Feb. 18, 1958 G. W. ALLRED 2,823,409

TRAVELING CLEANER FOR TEXTILE ROOMS

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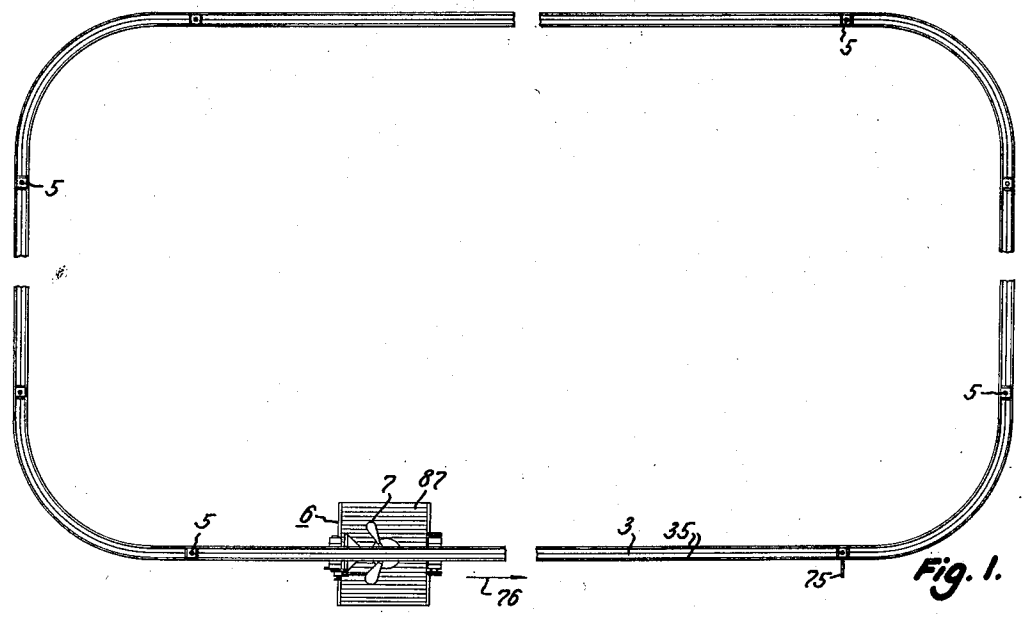


Fig. 1.

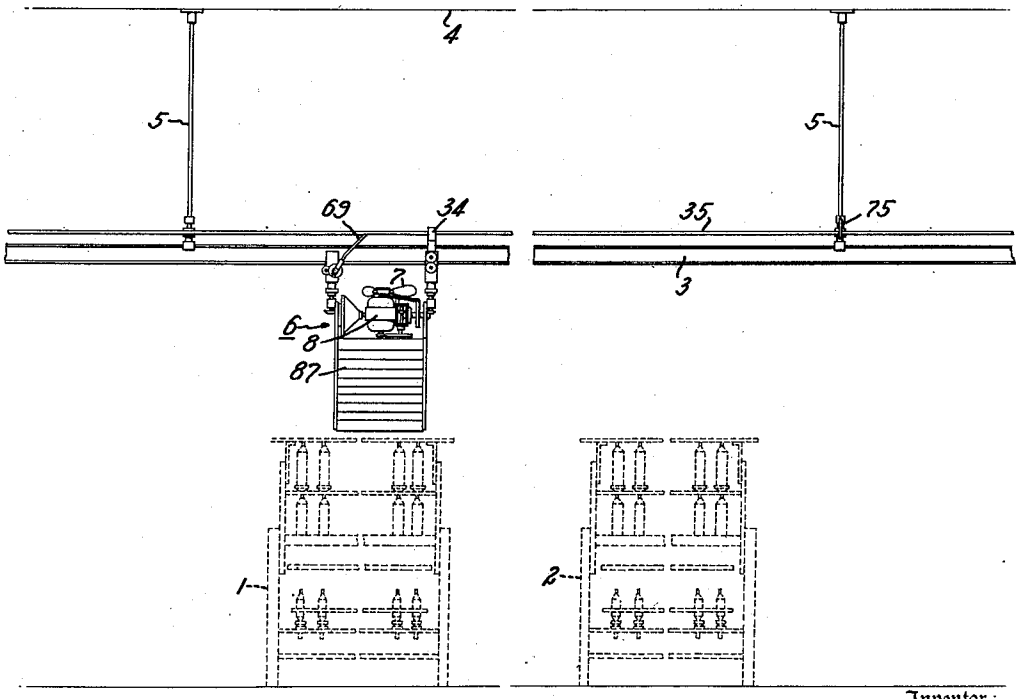


Fig. 2.

