

Dec. 10, 1968

J. BURNBAUM

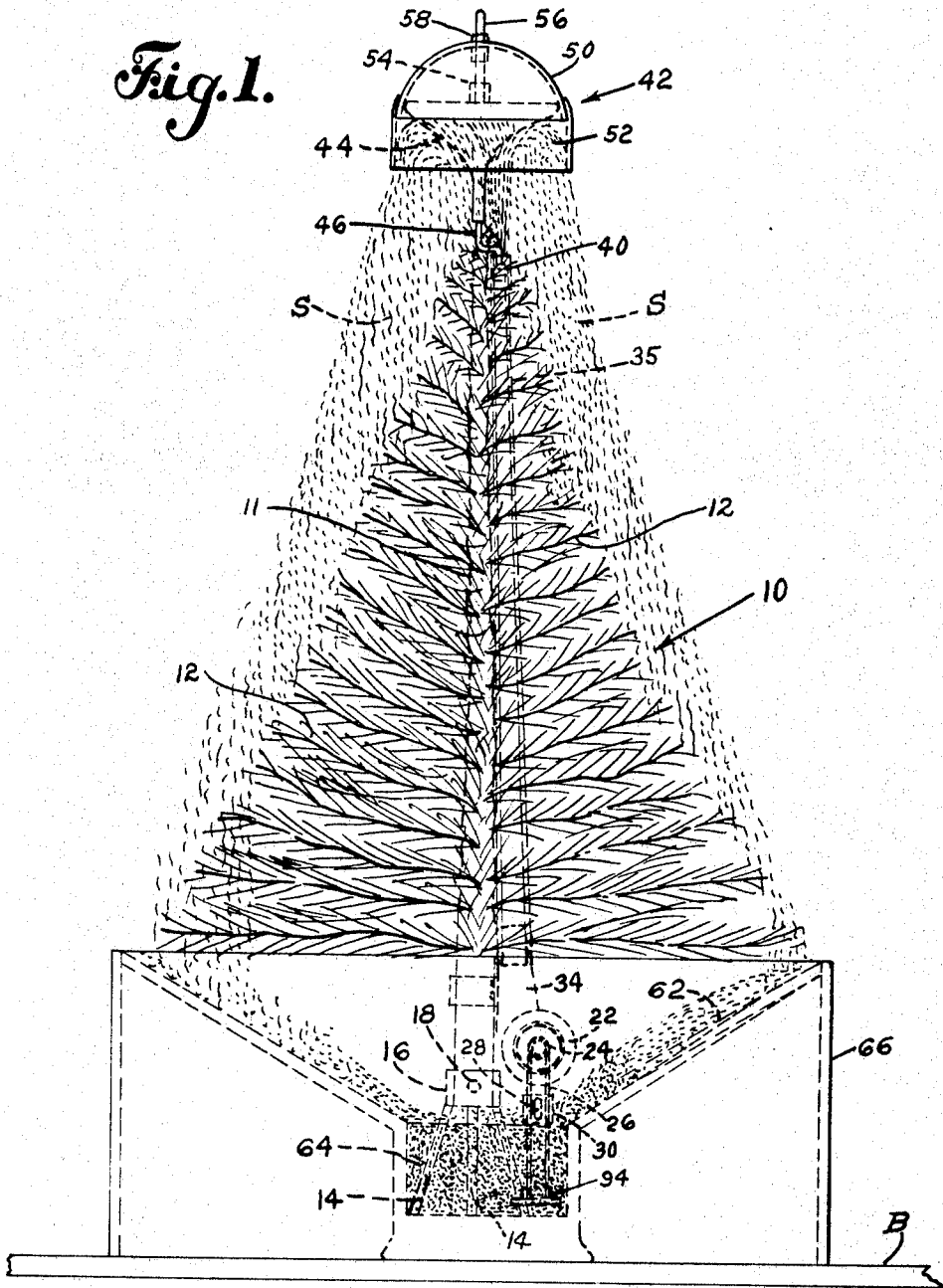
3,415,513

APPARATUS TO CAUSE ARTIFICIAL SNOWFALL

Filed Aug. 16, 1966

3 Sheets-Sheet 1

Fig. 1.



