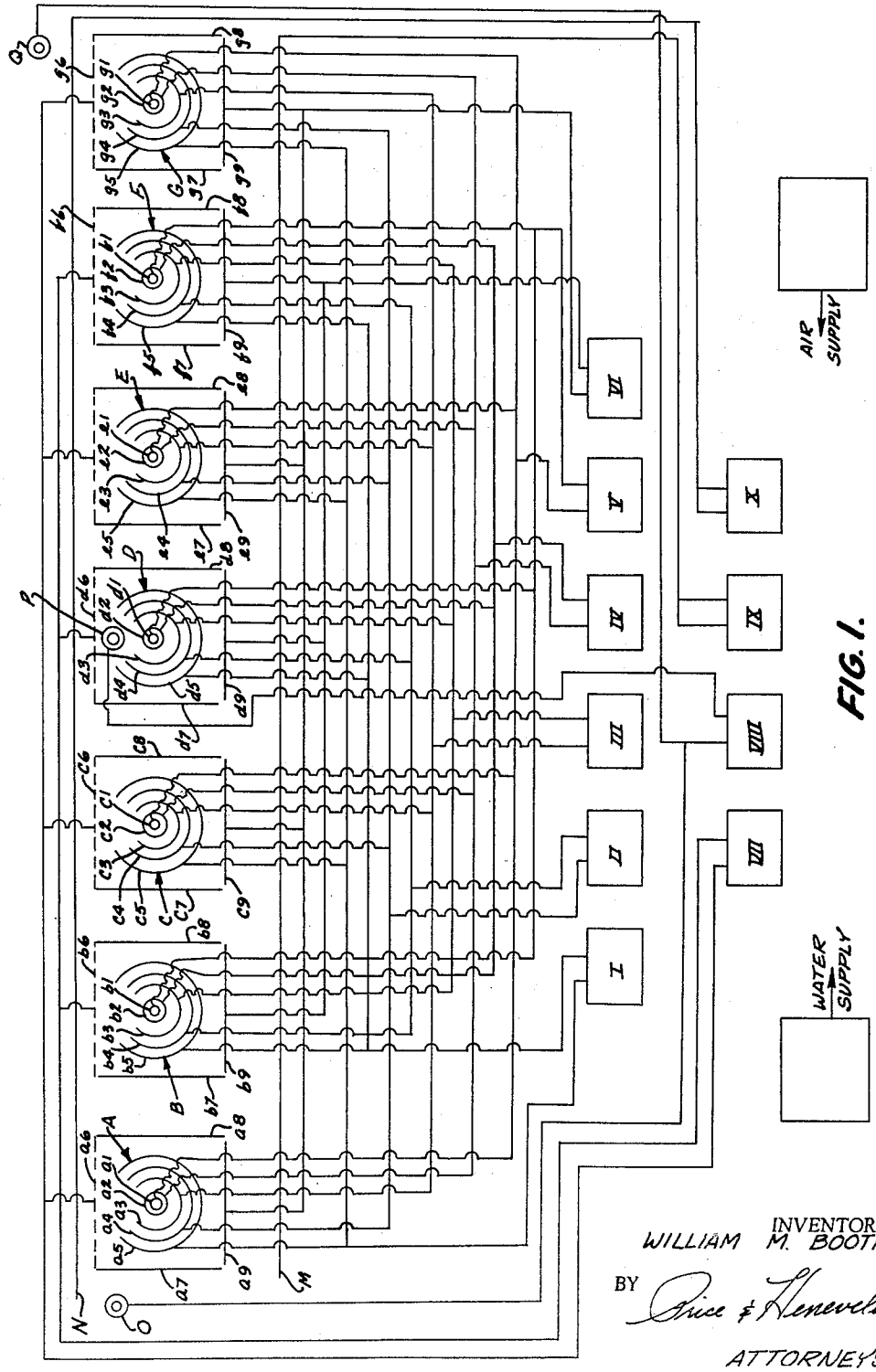

FIG. 1.