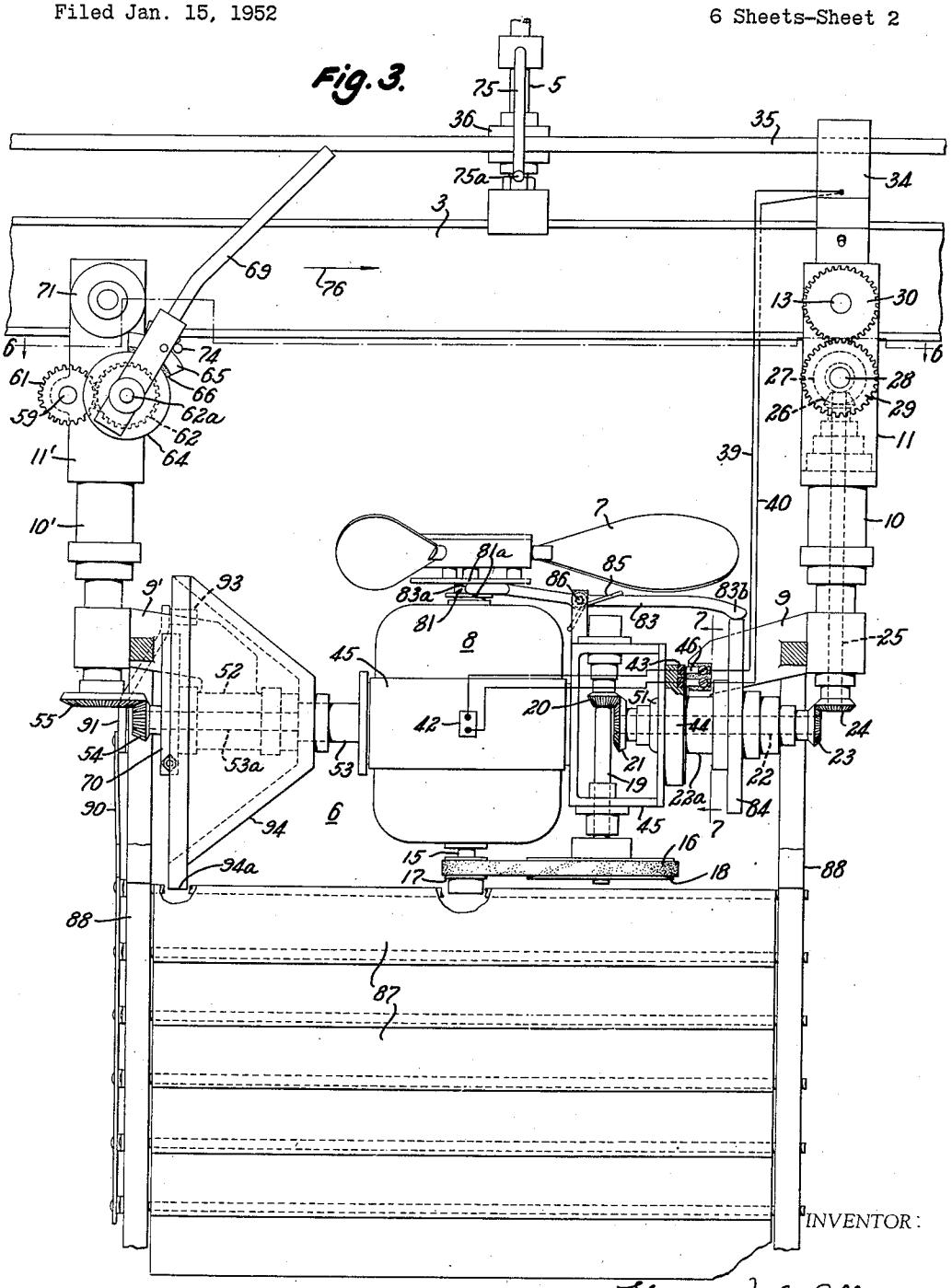
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TRAVELING CLEANER FOR TEXTILE ROOMS

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Fig. 3.



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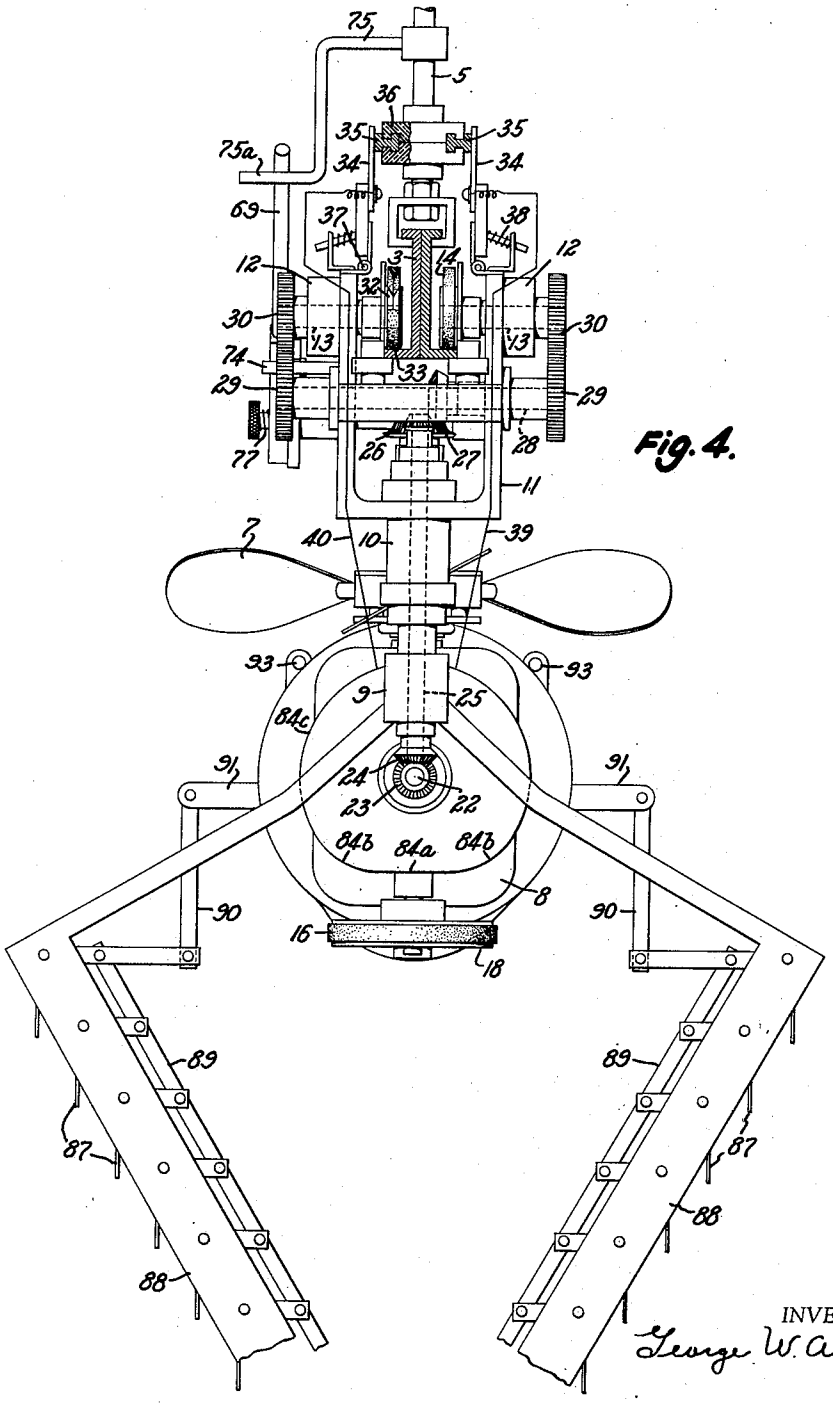


Fig. 4.

