Sept. 17, 1968 L. R. McEACHERN 3,401,419

APPARATUS FOR REMOVING AND COLLECTING LINT OR THE LIKE

Filed March 3, 1965 4 Sheets-Sheet 1

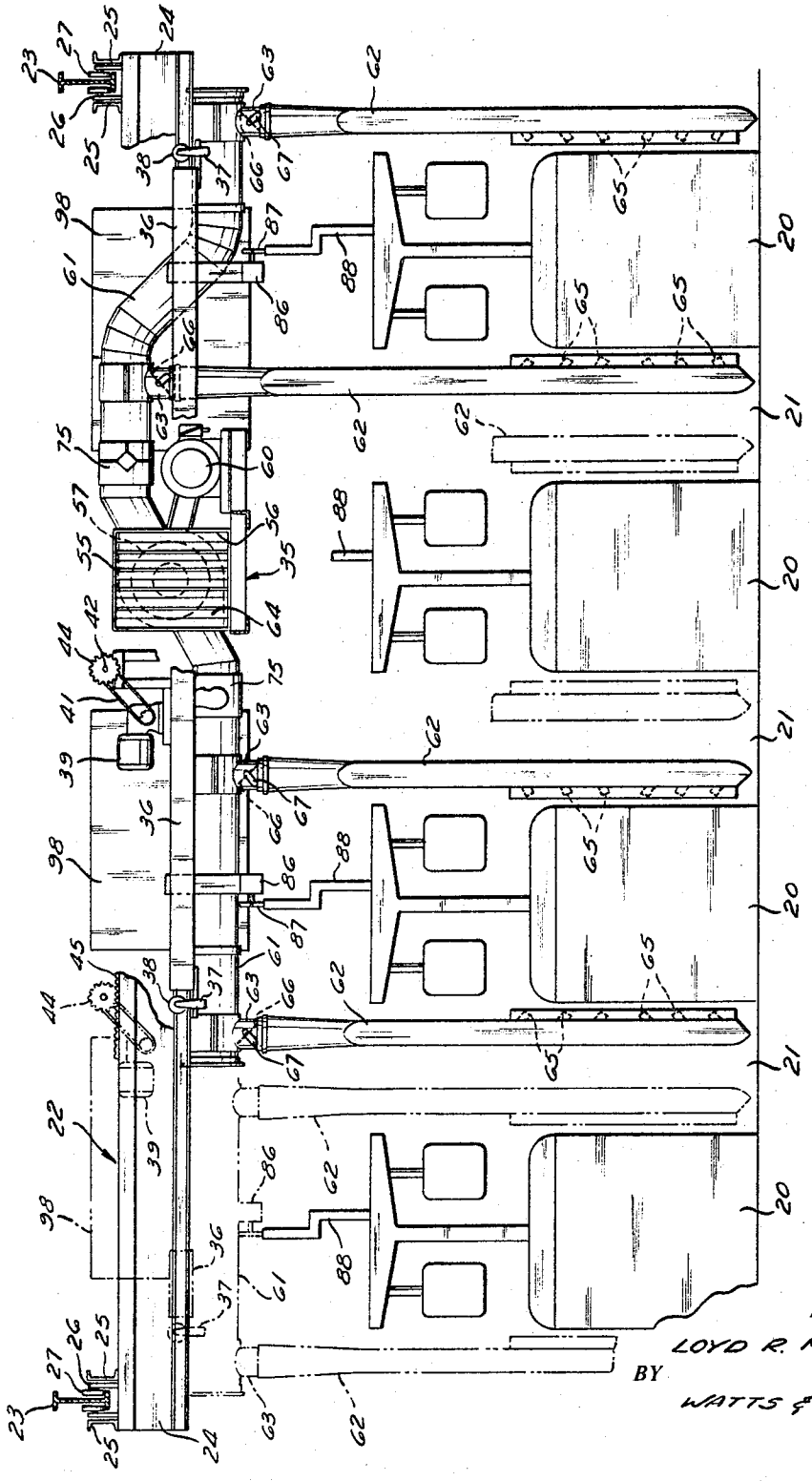

Fig. 1

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Filed March 3, 1965 4 Sheets-Sheet 2

