

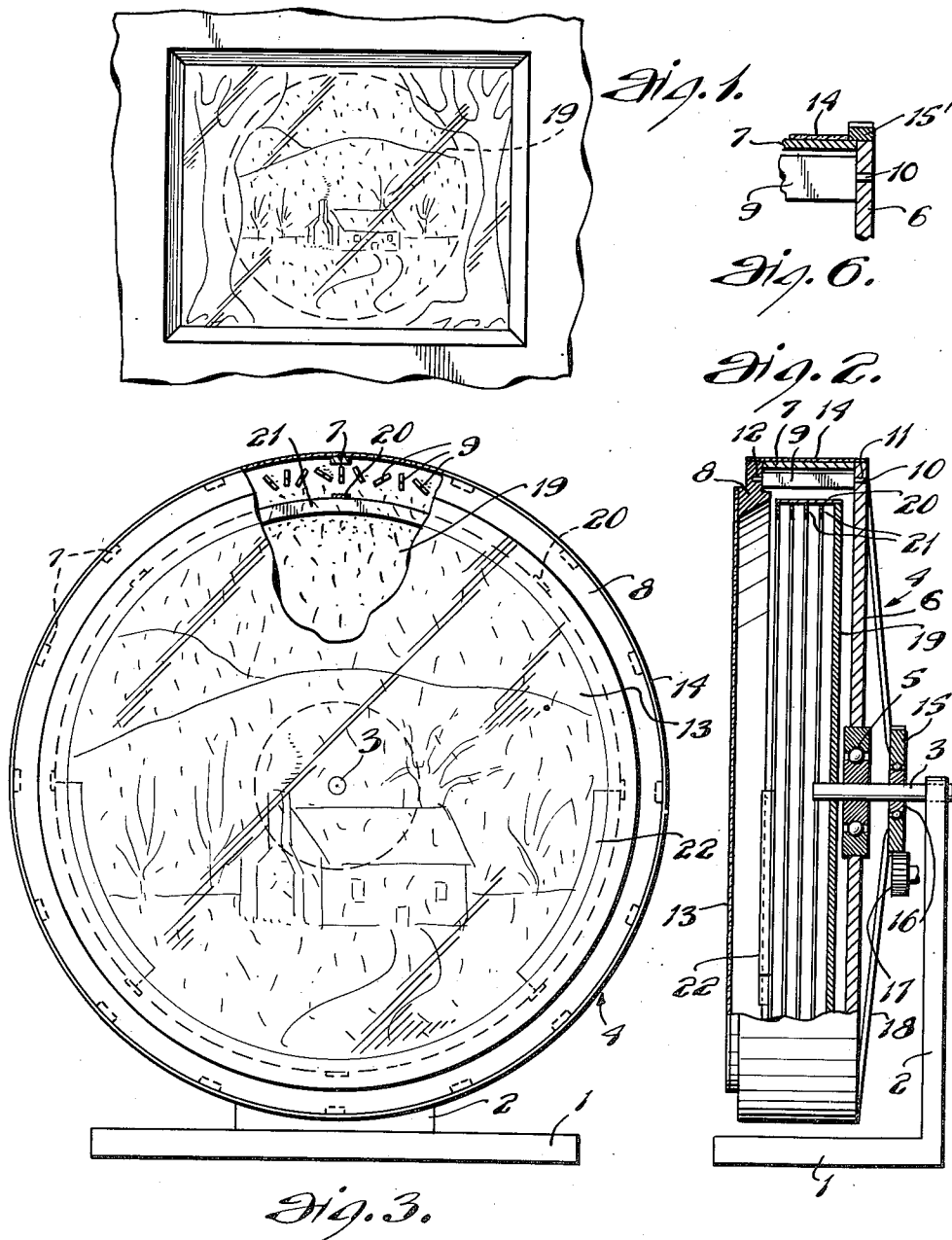
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J. HORMANN
APPARATUS FOR SIMULATING A SNOWFALL