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TRAVELING CLEANER FOR TEXTILE ROOMS

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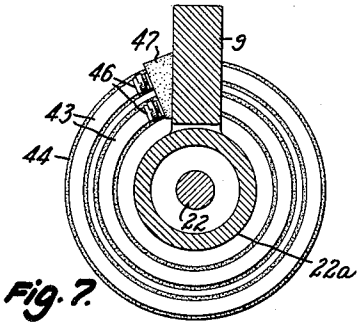


Fig. 7.

Fig. 5.

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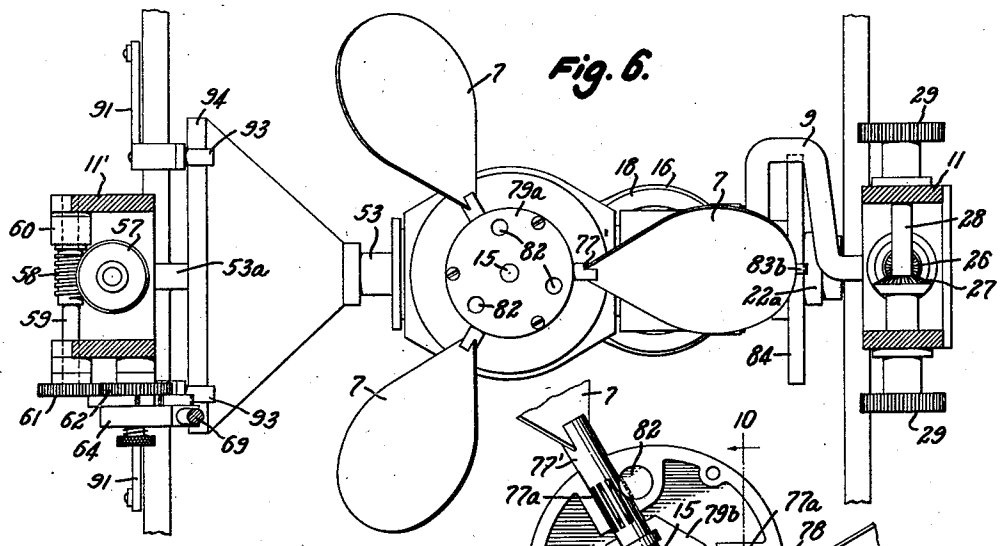


Fig. 6.

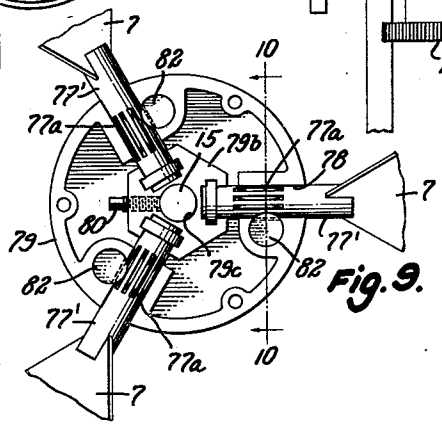


Fig. 9.

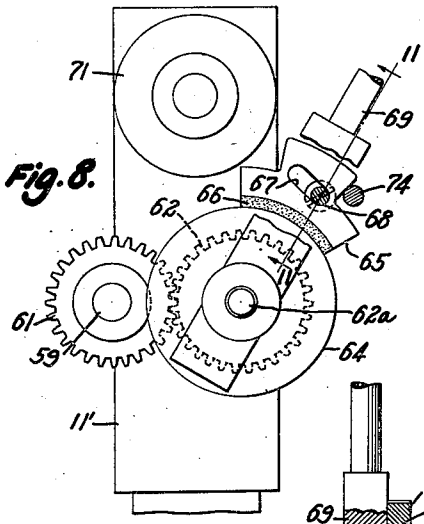


Fig. 8.

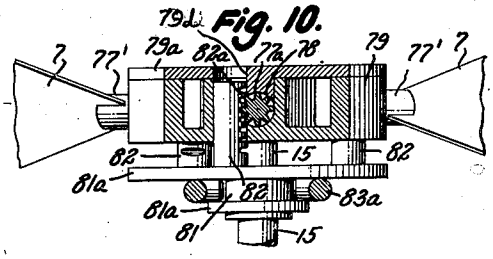


Fig. 10.

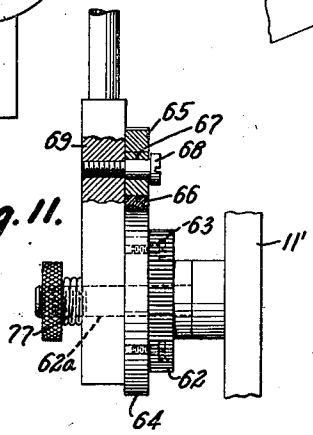


Fig. 11.

