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TRAVELING CLEANER
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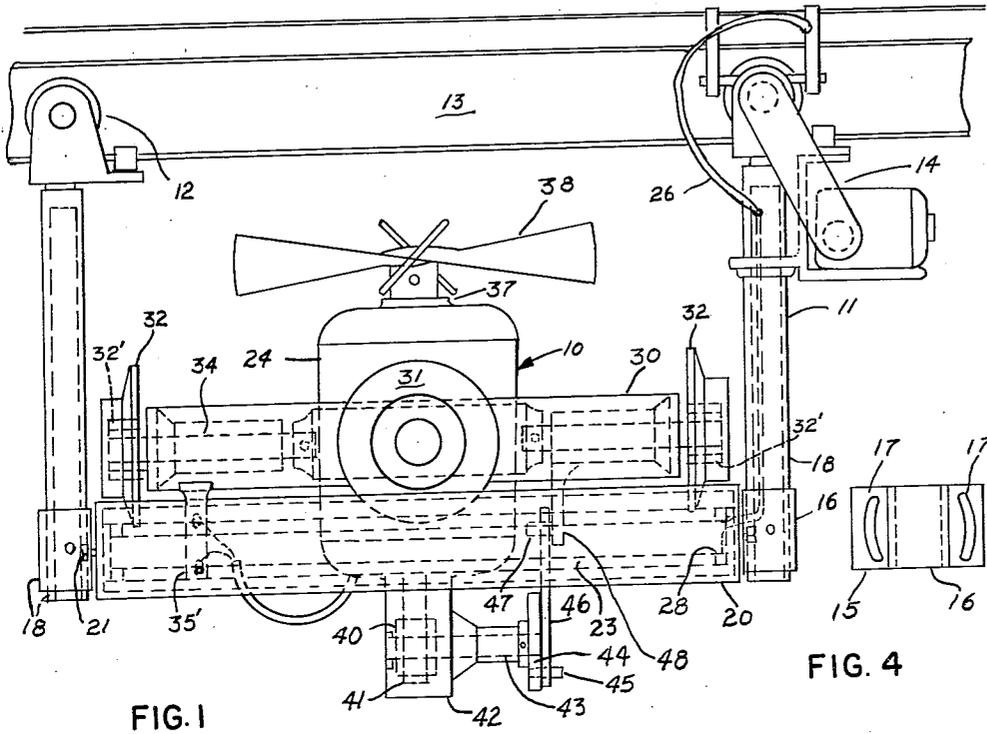


FIG. 1

FIG. 4

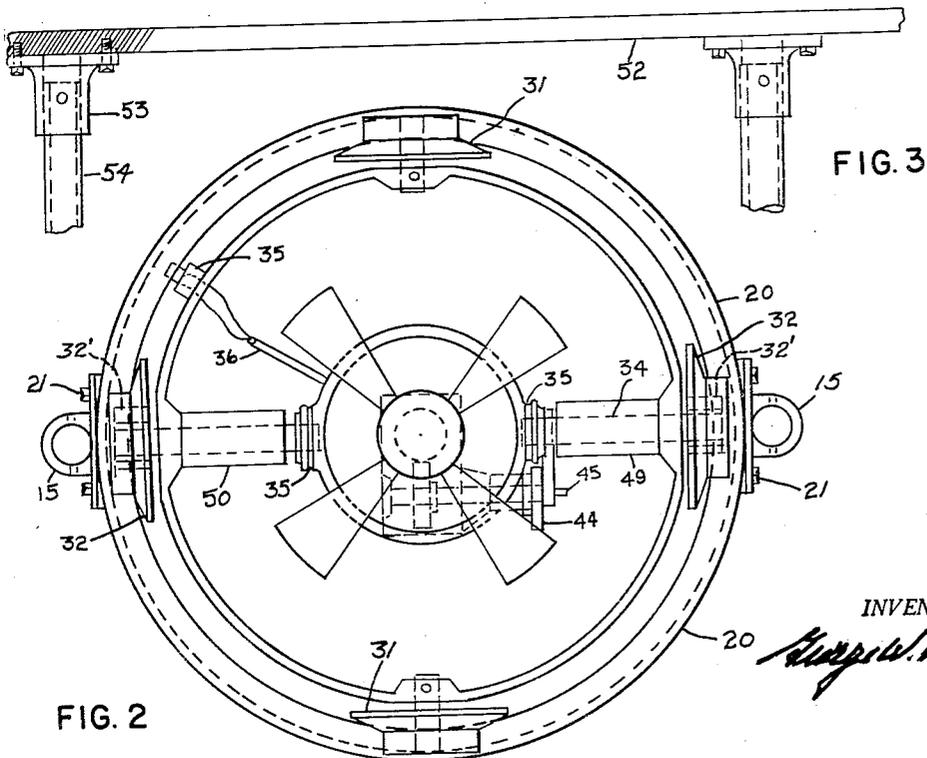


FIG. 3

FIG. 2

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TRAVELING CLEANER

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The present invention relates to a traveling cleaner for cleaning lint and other deposits of fibrous matter from textile machinery and from the surrounding walls and ceiling within a spinning room or other processing area of a textile operation, and relates more particularly to a traveling cleaner blower unit capable of directing a stream of high velocity air through an extensive area in order to cover a spherical area sequentially.