2,587,620

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2 SHEETS—SHEET 1



INVENTOR.
JOSEF HORMANN
BY *Joseph Hormann*
Est

March 4, 1952

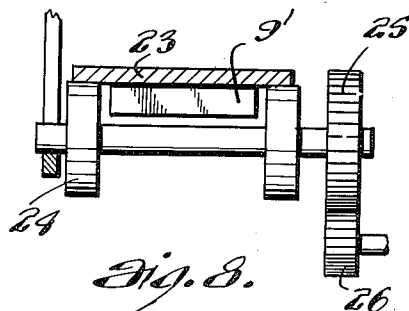
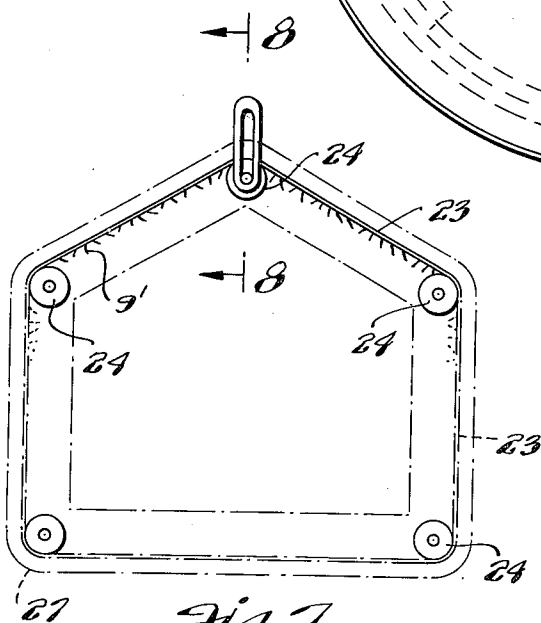
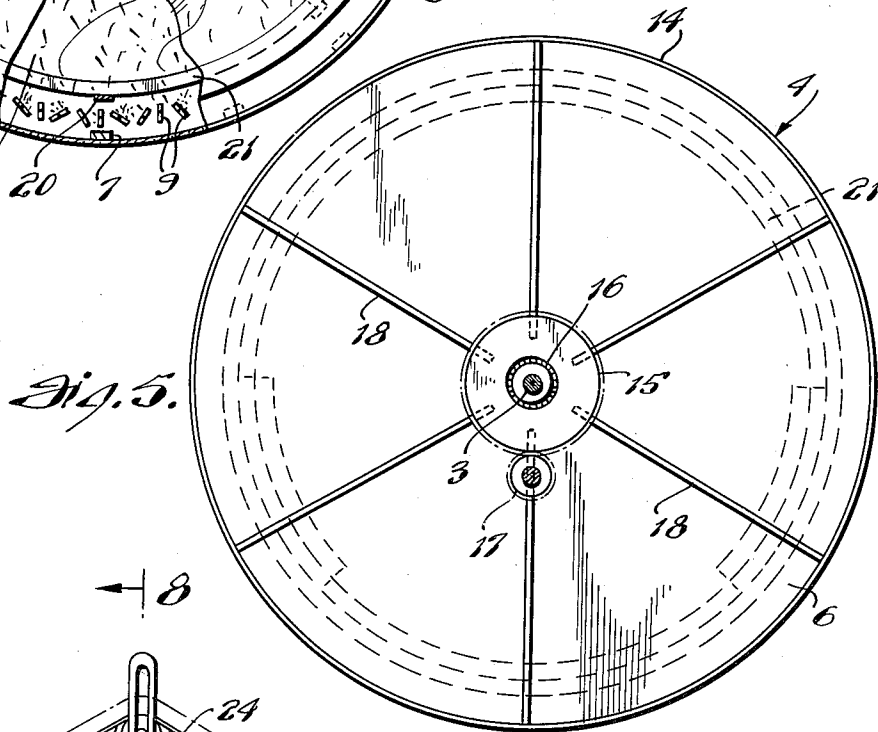
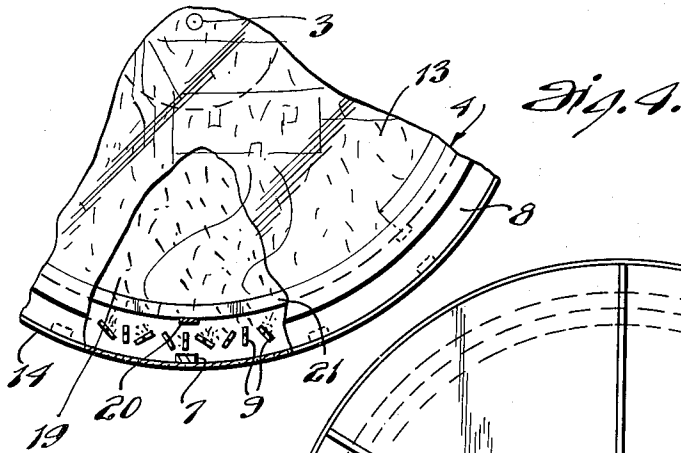
J. HORMANN

