Dec. 25, 1928. 1,696,232

M. L. HANEY

COIN CONTROLLED FAN

Original Filed Nov. 19, 1924 3 Sheets-Sheet 1

Fig. 1

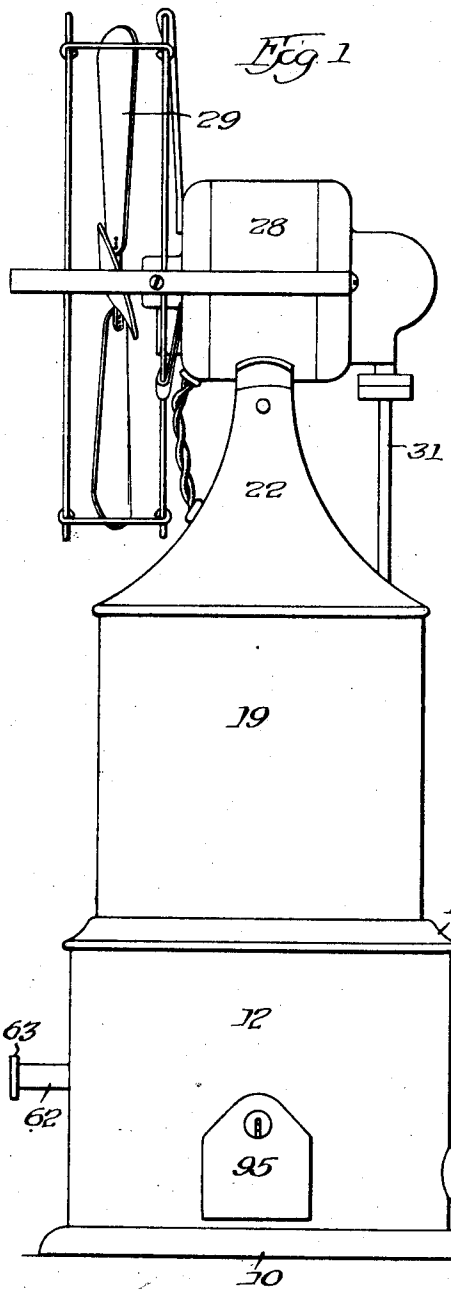
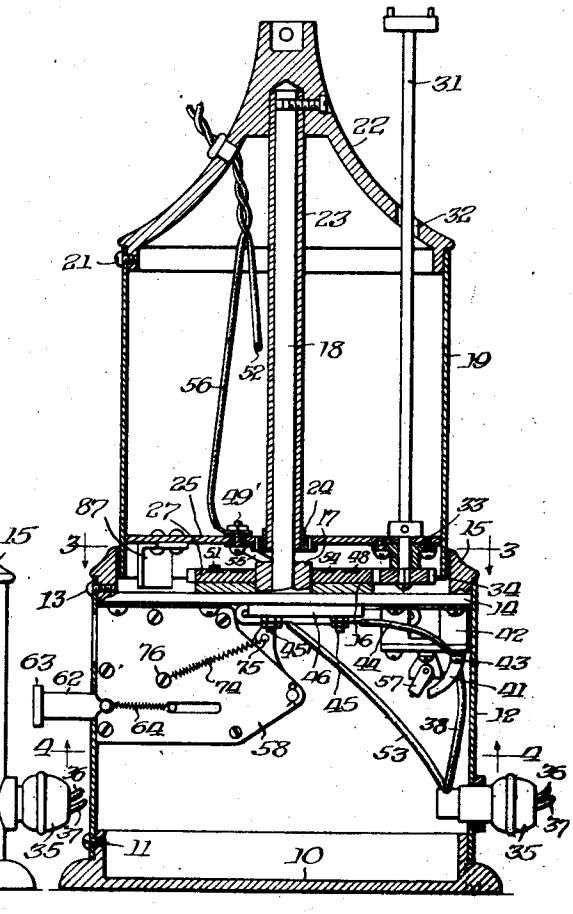