Present traveling cleaners for blowing down textile machinery and the walls and ceilings of textile rooms are limited to clean the fibrous materials from an area transverse or parallel to the path of cleaner travel thereby omitting many areas in which lint or other fibrous matter accumulates. Periodically it is necessary to remove those areas which have accumulated fibrous material prior to the time the matter may precipitate onto the spinning frame or other operation which takes place within the plant.

Therefore, it is an objective of this invention to provide a traveling cleaner in which a stream of high velocity air may be made to sweep through an extensive area to cover a spherical path automatically during travel through a textile room to clean machinery and the walls within the room.

Another objective of this invention is to provide a blower unit that is mounted for revolution in a plane of a desired orientation with the blower unit being supported to oscillate in a plane transverse to the plane of orientation.

Still another object of this invention is the provision of a blower unit that is mounted for indexing rotation in a plane of desired orientation with the blower unit being capable of directing a stream of high velocity air through any desired angle transverse to the plane of orientation in order to sweep through at least a hemispherical path.

It is further contemplated to provide a traveling cleaner in which a blower unit may be revolved in indexing increments in a plane of desired orientation and simultaneously have the blower unit oscillate through a desired angular path to direct a stream of high velocity air over an extensive area.

Other objects and many of the attendant advantages of this invention for discharging high velocity streams of air for cleaning machinery through an extensive area will become better understood from the following detailed description taken in conjunction with the accompanying drawings in which like characters of reference designate corresponding parts throughout the several views, and wherein:

FIG. 1 is a side elevational view of a traveling cleaner blower apparatus embodying the novel features of the invention mounted for movement along an overhead trackway;

FIG. 2 is a plan view of a cleaner apparatus of FIG. 1 omitting the blower unit supporting carriage frame;

FIG. 3 is a fragmentary side elevational view of a means for stationarily supporting the blower apparatus; and

FIG. 4 is a side elevational view of a frame supporting bracket for adjusting the orientation of the blower unit to the desired blowing angular plane.

Referring to the drawing, there is shown in FIG. 1 a traveling cleaner 10 mounted for travel in a conventional supporting carriage frame 11 that is suspended through

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suitable rollers 12 from the overhead guide trackway 13 that is supported normally from the ceiling of a textile room or building. Standard carriage frame driving means 14 is mounted on the carriage frame for moving the cleaner along a directed path of travel during the cleaning operation.

A pair of brackets 15, each having a frame receiving socket 16 therein and a pair of arcuate slots 17, is fastened to the downwardly extending frame legs 18. A circular annular outer trackway or carriage 20 is fastened, by means of the brackets 15 and fastening bolts 21 which pass through the slots 17, to the frame legs 18. Periodically the plane of the trackway 20 may be readily oriented to another desired angle for blowing merely by tilting the trackway and tightening the fastening bolts 21 to secure the trackway in the new position.

A pair of spaced conductor or bus bars 23 is fastened in the inner periphery of the circular trackway to supply the electrical current for driving the motor 24 with current being supplied to the bus bars 23 through the conductor lead 26 which extends from the overhead transmission line 27 with which it makes contact to the bus bar contact elements 28 within the trackway 20. Motor supporting cage 30 is supported for revolution or swivel rotation on the trackway 20 by means of pairs of casters or rollers 31 and 32 that are rotatably supported and spaced quadrantly on the cage 30. In one preferred embodiment the rollers 32 are provided with the conventional roller cam one-way clutches 32' for indexed rotation as will be described in greater detail hereinafter.

A pair of trunion motor supports or axles 34 extend radially inwardly from the rollers 32 to be fastened to the flanges 35 which are mounted on the housing of the motor 24. A bus bar slide contact 35' is secured to the cage 30 to engage the bus bars 23 and to transmit electrical current through the conductor lead 36 to the motor 24. The motor 24 is provided with a double extending armature shaft with one end of the shaft 37 having mounted thereon a multi-blade impeller 38 and the other end of the shaft 40 drives a gear transmission 41 within the gear housing 42. The transmission power take-off shaft 43 will drive the plate 44 to which an eccentric pin 45 is mounted. A connecting link 46 is fastened to the eccentric pin and reaches from the eccentric pin for connection to the stud 47 on the arm 48 of the sleeve 49 surrounding one of the axles 34. The other axle is also provided with a sleeve member 50.

