July 13, 1954 D. E. KEECH 2,683,620

COLORED FOUNTAIN

Filed Feb. 4, 1952 7 Sheets-Sheet 1

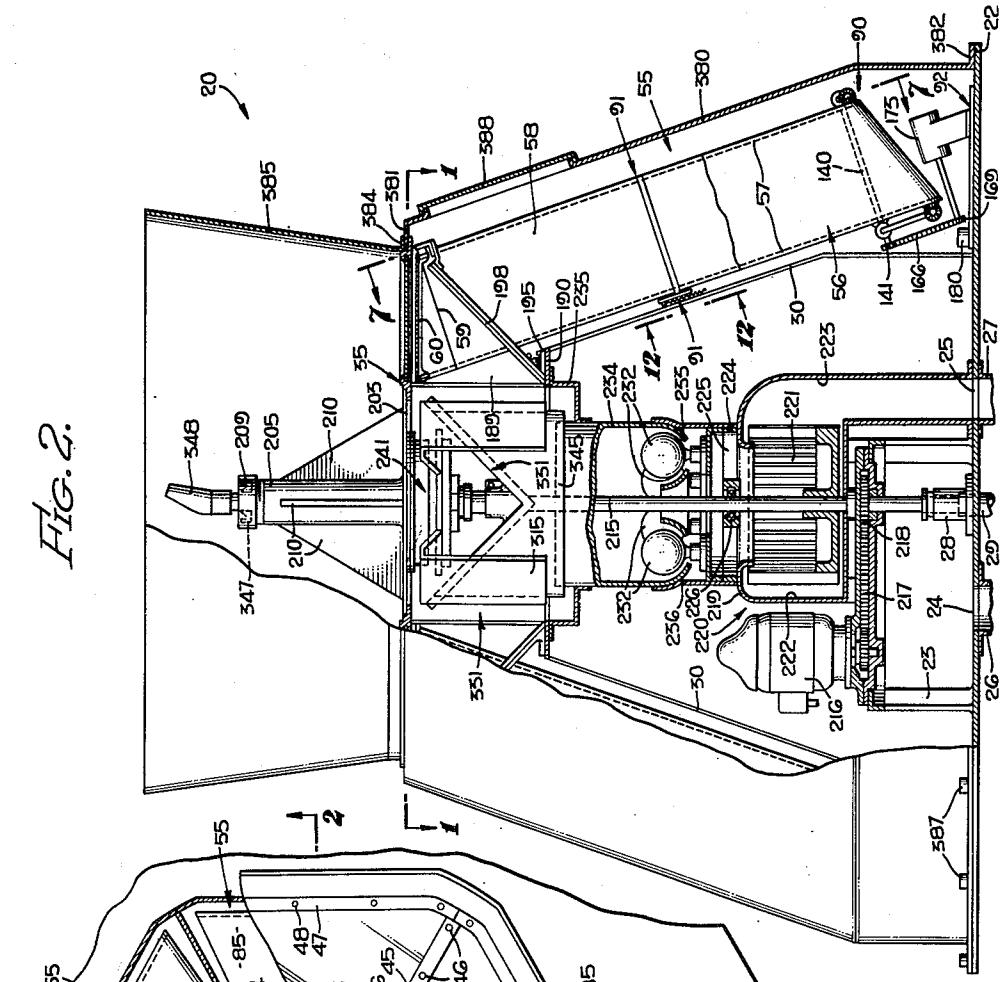

FIG. 2.

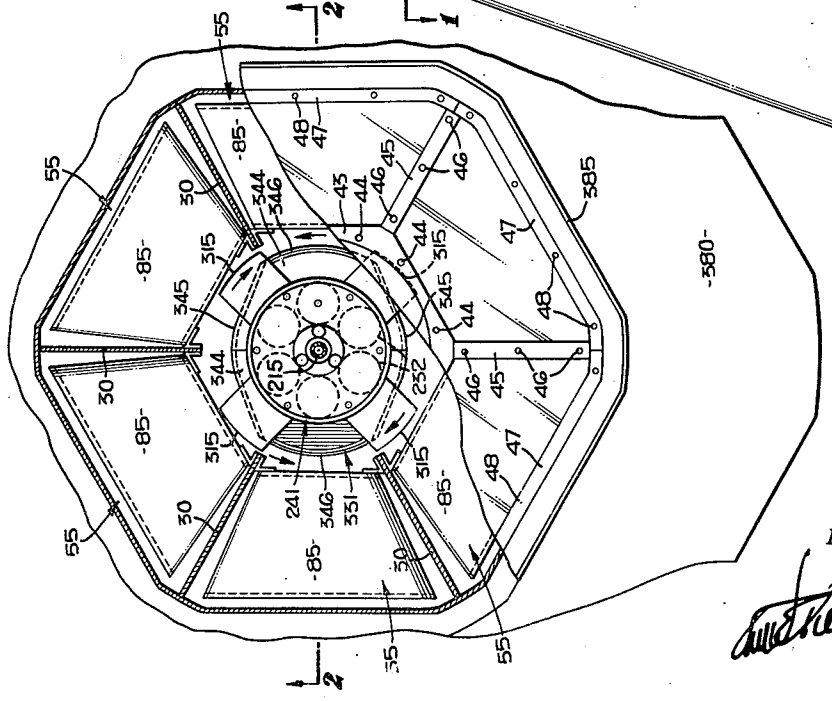

FIG. 1.

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COLORED FOUNTAIN

Filed Feb. 4, 1952 7 Sheets-Sheet 2

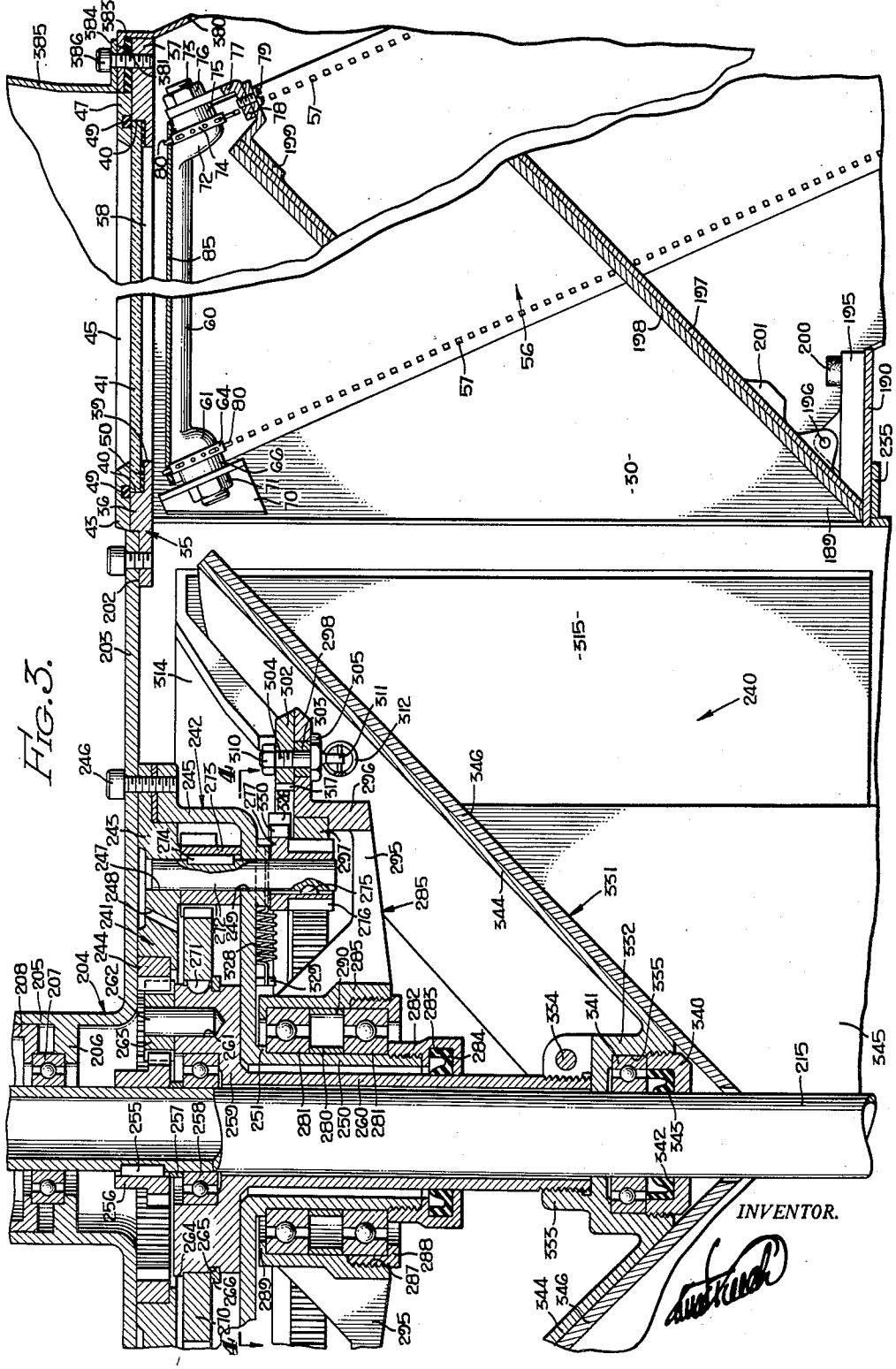

FIG. 3.

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COLORED FOUNTAIN

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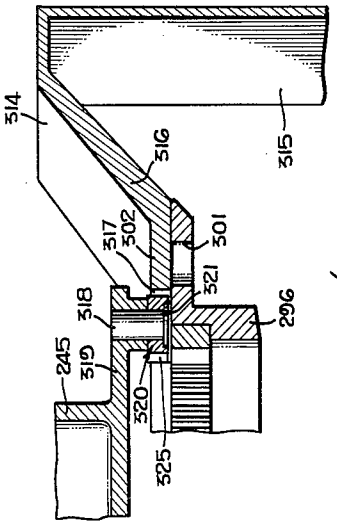

FIG. 6.

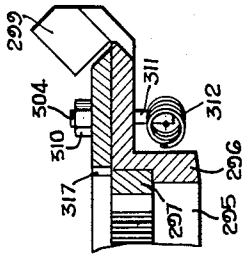

FIG. 5.