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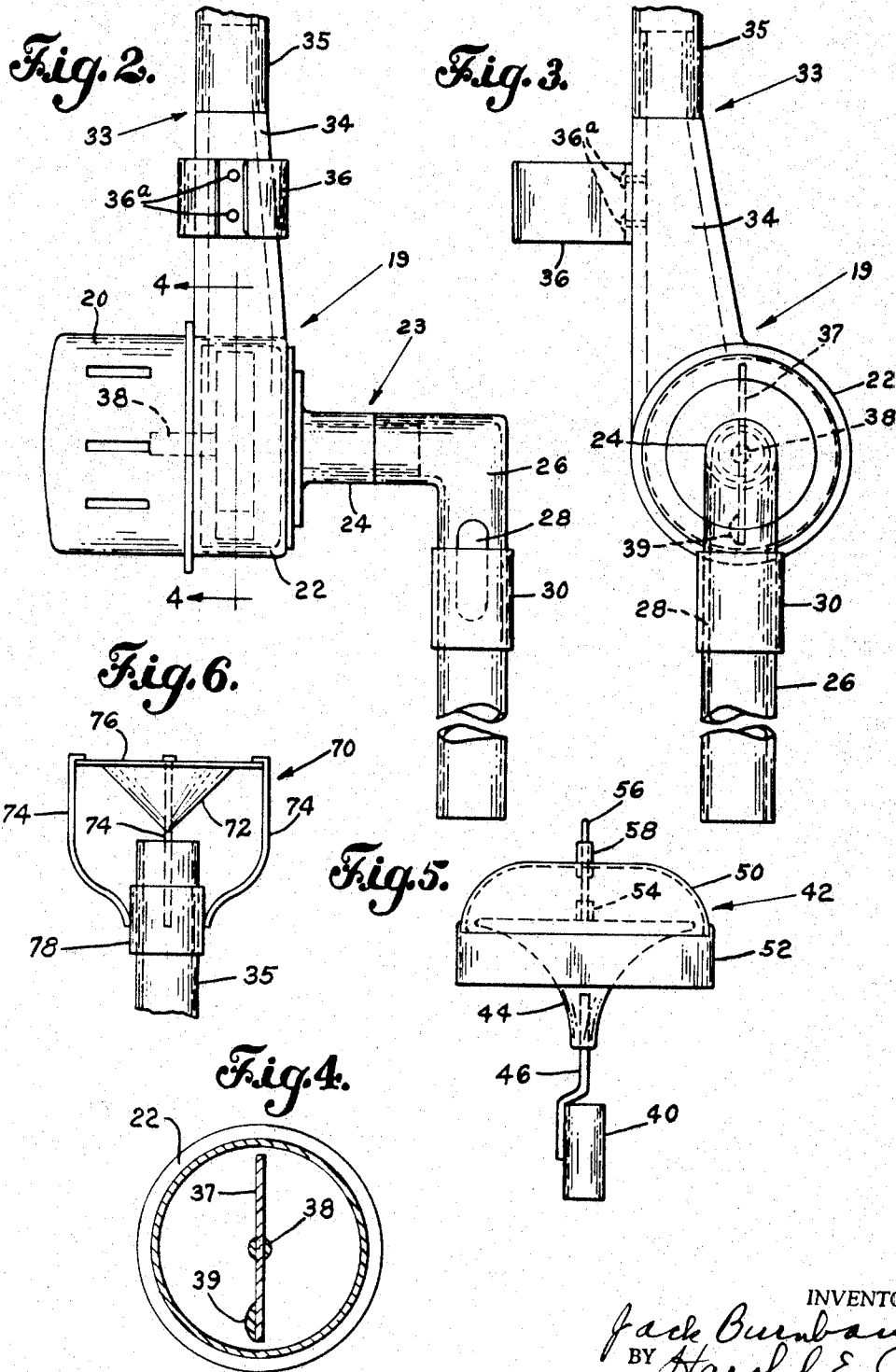
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Fig. 8.

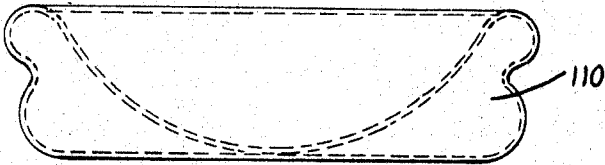


Fig. 10.