For stationary mounting of the cleaner in place of the traveling carriage shown in FIG. 1, the cleaning apparatus frame 11 may be suspended as seen in FIG. 3 from a ceiling 52 by means of flanges 53 that are fastened thereto with the legs 54 extending to be received within the brackets 15 that are diametrically opposite each other and mounted to the sides of the circular annular trackway 20. In operation, the trackway 20 may be oriented in the desired angular plane and fastened through the brackets 15 to be maintained in position. With electrical current supplied from the line 27 through conductor 26 to the bus bars 23, the contact 35 will transmit current to drive the motor 24. As the motor drives the impeller 38 to generate a flow of high velocity air, the motor will also drive the transmission assembly 41 which transmission will operate the plate 44 to move the eccentrically mounted pin 45. The pin 45 will actuate the link 46 and the sleeve 49 will be oscillated through the desired angle. As sleeve 49 is fastened with the axle 34, the motor 24 will be oscillated therewith. To provide for indexed movement or revolution of the cage 30 on the circular annular trackway 20, as the motor 24 oscillates, the sleeve 49 being connected to the shaft 34 will rotate the roller cam one-way clutch 32' on the wheel 32 directly but only

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in one direction of the cycle of oscillation of the motor. In the opposite or other direction of the oscillation, the one-way clutch 32' will slip thereby permitting the roller to remain idle until the next oscillation. To provide for continuous revolution of the cage, a second roller cam one-way clutch 32' may be used in conjunction with the other wheel 32 so that on the normal idle stroke or movement of the cycle, the motor will cause the second roller cam to urge the cage to move. It will be readily apparent that the hand of the one-way clutches 32' will be the same so that continuous rotation of the cage may occur.

Obviously, many modifications and variations may be made in the construction and arrangement of the cages and the mechanism for oscillating the motor within the cage and it is also contemplated that a direct drive gear train may be utilized so as to revolve the motor 24 a complete revolution. Also it is contemplated that an orifice ring and duct may be utilized for increasing the air velocity. It is, therefore, to be understood that within the scope of the appended claims many modified forms of structure may be made without departing from the above teachings and from the real spirit and purpose of this invention, and the use of mechanical equivalents may be reasonably included and modifications are contemplated.

What is claimed is:

1. Apparatus for cleaning lint and other foreign particles from textile machinery and rooms comprising a supporting frame, a circular annular trackway suspended from said frame, a motor-supporting cage having rollers thereon for cooperatively engaging and supporting the cage on said trackway for revolution of said cage thereon, a blower unit having a motor and an impeller supported by said cage for blowing air, said blower unit being at least partially inscribed by the circular annular trackway, and means connected to said motor for orienting the motor to various angles for blowing.

2. Apparatus for cleaning lint and other foreign particles from a textile room comprising a carriage, a circular annular trackway suspended from said carriage, a motor-supporting cage within the perimeter of and revolvably supported on said trackway, a motor and a blower unit having a motor-driven impeller and being suspended in the cage, and means connected to said motor for oscillating said blower unit.

3. Apparatus for cleaning lint and other foreign particles from textile walls and ceilings comprising a carriage, a circular annular trackway suspended from said carriage, a motor-supporting cage revolvably supported on and within the perimeter of said trackway, a blower unit having a motor-driven impeller, means connected to said motor for oscillating said motor to direct a stream of air and for revolving said cage with the blower unit therein in the plane of said trackway.

4. Apparatus for cleaning lint and other foreign particles from the walls of a textile room comprising a traveling carriage for movement along an overhead trackway, a circular annular trackway suspended from said carriage, a motor-supporting cage revolvably supported on and within the perimeter of the circular trackway, a motor and a blower unit having a motor and a motor-driven

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impeller mounted in the cage for a pivotable movement therein, and means connected to said motor for pivoting said blower unit and revolving said cage.

5. Apparatus for cleaning lint of the character described comprising in combination an overhead trackway, a carriage movable along said trackway, a circular trackway suspended from said carriage, said circular trackway having means for retaining the circular trackway in an inclined position relative to said carriage, a motor-supporting cage roatably supported on said circular trackway, a blower unit including a motor and an impeller pivotally supported in the cage, and means driven by said motor for oscillating the blower unit and for indexing rotation of the cage.

6. In combination with a traveling carriage movable along an overhead trackway comprising an annular trackway suspended from said carriage, a motor-supporting cage supported within and mounted for revolution on said annular trackway, a blower unit including a motor and an impeller pivotally supported on the cage and located for the most part above said trackway, means for oscillating said blower unit, and means driven by said motor for revolving said cage on the annular trackway.

7. Apparatus for cleaning lint from the walls of a textile room comprising a carriage, means for supporting the carriage, a circular trackway mounted on the carriage and having means for supporting the trackway in an inclined position from a horizontal plane, a motor-supporting carriage revolvably mounted on the circular trackway, a blower unit including a motor and an impeller pivotally mounted to the cage, means driven by said motor for displacing said motor to direct an air stream through a selected angle, of displacement, and means driven by said motor for revolving said carriage on said circular trackway.

8. Apparatus for cleaning lint and other foreign particles from textile rooms comprising a trackway disposed overhead, a carriage suspended from said trackway, a circular annular trackway suspended from said carriage, a motor-supporting cage mounted to revolve on and within said circular trackway, a blower unit including a motor and an impeller mounted in the cage, means for intermittent rotation of said cage, and means for oscillating said blower unit.

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