Fig. 2



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Fig. 3

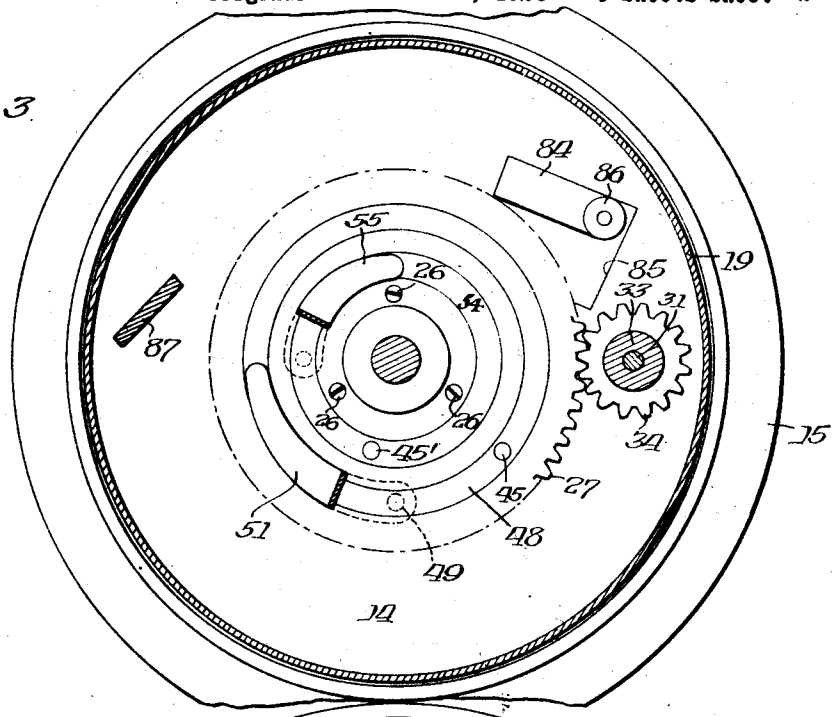
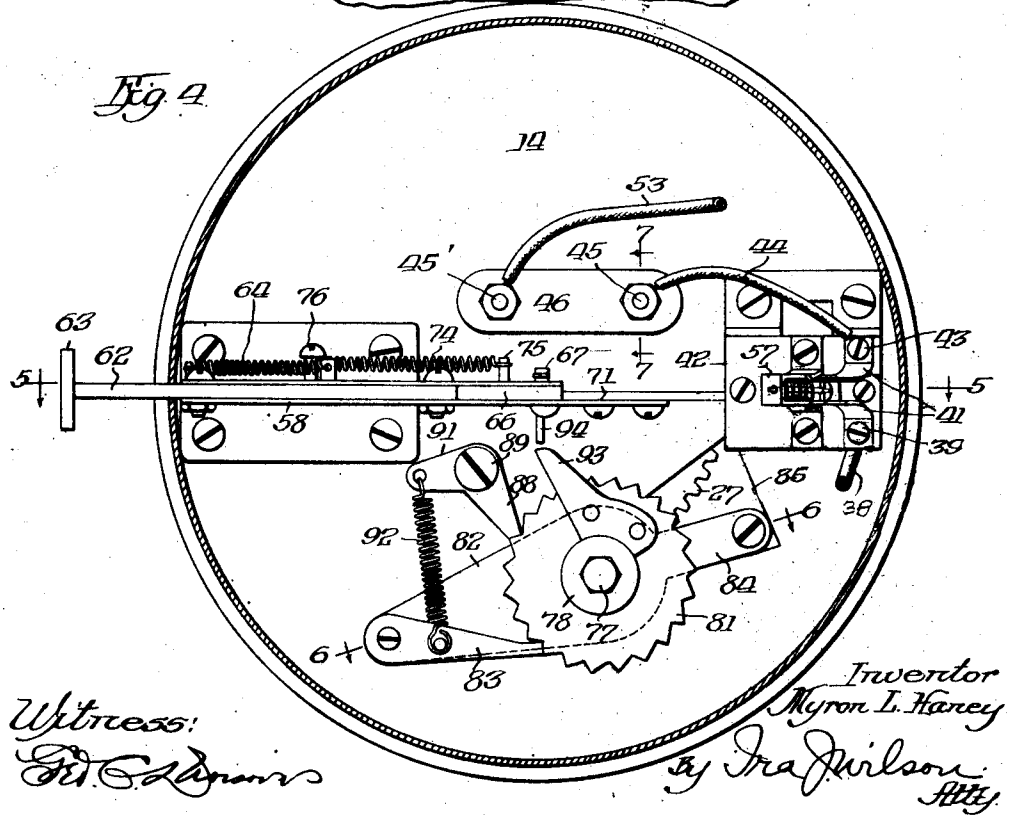