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APPARATUS FOR SIMULATING A SNOWFALL

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2 SHEETS—SHEET 2



INVENTOR.
JOSEF HORMANN
BY *Amutha...*

UNITED STATES PATENT OFFICE

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APPARATUS FOR SIMULATING A SNOWFALL

Josef Hermann, Bellaire, N. Y.

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7 Claims. (Cl. 40—33)

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This invention relates to an apparatus for simulating a snow fall and particularly to an apparatus which is designed for use in display windows.

The principal object of my invention is to provide a device that will cause the permanent fall of artificial snow flakes along a relatively wide area in a display window which is decorated as a winter scene.

It is another object of my invention to provide a device which collects the fallen artificial snow flakes and conveys the same to an upper position from which it falls down again over a relatively wide area.

It is still another object of my invention to provide a device which carries artificial snow flakes to an upper position and which is equipped with means for releasing the snow flakes at predetermined positions.

It is yet another object of my invention to provide a device with means for releasing artificial snow flakes simultaneously at a plurality of predetermined positions.

With these and other objects in view, which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings in which

Figure 1 is a front elevational view of a display window with a winter scene, showing a snow fall;

Fig. 2 is a side view of the device according to the present invention partly in section;

Fig. 3 is a front elevation of the device, part of which is broken away for the purpose of better demonstration;

Fig. 4 is a front elevation of a part of the device, a portion of which is broken away for the purpose of better demonstration;

Fig. 5 is a rear elevation of the device;

Fig. 6 is a fragmentary view of a variation of the drive;

Fig. 7 is a schematic elevation of another embodiment of the device; and

Fig. 8 is a detail of the device shown in Fig. 7 on a larger scale.

Referring now to the drawings and particularly to Figs. 1 to 6, the present invention achieves the above stated objects by providing preferably endless conveyor means which are equipped with a plurality of blades or fins disposed in different predetermined angles to the conveyor means in such manner that the blades carry artificial snow flakes of plastic, paper or any other suitable material to an upper zone of the device, to be released simultaneously over a wide

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area which corresponds about with the width of the device. If the device is thus positioned in a display window of a width about equal the width of the device, and the entire window is decorated as a winter scenery, the continuous fall of snow over the entire scenery may be simulated.

The embodiment shown in Figs. 2 to 6 comprises a support 1 the upper extension 2 of which carries a horizontally disposed axle 3.

A wheel 4 is mounted preferably by means of a ball bearing 5 for rotation upon the axle 3. The wheel 4 comprises a disk 6 which carries at its periphery a plurality of bars 7 in forward direction and the front ends of the bars 7 support a ring 8 which at least partly serves the purpose of receiving one end of a plurality of blades 9 disposed around the entire wheel 4, while the other end of the said blades 9 is secured in the disk 6.

