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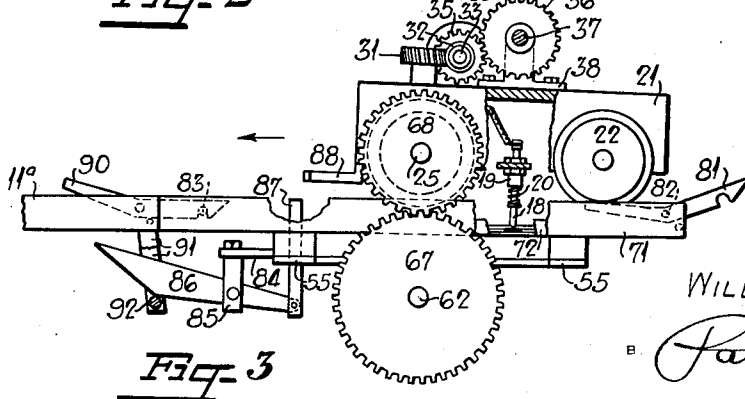
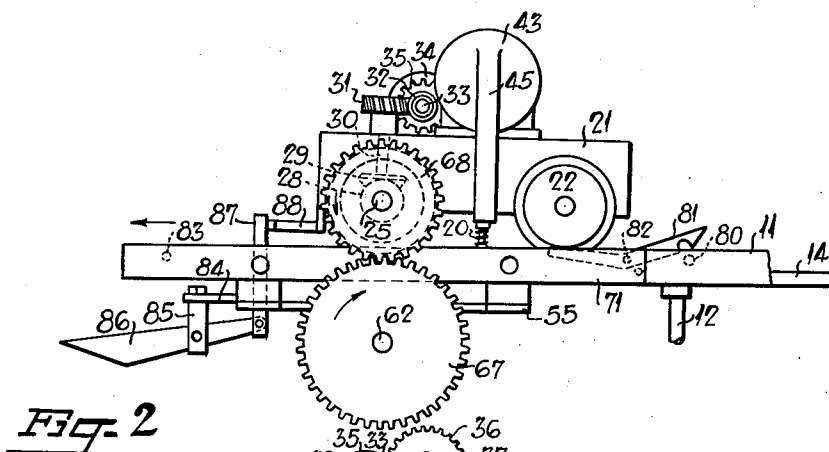
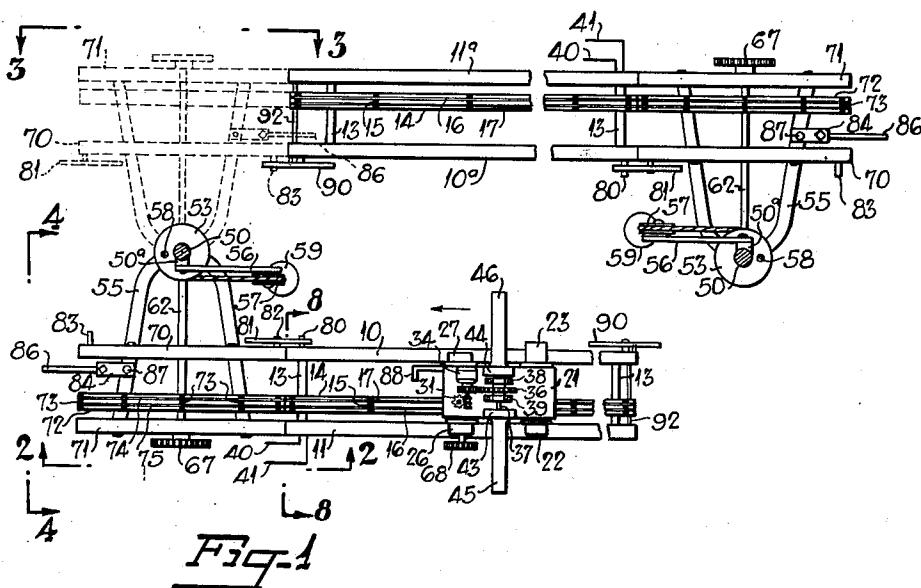
W. W. LINDER