Fig. 4



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COIN CONTROLLED FAN

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Fig. 5.

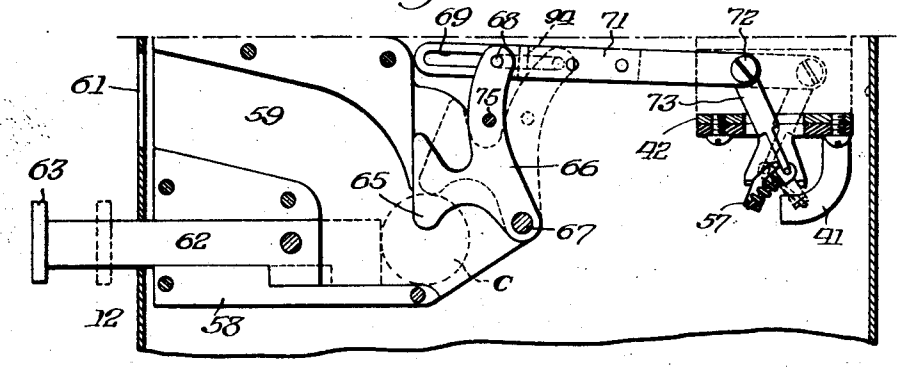


Fig. 6.

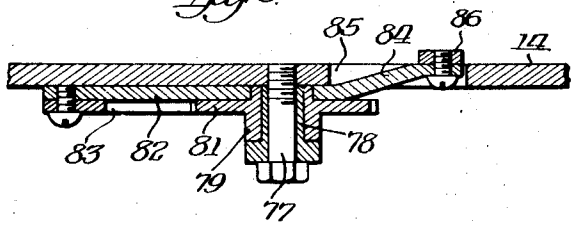
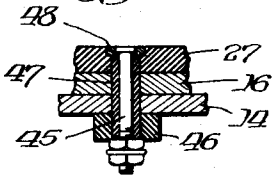


Fig. 7.



Witness:

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Patented Dec. 25, 1928. 1,696,232

UNITED STATES PATENT OFFICE.

MYRON L. HANEY, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED FAN.

Original application filed November 19, 1924, Serial No. 750,755. Divided and this application filed June 10, 1927. Serial No. 197,780.

This invention relates to motor-operated fans of the coin-controlled type, designed mainly for use in refreshment parlors and similar places where customers, in warm weather, may desire to purchase the additional comfort of an artificial breeze.

The general object of the invention is to provide a simple, inexpensive and entirely automatic device of the character specified whereby a customer, by depositing a coin in the device, may obtain the operation of the fan for a limited period. Other objects are to provide a device of this character wherein the fan will have a bodily rotating movement so as to distribute the breeze radially in a circle, to provide a device which will automatically start in operation upon the deposit of the coin and will operate and automatically stop at the end of a predetermined period, and to provide a device wherein a single electric motor will both rotate the fan on its own axis and also swing or turn the fan bodily in a circular path.