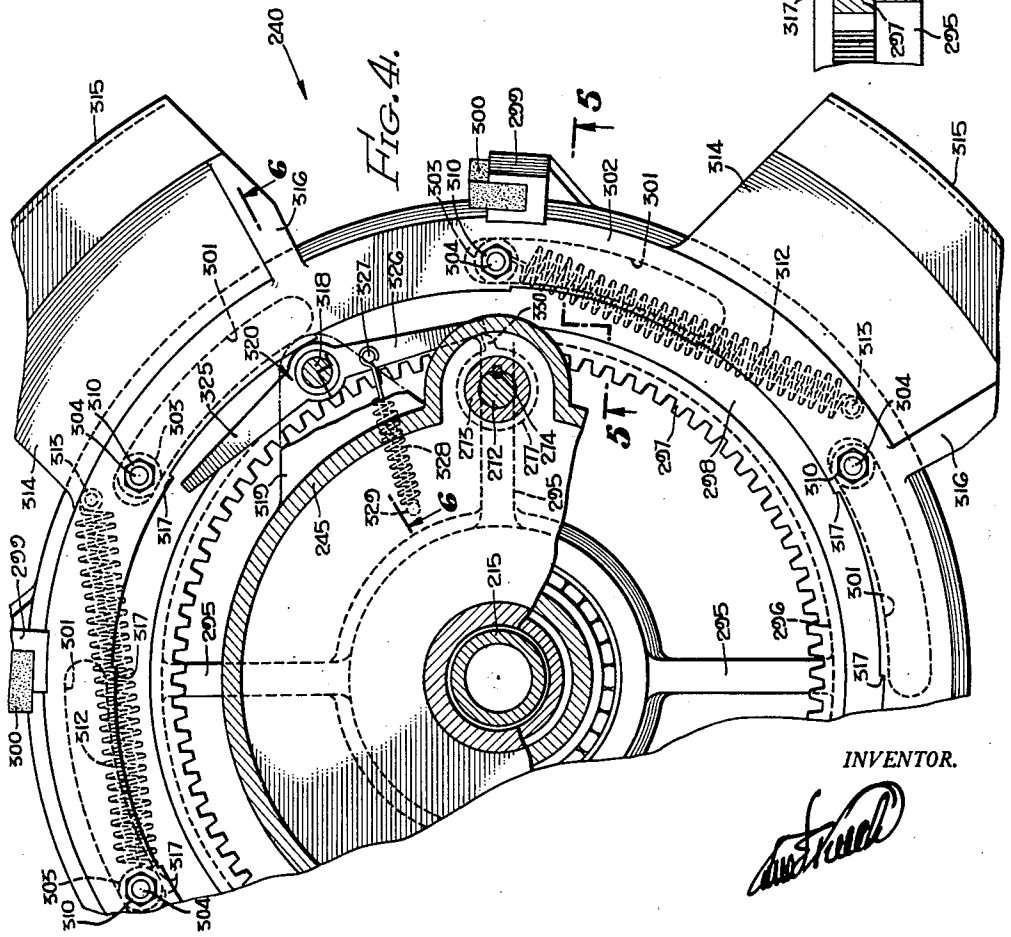

FIG. 4.

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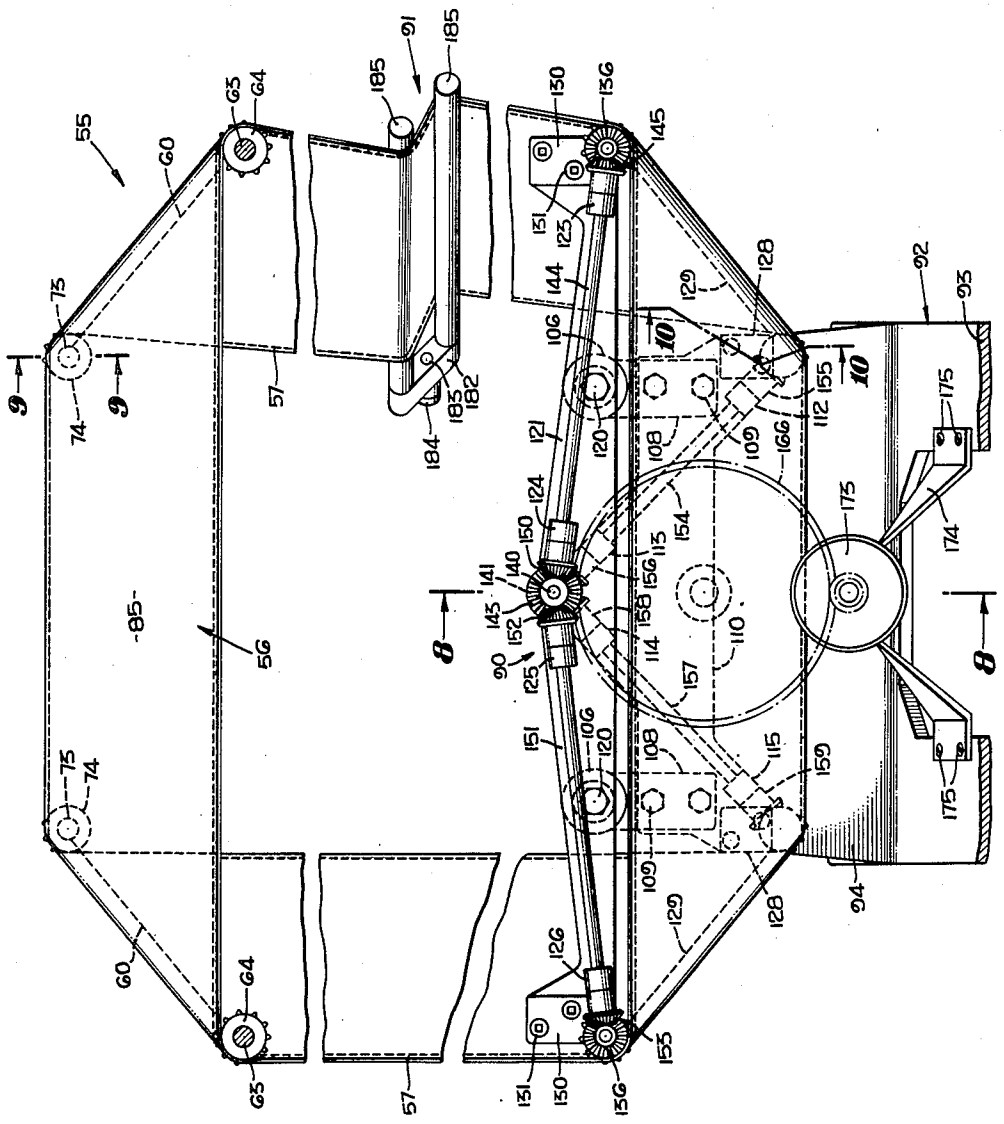

FIG. 7.

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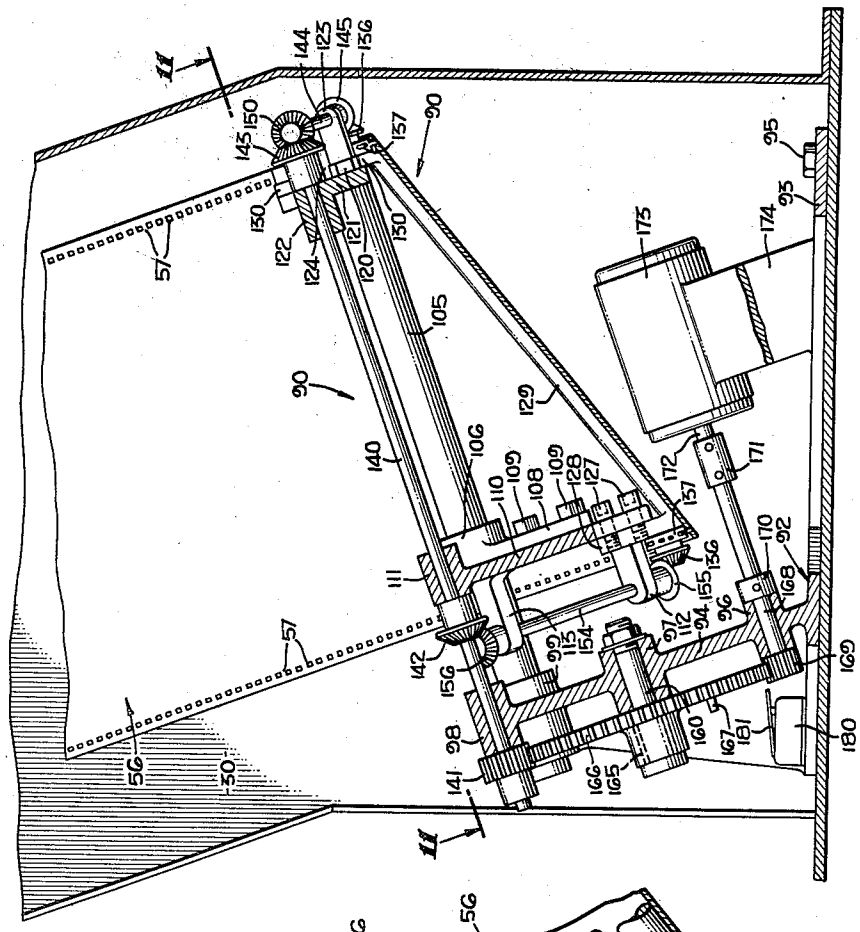

FIG. 8.

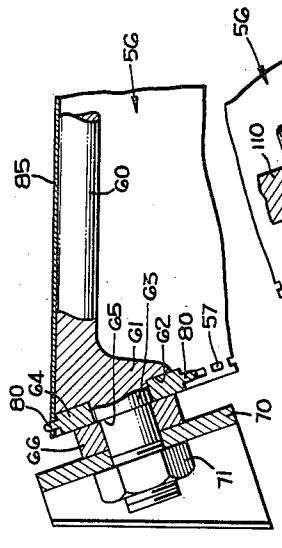

FIG. 9.

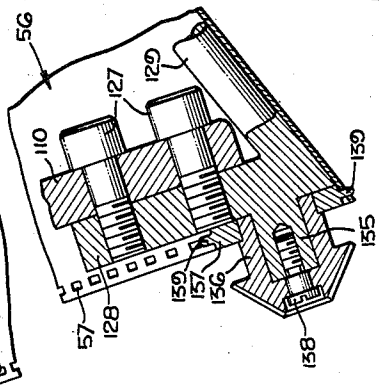

FIG. 10.