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FOUNTAIN

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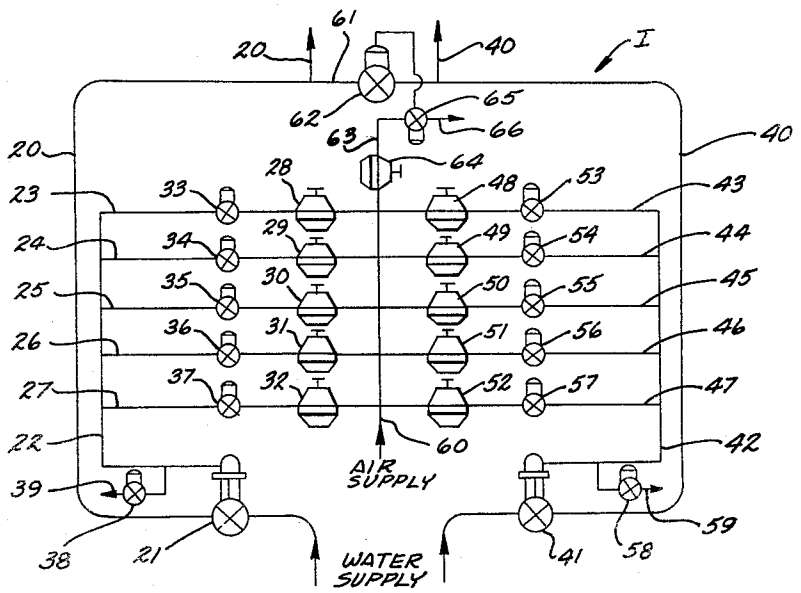

FIG. 2.

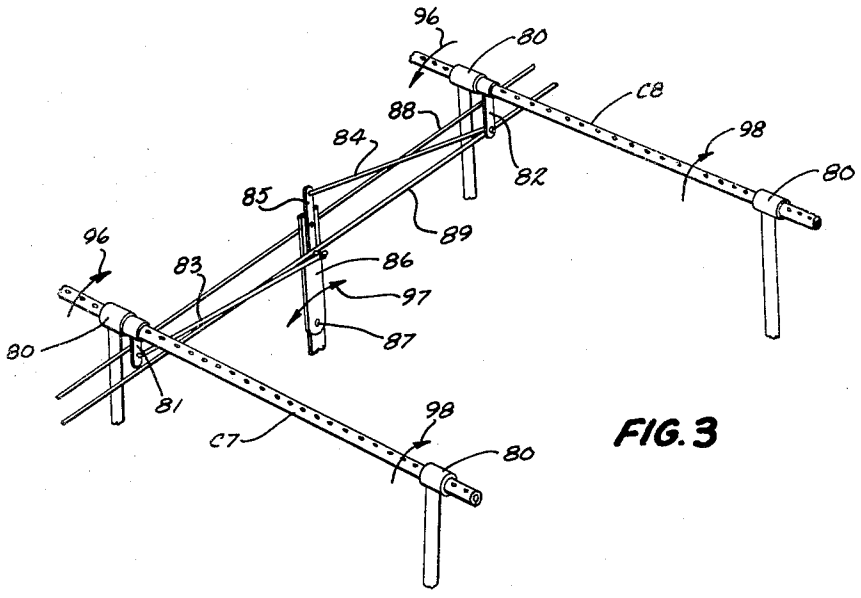

FIG. 3

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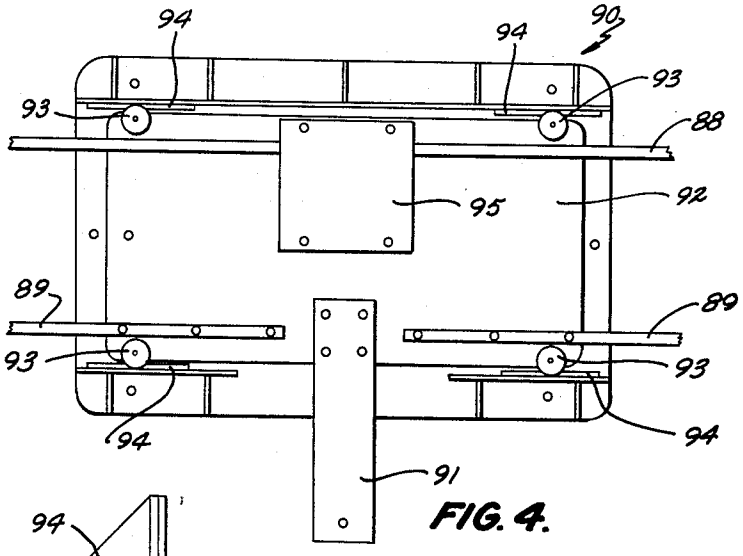

FIG. 4.