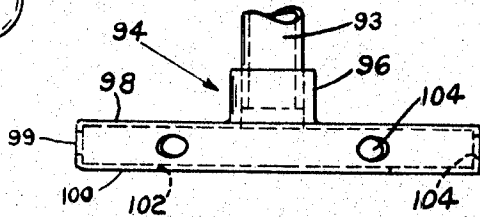


Fig. 9.

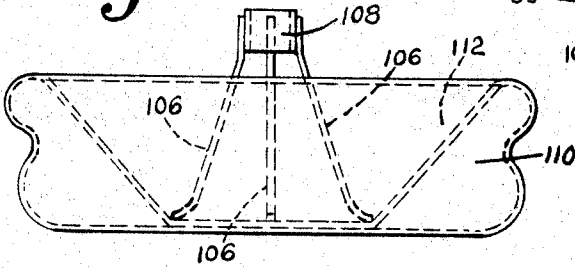


Fig. 11.

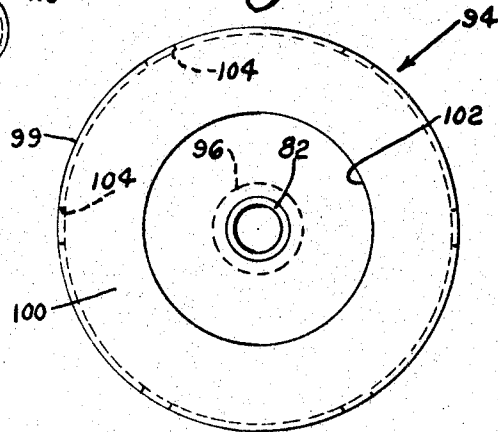
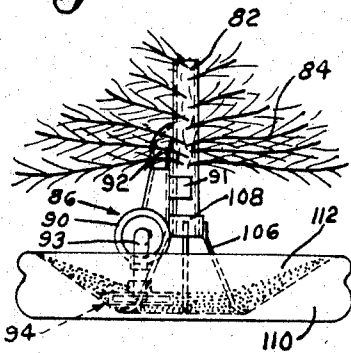


Fig. 7.



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APPARATUS TO CAUSE ARTIFICIAL SNOWFALL
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5 Claims. (Cl. 272-15)

ABSTRACT OF THE DISCLOSURE

Apparatus for causing artificial snowfall having a collecting receptacle for snow particles, an electrically operated blower adapted to cause vibration of the receptacle to aid in causing movement of the particles to the blower and to blow the particles upwardly through an upright conduit to a deflector from which the particles fall downwardly into the receptacle and again are blown upwardly, this movement being continuous.

One object of my invention is to provide means to produce a continuous circulation of artificial snowflakes through a delivery conduit to an improved deflector and thence cause a return to said conduit.

Another object is to provide improved collecting mechanism to receive the returning snowflakes and continuously effect their return to a predetermined point where the actuating means can readily receive them.

Still another object is to provide deflector means that will control the return direction of the snowflakes so that they will properly spread as they fall over a tree within a predetermined range that will assure their return to said receptacle.

Since one of the difficulties encountered in providing a continuous snowfall automatically is effecting the repeated return of the artificial snowflakes to a predetermined point where the actuating means can continuously cause their recirculation, it has been my object not only to improve the mechanism by which the snowflakes are returned and re-circulated; but also to provide snowflakes of unusual shape that will readily return to the desired predetermined point for prolonged recirculation without the use of stirring or sweeping mechanism or similar mechanical means.

A further object is to provide actuating means with parts that are coordinated in operation whereby an ample and continuous supply of artificial snowflakes will reach the actuating means for re-delivery as snowfall.

A still further object is to provide such apparatus that is formed of a minimum number of parts, that are certain in operation, and are readily obtainable at moderate cost.

The foregoing and other objects, which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and operative arrangement of parts such as is disclosed by the drawings. The nature of the invention is such as to render it susceptible to various changes and modifications, and therefore, I am not to be limited to the construction disclosed by the drawings, nor to the particular parts described in the specification; but am entitled to all such changes therefrom as fall within the scope of my claims.

In the drawings:

FIG. 1 is a front elevational view of an artificial Christmas tree in combination with apparatus to cause artificial snowfall.

FIG. 2 is an enlarged, side elevational view of the actuating means to cause said snowfall.

FIG. 3 is an enlarged, front elevational view of said actuating means.