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COLORED FOUNTAIN

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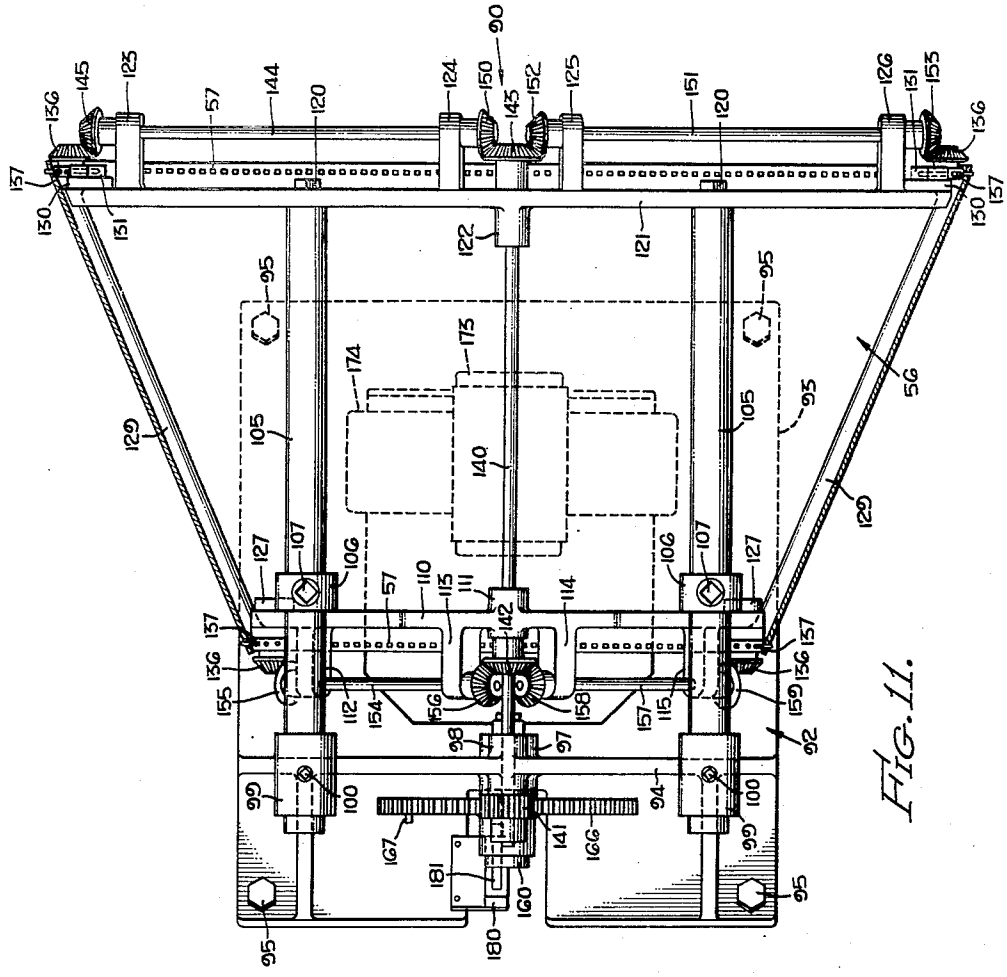

FIG. 11.

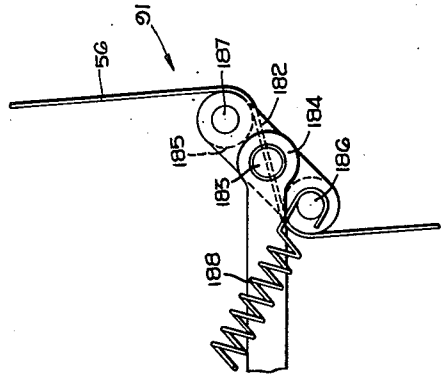

FIG. 12.

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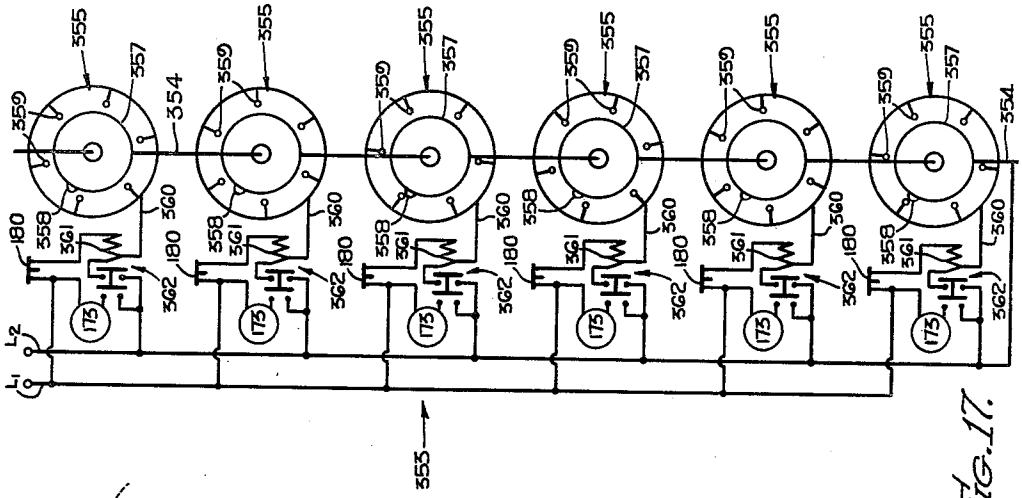

FIG. 17.

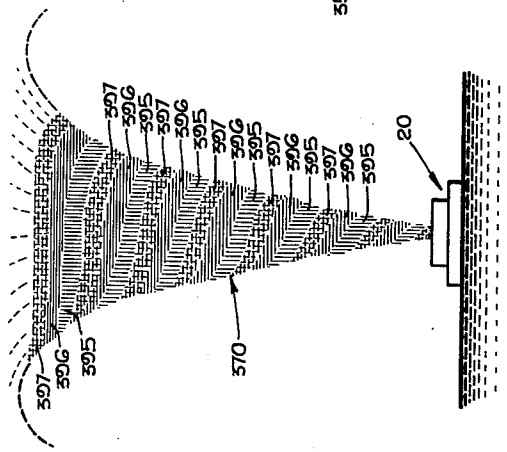

FIG. 14.

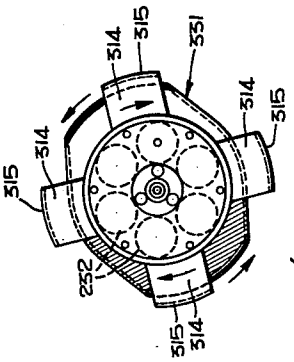

FIG. 16.

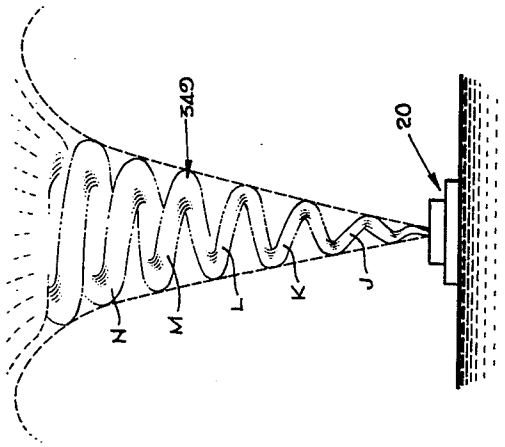

FIG. 13.

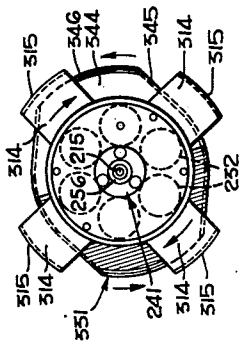

FIG. 15.

INVENTOR.

Patented July 13, 1954

2,683,620

UNITED STATES PATENT OFFICE

2,683,620

COLORED FOUNTAIN

Dana E. Keech, Los Angeles, Calif.

Application February 4, 1952, Serial No. 269,749

26 Claims. (Cl. 299—4)

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This invention relates to ornamental colored fountains and is an improvement on a colored fountain and method of producing the same, invented by John E. Barber, and which is the subject of a co-pending application for U. S. Letters Patent, Serial No. 252,379, filed October 20, 1951.

The preferred form of fountain disclosed in said Barber application includes nozzle means for discharging a stream of water upwardly in the form of a rapidly rising spiral of water droplets, with successive turns of said spiral stream spaced apart as they travel upwardly, and means for illuminating said rising spiral stream with a repeated pattern of successive rapid flashes of successively different colored lights in timed relation with the formation of said spiral stream so that each repetition of the illumination of said stream with a flash of each given color finds the turns of said stream disposed approximately in a corresponding series of spaced areas fixed in space, thereby creating in the observer the illusion of viewing simultaneously a series of approximately stationary inter-twined differently colored spirals each corresponding in shape to the rapidly moving spiral stream of water actually discharged by said nozzle means. The effect of this is to produce a beautiful constantly multi-colored fountain of inverted conical shape.

It is an object of the present invention to provide a novel colored fountain advantageously utilizing the principle disclosed by Barber in a sustained pattern of variations of the same.

It is a further object of the invention to provide a colored fountain unit having a flexibility of design permitting it to be readily dimensioned to throw a column of water into the air of any desired diameter and to any desired height within the limitations of disposable power, and embodying means for concentrating a relatively large amount of light in the illumination of the fountain produced thereby.

In my co-pending application, Serial No. 263,047, filed December 24, 1951 and entitled "Colored Fountain (Case A)," a colored fountain is disclosed in which the colored light by which the fountain is illuminated is produced by a rapidly rotating filter through which all the light from a plurality of fixed light sources is constantly directed. A design of this description imposes certain limitations on the character of filter which may be employed, as it must be made to fit into a relatively small space and stand the strains imposed by rapid rotation.

It is an object of the present invention to provide a colored fountain utilizing the principle disclosed by Barber and employing a light filter for the illumination of the fountain which is either stationary or is moved at a relatively slow rate incidental to changing the color pattern with which the fountain is illuminated and through which practically all the light produced by a central light source may be constantly directed.