It is an essential feature of the present invention to dispose each of the blades 9 at a predetermined angle in such manner that the snow flakes, received by the blades 9 when in their lower position on the wheel 4, are carried to the upper position on the latter upon turning of the wheel 4, yet the snow flakes are released at a point on the wheel 4 which is determined by the angle at which the blade 9 is disposed in the wheel. Thus by arranging the blades 9 at different angles, as clearly shown in Figs. 3 and 4, some of the blades 9 release the snow flakes before reaching the highest point on the wheel 4, while others will be carried beyond the highest point. In this way snow fall may be simulated over a great width of the device, which will be slightly less than the diameter of the wheel.

In order to provide the possibility of adjusting each one of the blades 9, preferably proper means for easy turning of the blades along its longitudinal axis and for securing the same in the desired position are devised. By example, as shown in Fig. 2, each blade 9 is equipped with pins 10 at their ends which pins 10 are disposed along the longitudinal axis of the blades and enter corresponding openings 11 and 12, in the disk 6 and in the ring 8, respectively. They retain their positions by friction between the pins 10 and the openings 11 and 12, though other conventional securing means may be provided. The front of the wheel 4 is covered with a transparent sheet 13 of glass, plastic material or the like, though it is also possible in some cases to use a sheet of suitable color. The periphery of the wheel 4 is likewise covered with

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a sheet 14 of the same material as the sheet 13, which sheet 14 serves the purpose of providing light effects by means of light beams (not shown) through the slots formed between each pair of adjacent blades 9.

Behind and spaced apart from the disk 6 a toothed gear 15 is rotatably mounted on the axle 3 by means of a second ball bearing 16 which gear 15 meshes another gear 17 which is driven by an electric motor over a reducing gear (not shown) or any other conventional drive. A plurality of bars 18, Fig. 5 shows by example six bars, connect the gear 15 with the periphery of the disk 6, in order to secure a smooth turning of the wheel 4 on the axle 3 without any vibration. Instead of driving the wheel 4 by means of the gear 15, the periphery of the disk 4 may be equipped with a circular rack 15' (Fig. 6) and the gear 17 meshes in this variation the said rack 15'.

Since it is desirable to cover up all rotating parts from a viewer of the display window, means are disposed in front of the rotating disk 6, which means are stationary, and enhance the illusion of falling snow on a winter scenery. In order to achieve this end the axle 3 extends into the wheel 4 and the front end of the axle 3 supports a stationary disk 19 the front of which carries the picture of a winter scenery (see Fig. 1). A plurality of bars 20 extend from the periphery of the disk 19 in forward direction which support a number, for example four, ring members 21 which are disposed like wings on a stage to cover up completely the rotating blades 9 from a viewer of the display window while freely permitting the fall of the artificial snow between each pair of adjacent ring members 21. To serve the same purpose ring sector like parts 22 may be additionally secured to the lower portions of the most forward ring member 21 which parts 22 are of somewhat greater width than the ring members 21 and each of the parts extends over about at least 45°.

The thus described device operates in the following manner:

Before closing the front of the wheel 4 the required quantity of artificial snow flakes is inserted into the wheel 4, which snow flakes will accumulate on the blades 9 which are at the lower portion of the wheel 4. Upon starting rotation of the wheel 4 by means of an electric motor or any other drive, the snow flakes will be carried to the upper portion of the wheel 4 and depending upon the angle at which each one of the blades 9 has been set, the snow flakes will be released at different positions of the wheel simultaneously and simulate a snow fall practically over the entire width of the wheel in front of the winter scenery provided on the stationary disk 19. The fallen snow will accumulate again on the blades which happen to be at the bottom of the wheel and by continuous rotation of the wheel this process will be repeated and thereby provide a continuous snow fall.

While it is merely essential to provide a plurality of blades disposed at different predetermined angles which are carried from a lower zone, where they receive the fallen snow, to a higher zone, where they release the snow at different points depending upon the angle of each blade, the embodiment, as described above, in form of a wheel, is preferable in view of its simple and economic construction and its easy operation.