Other objects and attendant advantages of the invention will be apparent to persons familiar with the art from the following detailed description, taken in connection with the accompanying drawings wherein I have illustrated in structural detail an apparatus well adapted to fulfill the stated purposes and objects of the invention and embody the principle thereof, and in which:

Fig. 1 is an elevational view of the complete apparatus,

Fig. 2 is a vertical section of the parts below the motor and fan,

Fig. 3 is an enlarged cross-section looking downwardly on the line 3—3 of Fig. 2,

Fig. 4 is an enlarged cross-section looking upwardly on the line 4—4 of Fig. 2,

Fig. 5 is a vertical transverse section on the line 5—5 of Fig. 4;

Fig. 6 is a vertical section on the line 6—6 of Fig. 4 and

Fig. 7 is an enlarged vertical cross-section on the line 7—7 of Fig. 4.

This application is a division of my copending application 750,755, filed November 19, 1924.

Referring to the drawings, 10 designates a base plate on which is secured, by screws 11, a circular sheet-metal housing 12. To the top of the housing 12 is secured, by screws 13, a circular plate or disc 14 formed with an upstanding annular flange 15 overlapping and extending somewhat above the upper edge of the housing 12. Secured to the top of the disc 14 is a smaller disc 16, in the center of which is secured a collar 17 forming, with the discs 16 and 14, a bearing and support for the lower end of a central vertical stationary shaft 18.

19 designates a circular sheet-metal casing of a diameter to fit loosely at its lower end within the flange 15 and having secured in its upper end, as by screws 21, a conical cap or cover 22. Attached to and depending from the top of the cap 22 is a long sleeve 23 having an extended bearing on the shaft 18 and at its lower end attached by a flanged collar 24 to a disc 25 fitted within the lower end of the housing 19. Encircling the collar 17 and resting upon and attached to the disc 16 by screws 26 (Fig. 3) is a stationary spur gear 27 made of insulating material.

Mounted upon the upper end of the cap 22 is an electric motor 28 operating a direct driven fan 29. The motor 28 at its rear end is geared to and drives a vertical shaft 31 that extends through an opening 32 in the cap 22 and is journaled at its lower end in a bearing 33 attached to the under side of the disc 25. Keyed on the lower end of the shaft 31 is a spur pinion 34 meshing with the fixed gear 27. Manifestly, the rotation of the shaft 31 by the motor 28, operating through the pinion 34 and fixed gear 27, causes a rotation on the fixed shaft 18 of the housing 19, cap 22, motor 28 and fan 29.

Current is supplied to the motor as follows. Referring to Figs. 1 and 2, in the lower portion of the housing 12 is mounted an electric coupling 35 for the circuit wires 36 and 37. From the inner end of the coupling 35 a wire 38 extends to a binding post 39 (Fig. 4) on one side of the bifurcated stationary member 41 of an ordinary snap switch that is mounted on the under side of a bracket 42 attached to the bottom of the plate 14. From the other side of the stationary switch member 41 a wire 44 leads from a binding post 43 to a binding post 45 that, as shown in Fig. 7, extends

through an insulation block 46 on the lower side of the plate 14, the upper plate 16, and the fixed gear 27, being encircled by an insulating sleeve 47. The upper end of the post 45 passes through and is riveted into a countersunk hole in a ring 48 (Fig. 3) of good conducting material, such as copper, seated in an annular groove in the face of the gear 27. Attached to the under side of the plate 25 by an insulated binding post indicated at 49 in Fig. 3 is a depending brush 51 which wipes over the ring 48. From the binding post 49 a wire 52 leads into the motor. The other wire 53 (Fig. 2) from the coupling 35 leads to the lower side of a binding post 45′ similar in all respects to the binding post 45 and mounted in the other end of the block 46. The upper end of the binding post 45′ is riveted into a smaller ring 54 (Fig. 3) mounted in a groove in the upper face of the gear 27 concentric with the outer ring 48. A brush 55 attached to the lower side of the plate 25 by an insulated binding post 49′ (Fig. 2), similar to the binding post 49, sweeps over the inner ring 54. From the binding post 49′ a wire 56 leads to the motor.

57 designates the pivoted movable member of the snap switch that co-operates with the stationary member 41. When the snap switch is closed, the motor is energized through the described connections, and when the snap switch is open, the circuit is broken.