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It is a still further object of the invention to provide such a colored fountain in which the space surrounding the axis of the nozzle is occupied by a plurality of like radially disposed series of differently colored and practically stationary light filter panels and in which means is provided which operates in timed relation with the means for rotating or oscillating the nozzle to form the spiral stream of the fountain, to successively direct practically all the light from a central light source through like colored panels in said plurality of series thereby successively illuminating said stream with light colored, in each instance, in accordance with the color of a plurality of filter panels through which said light is then passing.

Another object of the invention is to provide such a fountain in which a large portion of the space comprised in a band completely surrounding the nozzle of said fountain may be occupied by filter panels through which light may be directed upwardly in the illumination of said fountain.

The effect produced on the observer by any of the colored fountains heretofore produced and utilizing the Barber method aforesaid is rendered somewhat less distinct by the fact that as the dividing line between two adjacent filter panels passes through a shaft of light directed through the filter and onto the fountain, there is a simultaneous illumination of the fountain by the colors of the panels on opposite sides of said dividing line.

It is still another object of the present invention to provide a colored fountain operating on the Barber principle and in which there is relatively slight mixture of the colors of adjacent filter panels between successive illuminations of said fountain by said two colors.

Yet another object of the invention is to provide a colored fountain operating on the Barber principle in which light from a common light source is directed successively through a radial series of differently colored filter panels and in which a shutter is provided which functions when said light is being directed through panel

A, for instance, and is moving towards panel B, so that said shutter blocks the illumination of panel B until the light is directed approximately equally towards panels A and B, whereupon said shutter suddenly shifts out of the path of said light directed toward panel B and into the path of light directed toward panel A.

The manner of accomplishing the foregoing objects as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawings in which

Fig. 1 is a fragmentary diagrammatic plan view of a preferred embodiment of the invention with a certain portion of this broken away and shown in section on the line 1—1 of Fig. 2.

Fig. 2 is a side elevation view of Fig. 1 with a portion thereof broken away and shown in section on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary sectional view of a portion of Fig. 2 and is taken on the line 2—2 of Fig. 1.

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 3 and illustrates the shutter operating mechanism of the invention.

Fig. 5 is a detailed vertical sectional view taken on the line 5—5 of Fig. 4 and illustrates one of the stop cushions for absorbing the shock of halting the shutter at the end of each rapid movement thereof.

Fig. 6 is a detailed sectional view taken on the line 6—6 of Fig. 4 and illustrates the pivotal mounting of the escapement latch of the shutter of the invention.

Fig. 7 is an enlarged diagrammatic sectional view taken on the line 7—7 of Fig. 2 and illustrating one of the flexible belt multiple panel filters of the invention.

Fig. 8 is a vertical sectional view taken on the line 8—8 of Fig. 7.

Fig. 9 is an enlarged sectional view taken on the line 9—9 of Fig. 7 and illustrates the mounting of one of the idle sprocket wheels of the multiple panel filter belt unit shown in Fig. 7.

Fig. 10 is a fragmentary enlarged sectional view taken on the line 10—10 of Fig. 7 and illustrating the structure of one of the gear-driven sprockets of said light filter unit.

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 8 and illustrating the drive mechanism of one of said light filter units.

Fig. 12 is an enlarged diagrammatic sectional view taken on the line 12—12 of Fig. 2 and illustrating the manner in which the belt tightener of said unit is spring-actuated to maintain the filter belt in taut condition.

Fig. 13 is a diagrammatic elevational view of the spiral stream of water produced by the invention as this appears in a rapidly exposed photograph of the same.

Fig. 14 is a diagrammatic view of the fountain produced by the invention and illustrates the illusion produced in the observer by the manner in which the spiral stream shown in Fig. 13 is illuminated with colored lights by the mechanism of the fountain.

Fig. 15 is a diagrammatic plan view of the rotating mirror and shutter mechanism of the invention showing the parts thereof at an advanced stage in their operation.

Fig. 16 is a view similar to Fig. 15 showing the parts of said mechanism at a still further advanced stage in the operation thereof.

Fig. 17 is a diagrammatic view of the automatic control mechanism for effecting a predetermined routine of changes in the color pattern manifested in the fountain illustrated in Fig. 14.

Referring specifically to the drawings, the preferred embodiment of the invention illustrated therein comprises a fountain 20 having a base plate 22 with a motor mount 23 welded thereon and having air inlet and outlet openings 24 and 25 which communicate respectively with air inlet conduit 26, and air exhaust conduit 27. Also secured to base plate 22 in the center thereof is a stuffing box 28 to which water is supplied by a water pipe 29 which extends upwardly through the plate 22.

The plate 22 is substantially hexagonal in shape, and a series of six radial walls 30 are welded thereto in symmetrical relation with the axis of the plate, and equally spaced circumferentially from each other. Welded to the upper edges of the walls 30 is a window frame 35 (Fig. 3) including an inner ring 36, an outer ring 37 and radial legs 38 which extend between and unite rings 36 and 37 to form six trapezoidal window openings 39. Seats 40 are formed about said openings for receiving trapezoidal windows 41 which may be made of heavy plate glass or transparent plastic or of laminated glass and plastic and of a suitable thickness to withstand the impact of masses of water dropping on said windows.

Windows 41 are held in place by a cap ring 43 which overlies inner edges of said windows and is secured to the ring 36 by screws 44, by clamp plates 45 which are secured to the window frame legs 38 by screws 46, and by peripheral clamp plates 47 which are secured to ring 37 by cap screws 48. The cap ring 43 and clamp plates 45 and 47 are recessed to receive strips of resilient packing 49 which engage edge portions of the windows 41 to form a water-tight seal therewith. Each window 41 also rests upon a perimetrical gasket 50 which is formed of resilient packing material and provides an independent fluid-tight seal about the edges of the windows, as well as a cushioned mounting for said windows.

Disposed between each adjacent pair of walls 30 is one of six light filter units 55. Each of these units includes an endless light filter belt 56 having rows of perforations 57 along its opposite edges, which belt is made up of an endless series of differently colored sections 58, end edges 59 of which are united in the fabrication of asid belt. The upper end of each belt 56 is supported on a pair of divergent rods 60 (Figs. 2, 3 and 9) the forward end of each of which has an eccentric boss 61 from an inner face 62 of which a bearing stud 63 extends inwardly, the latter serving as the axle of an idle sprocket 64, said stud being turned down to form a shoulder 65 and receive a washer 66. Stud 63 also extends through an apertured bracket 70 which is welded onto the inner edge of an adjacent wall 30, the inner end of said stud being threaded to receive a nut 71 which securely binds the inner end of the rod 60 to said bracket while leaving the sprocket 64 freely rotatable on the stud 63.

The outer end of each rod 60 has an eccentric boss 72 from which a stud 73 extends in parallel relation with the stud 63 and is of similar construction so as to provide a freely rotatable mounting for an idle sprocket 74, and having a washer 75 and a nut 76 between which a bracket 77 having a lower inturned arm 78 is clamped. Arm 78 has a threaded aperture for receiving a

screw 79 for a purpose to be made clear hereinafter.

The rods 60 are preferably chromium-plated and highly polished so as to readily allow the belt 56 to turn about these rods with a minimum of friction therebetween. The sprockets 64 and 74 are so located that the teeth 80 of said sprockets extend through the perforations 57 of the belt 56, as the latter turns over the rods 60, to place a trapezoidal filter panel 85 directly beneath the window 41 located over said unit 55 (Fig. 1).

The panel 85, of the unit 55 being described, lies in a horizontal plane, and the trapezoidal shape given to this panel by the rods 60 on which the same is formed, causes the balance of the belt 56 depending downwardly from rod 60 to lie at an acute angle relative to the horizontal (Figs. 2, 3 and 8). In other words, the main portion of the belt 56 is inclined outwardly from vertical. At its lower end the belt 56 extends around a belt drive mechanism 90 (Figs. 7, 8 and 11), the belt being maintained in taut, driven relation with this mechanism by a belt tightener 91.

Drive mechanism 90 includes a base casting 92, including a bottom plate 93 and a wall 94 extending upwardly therefrom at an acute angle so as to lie parallel with the perforated edges of the belt 56. The plate 93 is secured to the base plate 22 by cap screws 95.

Formed integral with the wall 94, on axes perpendicular thereto, is a drive shaft bearing 96, a master gear mounting bearing 97 and a line shaft bearing 98. Also formed integral with the wall 94 (Fig. 11) are frame shaft mounting bearings 99 and secured in adjusted positions therein by screws 100 are frame shafts 105 having collars 106 which are slideable thereon and adjustably secured in place by set screws 107 so that lugs 108 formed on said collars extend downwardly in parallel relation at right angles to said shafts.

Secured to the lugs 108 by cap screws 109 (Fig. 8) is a bearing mounting plate 110, said plate having a line shaft bearing 111 formed integral therewith so as to be coaxial with the bearing 98. Plate 110 also has bearing blocks 112, 113, 114 and 115 formed integral therewith and extending from the inner face thereof at right angles to the plane of plate 110, bearings 112 and 113 having bores aligned on one axis and bearings 114 and 115 having bores aligned on another axis, said axes intersecting the axis of the bearings 98 and 111 and sloping downwardly at approximately 45° from horizontal.

Secured to the upper ends of shafts 105 by cap screws 120 is a bearing mounting plate 121, said plate having a line shaft bearing 122 formed integral therewith which is coaxial with the bearings 98 and 111 (Figs. 8 and 11). Plate 121 also has bearing blocks 123, 124, 125 and 126 formed integral therewith and extending from the outer face thereof at right angles to the plane of plate 121, bearings 123 and 124 having bores aligned on one axis and bearings 125 and 126 having bores aligned on another axis, said axes intersecting the axis of bearings 98, 111 and 122, and sloping downwardly from horizontal slightly as shown in Fig. 7.

Lying against inner faces of outer extremities of plate 110 and secured to said plate by Allen screws 127 are lugs 128 which are formed integral with the inner ends of a pair of filter belt guide rods 129 (Figs. 8, 9 and 11), said rods having similar lugs 130 formed at their outer ends which are parallel with the lugs 128 and extend upwardly in the same direction from rods 129. The rods 129 are preferably chromium-plated and polished in the same manner and for the same purpose as aforestated for rods 60.