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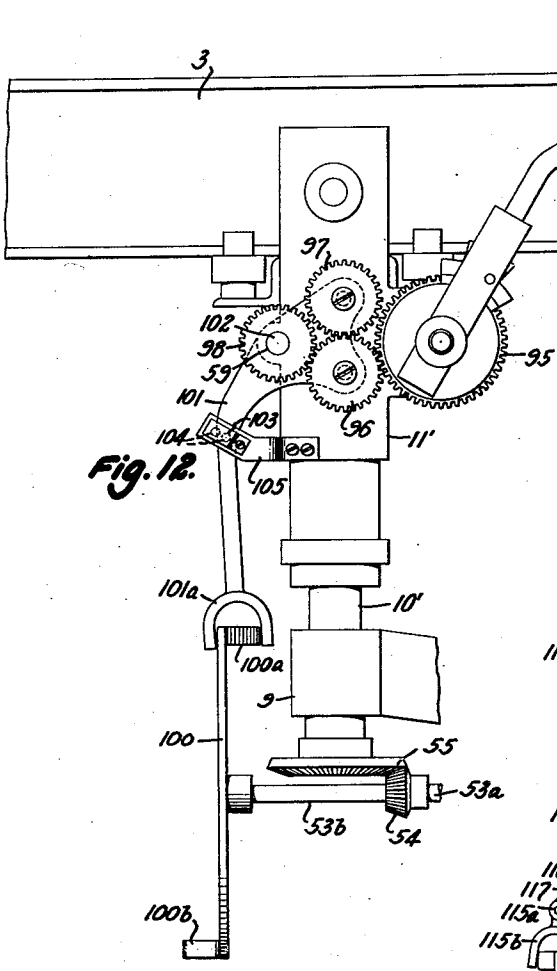


Fig. 12.

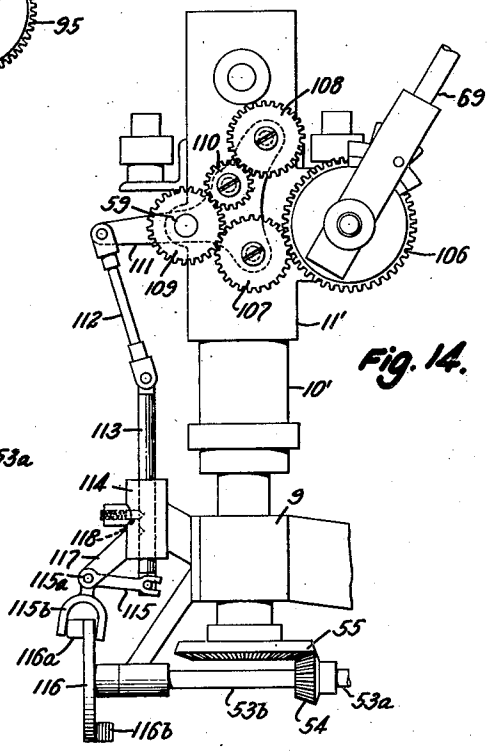


Fig. 14.

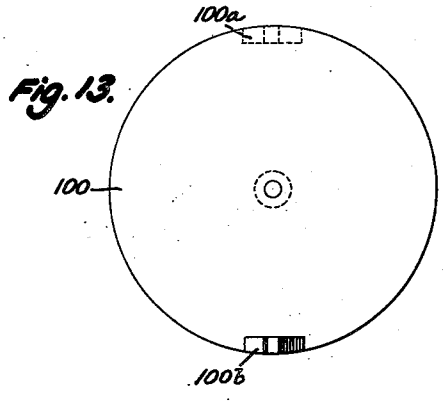


Fig. 13.

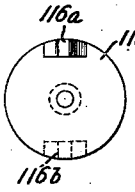


Fig. 15.

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2,823,409

TRAVELING CLEANER FOR TEXTILE ROOMS

George W. Allred, Mayodan, N. C.

Application January 15, 1952, Serial No. 266,520

9 Claims. (Cl. 15—312)

The present invention relates to cleaning apparatus for textile room application and more particularly to a cleaning device mounted upon a trackway located above a plurality of textile machines and adapted to travel along said trackway over the machines in order to blow off from the machines and from the walls and ceiling any lint or other foreign matter which may become deposited thereon.

One object of the present invention is to provide a cleaning system of the type described wherein the blower unit is indexed to rotate about its axis of support so that a single impeller serves to clean off the ceiling and walls of the room as well as the machines.

Another object is to provide for automatically changing the output of the blower as a function of its angular position to the end that a comparatively high velocity air stream is produced for cleaning off the ceiling while a relatively lower velocity air stream is produced for cleaning off the machinery.

A further object is to provide an adjustable louver assembly for the blower unit for distributing cleaning air to the machines and which is controlled in accordance with the index angle of the blower to vary the directional characteristic of the louvers.

A more specific object is to provide a blower unit for a traveling cleaner having an adjustable pitch impeller coupled with means for changing the impeller pitch as a function of the index angle of the blower unit. The blower motor runs at constant speed and hence the velocity of the airstream can be varied automatically to suit any particular requirement.

Another object is to provide a blower unit for a traveling cleaner so constructed as to normally cause the impeller to be progressively indexed unidirectionally in a step-by-step manner to different blowing directions in a vertical plane through an angle of 360° together with a reversing attachment by means of which the normal unidirectional character of the indexing can be converted to angular oscillatory over a particular angular path thus making it possible to limit the cleaning operation to the area below the blower unit or the area above it.

In the accompanying drawings which illustrate preferred embodiments of the inventive principles as disclosed herein:

Fig. 1 is a plan view of the trackway and blower unit located in the room to be cleaned;

Fig. 2 is a view in side elevation of the blower unit, a portion of the trackway and a plurality of the machines to be cleaned, the latter being shown in dotted lines since they are obviously not part of the invention;

Fig. 3 is a side elevation of the blower unit, its suspension support and part of the trackway drawn to a larger scale;

Figs. 4 and 5 are end views of the blower unit and its suspension support as seen from the right and left, respectively in Fig. 3;

Fig. 6 is a horizontal section taken on line 6—6 of Fig. 3;

Fig. 7 is a sectional detail on line 7—7 of Fig. 3 showing the current collection ring for furnishing current to the electric motor which drives the impeller at constant speed;

Fig. 8 is a side view of the mechanism utilized for indexing the blower unit;

Fig. 9 is a detail showing in plan the interior of the impeller hub and the associated mechanism for changing the impeller pitch;

Fig. 10 is a vertical section on line 10—10 of Fig. 9;

Fig. 11 is a sectional view on line 11—11 of Fig. 8;

Fig. 12 is side elevation of a modified construction for the indexing mechanism wherein the blower unit is made to oscillate through an angle of 180° as contrasted with the step-by-step unidirectional rotation throughout 360° which is obtained with the construction shown in Figs. 1–11;

Fig. 13 is a detail of an operating element associated with the Fig. 12 organization;

Fig. 14 is a side elevation of another arrangement for causing the blower unit to oscillate cyclically through a sweep angle of 180°; and

Fig. 15 is a detail of an operating element associated with the mechanism shown in Fig. 14.