Coin controlled means for closing the snap switch are illustrated mainly in Fig. 5. Within the stationary tubular housing 12 is mounted a narrow casing 58 containing a coin chute 59 registering with a coin slot 61 in the wall of the housing 12. In a suitable guideway below the chute 59 is slidably mounted a pusher bar 62 having a head or knob 63 on its outer end. This pusher bar is normally retracted by a pull spring 64 (Fig. 2). When a coin, such as that indicated at C in Fig. 5 is inserted in the slot, falling in front of the pusher bar, the latter, when pushed inwardly, causes the edge of the coin to engage with and raise the heel 65 of a trigger 66 mounted on a pivot pin 67 and at its upper end carrying a pin 68 engaged with a slot 69 in a link bar 71. The forward end of the link bar 71 is pivoted at 72 to a pivoted lever 73, the lower end of which is connected to and actuates the pivoted member 57 of the snap switch in a well-known manner, causing the closing of the switch when the link bar 71 is pushed forwardly as described. The trigger 66, after the coin has passed the same, is retracted by a pull spring 74 (Figs. 2 and 4) anchored at one end to a pin 75 on the trigger and at its other end to a post 76 in the housing 58.

The mechanism for automatically breaking the circuit and arresting the movement of the fan after a predetermined period of service is shown mainly in Figs. 4 and 6, and comprises the following.

In and depending from the bottom side of the plate 14 is a screw 77 constituting a fixed shaft and support for a pawl and ratchet timing mechanism. Encircling the shaft 77 is a bushing sleeve 78 (Fig. 6) on which is revolubly mounted the hub 79 of a ratchet wheel 81. Fulcrumed on the hub 79 of the ratchet wheel 81 is a lever, one arm 82 of which carries on its free end a pivoted driving pawl 83, the nose of which engages with the teeth of the ratchet wheel 81. The other arm 84 of said lever extends upwardly obliquely through an opening 85 (Figs. 3, 4 and 6) in the plate 14 and has mounted on its free end a button 86 that lies above the plane of the upper surface of the plate 14. Attached to and depending from the lower side of the rotating plate 25 is an obliquely disposed cam striker 87, clearly shown in Fig. 2, that, once during each revolution of the fan support wipes over the button 86, rocking the pawl lever, and, through the pawl 83, turning the ratchet wheel 81 one tooth. The ratchet wheel is locked against back-turning by a dogging pawl 88 (Fig. 4) pivoted at 89 on the plate 14 and having its tail 91 connected by a pull spring 92 with the driving pawl 83; the spring 92 acting to urge both pawls into engagement with the ratchet wheel. Secured to the under side of the ratchet wheel 81 is a radially projecting tappet arm 93 that, once during each complete revolution of the ratchet wheel 81 strikes a laterally projecting pin or stud 94 on the switch-actuating link 71 retracting said link (permitted by the slot 69) and opening the snap switch; thus breaking the circuit and stopping the fan.

The coins deposited drop into the hollow dish-shaped base 10, whence they are removed from time to time by unlocking a door 95 (Fig. 1) guarding an opening in the wall of the stationary housing 12.

From the foregoing description and illustration it will be apparent that the fan is started in operation by simply depositing a coin in the chute 59 and actuating the pusher bar 62 inwardly, this closing the motor circuit at the snap switch. The motor revolves the fan and at the same time sets up a relatively slow revolution of the fan support 19, 22, causing the fan to move bodily in a horizontal circular path, thereby similarly distributing the current of air created by the fan. At each revolution of the fan support the ratchet wheel 81 is advanced one tooth through engagement of the cam striker 87 with the lever button 86. As soon as the ratchet wheel 81 makes one complete rotation, the tappet arm 93 strikes the stud 94, and thereby opens the switch

and breaks the motor-energizing circuit, causing the fan to come to rest.

While I have herein shown and described one practical physical embodiment of the principle of the invention, it is manifest that the details of structure and arrangement may be considerably modified and varied from those shown without departing from the operative principle or sacrificing any of the advantages of the invention. Hence, I reserve such variations and modifications as fall within the spirit and purview of the appended claims.