The lugs 130 lie flat against front faces of outer extremities of the plate 121 and are secured to said plate by Allen screws 131. Each of the lugs 128 and 130 (Fig. 10) has a bearing stud 135 which extends inwardly from the inner faces of the lugs 128 and outwardly from the outer faces of the lugs 130 and at right angles to said faces, each of the studs 135 having rotatably mounted thereon a bevel gear 136, fixed to the hub of which is a sprocket 137. Extending axially through the hub of the gear 136 and screwed into a threaded axial hole in the stud 135 is a screw 138, the function of which is to retain said gear in place on said stud. The studs 135 are so located with reference to the rods 129 that teeth 139 of the sprockets 137 extend through perforations 57 in the filter belt 56 when the latter is trained around the rods 129 as shown in Figs. 7, 8 and 11. The rods 129 diverge outwardly so as to lie in the same planes respectively with rod 60, and the plane containing the rods 129 has an angled relation with the belt 56 which is exactly the opposite of the angled relation which the plane containing rods 60 has with said belt.

Journaled in bearings 98, 111 and 122 is a line shaft 140 on which is fixed a pinion gear 141 and master bevel gears 142 and 143 (Figs. 8 and 11).

Journaled in bearings 123 and 124 (Figs. 7 and 11) is a shaft 144 having fixed thereon a bevel gear 145 which meshes with an adjacent gear 136. Fixed on the opposite end of said shaft is a bevel gear 150 which meshes with master gear 143. Journaled in bearings 125 and 126 is a shaft 151 having bevel gears 152 and 153 fixed on its opposite ends, gear 152 meshing with gear 143 and gear 153 meshing with an adjacent bevel gear 136.

Journaling in bearings 112 and 113 (Fig. 11) is a shaft 154 having bevel gears 155 and 156 fixed upon its opposite ends, gear 155 meshing with an adjacent gear 136 and gear 156 meshing with master gear 142.

Journaling in bearings 114 and 115 (Fig. 11) is a shaft 157 having bevel gears 158 and 159 fixed on its opposite ends, gear 158 meshing with master gear 142 and gear 159 meshing with an adjacent gear 136.

Extending through bearing 97 is a bolt 160 on which is mounted between the head of said bolt and said bearing, a bearing sleeve 165 on which a master spur gear 166 is rotatably supported so that this gear meshes with pinion gear 141. Extending from gear 166 near the periphery thereof is a switch actuating pin 167.

Journaling in bearing 96 is a drive shaft 168 having fixed thereon a drive pinion 169, which meshes with gear 166, and a collar 170 which prevents end play in said shaft. Shaft 168 is united by a flexible coupling 171 to drive shaft 172 of an electric motor 173 having a mounting bracket 174 which is secured to plate 93 by screws 175.

Mounted on the base plate 93 inwardly from the wall 94 is a normally closed relay release switch 180 having an arm 181 which lies in the path of the pin 167 so as to be engaged by said pin each time the gear 166 completes a single revolution whereby the switch 180 is actuated to shut off motor 173, the momentum of which is sufficient, before it comes to a halt, to carry pin 167 out of contact with arm 181 permitting switch 180 to resume its original normally closed condition.

The belt tightener 91 includes a rocker 182 which is pivoted on a pin 183 mounted on an arm 184 which is fixed on an adjacent wall 30, rollers 185 being pivotally mounted on pins 186 and 187 on rocker 182 (Fig. 7), whereby said rollers are freely rotatable and are maintained in parallel relation. One end of a contractile spring 188 is attached to pin 186 and the other end of said spring is attached to the wall 30 on which arm 184 is mounted so that when this spring is stretched by rotating the rocker 182 about the pin 183 and the belt 56 extended between the rollers 185 and the rocker is released, the spring 188 presses the rollers 185 against said belt to take up the slack in the same and hold said belt taut. Prior to thus tightening belt 56, the latter is trained about the rods 60 and 129 with the teeth of sprockets 64, 74 and 137 meshing with the perforations 57 of said belt so that said sprockets at all times retain belt 56 trained about the rods 60 and 129 as shown in Figs. 2, 3, 7, 8 and 11.

When it is desired to remove belt 56 from any light filter unit 55, the spring 188 is disconnected from the pin 186 thereby relaxing the belt tightener 91 and permitting the belt 56 to sag out of mesh with the sprockets 137 whereupon the belt is lifted out of mesh with the sprockets 64 and 74 and slid outwardly from around the rods 60 and 129 and from between rollers 185.

Each of the walls 30 has an inwardly extending nose 189, near the upper end thereof, to the bottom edge of which a ring 190 is welded so as to unite all the walls 30 at this point. Fixed on the ring 190 between each adjacent pair of walls 30 is a pair of pivot brackets 195 which are pivotally connected by pins 196 to a base 197 having fixed thereto a plain flat mirror 198 which is trapezoidal in shape and is normally held upwardly at an angle of substantially 45° with the horizontal by brackets 199 fixed to base 197 at its upper outer corners, which brackets are apertured to receive the screws 79, thereby securing these brackets to the lugs 78 (Fig. 3) and uniting the filter belt support rods 60 and the mirror base 197 in a single rigid assembly.

Rubber cushions 200 are provided on brackets 195, and bosses 201 are provided on the base 197 which engage the cushions when the screws 79 are removed and the mirror 198 swung downwardly into horizontal position for a purpose which will be made clear hereinafter.

Resting on an annular seat 202 formed internally in the ring 35 is a circular bottom plate 203 of an upper bearing mount 204, this mount including a tube 205 which is welded to the plate 203 about a central opening in the latter. Formed within the tube 205 is a bearing cradle 206 which fits and supports the outer race of a double-sealed ball bearing 207. The outer race of said bearing is held down against the cradle 206 by a spacer 208 which lies between said bearing and a centrally apertured cap 209 which is screwed downwardly on the externally threaded upper end of the tube 205. The bearing mount 204 is reinforced by a series of gusset plates 210 which are welded to the tube 205 and bottom plate 203 (Fig. 2).

The bearing 207 is vertically coaxial with the stuffing box 28 and a hollow shaft 215 fits snugly within the inner race of the bearing 207 and extends downwardly with the lower end of said shaft rotatably mounted in the stuffing box 28 so as to receive water from the pipe 29 which is connected to a suitable high pressure pump (not shown).

The motor mount 23 has an electric motor 216 and a chain transmission 217 mounted thereon, the shaft 215 passing vertically through said transmission, the latter having a sprocket 218 which is fixed on said shaft and through which motor 216 drives said shaft at a 3 to 2 ratio whereby a motor turning 1800 R. P. M. will rotate shaft 215 at 1200 R. P. M.

Supported on the motor mount 23 is a housing 219 of a blower 220, the latter having a rotor 221 which is fixed on the shaft 215 so as to rotate therewith. The housing 219 provides an air passage 222 surrounding said rotor and from which an air outlet conduit 223 leads downwardly to connect with conduit 27 as shown in Fig. 2. The blower housing 219 has an upper neck 224 through which air is adapted to enter the blower 220, said neck having a spider 225 provided therein which supports a lower main ball bearing 226 in the inner race of which said shaft 215 snugly fits so as to journal in said bearing. The housing neck 224 also provides support for a battery of flood lamps 232 which are clustered around the shaft 215 as shown in Figs. 1 and 2. These are preferably G. E. 400 watt lamps and have a spun reflector 233 extending about the lower portions of lamps 232 and uniting with a light stack 234 which extends upwardly concentric with shaft 215 through a central opening in an adapter collar 235 which snugly surrounds the stack 234 and is secured to the ring 190 as shown in Figs. 2 and 3.

Surrounding the lower housing neck 224 and the reflector 233 so as to make an airtight connection between these two elements is a sleeve 236.

Supported on the bearing mount 204 and shaft 215 and actuated by rotation of the latter is a revolving mirror and shutter mechanism 240 (Figs. 1, 3 and 4). This mechanism includes a transmission 241 (Fig. 3) which is enclosed in a case 242 made up of an internal ring gear mount 243 in a central opening of which is fixed an internal ring gear 244, and an inverted bell 245, the case 242 being secured to and supported on the plate 203 by screws 246. The mount 243 has a vertical bore 247 to which grease has access through a passage 248.

The bell 245 has a bearing bore 249 which is in vertical alignment with bore 247, and this bell is integral with a central sleeve 250 which is externally threaded at its lower end, and has a shoulder 251 at its upper end. Secured to the shaft 215 by a key 255 is a drive pinion 256. Spaced downwardly from the pinion 256 by a spacer tube 257 is a ball bearing 258 which fits within a central recess formed in a differential hub 259 having a central sleeve 260 which extends downwardly about the shaft 215 and out from the lower end of the sleeve 250, and is externally threaded at its lower end.

The hub 259 has a series of three bores 261 into which pins 262 are pressed, differential gears 263 being pivotally mounted on the upwardly extending ends of these pins so as to mesh both with drive pinion 256 and internal gear 244. The ratio between the pitch radii of these three gears is such that the hub 259 is rotated at one-half the speed of the shaft 215, and in the same direction.

The hub 259 is circular and has an upper shoulder 264 and an annular groove 265 for receiving a split ring 266, there being an external ring gear 270 mounted on the hub 259 between shoulder

264 and split ring 266, said gear being secured against rotation on said hub by a key 271.

Journaling in the bores 247 and 249 is a shaft 272 on which a pinion gear 273 is fixed by a key 274. There is a drive of ratio 6 to 1 between the gear 270 and the pinion 273.

Fixed on the downwardly extending end of shaft 272 by key 275 is a pinion gear 276, this gear having a cam 277 at its upper end.

Assembled on the sleeve 250 with inner races thereof spaced by a spacer tube 280 is a pair of ball bearings 281 which are held thus assembled upwardly against the shoulder 251 by a bonnet 282 which is screwed onto the lower end of the sleeve 250. The bonnet 282 has an internal annular recess 283 which contains an expansible molded rubber lubricant seal 284.

Rotatably supported on the bearings 281 is a hub 285 of a shutter wheel 286, said hub having a threaded counter-bore 287 which receives a threaded gland 288, the latter cooperating with a shoulder 289 on the upper end of said hub for clamping said hub in place on bearings 281 with outer races of said bearings spaced by a spacer tube 290.

The shutter wheel 286 includes four spokes 295 which unite the hub 285 with a rim 296 in which is mounted an internal ring gear 297 which meshes with the pinion 276, and bears a 1 to 12 drive ratio therewith.