With reference now to the drawings, numerals 1 and 2 designate two of a plurality of textile machines such as a knitting machine, spinning frames, spoolers or the like located in a room. Above the machines is a horizontal trackway 3 of the monorail type which is suspended from the ceiling 4 by a plurality of spaced hanger rods 5. The trackway 3 forms a closed loop as shown clearly in Fig. 1 and it will be understood that its configuration would be such as to pass over each machine in the room to be cleaned.

The traveling cleaner or blower unit 6 is preferably of the self-propelled type and a single motor unit functions to both rotate the impeller 7 and propel the blower unit around the trackway 3. As best seen in Fig. 3, the motor unit 8 which runs at constant speed and other elements to be later described are carried by and between a pair of spaced arms 9—9′ secured to the lower end of vertically disposed sleeves 10—10′. Sleeves 10—10′ are secured at their upper ends to U-shaped brackets 11—11′ and bracket 11 carries journals 12 for the two drive shafts 13 to which the driving wheels 14 are secured. The monorail 3 consists of two L-shaped rail members secured back-to-back and the driving wheels 14 run respectively on the horizontal, foot portions of these rail members.

Power to drive wheels 14 is taken from motor shaft 15 and the transmission includes belt 16 extending from a sheave 17 on shaft 15, to sheave 18 which drives shaft 19, gear 20 on shaft 19 meshed with gear 21 on horizontal shaft 22 rotatable in bearing sleeve 22a, gear 23 on shaft 22 meshed with gear 24 on vertical shaft 25 journalled in sleeve 10, gear 26 on shaft 25 meshed with gear 27 on horizontal shaft 28, and gears 29 at the outer ends of shaft 28 meshing with gears 30, on the horizontal drive shafts 13 on which the drive wheels 14 are mounted. Preferably each of the drive wheels is provided with a V-shaped peripheral groove 32 for receiving a V-belt 33 having an inner diameter slightly larger than that of groove 32, so that the weight of the blower unit can press the belt upon the rail surface and thereby provide good traction for the

unit. This feature is shown particularly well in Fig. 4. Thus as the motor shaft **15** rotates, the impeller **7** will rotate to develop the air stream for cleaning and the blower unit will be propelled along the monorail **3**.

Also as is shown clearly in Fig. 4 current is supplied to motor **8** by two shoes **34** mounted upon the upper end faces of the legs of the U-shaped bracket **11** and which bear against the sides of conductor rails **35** carried by insulators **36** located at each of the monorail hanger rods **5**. To insure a firm, sliding contact between the power take-off shoes **34** and the rails **35**, each shoe is mounted pivotally at **37** and a spring **38** is used to load the shoe in the direction of the rail.

As will be made clear at a later point in the description, motor **8** is caused to be indexed for rotation about a horizontal axis constituted by an extension of the axis of shaft **22**. Hence a collector ring assembly must be incorporated in the electrical connections **39—40** between the shoes **34** and motor terminal block **42**. As shown in Figs. 3 and 7, the collector ring assembly comprises concentric, radially spaced rings **43** set into a block **44** of insulating material which is mounted upon the rotatable frame **45** to which motor **8** is fastened, and a pair of stationary brushes **46** carried by insulator block **47** which is secured to arm **9**. Conductors **39**, **40** extend from the shoes **34** to binding posts **48** on the brushes **46**.

The supporting arm **9** at the right side of the motor unit as viewed in Fig. 3 carries the horizontal sleeve bearing **22*a***, and the left end portion of shaft **22** which extends through and is supported by the bearing **22*a*** functions to support the right side of the motor frame **45** by means of a sleeve bearing **51** which surrounds shaft **22** and is fastened to the motor frame. Consequently shaft **22** can turn on its axis to transmit power from the motor **8** to the driving wheels **14**, and the motor together with frame **45** is rotatable about the axis of shaft **22**.

The supporting arm **9'** at the left side of the motor unit as viewed in Figs. 3 and 5 carries a horizontal sleeve bearing **52** in axial alignment with bearing sleeve **22*a*** which serves to journal a reduced portion **53*a*** of shaft **53** which extends laterally from motor frame **45** and is secured rigidly thereto. Shaft **53** is arranged coaxially with shaft **22**, both of the shafts being arranged parallel with and beneath the trackway **3**, and is provided at its outer end with a gear **54** that meshes with gear **55** secured upon the lower end of a vertical shaft **56** that extends upwardly through bearing sleeve **10'**. A worm wheel **57** secured upon the upper end of shaft **56** meshes with a worm gear **58** secured upon horizontal shaft **59** which is journalled at **60** in the arms of bracket **11'**. A gear **61** secured upon the outer end portion of shaft **59** is meshed with gear **62** journalled on shaft **62*a*** and which gear is secured by screws **63** (see Fig. 11) to a drum **64** arranged concentrically with gear **62**. Riding in contact with the periphery of drum **64** is an arcuate shoe **65** surfaced with leather **66** or other suitable friction material as shown in Fig. 8. Shoe **65** is provided with a cam slot **67** through which is passed a machine screw **68** that threads into an actuating lever **69** mounted on shaft **62*a*** for rotation about the latter.

At the upper end of bracket **11'**, bearings **71** as shown in Fig. 5 are provided for journalling shafts **72** on which are mounted wheels **73** which roll on the monorail **3** in the same manner as the driving wheels **14** associated with the bracket **11**.