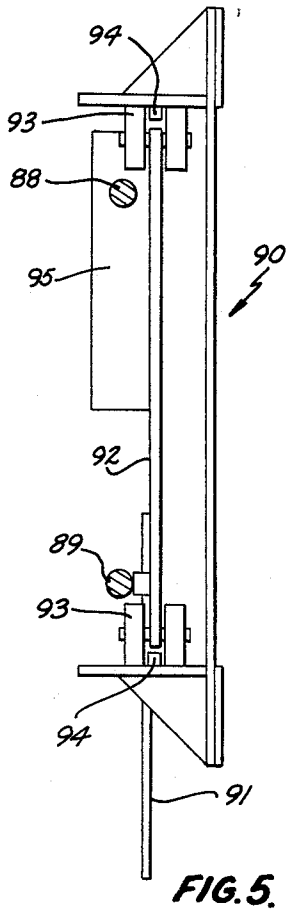

FIG. 5.

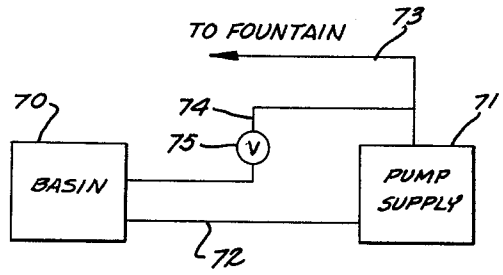

FIG. 6.

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3,189,281

FOUNTAIN

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Filed May 6, 1963, Ser. No. 278,335
20 Claims. (Cl. 239—17)

This invention relates to fountains. More particularly, this invention relates to an improved system for varying the amount of water supplied to a fountain nozzle, thereby allowing various patterns of water flow to be presented by the fountain.

Fountains are already in existence utilizing a plurality of pipes communicating water to a plurality of nozzles, including a means by which water jets produced by the nozzles may be varied to different rhythms. Such structures by their inherent nature are both complex and expensive. The means for controlling the amount of water passed from the nozzles in structures presently in existence comprises complex electrical control systems which are extremely expensive. Further, the means for controlling the water is inseparably tied to the programming system for the fountain itself. Consequently, such structures presently in existence are so complex and expensive that the systems are feasible only when a vast amount of money is available for a very specialized project. It is an object of this invention to provide an improved fountain including means for varying the water admitted therefrom to a desired rhythmic movement, as for example in combination with the playing of music.

Another object of this invention is the provision of such a fountain which may be adapted to be either of relatively simple construction and operation or alternatively may be of extreme complex size and operation, in the latter case the controlling thereof still being relatively basic and noncomplex.

A further object of this invention is the provision of a means for controlling and varying the amount of water admitted from the fountain utilizing variable air pressure in the operation of valves positioned within the means supplying water to the fountain.

An additional object of this invention is the provision of such a means which allows manual control of the operation of the fountain or is especially well adapted to be automatically controlled by means of programmed tape.

An additional object of this invention is the provision of such a fountain which utilizes a unique means for proportionately reducing the flow of the entire system on windy days and the like.

A still further object of this invention is the provision of such a fountain utilizing a unique means for operating sweeps in association with the other fountain structure.

These and other objects of this invention will become apparent to those skilled in the relevant arts upon reading the following specification in conjunction with the accompanying drawings, wherein:

FIG. 1 is a schematic diagram illustrating a fountain installation together with the conduit structure for feeding water to the fountain itself, showing schematically the mechanisms for varying the amount of water passed through the conduit system;

FIG. 2 is a partially schematic view showing one of the mechanisms for varying the amount of water passed through the conduit system shown in FIG. 1;

FIG. 3 is a perspective view showing the mechanism for operating the sweeps associated with the fountain;

FIG. 4 is a front view of a mechanism for actuating the apparatus shown in FIG. 3;

FIG. 5 is an end view of the structure shown in FIG. 4;

FIG. 6 is a schematic diagram showing a means for

proportionately reducing the amount of water available to the control means shown in FIG. 2.

Briefly, this invention relates to a means for determining and varying the amount of water supplied to a fountain utilizing spraying devices receiving water from a water source under pressure. This means comprises broadly a normally closed first valve determining the amount of water passing from the water source. A source of pressurized air is provided, together with a plurality of air lines connecting the air source with the first valve. A pressure regulator is positioned in each of the air lines, each of the regulators allowing a different pressure to pass to the first valve. A normally closed second valve is positioned in each of the air lines between the regulators and the first valve, whereby operation of the second valve controls the amount of water passing through the first valve and emitted from the spraying devices.