Formed outwardly from the rim 296 is a horizontal flange 298 from which a series of four cushion mounts 299 extend outwardly and upwardly at an angle (Fig. 5), each of these mounts carrying a rubber cushion 300. Formed in the flange 298 (Fig. 4) is a series of 6 arcuate slots 301 which are disposed concentric with the shaft 215, these slots being equally spaced circumferentially. Resting on the flange 298 and assembled therewith to permit it a limited degree of rotational movement relative to said flange is a shutter 302 which is in the form of a ring, the assembly of said shutter on said flange being effected by a series of rollers 303, one of which is disposed in each of the slots 301, and a series of bolts 304 having large heads 305 which overlie edge portions of shutter 302 adjacent to slots 301, said bolts extending upwardly respectively through the rollers 303 and screwing into threaded apertures provided therefor in the shutter 302.

Lock nuts 310 are screwed onto upper ends of bolts 304 and lock these in adjusted positions to permit the shutter 302 to be freely rotatable on the flange 298 within the limits of movement permitted rollers 303 in the slots 301.

Secured to pins 311 extending downwardly from alternate bolts 304 are contractile coil springs 312, the opposite ends of said springs being secured to pins 313 which extend downwardly from flange 298.

The shutter 302 has four arms 314 which extend upwardly and outwardly therefrom, shutter blades 315 extending downwardly from the outer ends of said arms. As shown in Fig. 1 each of these shutter blades has a circumferential width which is equal to about one-half the distance between the inner edges of upper portions of adjacent walls 30, the reason for this being made clear hereinafter.

Advance edge portions of arms 314 are provided with abutment shoulders 316 which are adapted to contact cushions 300 in the operation of the invention.

Formed on the inner edge of the ring-shaped shutter 302 is a series of twelve escapement teeth 317.

Pivotally supported on a pin 318 mounted by a pressed fit in a vertical aperture in a horizontal lug 319 extending outwardly from the casing bell 245 (Fig. 6) is an escapement rocker 320, there being a flat head 321 on the lower end of pin 318 which supports said rocker. Rocker 320 has two arms 325 and 326 the first of which is adapted to swing successively into place behind teeth 317. Arm 326 has a pin 327 which is connected by a contractile spring 328 to a pin 329 extending downwardly from the bell 245, said spring constantly urging the arm 325 towards a position in which it will engage the next adjacent tooth 317 on the shutter 302.

The extremity of arm 326 is thus maintained in contact with cam 277 on the pinion 276, said cam being for the most part concentric with its axis and having a boss 330 extending radially therefrom which operates with each rotation of the pinion 276 to swing the rocker 320 to remove the arm 325 thereof from in front of a tooth 317 bearing thereagainst, after which the passage of the boss 330 out from under the arm 326 permits the spring 328 to immediately snap the arm 325 back against the inner face of shutter 302 in the path of the next tooth 317 of said shutter.

Mounted on the lower end of the sleeve 260 is a V mirror 331. This includes a hub 332 having an internally threaded split collar 333 formed integral therewith which is screwed onto the lower end of sleeve 260 and then tightened in its properly adjusted relation therewith by a bolt 334. The hub 332 has a bore 335 the mouth of which is internally threaded to receive a plug 340, which confines a bearing 341 within said bore, and has a recess 342 which is occupied by a molded rubber lubricant seal ring 343. Formed integral with hub 332 and extending upwardly and outwardly in opposite directions therefrom at angles of 45° with the shaft 215 are mirror mounting plates 344 which are shaped, substantially as shown in the plan view of Fig. 1, with sheet metal aprons 345 secured to the opposite edges of plates 344 and extending downwardly therefrom so that the lower edges of the aprons 345 are disposed outwardly from and slightly below the upper extremity of light stack 234.

Secured upon the outer faces of the mirror mounting plates 344 are plane mirrors 346 which may be of plate glass or highly polished metal.

The cap 209 contains a molded rubber seal ring 347 which engages the upper end of shaft 215 to prevent water entering the bearing housing 205, said seal ring also performing the function of preventing lubricant escaping upwardly from said housing. The upper end of shaft 215 is externally threaded and a nozzle 348 (Fig. 2) is screwed thereon, the discharge orifice of this nozzle being formed at an angle of about 15° relative to vertical so that the rotation of shaft 215 while water is being discharged from said nozzle will produce a spiral stream 349 as shown in Fig. 13.

The fountain 20 is provided with an automatic color pattern control mechanism 353 which includes a cam shaft 354 which is power driven by a variable speed motor (not shown) so that this shaft will rotate once during a period of predetermined length within which fountain 20 will manifest a series of changes in the color pattern shown in Fig. 14, comprising one color cycle.

For the purpose of illustration it will be

assumed that three minutes has been selected as the period for said cycle.

The control mechanism includes six control systems 355, one for each of the filter units 55, each of said systems having a cam 357 all of which cams are fixed on the shaft 354. Each of the cams 357 has a finger 358, all of which fingers extend in the same direction from the shaft 354 and are electrically connected therewith. The mechanism 355 is supplied with electricity from leads L1 and L2, the latter being connected with shaft 354.

Each of the systems 355 is provided for controlling the operation of one of the light filter units 55 by controlling the energizing of the motor 173 thereof. As the systems 355 are identical, a description of one of these will suffice for all.

Referring to Fig. 17 it will be seen that a series of contacts 359 are disposed circumferentially about each cam 357 to be contacted by the finger 358 thereof at various angular positions of said finger about shaft 354. Contacts 359 are connected by a conductor 360 to one end of a coil 361 of a four pole magnetic switch 362 which connects the motor 173 with leads L1 and L2 when said switch is actuated. As will be readily apparent, said switch, when actuated, maintains itself closed as long as holding switch 180 is closed. When the motor 173 is thus actuated, it rotates the pinion gear 169, the gear 166 and the line shaft 149 of the filter drive mechanism 90 thereby rotating all of the sprockets 137 in a given direction so as to cause the endless filter belt 56 to progress along the endless path in which it is suspended in the unit 55. The energizing of motor 173 and the movement of the belt 56 continues throughout a single revolution of gear 166 which is terminated by the pin 167 engaging the arm 181 of the holding switch 180, thereby opening this and causing the switch 362 to open which de-energizes the motor 173 and brings the filter belt drive mechanism 90 of this unit 55 to a halt.

As previously noted the momentum of motor 173 after it is de-energized and before it halts, carries the pin 167 out of contact with the arm 181 allowing the switch 180 to close. Thus the switch 362 is again in condition to start the motor 173 the moment that finger 358 of cam 357 again engages one of the contacts 359.

The control mechanism 353 diagrammatically shown in Fig. 17 is preferably one of the well-known multiple-cam electrical control devices in which the contacts 359 are adjustable about each of the cams 357 so that the timing of the changes taking place in the color panels 85 of the fountain 20 may be changed from time to time so as to introduce novelty into the color pattern manifested in the fountain 20 throughout a color cycle.

The fountain 20 is enclosed by a housing shell 380 having an inturned flange 381 at its upper end and an outturned flange 382 at its lower end. The flange 381 rests on a packing ring 383 and supports a flange 384 of a light well 385. Extending through aligned apertures in the flanges 381 and 384 and packing ring 383, and screwed into tapped holes in the ring 37 are cap screws 386. Cap screws 387 extend down through holes provided in the flange 382 and are screwed into tapped holes provided in the base plate 22.

Access to the interior of the fountain 20 for servicing the same is had through one or more suitable doors 388 which are preferably disposed opposite one or more of the mirrors 198 (Fig. 2). Thus by opening a door 388 opposite one of the mirrors 198, and removing the screws 79 supporting the outer end of this mirror, the latter may be lowered into horizontal position with the bosses 201 thereof resting on the cushion 200, thus permitting the surface of this mirror to be cleaned, and also permitting the rotary mirror and shutter mechanism 331 to be manipulated to bring one of the two lateral openings in the mirror aprons 345 opposite the opened door 388 which enables the operator to reach into the fountain 20 and downwardly into the light stack 234 so as to remove and replace the lamps 232 with new lamps when this becomes necessary. This also brings the mirrors 346 into position where they may be cleaned by the operator and gives him access to the gear box 241 for lubrication purposes, it being necessary for this purpose to manually turn the mirror 331 so that this is viewed by the operator through the opened door 388 as said mirror appears in Fig. 2.

Operation

The fountain 20 is designed to have several distinctly different modes of operation. In the first of these which may be termed mode A, light filter units 55 which are disposed diametrically opposite to each other in the fountain 20 are exactly alike. That is, the sections 58 in the filter belts 56 of each such pair of units are identical as to the colors presented by these, and as to the order in which these colors appear in said sections. In mode A the contacts 359 of the control systems 355 of this pair of such units are placed in identically the same pattern about the cams 357 of said systems so that the belts 56 of these units are actuated simultaneously and in a manner to always present like colors in the panels 85 of said pair of units 55.

In operating the fountain 20 in accordance with mode A, therefore, the six panels 85 of the fountain are always divided into three sets of diametrically opposite panels, each set of which presents a single color. Assuming these three colors to be red, blue and yellow, and that the spiral stream 349 is positioned as shown in Fig. 13 each time it is repeatedly illuminated by the color red, it is to be noted that these repeated illuminations take place twenty times a second. This creates in the observer the illusion that fixed areas 395 in the fountain 370 which are occupied by half-turns J, K, L, M and N of said spiral stream at these moments, are constantly illuminated with the color red.

In a similar manner, when the spiral stream 349 is repeatedly illuminated at the same rate by the color blue, the stream has progressed from the position in which it is shown in Fig. 13 approximately one-third of the distance between successive half-turns so that the half-turns J, K, L, M and N will, during each of the illuminations of the stream by the color blue, be disposed in fountain areas 396, thereby creating the illusion in the observer of seeing these areas constantly illuminated with the color blue. Likewise, the repeated illumination of the spiral stream 349 at the same rate with the color yellow during the final one-third of each revolution of nozzle 348 will find the half-turns J, K, L, M and N advanced further upwardly into areas 397 of the fountain 370, thereby producing in the observer the illusion of seeing areas 397 constantly illuminated with the color yellow.

The net effect of the illusions thus produced by the operation of fountain 20 in accordance with mode A is to create the composite illusion that the fountain is illuminated from bottom to top with a plurality of series of three spiral bands each, each of these series exhibiting successive bands colored, from the bottom upwardly, red, blue and yellow.