2,090,135

TRANSFER DEVICE

Filed July 15, 1935

2 Sheets-Sheet 1



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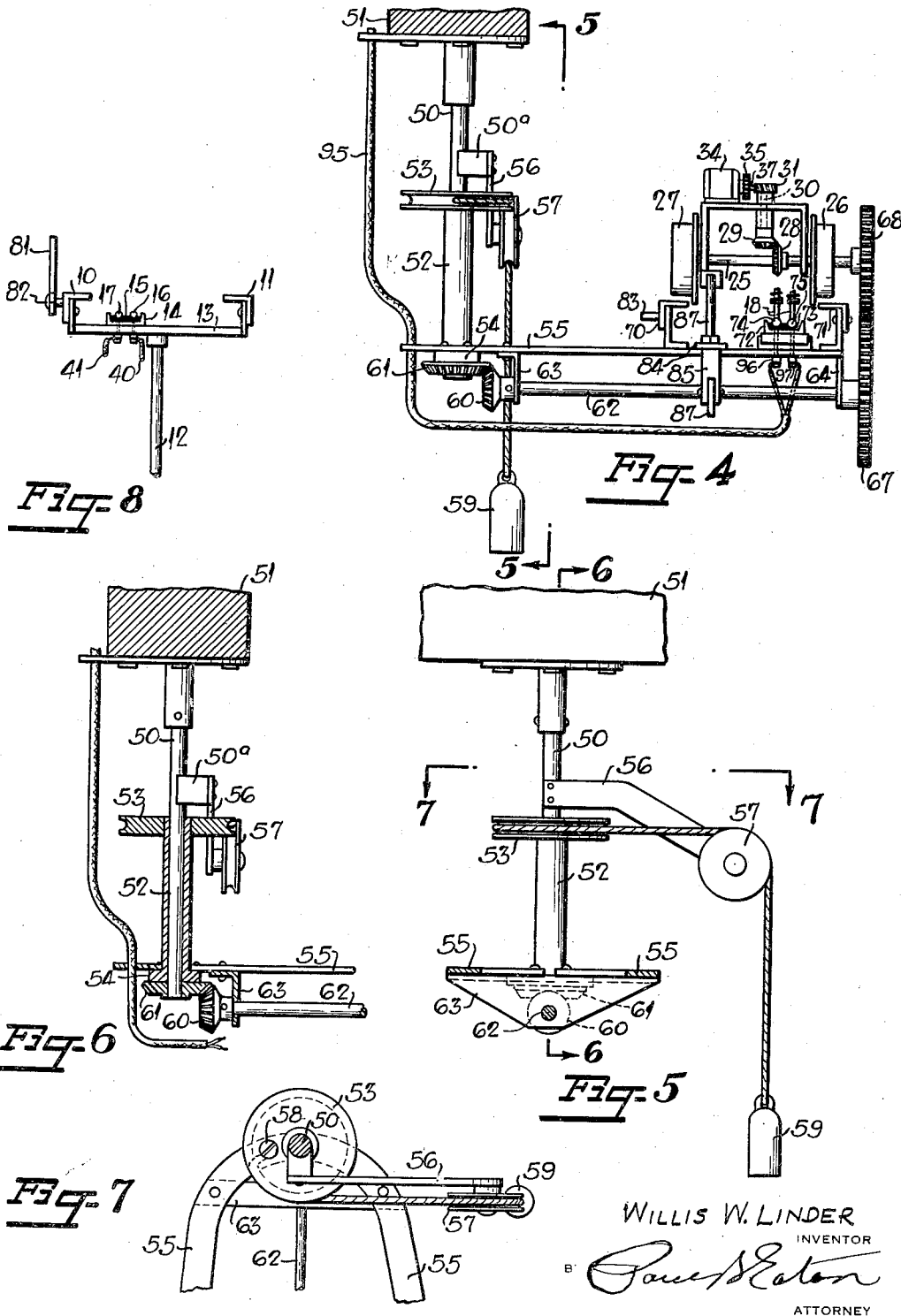
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,090,135

TRANSFER DEVICE

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3 Claims. (Cl. 104—49)

This invention relates to apparatus for cleaning machines and more especially to cleaning textile machinery by providing a suitable travelling blast producing means to travel on a trackway disposed directly above the machinery or on a trackway disposed between rows of machinery for blowing from the machine lint and other particles to prevent the same from becoming a part of the yarn or other textile products being manufactured or processed on the machine.