Fountain structure

Referring more specifically to the drawing, in the embodiment shown the fountain includes a plurality of individual modules identified by the letters A, B, C, D, E, F and G (FIG. 1). Each of the modules includes five concentric spraying devices, the two inner devices being completely circular in the embodiment shown. The spraying devices for each module A are designated by the references *a*1, *a*2, *a*3, *a*4 and *a*5, the numbers progressing from the center to the exterior of the module. The five spraying devices of the module B are similarly identified by the references *b*1, *b*2, *b*3, *b*4 and *b*5. The spraying devices of the remaining modules are similarly identified. Each of the spraying devices is composed of a conduit including a plurality of openings along its length, whereby water may be emitted under pressure therefrom. It is to be understood that this invention is not limited to any particular configuration of the fountain structure itself. The invention is adapted to be utilized with structures still more complex than exemplified in the drawing, or alternatively, this invention could be utilized with a spraying device having a single nozzle. Since the merit of the controlling system of this invention becomes progressively more apparent with the complexity of the fountain configuration itself, a typical embodiment of the invention has been shown for descriptive purposes only.

Positioned at each side of each module is a sweep, comprised of a conduit adapted to be rotated through an arc, having nozzles along its length for emitting water under pressure therefrom. Thus, water emitted from the sweeps as they rotate back and forth appears to sweep back and forth adjacent each side of each module. The sweeps of the module A are identified by the reference numerals *a*7 and *a*8, the sweeps *a*7 and *a*8 being interconnected by means of the pipe *a*6 which does not have openings or nozzles therein. Again as with the spraying devices, the sweeps of the remaining modules are designated in a like manner, utilizing the lower case prefix of its associated module identified by a higher case letter. The particular means for rotating these sweeps will be described in detail hereinafter.

A candelabra is positioned in front of each of the modules, each candelabra comprising a conduit having openings therein for emitting water under pressure therefrom. The respective candelabra are designated by the refeernce numbers *a*9, *b*9, *c*9, *d*9, *e*9, *f*9 and *g*9. A pair of continuous curtains designated by the reference numerals M and N respectively extend along the front and rear of the spaced modules. Again, these curtains comprise continuous conduits having openings or nozzles therein for emitting water therefrom under pressure. Additionally, three fire nozzles designated by the references O, P and Q are also provided. This completes the description of the fountain structure itself.

Conduit structure

A plurality of controlling systems identified by the references I, II, III, IV, V, VI, VII, VIII, IX and X are provided for controlling the amount of water supplied to the various spraying devices, candelabra, sweeps and curtains. The specific nature and structure of the controlling devices will be described in detail hereinafter. Broadly, each of the controlling devices is connected to a water supply and an air supply, the devices controlling the amount of water passing through the conduits positioned between the controlling devices and the fountain structure itself. The various conduits can be traced on FIG. 1, the conduits themselves not being identified by reference numerals as this would not clarify, but rather hinder the understanding of FIG. 1.

Exemplary, it will be noted that a first conduit connects controlling device I with the spraying device *a*5 of module A, spraying device *c*5 of module C, spraying device *e*5 of module E and spraying device *g*5 of module G. A second conduit connects controlling device I with spraying device *b*5 of module B, spraying device *d*5 of module D and spraying device *f*5 of module F. Turning to controlling device II, it will be seen that a first conduit connects the controlling device with spraying device *a*4 of module A, spraying device *c*4 of module C, spraying device *e*4 of module E and spraying device *g*4 of module G. A second conduit connects controlling device II with spraying device *b*4 of module B, spraying device *d*4 of module D and spraying device *f*4 of module F. Similarly, as can be traced on FIG. 1, controlling devices III, IV and V include conduits alternately interconnecting the remaining spraying devices of the plurality of modules.

The controlling device VI includes a first conduit interconnecting it with the candelabra *a*9, *c*9, *e*9 and *g*9. A second conduit interconnects the control device VI with candelabra *b*9, *d*9 and *e*9. A first conduit connects controlling device VII with the conduits *a*6, *b*6, *e*6 and *g*6, thus interconnecting with the sweeps associated with modules A, C, E and G. A second conduit interconnects controlling device VII with the conduits *b*6, *d*6 and *f*6, thus connecting with the sweeps associated with modules B, D and F. A first conduit leads from controlling device VIII to the fire nozzles O and Q. A second conduit interconnects controlling device VIII with fire nozzle P. A single conduit leads from controlling device IX to the front curtain M. A single conduit connects controlling device X with the back curtain N. This completes the description of the conduit system interconnecting the controlling devices and the fountain apparatus itself.