In operating fountain 20 according to mode A, the rotation of shaft 356 operates always to simultaneously change both panels 85 of each of the diametrically opposite pairs of units 55, from both showing a given single color to both showing another single color. When such a change is made in the color presented by panels 85 of a single pair of diametrically opposite units 55, this results in a change in color in all of the areas designated in Fig. 14 by one of the three numerals 395, 396 or 397. The apparatus 353 may have the contacts 359 thereof so disposed that the color in only one of these groups of areas will be changed at one time. On the other hand, the control mechanism 355 may be so adjusted as to change the colors in two or three of said groups of areas at a single time. It has generally been found preferable, however, to only change one group of areas at a time and to space said changes by intervals of from five to ten seconds each.

The filter belts 56 are shown with each of these belts having six different colored sections 58 and with each of these belts in the form of an endless belt stretched out practically at its full length within the fountain 20. It is to be understood, of course, that the showing of belt 56 in this form is merely illustrative of the invention in its broader aspects; that each of these belts may, if desired, be formed to contain a much larger number of individual color sections; and that it may not be an endless belt, but with separated ends wound on separate drums and the belt fed back and forth between these drums in order to make a change in that section 58 which is disposed upwardly to comprise the color panel 85. It is also to be noted that while the belts 56 are stretched practically their full length within the fountain 20, the space which these occupy may be materially reduced by interlacing portions of each of these belts about spaced rollers compactly arranged.

The operation of fountain 20 in accordance with mode A has been described without reference to the shutter 302, as the fountain is operable as described under mode A with this shutter entirely removed. The second mode of operation which may be followed in operating the fountain 20 and which may be referred to as mode B comprises operating the fountain in accordance with any of the other modes of operation of which it is susceptible and at the same time employing the shutter 302. Mode B may be described, therefore, as follows.

Three stages in the operation of the shutter 302 are illustrated in Figs. 1, 15 and 16. Figs. 3 and 4 illustrate the stage shown in Fig. 15. As will be noted, the shutter 302 has four blades 315 and rotates intermittently in a clockwise direction while the V-mirror 331 rotates in a counterclockwise direction. The purpose of the shutter already noted is to substantially prevent simultaneous illumination of adjacent color panels 85. Such overlapping of the illumination of adjacent panels does not prevent the formation of the illusions above described and illustrated in Fig. 14, but the use of shutter 302 substantially sharpens the definition between adjacent color areas occurring in said illusion.

Referring now to Figs. 1 and 2, the shutter 302 is shown with the blades 315 thereof stationary in positions in which they will remain until the V mirror 331 continues rotating for another 22½° to arrive at the position in which this is shown in Fig. 15. When this has taken place, the pinion 276 will have rotated to the point illustrated in Figs. 3 and 4, causing the boss 330 to move under the arm 326 of rocker 320 to rock the latter and remove the arm 325 from in front of the tooth 317 engaged thereby. Owing to the engagement of said tooth by the arm 325 prior to this taking place, the springs 312 had become stretched as shown in Fig. 4, and the disengagement of said tooth 317 frees the shutter 302 to respond to said springs with a very rapid shutter action lasting about one five hundredth of a second and concluding with the impact of shoulders 316 against cushions 300. While this is taking place, the boss 330 moves out from under arm 326 of the rocker 320, causing said rocker to respond to spring 328 which returns arm 325 into contact with the inner edge of shutter 302 and in the path of the next tooth 317 formed thereon. Engagement of said last mentioned tooth 317 with rocker arm 325 immediately follows the impact of the shoulders 316 with the cushions 300, and operates to halt rotation of the shutter 302 with the shutter wheel 286. The shutter blades 315 are located, when the shutter 302 is so halted, in the positions in which these are shown in Fig. 16.

This operation of shutter 302 continues whenever the fountain 20 is being operated in accordance with mode B, with the following results. Blades 315 are always positioned so that a diametrically opposite pair of said blades will be located just in advance of the mirrors 346 as they rotate from positions in alignment with one pair of filter panels 85 towards the next rotationally advanced pair of such panels so that said blades intercept advance portions of shafts of light which otherwise would be directed through said next pair of panels while the balance of said light shafts is still illuminating said first mentioned pair of filter panels 85. This particular pair of shutter blades 315 remains so positioned until the mirrors 346 have rotated to positions about 7½° short of position where said mirrors are substantially bisected by the plane of the walls 30 on which said two pairs of panels border. The rapid rotation of the shutter 302 above described occurs while said mirrors are rotating the next 7½°, and functions to remove the aforesaid pair of shutter blades 315 from in front of the advance portions of the shafts of light directed radially from said mirrors 346, and locates said pair of shutter blades in positions in covering relation with the first mentioned pair of panels 85 so as to terminate the illumination of said panels by mirrors 346.

The two pairs of opposite blades 315 alternately perform the functions just described. By virtue of this action of the shutter 302, the fountain 20 when operating in accordance with mode B, practically completely eliminates mixture of the colors of adjacent panels 85 when the light shaft from a mirror 346 is being shifted from illumination of one panel to the next panel in advance thereof. This manifestly renders the different color areas in the fountain 370 more distinct and enhances the beauty of the fountain.

Another mode by which the fountain 20 may be operated, and which may be referred to as mode C, is to arrange the contacts 359 in the

various filtering unit operating systems contained therein so that from time ot time the same color will be presented in all six filter panels 85 which will have the effect, while this continues, of floodlighting the fountain with a single color such as red, blue, green, yellow, orange or purple.

Still another mode of operating the fountain 20 and which may be designated as mode D, is to provide the color sections 58 of the filter belts 56 with a variety of hues so that the color of any section 58 of a given unit 55 may be simultaneously illuminated along with any of the sections 58 of the diametrically opposite unit 55 to produce a fusion of these colors, and still produce a characteristic color pattern such as illustrated in Fig. 14.

In employing mode D, therefore, cams 357 of the control mechanism 355 may be furnished respectively with different numbers of contacts 359 so that, if desired, each of these cams would have a different number of contacts 359 than any of the other cams. Thus, one cam 357 might have six contacts 359, another five, another four, another three, while the other cam might have only a single contact 359. Under such an arrangement, almost an infinite variety of color schemes can be introduced into the pattern manifested by the fountain 370.

The random mixture method followed in Mode D is also applicable where the filter belts 56 of separate filter units 55 are identical as is the case in mode A.

The claims are:

1. In a colored fountain the combination of: a nozzle mounted for rotation about a vertical axis with a nozzle orifice inclined relative to said axis to discharge water obliquely upwardly; means for rotating said nozzle to give said stream of water the form of a spiral as it rises from said nozzle; a colored filter including a plurality of stationary filter panels arranged in an endless series radially about said axis; a constantly energized light source concentric with said axis; and a reflector mechanism including a reflector rotating about said axis in timed relation with the rotation of said nozzle to direct practically the whole of the light produced by said light source continuously upwardly through successive panels of said filter to illuminate said spiral stream during successive intervals with different colors, the timing between the rotation of said nozzle and the illumination of said stream aforesaid being such that each repetition of the illumination of said stream with a flash of each given color finds the turns of said stream disposed approximately in a corresponding series of spaced areas fixed in space, thereby creating in the observer the illusion of viewing simultaneously a series of approximately stationary intertwined differently colored spirals, each corresponding in shape to the rapidly moving spiral stream of water actually discharged by said nozzle.

2. A combination as in claim 1 in which said filter panels are approximately contiguous to each other and in which shutter means is provided which intercepts an advance portion of a shaft of said light at a point in between said light source and said filter as said shaft shifts from one of said filter panels to the next panel in order, so as to shield said next panel from said light until approximately the advance half of said shaft is directed towards said next panel, whereupon said shutter means quickly shifts out of covering relation with said next panel and into covering relation with said first mentioned panel, thereby substantially eliminating a period during which said spiral stream will be simultaneously illuminated by light passing through said two panels.

3. A combination as in claim 1 in which said reflector mechanism includes a centrally disposed oblique mirror mounted for rotation in timed relation with said nozzle and against which light from said light source is constantly directed; and a plurality of fixed obliquely disposed mirrors located radially outwardly from said rotating mirror and respectively beneath said filter panels so that light from said light source is reflected successively by said rotating mirror onto said fixed mirrors, each of the latter reflecting said light upwardly through the filter panel thereabove, to illuminate said stream with the color of said panel.

4. A combination as in claim 1 in which said filter embraces a plurality of like series of differently colored panels with the latter arranged in the same order in each of said series, said reflector mechanism including a centrally located mirror rotating about the axis of said nozzle in timed relation with the latter, and a series of fixed mirrors obliquely disposed and located radially outward from said rotating mirror, each of said fixed mirrors being disposed beneath one of said filter panels, said rotating mirror being disposed constantly in the path of light generated by said light source and reflecting said light radially against said fixed mirrors, said light in turn being reflected from the latter upwardly through said panels to illuminate said spiral stream, said rotating mirror having a plurality of faces obliquely disposed relative to said axis and equal in number to the number of said like series of panels comprised in said light filter so that said spiral stream is always illuminated at any given moment by light reflected upwardly by said reflector mechanism through correspondingly colored panels of said plurality of series.

5. A combination as in claim 1 in which each of the stationary filter panels recited therein comprises an upper portion of a flexible belt of translucent colored sheet material, each of said belts being made up of a plurality of differently colored sections, each section being of sufficient length to form one of said panels; and means for causing travel of each of said belts to determine which of the sections of said belt shall be located to form the filter panel provided by said belt.

6. A combination as in claim 1 in which each of the stationary filter panels recited therein comprises an upper portion of a flexible belt of translucent colored sheet material, each of said belts being made up of a plurality of differently colored sections, each section being of sufficient length to form one of said panels; means for causing travel of each of said belts to determine which of the sections of said belt shall be located to form the filter panel provided by said belt; and means for mounting each of said belts to cause the portion thereof forming one of said panels to be trapezoidal in shape, thereby giving a substantially maximum area to said panel with said panels arranged radially in an endless series as aforesaid.