It is an object of this invention to provide a trackway disposed above parallel rows of machines or between parallel row of machines for the reception of a travelling fan. Instead of having the trackway continuous, which is sometimes objectionable, on account of the return bends of the trackway obstructing passageways, I provide means whereby, when the traveller reaches an end of a trackway, the same will be transferred automatically by swinging the traveller through a semi-circle to present it to the end of another trackway, which is usually parallel to the first trackway.

It is another object of this invention to provide a plurality of trackways for the reception of a travelling fan with means for automatically transferring the travelling fan from one trackway when it has travelled to the end thereof, to the end of the other trackway, so that the travelling fan will proceed to travel over the next adjacent trackway, and when the travelling fan reaches the end of said next adjacent trackway, similar means are provided at the end thereof for automatically transferring the travelling fan to the trackway from whence it was removed in the first instance or to transfer said fan to another trackway. In this manner, the advantages of an endless track are obtained, and yet the return bends of the continuous track are eliminated and thus prevents the aisles in a cotton mill from being obstructed by these return bends running from one row of machines to another.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which:—

Figure 1 is a top plan view of a portion of two parallel trackways and showing my invention in connection therewith;

Figure 2 is a side elevation looking from along the line 2—2 in Figure 1;

Figure 3 is a side elevation similar to Figure 2, but taken along the line 3—3 in Figure 1, and showing the dotted portion appearing in Figure 1, in full lines;

Figure 4 is a vertical elevation, partly in section, taken along the line 4—4 in Figure 1;

Figure 5 is a view largely in side elevation but partly in vertical section and being taken along the line 5—5 in Figure 4;

Figure 6 is a vertical sectional view taken along the line 6—6 in Figure 5;

Figure 7 is a top plan view with parts in section taken along the line 7—7 in Figure 5;

Figure 8 is a view showing one end of the trackways and taken along the line 8—8 in Figure 1, but showing the lever at the left-hand side thereof in elevation.

Referring more specifically to the drawings, the numerals 10 and 11 indicate rails forming a trackway disposed either between and above parallel rows of machines, or directly above the rows of machines and supported in any suitable manner either from the ceiling of the building, or from supports 12 extending upwardly from the floor or from the machine. These supports 12 have cross pieces 13 which support the tracks 10 and 11, and also support a trough 14 having insulating blocks 15 therein in which conductive wires 16 and 17 are mounted. These wires are adapted to be contacted by brushes 18 resiliently mounted in collar 19 in a traveller and normally pressed into contact with the conductive members by means of a compression spring 20, (Figs. 3 and 4). The traveller has a main inverted U-shaped frame 21 which has wheels 22 and 23 mounted on suitable stub axles secured to the vertically disposed portions of frame 21. Wheel 23 is much wider than wheel 22 for the purpose of tripping and controlling certain levers and dogs hereinafter to be more fully described.

The front part of frame 21 has an axle 25 extending thereacross on which are mounted the flanged wheels 26 and 27, said axle having a beveled gear 28 meshing with a bevel gear 29 mounted on the lower end of a vertically disposed shaft 30 on whose upper end is fixed a worm gear 31 which has contact with a worm 32 mounted on motor shaft 33 of electric motor 34, (Figs. 2 and 3). Motor shaft 33 has a pinion 35 thereon which meshes with a pinion 36 on a shaft 37 mounted in bearings 38 and 39, and on each end of this shaft are suitable disk fans which are surrounded by casings 43 and 44 having leading therefrom ducts 45 and 46 which extend outwardly and then downwardly for directing blasts of air from the disk fans onto the machinery to remove the lint and other foreign particles therefrom as the traveller moves along the tracks.

It is thus seen that motor 34 derives its cur-

rent from the conductive trolley members 16 and 17 and propels the traveller along the tracks and also imparts rotation to the two fans for creating the blasts of air.

5 Trolley members 16 and 17 receive the current from leads 40 and 41, said leads being connected to a suitable source of electrical energy.