I claim:

1. The combination with a revoluble supporting member, of a fan and an electric motor therefor mounted on said supporting member, means driven by said motor for effecting a turning movement of said supporting member, fan and motor, and automatic means for de-energizing said motor after a predetermined number of revolutions of said supporting member.

2. In a device of the character described, the combination with a revoluble supporting member, of a fan and an electric motor therefor mounted on said supporting member, means driven by said motor for effecting a turning movement of said supporting member, fan and motor, manually operable means for energizing said motor, and automatic means for de-energizing said motor after a predetermined number of revolutions of said supporting member.

3. In a device of the character described, the combination with a fixed supporting member, of a revoluble supporting member vertically journaled thereon, a fan and an electric motor therefor mounted on said revoluble supporting member, means driven by said motor for effecting a turning movement of said revoluble member, a circuit line for said motor extending through said fixed and revoluble supporting members and including rings on one of said members and co-operating brushes on the other, a switch in said circuit line, manually operated means for closing said switch, and automatic means for opening said switch after a predetermined number of revolutions of said revoluble supporting member.

4. In a device of the character described, the combination with a fixed supporting member, of a revoluble supporting member vertically journaled thereon, a fan and an electric motor therefor mounted on said revoluble supporting member, means driven by said motor for effecting a turning movement of said revoluble member, a circuit line for said motor extending through said fixed and revoluble supporting members and including a pair of concentric rings on said fixed member and co-operating brushes on said revoluble member, a switch in said circuit line located in said fixed member, manually operated means for closing said switch, and automatic means for opening said switch after a predetermined number of revolutions of said revoluble supporting member.

5. In a device of the character described, the combination with a fixed supporting member, of a revoluble supporting member vertically journaled thereon, a fan and an electric motor therefor mounted on said revoluble supporting member, a fixed gear on said fixed supporting member axially coincident with said revoluble supporting member, a driving gear journaled in said revoluble member and itself driven from said motor, a circuit line for said motor extending through said fixed and revoluble members and including a pair of concentric rings mounted on said fixed gear and co-operating brushes on said revoluble member, a switch in said circuit line, manually operated means for closing said switch, and automatic means on said fixed and revoluble members for opening said switch after a predetermined number of revolutions of said revoluble supporting member.

6. In a device of the character described, the combination with a fixed supporting member, of a revoluble supporting member vertically journaled thereon, a fan and an electric motor therefor mounted on said revoluble supporting member, means driven by said motor for effecting a turning movement of said revoluble member, a circuit line for said motor including a switch, manually operable means for closing said switch, and means actuated by said revoluble member for opening said switch after a predetermined number of revolutions of said revoluble member.

7. In a device of the character described, the combination with a fixed supporting member, of a revoluble supporting member vertically journaled thereon, a fan and an electric motor therefor mounted on said revoluble supporting member, means driven by said motor for effecting a turning movement of said revoluble member, a circuit line for said motor including a switch, manually operable means for closing said switch, a ratchet wheel pivoted on said fixed supporting member, co-operating switch opening devices mounted on said fixed supporting member and ratchet wheel, means for imparting a step by step rotation to said ratchet wheel, and means on said revoluble member for actuating said last-named means once at each revolution thereof.

8. In a device of the character described, the combination with a fixed supporting member, of a revoluble supporting member vertically journaled thereon, a fan and an electric motor therefor mounted on said revoluble supporting member, means actuated by said motor for effecting a turning movement of said revoluble member, a circuit line

for said motor including a switch, manually operable means for closing said switch, a ratchet wheel pivoted on said fixed supporting member, a lever pivoted concentric with said ratchet wheel, a driving pawl mounted on one arm of said lever, a cam secured to said revoluble member acting to swing said lever through engagement with the other arm thereof once during each revolution of said revoluble member whereby to advance said ratchet wheel, and co-operating switch opening devices mounted on said fixed supporting member and ratchet wheel.

In witness of the foregoing I affix my signature.

MYRON L. HANEY.