The present invention is, however, by no means limited to a wheel as a carrier means of the blades

9 from a lower to a higher zone where they are released.

Any convenient carrier means may be provided and one second embodiment is shown in Figs. 7 and 8 in form of a conveyor belt 23. As shown in the drawing, preferably five rollers 24 are provided, which rollers carry an endless belt 23. The inner face of the belt 23 carries a plurality of blades 9' which are disposed at predetermined angles relative to the inner face of the belt in order to release the lifted snow flakes at different points during the travel of the belt. Preferably the upper wheel is adjustable to regulate the tension of the belt 23. The rollers 24 are designed in such manner that they freely permit of movement of the blades 9' through the rollers 24. One of the rollers 24 carries a gear 25 which meshes a pinion 26. The latter is connected with an electric motor over a gear reducer (not shown) or with any other driving source. Any convenient means as a frame 27 may be provided to cover up the belt conveyor from a viewer of the display window.

It is to be understood that while in the drawings a wheel of circular shape and a conveyor belt on five rollers have been disclosed, this showing is by example only and the wheel may be of hexagonal shape and the conveyor belt may be mounted on only three or more rollers.

While I have disclosed two different embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense, the scope of the invention being determined by the objects and the claims.

I claim:

1. In a device for simulating snow fall by means of artificial snow flakes, endless conveyor means adapted to carry artificial snow flakes from a lower zone to an upper zone of said device, means for driving said conveyor means, a plurality of blade members secured to said conveyor means, said blade members being disposed at different predetermined angles relative to a vertical plane through the longitudinal axis of said blades in order to release said snow flakes over a horizontally extending area when the blades are brought into the upper zone of said device, and stationary means disposed in front of said moving conveyor means, in order to cover up all moving parts from a front viewer of the device.

2. The device, as set forth in claim 1, which includes means to permit adjusting the angle of said blade members.

3. In a device for simulating snow fall by means of artificial snow flakes, an axle, means for supporting said axle, a wheel rotatably mounted on said axle, means for turning said wheel, said wheel comprising a first disk, a plurality of bars extending in axial direction from the periphery of said disk, and a ring member carried by said bars, a plurality of blade members disposed between said disk and said ring member, said blade members being disposed at different predetermined angles in order to release said snow flakes over a horizontally extending area when the blades are brought into the upper zone of said wheel, a stationary second disk mounted on said axle in front of said first disk, a plurality of rods extending from the periphery of said second disk in axial direction and at least one circular wing member carried by said rods, said second disk and said ring member being adapted to hide the rotating wheel from a viewer of the device.

4. The device, as set forth in claim 3, which

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includes pin members extending coaxially from the ends of each of said blade members and openings disposed in said first disk and said ring member, respectively, receiving said pin members, thereby permitting angular adjustment of each of said blade members relative to said first disk.

5. The device, as set forth in claim 3, which includes sector like extension members secured to the lower portion of said wing member.

6. In a device for simulating snow fall by means of artificial snow flakes, a conveyor belt, at least three rollers carrying said belt, at least two of said rollers being disposed spaced apart in a horizontal plane, a plurality of blade members supported by the inner face of said conveyor belt and disposed at different predetermined angles relative to a vertical plane through the longitudinal axis of said blades in order to release said snow flakes over a horizontally extending area when the blades are brought into the upper zone of said conveyor belt system, and a stationary frame disposed in front of said conveyor belt thereby covering up the moving belt from a viewer of the device.

7. In a device for simulating snow fall by means of artificial snow flakes, means for conveying

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artificial snow flakes from a lower zone to an upper zone of said device, a plurality of blade members secured to said conveying means, means for moving said blade members across said device, said blade members being disposed at different predetermined angles relative to a vertical plane through the longitudinal axis of said blades releasing said snow flakes over a horizontally extending area when the blades are brought into the upper zone of said device and stationary means disposed in front of said conveyor means covering up all moving parts from a front viewer of the device.

JOSEF HORMANN.

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