When the traveller has reached the ends of tracks 10 and 11, it proceeds to travel onto a 10 turn-table mechanism for transferring the traveller to the end of the next adjacent trackway. This turn-table apparatus comprises a shaft 50 which is shown as being secured at its upper end to the ceiling 51 of the building in which the ap- 15 paratus is installed, though other points of support might be preferred. The shaft 51 has turnably mounted therearound a sleeve 52 on whose upper end is fixed a grooved pulley 53 and on whose lower end there is a boss 54 to which is 20 secured a U-shaped member 55. Fixed on shaft 50 is a lug 50a which has secured thereto a supporting arm 56 for supporting a grooved idler pulley 57. A cord is attached at 58 in grooved pulley 53 and passes over idler grooved pulley 57 25 and has a weight 59 attached to the lower end thereof. Shaft 50 which is fixed to the ceiling or any other suitable support has fixed on the lower end thereof a beveled gear 61 which is adapted to mesh with a beveled gear 60 fixed on shaft 62 30 which is mounted for rotation in lugs 63 and 64 projecting downwardly from U-shaped member 55. The outer end of shaft 62 has a gear 67 secured thereon which is adapted at times to mesh with a gear 68 mounted on the outwardly extending end of shaft 25. The member 55 has 35 mounted on the upper side thereof tracks 70 and 71 together with a trough 72 with insulation blocks 73 and conductive members 74 and 75 therein similar to conductive members 16 and 17. 40 Track 10 has projecting therefrom a pin 80 which is adapted to be engaged by the hooked end of lever 81 mounted on pin 82 on the outside of track 70. Track 70 also has a pin 83 extending therefrom, the purpose of which will be 45 presently described.

One of the arms of member 55 has a projecting portion 84 mounted thereon to which is secured member 85 in which is pivoted a cam lever 86 and to one end of cam lever 86 is pivotally 50 connected a rising bar 87 which projects upwardly and in the position shown in Figure 2 is disposed in the path of a projection 88 secured on framework 21. The left-hand end of lever 86 is beveled and is heavier than the other end and 55 causes the parts to normally assume the position shown in Figure 2. The adjacent trackway is similar in all respects to tracks 10 and 11, and the tracks thereof are designated by reference characters 10a and 11a. The other parts associated with tracks 10a and 11a are identical to the parts previously described in connection with 60 tracks 10 and 11; therefore, like reference characters will be given like parts.

Track 10a, near the left-hand end thereof, as 65 shown in Figure 1, has a lever 90 pivotally mounted intermediate its ends having a cavity therein and having a leading sloping end adapted to ride over pin 83 and to lock the turn-table to tracks 10a and 11a when it is moved to the dotted line 70 position as shown in Figure 1. Track 10a also has projecting downwardly therefrom member 91 having a rod 92 therein adapted to engage the leading cam end of lever 86 to move the same to the position shown in Figure 3, so as to allow 75 the traveller to move onto the tracks 10a and 11a

when the turn-table has swung to the position shown in dotted lines in Figure 1.

The structure shown at the upper right-hand corner of Figure 1 is identical in all respects to that shown at the lower left-hand corner of the 5 same Figure, and similar reference characters apply.

Method of operation

Let us assume that the traveller is travelling 10 along tracks 10 and 11. When the front wheel 27 rolls past lever 81, it will not move the same, because the wheel does not extend outwardly far enough. However, as the traveller progresses, the pinion 68 engages the pinion 67 and the pin- 15 ion 68 being driven by the motor, begins to move upwardly onto pinion 67 to the position shown in Figure 2. The projection 88 having come into contact with uprising bar 87, prevents forward 20 movement of shaft 25. In this position, lever 81 is released from pin 80 by wheel 23. Shaft 62, on account of having its bevel gear 60 engaging a fixed bevel gear 61, cannot move, and this results in the pinion 68 moving upwardly on top of pinion 67 until the parts reach the posi- 25 tion shown in Figure 3. The pinion 61 being fixed to shaft 50 therefore causes rotative movement of grooved pulley 53 as pinion 60 travels on fixed pinion 61 and winds the cord onto pul- 30 ley 53, and moves the weight 59 on the lower end thereof upwardly to store up energy.