FIG. 4 is a sectional view taken on line 4-4 of FIG. 2.

FIG. 5 is an enlarged, side elevational view of the deflector means forming part of my apparatus.

FIG. 6 is a front elevational view showing a modified form of deflector means.

FIG. 7 is a front elevational view showing a modified form of actuating means including an artificial tree trunk, broken away, that serves as a delivery tube for the artificial snowflakes.

FIG. 8 is a side elevational view of a modified form of receptacle to receive said snowflakes.

FIG. 9 is a side elevational view of the receptacle shown in FIG. 8, and including a tree supporting stand having legs that distort said receptacle sufficiently to set evenly thereon.

FIG. 10 is an enlarged, sectional view showing a gathering member attached to an entry conduit for said snowflakes.

FIG. 11 is a bottom plan view of said gathering member shown in FIG. 10.

As illustrated, a snow display 10 shown in connection with a Christmas tree, either artificial or real, has a trunk or support 11 from which branches 12 extend laterally, said trunk being maintained by a well-known tree stand having legs 14 and a collar 16 that receives a screw 18 that contacts said trunk.

Actuating means 19 has a well-known electric motor 20 to which a well-known blower 22 is operatively connected. Inlet means 23 includes a suction or entry conduit 24 communicating with said blower and includes a snowflake receiver conduit 26. Intermediate its opposite ends said conduit 26 is provided with an elongate opening 28 for entry of air. Slidable on said conduit 26 is a control valve or cover 30 that controls the entry of air through said opening 28. It is slid on said conduit to increase or decrease the size of the opening and thus the entry of air to said blower. Said conduit 26 is open at its lower end into which artificial snowflakes in a collecting receptacle 62, later described, enter for re-delivery.

Delivery conduit means 33 has a spout portion 34 extending from said blower 22 communicating with a long delivery tube 35 that is shown in said FIG. 1 running alongside said trunk 11. A clamp 36 is riveted as at 36a to said spout portion 34 and clasps said tree trunk 11 for its support.

Within said blower 22 is a rotating blade 37 that is mounted on a shaft 38 operably connected to said motor 20. A weight 39 is preferably attached to one end of said blade 37 to unbalance it and thereby cause eccentric action thereof which results in vibrating said actuating means to thus speed return of the snowflakes as later described.

Said delivery conduit means 33 has an end tube 40 communicating with said tube 35, and said tube 40 is shown serving as a support for deflector means 42 that is shown spaced above said latter tube, and which makes possible control of the spread of said snow flakes in their return or descent. This deflector means includes an inverted, cone-shaped deflector 44 located in the path of the snowflakes S as they exit from said delivery tube 40. This deflector 44 is supported by a connector 46 extending angularly from and attached to said delivery conduit tube 40. Outside said deflector 44 is a canopy 50 surrounding the upper portion thereof and which has a lower skirt portion 52 preferably circular in shape.

Mounting means for said canopy 50 has a collar mount 54 that is cemented to the top of said deflector 44 and it fixedly receives an adjusting rod 56 set therein. A sleeve 58 extends through said canopy 50 with which it makes a friction fit and it is slidable on said rod 56, hence said canopy 50 is adjustable vertically in relation to said de-

deflector 44. This canopy 50 confines said snowflakes S, at the start of their descent, and serves to keep them from passing laterally outside said skirt portion 52 and possibly dropping outside a collector receptacle 62 to be described.

At the lower end of my apparatus I show a cone-shaped, open-top, receptacle 62 which serves as a snowflake collector, and includes, as shown, a centrally located vessel portion 64 shown as of rectangular shape. It will be noted in said FIG. 1 that the downwardly sloping sides merge with vertical sides that form said vessel portion 64, the latter having a bottom. A housing 66 serves as a support for said collector receptacle 62 and rests on a base B that may be supported by a floor, table or the like.

Said snowflakes S are preferably provided in the form of plastic pellets which may be round or at least have a curved surface portion so they will roll freely on a down-grade surface such as the side of said receptacle 62 and not tend to accumulate in one place.

In said FIG. 6 a modified form of deflector means 70 is shown having a cone 72 supported by three braces 74 extending downwardly from a top plate 76 to a sleeve 78 that frictionally fits on said delivery tube 35. This sleeve 78 makes said deflector means slidably adjustable on said tube 35 thereby enabling the user to vary the distance said cone 72 shall extend above the latter.