Lever **69**, as shown in Fig. 3, projects upwardly at an angle and its rest position is determined by a stop pin **74** projecting laterally from bracket **11'**. A rod **75** preferably secured to one of the hanger rods **5** and having an offset portion **75*a*** projecting into the path of lever **69** serves to engage and rotate the latter counterclockwise as the blower unit travels around the monorail in the direction indicated by arrow **76**. As lever **69** begins to turn, shank of screw **68** will bear against the lower edge of slot **67** thus causing the shoe **65** to move into a friction type clutching relation with drum **64** and hence effecting rotation of drum **64** and gear **62** fastened thereto. Rotary motion of gear **62** is transmitted through the train of elements **61**, **59**, **58**, **57**, **56**, **55**, **54** to shaft **53** causing the latter, motor frame **45** and motor **8** to rotate about the horizontal axis of aligned shafts **53** and **22**. Motor shaft **15** and impeller **7** will thus rotate in a vertical plane. After lever **69** has cleared the rod **75**, it is returned to its rest position against pin **74** by means of a restoring spring **77**. The simultaneous reverse movement of screw **68** relieves its pressure on the lower edge of slot **67** in shoe **65** thus relieving the pressure of the latter on drum **64**, and the shoe **65** moves clockwise relative to the drum **64** thereby readying the shoe for another clutching engagement with the drum the next time lever **69** strikes the portion **75*a*** of hanger rod **5**.

The angular throw of the lever **69** for each contact with rod **75** is about 90° in the particular embodiment illustrated and the transmission ratio is preferably such that shaft **53** and hence the motor unit **8** will be indexed through an angle of approximately 10°. Thus in the illustrated embodiment as seen in Fig. 1 where only one of the arms **75** is provided along the monorail **3**, lever **69** is actuated once for each time that the blower unit **6** travels around the loop formed by the monorail **3** and changes the blowing direction of impeller **7** by ten degrees. After thirty-six revolutions of the blower unit around the monorail, the motor **8** will thus have been indexed through a complete circle in the vertical plane and the indexing cycle is begun anew. It will be understood that the index angle of 10° is to be considered only as exemplary and hence can be increased or decreased if desired to meet a particular operating condition.

As shown in Fig. 2, the shaft of motor **8** occupies a vertical position and thus the airstream from impeller **7** will be directed against the ceiling **4** to blow off any lint that may have collected there. In the course of time however, the blowing direction changes by steps thus blowing off the side walls, floor and the row of textile machines **1**, **2** etc.

The particular organization comprising lever **69**, shoe **65** and drum **64** is to be considered as typical only and hence other types of similar drives such as the possibly more common pawl and ratchet mechanism may be used if desired to index the motor **8**.

The motor unit **8** and those other elements of the indexing organization which rotate with it have considerable inertia. To prevent the parts from overrunning when indexing, a friction type brake is utilized. The brake is comprised of a shoe **70** carried by support **9'** and which includes a friction lining **70*a*** clamped around shaft **53*a*** by means of a bolt **70*b***. The brake imposes a constant drag on the shaft and the amount of drag can be increased or decreased by tightening or loosening bolt **70*b***.

The present invention also provides means for automatically changing the velocity of the air blown by impeller **7** as a function of the blowing direction to the end that a stronger blast is obtained for blowing off the ceiling than is used when blowing off the machinery. The desired result may be attained by effecting a change in the speed of the impeller but I prefer to keep the impeller speed constant and change the pitch of the impeller blades. With reference now in particular to Figs. 6, 9 and 10, it will be seen that each of the impeller blades **7** is secured to a stub shaft **77'** which is journalled in an axially split, two part sleeve bearing **78** formed in the hub **79** and its cover **79*a***. Hub **79** contains a central boss **79*b*** provided with an axial bore **79*c*** for receiving the end of motor shaft **15** and the hub is secured to this shaft by means of set screw **80**. A double flanged collar **81**, slidably mounted upon motor shaft **15** intermediate the motor housing **8** and hub **79**, is provided with three gear racks **82** of cylindrical cross section (one for each impeller blade **7**) and these are adapted to slide

axially of the motor shaft **15** in bores **79***d*, the rack teeth **82***a* being meshed with teeth **77***a* cut into the periphery of the stub shafts **77**.

As shown in Fig. 3, a lever **83** pivotally mounted intermediate its ends upon the frame **45** is provided with a yoke **83***a* at one end which engages the collar **81** between the flanges **81***a* thereon and a cam follower **83***b* at the opposite end which rides in contact with the periphery of a non-rotary cam **84** which is fixed upon the bearing sleeve **22**. A spring **85** associated with the pivotal support **86** for lever **83** serves to load the lever in a clockwise direction as viewed in Fig. 3 thus holding the cam follower **83***b* in contact with the periphery of cam **84**.

As seen in Fig. 4, cam **84** is of uniform radius for 240° of arc but the remaining 120° of its periphery is comprised of a flat **84***a* extending for 60° and two portions **84***b* extending for 30° each of progressively changing radius which connect the flat **84***a* with the peripheral portion **84***c* of uniform radius. When the impeller **7** is blowing upward against the ceiling **4**, the position depicted in the drawings, the high point on cam **84**, peripheral portion **84***c*, is engaged with the cam follower **83***b*. In this position, collar **81** and the gear racks **82** occupy positions closest to the motor housing **8**, and the impeller blades **7** have their greatest pitch, thus producing a strong blast of air for cleaning off the ceiling. The high portion **84***c* of the cam also extends for 120° to each side of the position shown in Fig. 4 and thus as motor housing **8** is indexed about the axis of shaft **22** in steps of approximately 10° for each pass of blower unit **6** around the track loop **3** and cam follower **83***b* travels around the periphery of stationary cam **84**, the strong blast of air will also obtain for cleaning off the side walls of the room. When however the cam follower **83***b* is engaged with the flat **84***a* along the bottom of cam **84**, i. e. when the blast from impeller **7** is directed vertically downward upon the textile machines **1**, **2**, or within 30° to each side of vertical, collar **81** and the gear racks **82** occupy positions furthest away from the motor housing **8** and blades **7** have their minimum pitch thus producing a more gentle air stream for blowing off the machines since as previously explained the motor runs at constant speed.