In order to supply electric current to the mechanism, while it is being swung from one track to another, suitable current supplying means must 35 be employed because the traveller will be disconnected from the conducting wires on the trackways. One form of supplying this current is shown in the drawings in which a drop cord 95 passed downwardly and beneath shaft 62 and upwardly to where it is connected to contact posts 40 96 and 97 passing downwardly through an insulating block 73 and being insulated from the trough 72.

When the parts have assumed the position shown in Figure 3, and rotation of shaft 62 is 45 begun, and current is supplied through drop cord 95 to the electric motor, the traveller does not travel on the tracks 70 and 71, but shaft 62 is rotated. On account of this shaft engaging the non-rotatable bevel gear 61, the turn-table is swung around to the dotted line position shown 50 in Figure 1 where it is latched to tracks 10a and 11a by members 83 and 90, and movement of the turn-table being stopped, and the rising bar 87 being removed from the path of member 88 by contact of members 86 and 92, the traveller 55 moves on over the pinion 67 until its front wheels come into tractive engagement with the tracks on the turn-table. Then the traveller moves onto the tracks 10a and 11a and traverses the length of these tracks, which in many instances will be several hundred feet long, and rides onto another turn-table at the far end of the tracks 10a and 11a, which is identical in all respects 60 to the turn-table described. At this time the turn-table is swung around to the other end of the tracks 10 and 11 in the same manner as that described in the previous swinging operation.

When the traveller rolls onto tracks 10a and 11a, lever 90 is caused by wheel 23 to disen- 70 gage pin 83 and the weight 59 returns the turn-table to the full line position shown in Figure 1.

In the drawings and specification there has been set forth a preferred embodiment of the 75

invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claims.

I claim:

1. Apparatus for cleaning machines arranged in spaced rows, comprising spaced trackways disposed above the machines, a traveller mounted to travel on the trackways, a transfer apparatus associated with the ends of adjacent trackways and being pivoted to swing in an arc of a circle coincident with the ends of the trackways, means for arresting the travel of the traveller when it moves onto the transfer apparatus, an electric motor mounted in the traveller and having a driving connection with the wheels of the traveller, means for dis-engaging the driven wheels of the traveller from the transfer apparatus, means driven by the motor for moving the transfer apparatus with the traveller thereon to the end of the next adjacent trackway, and means for returning the transfer apparatus to normal position after the traveller has moved from the transfer apparatus onto the next adjacent trackway, means for latching the transfer apparatus to one of the trackways, said means being engageable by the traveler to unlatch the transfer apparatus from the trackways as the traveler passes from the trackway onto the turntable, other means for latching the turntable to the end of the other trackway when the turntable is swung to the other trackway, said other means being engageable by the traveler to unlatch the turntable from the other trackway when the traveler has passed off the turntable.

2. Apparatus for cleaning machinery arranged in spaced parallel rows comprising a plurality of spaced parallel trackways disposed above the rows of machines, a wheeled traveller mounted for travel on the trackways, an electric motor

for driving the traveller, a turn-table pivoted at a point midway between the two proximate ends of two adjacent trackways and having tracks thereon onto which the traveller is adapted to travel from a trackway, means for arresting the traveller when it advances onto the turn-table, and means driven by the electric motor in the traveller for swinging the turn-table about its pivot in the arc of a circle to transfer the traveller to the proximate end of the adjacent trackway, means for latching the turntable to the trackways at both ends of its arc of travel, said latching means being movable consecutively to unlatched position by the traveler moving from one trackway onto the turntable and by the moving of the traveler from the turntable onto the other trackway.

3. Apparatus for cleaning machinery arranged in spaced parallel rows comprising a plurality of spaced parallel trackways disposed above the rows of machines, a wheeled traveller mounted for travel on the trackways, an electric motor for driving the traveller, a turn-table pivoted at a point midway between the two proximate ends of two adjacent trackways and having tracks thereon onto which the traveller is adapted to travel from a trackway, means for arresting the traveller when it advances onto the turn-table, means driven by the electric motor in the traveller for moving the turn-table about its pivot in the arc of a circle to transfer the traveller to the proximate end of the adjacent trackway, means for automatically returning the turntable to its original position after the traveller has moved off of the turn-table and onto the next trackway, means for latching the turntable to one of the trackways at a time, and means operable by the traveler for unlatching the turntable from one of said trackways at a time.

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