Controlling devices

The controlling devices I–X are essentially identical in construction and operation. A thorough description will now be given of the controlling device I, this being sufficient to understand the operation of the remaining controlling devices II–X. The controlling device I is shown in detail in FIG. 2. It will be noted that a pair of conduits 20 and 40 communicate with a water source supplying pressurized water to the conduits. The conduit 20 was described hereinbefore as interconnecting the controlling device I with the spraying device *a*5 of module A, the spraying device *c*5 of module C, the spraying device *e*5 of module E and the spraying device *g*5 of module G. The conduit 40 was described hereinbefore as interconnecting the controlling device I with the spraying device *b*5 of module B, the spraying device *d*5 of module D and the spraying device *f*5 of module F. The conduits 20 and 40 each include a normally closed first valve designated by the reference numerals 21 and 41 respectively. An air open-spring closed diaphragm valve is especially well adapted for use in embodiments utilizing the teachings of this invention. Air lines 22 and 42 are associated with the respective valves 21 and 41. The air line 22 is connected to a main air line 60 through the individual air lines 23, 24, 25, 26 and 27. The air line 42 is connected

to the main air line 60 through the individual air lines 43, 44, 45, 46 and 47. The main air line 60 is connected to a central air supply, providing air under pressure through the individual air lines to the air lines 22 and 42. Positioned respectively in the air lines 23, 24, 25, 26 and 27 are the pressure regulators 28, 29, 30, 31 and 32 respectively. Similarly, pressure regulators 48, 49, 50, 51 and 52 are positioned in the respective individual air lines 43, 44, 45, 46 and 47. These pressure regulators are of a type adapted to allow a pre-determined, adjusted amount of air pressure to pass through the respective individual air lines. Each of the regulators 28, 29, 30, 31 and 32 are preset to allow a different amount of pressure to pass through the respective air lines. The same is true with respect to pressure regulators 48, 49, 50, 51 and 52. Valves 33, 34, 35, 36 and 37 are positioned in the individual air lines 23, 24, 25, 26 and 27 respectively. Valves 53, 54, 55, 56 and 57 are positioned in the respective air lines 43, 44, 45, 46 and 47. These valves are preferably of the solenoid actuated type, these valves being normally closed and opened only when actuated. Additionally, solenoid actuated normally closed valves 38 and 58 are positioned respectively in the air lines 22 and 42 between the valves 21 and 41 and the associated individual air lines.

It will now be seen that the controlling device I operates as follows. The amount of water passing through the conduits 20 and 40 is precisely determined by the amount of water passing through the normally closed valves 21 and 41 respectively. Upon actuation of any one of the valves 33, 34, 35, 36 or 37, air pressure is allowed to pass from the air supply through the main air line 60, through the respective pressure regulator and individual air line associated therewith. This allows an air pressure to pass through the air line 22 to the valve 21, opening the valve to allow water to pass through the conduit 20 and to the parts of the fountain associated therewith as described hereinbefore. When the respective valve 33, 34, 35, 36 or 37 is closed, the spring biased valve 21 also closes, thus cutting off the water supply through the conduit 20. Simultaneously with the closing of the valve in the respective individual air line, the normally closed solenoid actuated valve 38 is opened thus allowing any excess air in the air line 22 to be drained from the air line 22 through the escape line 39. This provides for instantaneous abrupt closing of the valve 21. When the valves 33, 34, 35, 36 and 37 are of the solenoid actuated type, they are especially well adapted to be operated through a console (not shown) or automatically programmed by means of tapes prepared for their actuation (not shown). Thus, water may be supplied to the particular parts of the fountain described hereinbefore associated with the conduit 20, the amount of water supplied being variable with actuation of the valves 33, 34, 35, 36 and 37. The varying of the water supplied to the associated parts of the fountain may be accomplished quickly, efficiently and the variation is not dependent upon complex, expensive apparatus. Further, the varying of the water is independent of any electrical programming system per se, the varying being adaptable to be accomplished through manual or taped operation.

It will now be seen that water is supplied to the conduit 40 to the associated parts of the fountain described hereinbefore in the same manner as described above with respect to the conduit 20. Operation of any of the solenoid actuated valves 53, 54, 55, 56 and 57 opens the respective individual air line associated therewith. This allows air to pass from the main air line 60, through the associated pressure regulator, through the air line 42, thereby opening the valve 41 an amount dependent on which solenoid valve was actuated. Again, when the respective valve 53, 54, 55, 56 or 57 is closed, the normally closed solenoid actuated valve 58 is automatically opened, thereby allowing air to bleed out through the escape air line 59, providing for instantaneous closing of

the spring biased, normally closed valve 41. Again, the amount of water supplied to the parts of the fountain associated with the conduit 40 may be quickly and simply varied.