According to another feature of the invention, further directional control over the air stream blown by impeller **7** is effected by means of an adjustable louver assembly disposed below the impeller and as to which the angle of the louver elements is changed automatically as the blowing direction changes. As seen in Figs. 3–5, the louver elements **87** are arranged in two groups at opposite sides from the vertical axis and are supported pivotally at their opposite ends in plates **88** which are mounted upon the brackets **9**, **9'**. The louvers of each group are interconnected by means of parallel linkage **89** and the latter are connected via links **90** and bell crank levers **91** mounted for movement about pivots **92** to cam followers **93** which ride upon the periphery of cam **94**. Unlike the stationary impeller pitch changing cam **84**, louver control cam **94** is mounted upon and rotates with shaft **53** and motor support frame **45**. In the present embodiment, cam **94** is of uniform radius throughout most of its periphery and has one high point **94***a* which when it engages the cam followers **93** serves to swing the louvers **87** outwardly from their normal vertical positon thus deflecting the air stream away from the vertical, it being noted that contact between the cam's high point **94***a* and followers **93** occurs when the impeller is blowing in a generally down direction.

In the embodiment which has been described and illustrated in Figs. 1–11 of the drawings, the indexing of motor unit **8** and impeller **7** is unidirectional in character, i. e. rotation in a step-by-step manner is always in the same direction with the result that in due time the unit will have been indexed through 360° and then starts all over again. If it should be desired to have the motor unit index through a lesser angle in one direction, then reverse through the same angle in the opposite direction, again reverse, etc. so that the unit oscillates through a given angle of travel, rather than complete a full revolution, the embodiments shown in Figs. 12, 13 or Figs. 14, 15 can be used.

With reference now to these views, in which parts common to the previously described views have been assigned like reference numerals, the gear train in Fig. 12 for transmitting angular motion of lever **69** as the latter is rotated upon passing rod **75** is comprised of gear **95** meshing with intermeshed gears **96** or **97**, and gear **98** meshed with gear **96** which is secured upon shaft **59**. From the latter, downward through shaft **56**, gears **55** and **54** and shaft **53***a*, the arrangement is identical with that as shown in Figs. 5 and 6. To reverse the direction of indexing for each 180° of rotation of shaft **53***a* and hence also that of motor unit **8**, it will be seen that shaft **53***a* includes an extension **53***b* to which is secured a circular plate **100** having a pair of cams **100***a*, **100***b* spaced 180° apart and which project laterally from opposite faces of the plate at the periphery. These cams cooperate with a yoke **101***a* provided at the lower end of two position lever **101** which is mounted pivotally at **102** for rotation about an axis coincident with that of shaft **59** and gear **98**. The upper end of lever **101** includes bearings for mounting gears **96** and **97**. In the position depicted in Fig. 12, one of the cams, **100***a* has just reached one leg of the yoke **101***a* and caused lever **101** to be shifted counterclockwise about its pivotal support. With gear **96** meshed with gear **95**, consecutive throws of lever **69** will cause shaft **53***a* and hence also plate **100** to index in steps of 10°. When plate **100** has rotated 180°, cam **100***b* comes into engagement with the opposite leg of yoke **101***a* causing lever **101** to be shifted clockwise to bring gear **97** into engagement with gear **95** and simultaneously disengage gear **96** from the latter. The drive is now through gears **95**, **97**, **96** and **98**, in which case gear **96** functions as an idler and reverses the direction of rotation of gear **98** which also reverses the direction of rotation of shaft **56**, gears **55**, **54**, cam plate **100** and shaft **53***a*. The motor housing **8** will thus reverse its indexing direction. After another 180° of indexing, cam **100***a* will again be presented to yoke **101***a* and trip lever **101** in the opposite direction thereby disengaging gear **97** from gear **95** and reengaging gear **96** which again reverses the direction of rotation of shaft **53***a*. Thus the impeller **7** can be made to sweep back and forth through a blowing angle limited to 180°.

To convert the indexing arrangement in Figs. 12, 13 from angular oscillatory to unidirectional all that need be done is to remove cam plate **100** from shaft **53***b* and throw lever **101** into one of its two positions dependent upon the particular sense of rotation that is desired.

For securing lever **101** in each of its two alternative positions, a ball catch **103** carried by the lever is provided and the catch is adapted to engage one or the other of two spaced dimples **104** in a bracket **105** secured to bracket **11'**.

Another embodiment for reversing the indexing direction of the impeller **7** for each 180° of rotation is shown in Figs. 14, 15. Here gear **106** turned by lever **69** is adapted to mesh with either gear **107** or gear **108**. Gear **107** meshes directly with gear **109** secured upon shaft **59** while gear **108** meshes with gear **109** through an idler **110**. Gears **107**, **108** and **110** are journalled by lever **111** which is pivotally mounted for rotation about the axis of shaft **59**. The outer end of lever **111** is connected to one end of rod **112** and the opposite end is pivotally connected to vertical rod **113** which is slidably mounted in a bearing sleeve **114**. To the lower end of rod **113** is pivotally attached one end of a bell crank lever **115** pivotally mounted at **115***a* upon an arm **117** extending

outwardly from bearing sleeve 114. The other end of lever 115 terminates in a yoke 115*b* which is adapted to be actuated first in one direction and then the other by cam projections 116*a*, 116*b* on cam plate 116 mounted upon the end of shaft extension 53*b*. As in the case of the embodiment shown in Figs. 12, 13, cam projections 116*a*, 116*b* are spaced 180° apart about the periphery of plate 116 and hence yoke 115*b*, lever 115, rods 113, 112 and lever 111 will be actuated in one direction as cam projection 116*a* engages yoke 115*b* and in the opposite direction when cam 116*b* engages this yoke. A spring loaded detent 118 engageable alternatively with axially spaced dimples in rod 113 serves to secure the latter and those other elements movable with it in one position or the other.