In said FIG. 7 I show a modified form of apparatus having a tree trunk 82 that is hollow and serves as a delivery tube. Limbs 84 extend laterally therefrom. Actuating means 86 includes an electric motor and blower 90. A clamp 91 attached to a delivery conduit means 92 clamps around said tree trunk tube 82 for support of actuating means 86. Said tube 92 communicates with said tube 82 and delivers snowflakes thereto. An open entry conduit 93 communicates with said blower 90, and to assist in drawing snowflakes thereinto I preferably provide a gathering member 94 that connects with said conduit 93 by the latter entering a neck portion 96. Extending from the latter is an upper body 98, a depending side 99 and a bottom 100 having a large opening 102 therein to receive said snowflakes and which is preferably of greater diameter than the opening in said entry conduit 93. Holes 104 in said side 99 permit the entry of air and snowflakes. Said bottom 100 is kept slightly spaced above a receptacle 110, such as $\frac{1}{8}$ inch.

A well-known Christmas tree stand has legs 106 and a ring member 108 attached thereto that receives said tree trunk tube 82. A flexible receptacle 110 is inflatable and its upper portion 112 provides a surface that slants downwardly when inflated thus better enabling said snowflakes to slide downwardly to the center of said receptacle 110. The tree stand legs 106 rest on said upper portion, and since the material is yielding each finds a resting level even with the other two.

In operation, an adequate supply of snowflakes S are placed in said collecting receptacle 62 or 110, and the motor is started. The blower draws snowflakes into it and discharges them into the delivery tube 35 or tree trunk tube 82. Upon emerging they strike said deflector cone 44 or 72 and thence fall circumferentially outward over the tree and into the receptacle. Any tendency of some snowflakes to fall outside the receptacle is overcome by said canopy 50 which confines any tendency to spread too far. Upon reaching the collecting receptacle this snowing process is repeated.

Said weighted blade 37 causes a vibration of said actuating means 19 or 86 which being fastened to the delivery tube 33 or 82 the vibration is transferred to said tree stand legs 14 and thence to the collecting receptacle. This vibration is particularly effective with a said receptacle 110 made of yielding material such as sheet plastic, causing accelerated movement of the snowflakes to a point below said entry conduit 24 or 93.

Said gathering member 94 may be used to accelerate delivery of the snowflakes to an entry conduit and the blower since its bottom opening 102 is circumferentially wider than the latter conduit hence overlies more snowflakes.

What I claim is:

1. Apparatus to cause artificial snowfall comprising a collecting receptacle for artificial snowflakes, blower actuating means connected to said receptacle including inlet means and delivery conduit means adapted to receive and discharge said artificial snowflakes upon actuation of said blower actuating means, deflector means positioned above said delivery conduit means and said receptacle adapted to deflect the artificial snowflakes passing out of the delivery conduit means whereby the snowflakes return by gravity to the collecting receptacle, said blower actuating means being adapted to cause vibratory movement imparted to said collecting receptacle thereby aiding in the return to the inlet means of the artificial snowflakes which have fallen back into said collecting receptacle.

2. Apparatus to cause artificial snowfall as set forth in claim 1, said receptacle having a side wall slanting downwardly and inwardly and means mounted on a blade of said blower actuating means for causing eccentric and vibratory movement of said blade whereby said vibratory movement is imparted to said collecting receptacle thereby aiding in the return to said inlet means of said snowflakes which have fallen back into said collecting receptacle.

3. Apparatus to cause artificial snowfall as set forth in claim 1, in combination with artificial snowflake pellets that provide said snowflakes, said receptacle having a side wall slanting downwardly and inwardly, said pellets having a curved surface portion so shaped as tending to move involuntarily downward on said side wall.

4. Apparatus to cause artificial snowfall as set forth in claim 1, said receptacle having an inner surface sloping from the outer edge diagonally downward, and an inner vessel portion having substantially vertical sides communicating with said inner surface.

5. Apparatus to cause artificial snowfall as set forth in claim 1, said receptacle being made of yielding material and a supporting stand embodying legs laterally and oppositely disposed extending into said receptacle and resting thereon and deforming it to the extent that the legs rest substantially even.

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40—37, 106.25; 161—22; 230—134; 239—2, 398; 272—27