Interconnecting the conduits 20 and 40 is an additional conduit 61. Positioned in the additional conduit 61 is a normally closed valve 62, similar to valves 21 and 41 described hereinbefore. The valve 62 being normally closed, the conduits 20 and 40 operate entirely independent of one another. An additional air line 63 is connected between the main air line 60 and the valve 62. Positioned in the additional air line 63 is a pressure regulator 64, similar to the pressure regulators described hereinbefore. Further, an additional solenoid actuated valve is positioned in the additional air line 63, this valve being of the type normally closing the air line 63 and open to a bleed air line 66. It will now be seen that when the valve 65 is actuated to open position, the bleed air line 66 is closed and air passes from the air supply through the main air line 60, through the pressure regulator 64 and to the valve 62, opening the additional conduit 61. When this happens, the volume of water passing through the individual conduits 20 and 40 is immediately equalized. No matter what volume of water was passing through the individual conduits 20 and 40 at the time the additional valve 65 is actuated, equalization occurs through the additional conduit 61. Upon closing the additional valve 65, the volume of water passing through the individual conduits 20 and 40 is again determined solely by the exact positioning of the respective valves 21 and 41 described hereinbefore. Again, the closing of the additional conduit 61 by the valve 62 is instantaneous as any air in the line passes off through the escape air line 66 when the valve 65 closes the air line 63. Thus, the extreme variety possible through the utilization of the controlling device I just described now becomes apparent. Not only can the volume of water passing to the parts of the fountain associated with the conduits 20 and 40 be varied in a great many ways, the interconnected conduits equalize the volume of water passing to all of the parts associated with these two conduits.

The controlling devices II, III, IV, VII and VIII are essentially identical to the controlling device I described hereinbefore. It should be specifically understood that the amount of individual air lines for controlling the valve supplying water to the fountain may be varied within each controlling device. Further, the types of valves and their actuation may be varied within the broadest aspects of this invention. Additionally, the manner in which the various conduits leading from the controlling devices are communicated with the parts of the fountain may also be varied with the particular fountain design. As for the controlling devices IX and X which control the front and back curtains M and N respectively, an equalizing mechanism is obviously not required and one set of individual air lines achieves the variance desired.

Fountain water supply

Within the broadest aspects of this invention, the fountain structure itself is preferably built over a basin 70 for receiving the water emitted from the fountain. As schematically shown in FIG. 6, a pump supply 71 draws the water from the basin through the main 72. The water is thus supplied under pressure through the main 73, through the controlling devices described hereinbefore and to the fountain. Due to the fact that a considerable quantity of water may be emitted from the fountain, difficulties may occur on rather windy days. In the past, it has been difficult to properly adjust the fountain to compensate for a wind factor. Consequently, the only solution in many instances has been to actually shut a fountain down on windy days to prevent water from escaping from the area intended to be occupied by the fountain. In solving this problem, I have provided a conduit 74 interconnected between the main 73 and the basin 70. The conduit 74 is connected to the main 73 between the pump supply 71 and the controlling devices described hereinbefore. Positioned within the conduit 74 is a valve 75 normally adapted to be closed. When the valve 75 is closed, water passes from the pump supply to the controlling devices and on to the fountain in regular fashion. However, it will be noted that when the valve 75 is partially opened, the amount of water available to the controlling devices, and thus to the fountain, is reduced. This means that the water emitting from the entire fountain is proportionately reduced. Dependent upon the degree to which the valve 75 is opened, the water emitting from the fountain is reduced. It will thus be seen that by simple operation of the valve 75, adjustment can be made on windy days so that the height of water emitting from the fountain is proportionately reduced. With this structure, applicant has solved a problem long standing in the fountain art.

Sweep operation

As described hereinbefore, a sweep is positioned adjacent the side of each of the modules of the fountain. The purpose of these sweeps is to oscillate back and forth through an arc, gently sweeping the curtain of water between given angulations. It has been found that an especially striking effect can be given a fountain by adapting the sweeps of each module to operate in unison with one another and additionally operate oppositely to each other—in other words, to sweep simultaneously in opposite directions.

A mechanism for achieving this effect is shown in FIG. 3. A pair of sweeps (the sweeps *c*7 and *c*8 are shown as exemplary) are suitably supported within collars 80 for rotation therein. Arms 81 and 82 are fixedly secured to the sweeps *c*7 and *c*8 respectively. Pivotally secured to the arms 81 and 82 are rigid links 83 and 84 respectively. The other ends of the links 83 and 84 are pivotally secured to opposed ends of the bar 85. The bar 85 is pivotally secured at its center to the top of a second bar 86. The bar 86 is mounted for pivotal movement on its supporting surface at 87. A tie 88 is pivotally secured to the top of the bar 86 at approximately the point where the bar 85 is pivotally attached thereto. A tie 89 is pivotally secured to the bar 85 at approximately the point where the link 83 is pivotally secured thereto. It will be understood that similar apparatus is provided for the pair of sweeps associated with each of the modules, the ties 88 and 89 being interconnected between all of the modules as described.