7. A combination as in claim 1 in which said reflector mechanism includes a centrally disposed oblique mirror rotating in timed relation with said nozzle and against which light from said light source is constantly directed; a plurality of fixed obliquely disposed mirrors located radially outwardly from said rotating mirror and re-

spectively beneath said filter panels so that light from said light source is reflected successively by said rotating mirror onto said fixed mirrors and from the latter upwardly through the filter panels located respectively thereabove, to illuminate said stream successively with the colors of said panels; shutter means disposed between said rotating mirror and said fixed mirrors and being rotatably mounted concentric with said axis, said shutter means including a plurality of shutter blades, each of which is approximately half of the circumferential width of a shaft of light directed from said rotating mirror radially onto said fixed mirrors; and means for intermittently rotating said shutter means in the opposite direction from said mirror to dispose one of said shutter blades to intercept an advance portion of said shaft of light as said mirror rotates to shift said beam from impinging upon one of said filter panels to where said shaft starts to impinge upon the next panel in order, said blade thereby shielding said next panel from said light until approximately the advance half of said shaft is directed towards said next panel, whereupon said shutter operating means quickly shifts said blade out of covering relation with said next panel and into covering relation with said first mentioned panel, thereby substantially eliminating a period during which said spiral stream would have been simultaneously illuminated by light passing through said two panels.

8. A combination as in claim 1 in which said reflector mechanism includes a centrally disposed mirror comprising two oblique mirrors placed together to form a V, said central mirror being mounted for rotation about said axis in timed relation with said nozzle, substantially the whole of the light generated by said light source being constantly directed against said rotating mirror; and a plurality of fixed obliquely disposed mirrors located radially outwardly from said rotating mirror and respectively beneath said filter panels so that light from said light source is reflected successively by the oblique mirrors of said rotating mirror in opposite directions onto opposite pairs of said fixed mirrors, each of the latter pairs reflecting said light upwardly towards the filter panels disposed thereabove, thereby illuminating said stream with the color produced by said panels.

9. A combination as in claim 1 in which said reflector mechanism includes a centrally disposed mirror comprising two oblique mirrors placed together to form a V, said central mirror being mounted for rotation about said axis in timed relation with said nozzle, substantially the whole of the light generated by said light source being constantly directed against said rotating mirror; a plurality of fixed obliquely disposed mirrors located radially outwardly from said rotating mirror and respectively beneath said filter panels so that light from said light source is reflected successively by the oblique mirrors of said rotating mirror in opposite directions onto opposite pairs of said fixed mirrors, each of the latter pairs reflecting said light upwardly towards the filter panels disposed thereabove, thereby illuminating said stream with the color produced by said panels; a shutter rotatably mounted on said axis and having four blades, said blades having a circumferential width approximately one-half of the corresponding dimension of shafts of light directed radially outwardly from said oblique mirrors of said rotating mirror; and means for intermittently rotating said shutter in the opposite direction from said mirror so that one of said blades will be disposed relative to each of said shafts so as to intercept an advance portion thereof as said shaft shifts from one of said filter panels to the next panel in order, so as to shield said next panel from the light of said shaft until approximately the advance half of said shaft is directed toward said next panel, whereupon said shutter operating means quickly shifts said shutter to move said blade out of covering relation with said next panel and into covering relation with said first mentioned panel, thereby substantially eliminating a period during which said spiral stream will be simultaneously illuminated by light passing through said two panels.

10. In a colored fountain the combination of: a nozzle mounted for rotation about a vertical axis with a nozzle orifice inclined relative to said axis to discharge water obliquely upwardly; means for rotating said nozzle to give said stream of water the form of a spiral as it rises from said nozzle; a constantly energized light source disposed beneath said nozzle; mirror means continuously receiving light from said light source and actuated in timed relation with the rotation of said nozzle to continuously direct light from said light source upwardly along a moving path whereby said light illuminates said spiral stream; and stationary translucent light filter means located to intercept said path in successive positions of the latter during each revolution of said nozzle with a series of differently colored filter panels whereby said stream is successively illuminated during successive intervals during each rotation of said nozzle with different colors, the timing between the rotation of said nozzle and the illumination of said stream with a flash of each given color finding the turns of said stream disposed approximately in a corresponding series of spaced areas fixed in space, thereby creating in the observer the illusion of viewing simultaneously a series of approximately stationary intertwined differently colored spirals.

11. A combination as in claim 10 in which said mirror means includes a mirror receiving light directly from said light source and continuously rotating about the axis of said nozzle in timed relation with the rotation of said nozzle.

12. A combination as in claim 10 in which said mirror means includes a mirror receiving light directly from said light source and continuously rotating about the axis of said nozzle in timed relation with the rotation of said nozzle, and in which said mirror means also includes reflecting means receiving light from said rotating mirror and reflecting said light upwardly into the space occupied by said spiral stream, and in which said light filter means comprises flexible filter belt means embodying a series of individual light filter panels connected together edge to edge, and means for causing said filter belt means to travel to change the panels thereof which intercept the path along which said light travels to successively illuminate said spiral stream with different colors so as to vary the color pattern manifested in said fountain.

13. A combination as in claim 10 in which said mirror means includes a mirror obliquely related to the axis of said nozzle and continuously rotating about said axis in timed relation with the rotation of said nozzle, and in which light from said light source travels in substantially an axial direction to impinge against said mirror whereby the latter reflects said light substantially radially from said axis, and in which said

mirror means also includes reflecting means arranged outwardly from said rotating mirror and surrounding said axis, said reflecting means intercepting light travelling radially from said rotating mirror, said reflecting means being disposed obliquely to the radial path of said light so as to deflect said light upwardly to illuminate said spiral stream.

14. A combination as in claim 10 in which said relatively stationary translucent light filter means has the form of flexible filter belt means including a series of differently colored sections joined edge to edge, each of which sections is of a different color and constitutes one of said color filter panels; and means for causing said filter belt means to travel to present different combinations of said filter panels in positions to intercept said path of light in successive positions of the latter thereby varying the color pattern with which said fountain is illuminated.

15. In a colored fountain, the combination of: a nozzle mounted for rotation about a vertical axis with an eccentric nozzle orifice opening upwardly; means for rapidly rotating said nozzle to give water discharged from said orifice the form of a spiral stream; a light source disposed symmetrically with said axis and directing light substantially parallel with said axis; a mirror; means for mounting said mirror in the path of said light and disposed obliquely to said axis to reflect said light radially, and for rotating said mirror rapidly about said axis; stationary mirror means disposed radially from said rotating mirror in the path of and obliquely related to said radially reflected light to deflect the same onto said spiral stream to illuminate said stream; and color filter means interposed in the path of said light to cause said light to be colored and to impart a corresponding color to said spiral stream.

16. In a colored fountain, the combination of: a nozzle mounted for rotation about a vertical axis with an eccentric nozzle orifice opening upwardly; means for rotating said nozzle to give water discharged from said orifice the form of a spiral stream; a light source disposed symmetrically with said axis and directing light substantially parallel with said axis; a mirror; means for mounting said mirror in the path of said light and disposed obliquely to said axis to reflect said light radially, and for rotating said mirror rapidly about said axis; stationary mirror means disposed radially from said rotating mirror in the path of and obliquely related to said radially reflected light to deflect the same onto said spiral stream to illuminate said stream; and color filter means comprising a stationary filter panel disposed in the path of said light after the latter is reflected from said rotating mirror and occupying a segmental portion of the area through which said reflected light passes during each rotation of said mirror, the rates of rotation of said mirror and said nozzle being in timed relation to cause said panel to be penetrated by said light during corresponding fractional portions of successive rotations of said nozzle.

17. A combination as in claim 16 in which means is provided which from time to time substitutes for said stationary filter panel, and in the same location thereof, a differently colored filter panel.

18. A combination as in claim 17 in which said filter panel substitution means comprises a flexible belt including a series of flexible differently colored filter panels joined edge to edge; and guide means over which said belt travels to present the panels thereof successively in said location.

19. A combination as in claim 18 in which said flexible belt is endless; means for maintaining said belt in uniformly taut condition; and means for advancing said belt along its endless path to successively present the filter panels thereof in said location.

20. A combination as in claim 19 in which each filter panel comprises a trapezoidal portion of said belt and in which said location is in a horizontal plane above said stationary mirror means, with the inwardly projected lines of the non-parallel sides of the panel occupying said location, intersecting approximately at said axis.

21. A combination as in claim 20 in which approximately radial rods are provided for said belt to turn about at the radial edges of said location; sprocket near the ends of said rods; a pair of rods in spaced angled relation with said first rods; sprockets near the ends of said last mentioned rods, edges of said belt being perforated to mesh with said sprockets, said belt being trained about said four rods in meshing relation with said sprockets; and means for rotating certain of said sprockets to advance said belt to successively dispose said panels in said location.

22. In a colored fountain, the combination of: a nozzle mounted for rotation about a vertical axis with an eccentric nozzle orifice opening upwardly; means for rapidly rotating said nozzle to give water discharged from said orifice the form of a spiral stream; a light source disposed symmetrically with said axis and directing light substantially parallel with said axis; a mirror; means for mounting said mirror in the path of said light and disposed obliquely to said axis to reflect said light radially, and for rotating said mirror rapidly about said axis; stationary mirror means disposed radially from said rotating mirror in the path of and obliquely related to said radially reflected light to deflect the same onto said sprial stream to illuminate said stream; and color filter means comprising a stationary series of differently colored filter panels arranged in a sequence about said axis, the rates of rotation of said mirror and said nozzle being in timed relation to cause said panels to be consecutively penetrated by said light, after the latter is reflected from said rotating mirror, during each rotation of said nozzle.

23. A combination as in claim 22 in which means is provided which from time to time substitutes for one of said stationary filter panels, and in the same location thereof, a differently colored filter panel, so as to cause said color filter means with each such substitution, to present a different overall consecutive color pattern to said light.

24. A combination as in claim 22 in which means is provided which progressively substitutes for the panels of said series and in the respective locations thereof, differently colored filter panels than where previously in said respective locations, whereby a different overall consecutive color pattern is presented by said color filter means with each individual panel substitution.

25. A combination as in claim 22 in which said mirror is provided with circumferential blinder walls rotating therewith and restricting the radial angle through which said light is free to be reflected radially from said mirror at any given moment, so as to substantially limit the over-

lapping of time period during which said light penetrates adjacent filter panels.

26. A combination as in claim 25 in which a shutter means is provided including shutter blades disposed to partially mask at times the light opening provided in said blinder walls; a mount for said blades which is rotatable about said axis; and means for intermittently rotating said mount about said axis in the opposite direction to said mirror and in timed relation therewith to cause one of said shutter blades to mask an advance portion of said mirror opening each time the latter starts across a radial plane dividing the areas occupied by adjacent

filter panels, and then shift with a partial rotation of said mount, when said opening is bisected by said plane, to come to rest in position to mask a following portion of said opening.

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