With the parts in the positions indicated i. e. with rod 113 in the "down" position, the position of lever 111 is such that gear 107 meshes with gear 106, thus driving shafts 53*a*, 53*b* in one direction in a step-by-step manner each time that lever 69 is rotated by engagement with the arm 75*a* secured to the trackway. When shafts 53*a*, 53*b* have been rotated through 180°, cam 116*b* will be presented to yoke 115*b* and cause the lever 115 to be tripped to its other position thus shifting rod 113 to its "up" position to thereby disengage gear 107 from gear 106 and engage gear 108 with gear 106. Since gear 106 always rotates in the same direction and an idler or reversing gear 110 is interposed between gears 108 and 109, the latter and hence shafts 53*b*, 53*a* will be caused to index in the reverse direction for 180°, then reverse again, etc. In this manner the motor 8 and impeller 7 can be made to index in an oscillatory manner through any selected path extending for 180° of arc. It can thus be arranged to blow off only the ceiling and such other surfaces as are contacted by the air stream in a cyclic sweep from an angular position of 270° through 0° to 90°, considering the 0° position as pointing vertically upward, or to blow off only the machinery below and such other surfaces as would be included in a cyclic sweep from a 90° position downwardly through 180° to a position of 270°.

Moreover it will be evident that by changing the angular spacing between the cams 100*a*, 100*b* in the Fig. 12 arrangement or the cams 116*a*, 116*b* in the Fig. 14 construction, the angular traverse of the blower unit will be correspondingly changed.

In conclusion it will be understood that while the illustrated construction is to be preferred, various changes in the component parts and their arrangement can be made without however departing from the spirit and scope of the inventive concept as defined in the appended claims.

I claim:

1. Apparatus for cleaning lint and other foreign particles from the ceiling of a room containing textile machinery and also from the machinery comprising a generally horizontal trackway disposed over the machinery, a blower unit suspended from and movable along said trackway, said blower unit comprising a support shaft extending parallel with said trackway, said shaft being rotatable about its axis, a motor mounted on said support shaft, the shaft of said motor extending normal to the axis of said support shaft, an impeller on said motor shaft, and means for indexing said support shaft about its axis in a step-by-step manner and hence also said motor shaft and impeller axis in a vertical plane transverse to said trackway to different blowing angles in said vertical plane throughout a range of 360°.

2. Apparatus for selectively cleaning lint and other foreign particles from the ceiling of a room containing textile machinery and/or from said machinery and/or from the side walls of said room, said apparatus comprising a horizontal trackway disposed over the machinery, a blower unit suspended from and movable along said trackway, said blower unit comprising a support shaft extending parallel with said trackway, said shaft being rotatable about its axis, a motor mounted on said support shaft, the shaft of said motor extending normal to the axis of said support shaft, an impeller on said motor shaft, means for indexing said support shaft about its axis in a step-by-step manner and hence also said motor shaft and impeller axis in a vertical plane transverse to said trackway to different blowing angles in said vertical plane and means selective by the operator for setting said indexing means to cyclically reverse the direction of indexing after a predetermined angular travel of said second shaft or to maintain a predetermined direction of indexing.

3. Apparatus for cleaning off lint and other foreign particles as defined in claim 1 and which further includes means carried by said motor and operable upon indexing thereof to change the velocity of the air stream created by said impeller in accordance with its change in direction to establish a relatively strong blast when the airstream is directed upwardly against the ceiling and a relatively weaker blast when the air stream is directed downwardly against the machinery.

4. Apparatus for cleaning lint and other foreign particles from textile machinery located in a room and for similarly cleaning the room walls comprising, a trackway disposed over the machinery, a blower unit adapted to travel along said trackway, said blower unit including a motor driven impeller, a pitch changing mechanism for the blades of said impeller, means for indexing said impeller to different angular blowing directions and means responsive to the change in angular position of said impeller for actuating said pitch changing mechanism.

5. Apparatus for cleaning off lint and other foreign particles as defined in claim 1 wherein said motor includes a pitch changing mechanism for the blades of said impeller and which further includes means responsive to the change in angular position of said motor and impeller for actuating said pitch changing mechanism to establish a high pitch when the air stream from said impeller is directed upwardly against the ceiling and a lower pitch when the air stream is directed downwardly against the machinery.

6. Apparatus as defined in claim 5 wherein said means for actuating said pitch changing mechanism is comprised of a stationary cam, a cam follower rotatable with said motor, and connections between said cam follower and said pitch changing mechanism.

7. Apparatus for cleaning lint and other foreign particles from textile machinery located in a room and for similarly cleaning the ceiling of the room comprising, a trackway disposed over the machinery, a blower unit having wheels adapted to roll along said trackway, said blower unit including an electric motor, an impeller driven by the motor shaft, a power take-off from said shaft and a transmission extending from said power take-off to the wheels of the unit whereby to cause the unit to be propelled along said trackway at the same time that said impeller is rotated to create the air stream for cleaning, means carried by said blower unit for indexing said motor for step-by-step rotation on a horizontal axis normal to the axis of said motor shaft whereby said motor shaft will be caused to index in a vertical plane, means independent of said blower unit but disposed in the path of travel thereof for periodically actuating said indexing means, a pitch changing mechanism cooperative with the blades of said impeller, and means responsive to the change in the angular position of said motor for actuating said pitch changing mechanism to establish a high pitch when the air stream from said impeller is directed upwardly against the ceiling and a lower pitch when the air stream is directed downwardly against the machinery.

8. Apparatus as defined in claim 7 wherein said blower

unit includes a system of adjustable louvers located below said motor for selectively distributing the air stream created by said impeller when blown in the general direction of the machinery, means for adjusting said louvers to different deflection angles, and means responsive to the change in angular position of said motor for actuating said louver adjusting means.

9. Apparatus as defined in claim 8 wherein the means for actuating the adjusting means for said louvers is comprised of a cam rotatable with said motor, a follower for said cam and connections between said follower and said louver adjusting means.

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