At approximately the mid point of the spacing of the modules, a control means 90 is provided for actuation and operation of the ties 88 and 89 (FIGS. 4 and 5). The control means 90 is mounted on a support 91, and includes a plate 92, the tie 89 being secured thereto. At the corners of the plate 92, rollers 93 are provided for movement of the plate with respect to the control means. Guides 94 are mounted on the control means 90 to receive the rollers 93 for movement therealong. A housing 95 is secured to the face of the plate 92, the tie 88 extending through the housing 95. Means are provided within the housing 95 (not shown) for releasably locking the tie 88 with respect to the plate 92. This may be comprised of a pneumatic means gripping the tie 88. Further, means is provided (not shown) for moving the carriage or plate 92 with respect to the control means 90.

It will now be seen that reciprocal movement of the plate 92 will reciprocate the tie 89 which is secured thereto, the tie 88 not being reciprocated if it is not locked with respect to the plate. Thus, in such an instance, the bar 86 will remain stationary and the bar 85 will be pivoted reciprocally. Thus, the links 83 and 84 will cause the respective sweeps *c*7 and *c*8 to reciprocally rotate in opposite directions as designated by arrows 96. However, when the tie 88 is locked with respect to the plate 92 within the housing 95, then reciprocal movement of the plate 92 will cause both of the ties 88 and 89 to reciprocate. When both of the ties reciprocate, the bar 85 re-

mains relatively stationary with respect to the bar 86, the bar 86 pivoting on its support as shown by the arrow 97 in FIG. 3. In this instance, the sweeps c7 and c8 are rotated in the same direction as shown by the arrows 98. It will thus be seen that by simple reciprocation of the ties 88 and 89, the sweeps of each individual module rotate in either the direction of the arrows 96 or the direction of the arrows 98. By thus varying the movement of the sweeps of the modules of the fountain, a unique effect may be provided for the fountain through the use of relatively simplified structure.

While only certain embodiments of this invention have been shown and described, it may be possible to practice the invention through the utilization of certain other embodiments without departing from the spirit and scope thereof. Such other embodiments are to be considered a part of this invention unless the following claims specifically state otherwise.

I claim:

1. A means for determining and varying the amount of water supplied to a fountain utilizing spraying devices receiving water from a water source under pressure, said means comprising: a normally closed first valve determining the amount of water passing from the water source; a source of pressurized air; a plurality of air lines connecting said air source and said first valve; a pressure regulator positioned in each of said air lines, each of said regulators allowing a different pressure to pass to said first valve; and a normally closed second valve positioned in each of said air lines between said regulators and said first valve, whereby operation of said second valves controls the amount of water passing through said first valve and emitted from the spraying devices.

2. A means for determining and varying the amount of water supplied to a fountain as defined in claim 1, said second valves being electrically operable to open and close said air lines.

3. A means for determining and varying the amount of water supplied to a fountain as defined in claim 1 including a dump valve between said first valve and said second valves, said dump valve open when all of said second valves are closed and said dump valve closed when any one of said second valves is open.

4. A means for determining and varying the amount of water supplied to a fountain utilizing spraying devices receiving water from a water source under pressure, said means comprising: a pair of pipes connecting the water source and the spraying devices; a spring biased normally closed first valve positioned in each of said pipes determining the amount of water passing from the water source therethrough; a source of pressurized air; a plurality of air lines connecting said air source and each of said first valves; a pressure regulator positioned in each of said air lines, each of said regulators allowing a different pressure to pass to said first valve associated therewith; a normally closed second valve positioned in each of said air lines between said regulators and said associated first valve, whereby operation of said second valves controls the amount of water passing through said associated first valve; a third pipe connecting said pair of pipes downstream of said first valves; a spring biased normally closed balancing valve positioned in said third pipe; an additonal air line connecting said air source and said balancing valve; and an additional valve positioned in said additional air line between said air source and said balancing valve whereby actuation of said additional valve opens said balancing valve, thereby balancing the amount of water passing through said pair of pipes.

5. A means for determining and varying the amount of water supplied to a fountain as defined in claim 4, said second valves and said additional valve being electrically operable to open and close said air lines.

6. A means for determining and varying the amount of water supplied to a fountain as defined in claim 4, including a dump valve between each of said first valves and their associated second valves, each of said dump valves open when all of its associated second valves are closed and each of said dump valves closed when any one of its associated second valves is open.

7. A fountain, comprising: a plurality of spraying devices; a plurality of pipes connecting said spraying devices to a water source; pumping means associated with said water source for supplying water at a pressure to said pipes and said spraying devices; a first valve positioned in each of said pipes, said first valve determining the amount of water passing through its associated pipe; and a plurality of second valves associated with each of said first valves, each of said second valves adapted to open its associated first valve a different amount whereby operation of said second valves determines the amount of water emitted from said spraying devices.

8. A fountain as defined in claim 7, said second valves being electrically operable to open and close said first valve.

9. A fountain as defined in claim 7 including a third valve associated with said water source and determining the amount of water available to said first valves.

10. A fountain, comprising: a plurality of spraying devices; a plurality of pipes connecting said spraying devices to a water source; pumping means associated with said water source for supplying water at a pressure to said pipes and said spraying devices; a normally closed first valve positioned in each of said pipes, said first valve determining the amount of water passing through its associated pipe; a source of pressurized air; a plurality of air lines connecting said air source and each of said first valves; a pressure regulator positioned in each of said air lines, each of said regulators allowing a different pressure to pass to its associated first valve; and a normally closed second valve positioned in each of said air lines between said regulators and associated first valves, whereby operation of said second valves determines the amount of water passing through associated first valves and emitted from respective of said spraying devices.

11. A fountain as defined in claim 10, said second valves being electrically operable to open and close said air lines.

12. A fountain as defined in claim 10 including a third valve associated with said water source and determining the amount of water available to said first valves.

13. A fountain as defined in claim 10, including a dump valve positioned between each of said first valves and associated second valves, each of said dump valves being open when all of its associated second valves are closed and closed when any one of its associated second valves is open.

14. A fountain as defined in claim 10, at least certain of said pipes being connected through a spring biased normally closed balancing valve downstream of said first valves, said balancing valve being connected through an additional air line to said air source and an additional valve positioned in said additional air line whereby actuation of said additional valve opens said balancing valve, thereby balancing the amount of water passing through said connected pipes.

15. A fountain as defined in claim 11, at least certain of said pipes being connected through a spring biased normally closed balancing valve downstream of said first valves, said balancing valve being connected through an additional air line to said air source and an electrically operated additional valve positioned in said additional air line whereby actuation of said additional valve opens said balancing valve, thereby balancing the amount of water passing through said connected pipes.

16. A fountain as defined in claim 12, at least certain of said pipes being connected through a spring biased normally closed balancing valve downstream of said first valves, said balancing valve being connected through

an additional air line to said air source and an additional valve positioned in said additional air line whereby actuation of said additional valve opens said balancing valve, thereby balancing the amount of water passing through said connected pipes.

17. In a fountain, the combination of at least one pair of sweeps, comprising spaced pipes having openings therein; said pipes rotatably mounted in position; an arm extending rigidly from each pipe; a rigid link pivotally secured adjacent the end of each of said arms; each of said rigid links pivotally secured adjacent opposed ends of a first bar; said first bar pivotally secured at generally its middle adjacent one end of a second bar; the other end of said second bar pivotally supported in position; a pair of rigid ties, one of said ties secured to one end of said first bar and the other of said ties secured adjacent said one end of said second bar; and means for actuating said one tie alone and for actuating said ties together.

18. The combination of claim 17, said means for actuating comprising a movable carriage, said one tie fixedly secured to said carriage and means for removably securing said other tie to said carriage.

19. In a fountain, the combination of a plurality of pairs of sweeps, each of said pairs comprising spaced pipes having openings therein; said pipes rotatably mounted in position; connecting structure between each of said pairs including an arm extending rigidly from each pipe; a rigid link pivotally secured adjacent the end of each

of said arms; each of said rigid links pivotally secured adjacent opposed ends of a first bar; said first bar pivotally secured at generally its middle adjacent one end of a second bar; the other end of said second bar pivotally supported in position; a pair of rigid ties, one of said ties secured to one end of each of said first bars and the other of said ties secured adjacent said one end of each of said second bars; and means for actuating said one tie alone and for actuating said ties together.

20. The combination of claim 19, said means for actuating comprising a movable carriage, said one tie fixedly secured to said carriage and means for removably securing said other tie to said carriage.

References Cited by the Examiner

UNITED STATES PATENTS

690,405	1/02	Darlington	239—18
1,508,028	9/24	Robinson	239—243
1,890,337	12/32	Ord	239—243
2,722,456	11/55	Glessmer	239—127
2,787,495	4/57	Pryzystawik	239—17
2,943,796	7/60	Smith	239—244
3,072,146	1/63	Gizeski	91—414
3,114,297	12/63	Gizeski	91—414

EVERETT W. KIRBY, *Primary Examiner.*

LOUIS J. DEMBO, *Examiner.*