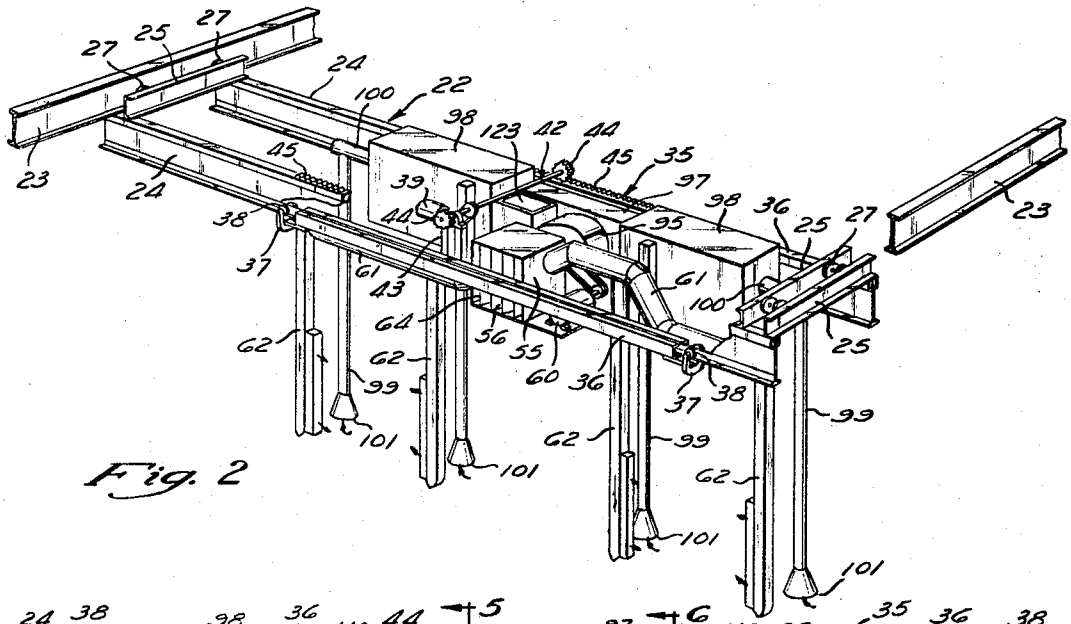

Fig. 2

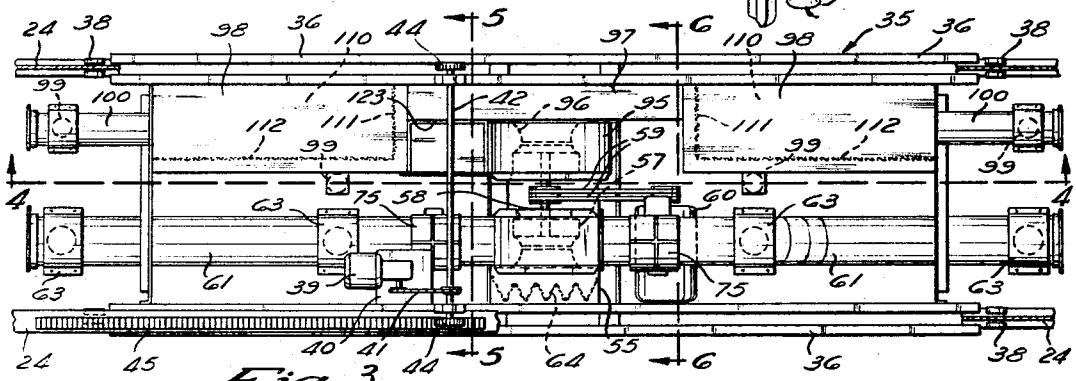

Fig. 3

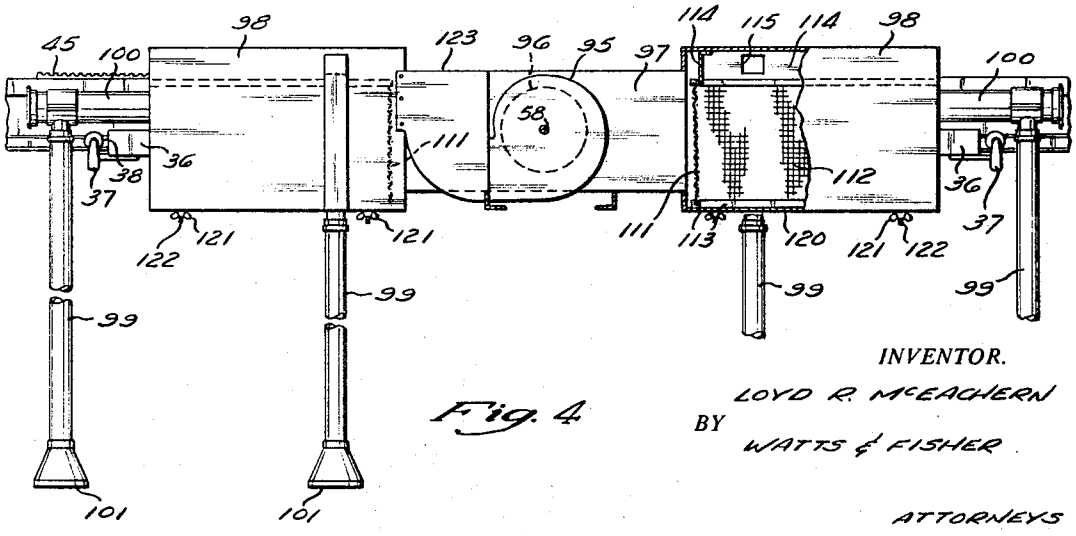

Fig. 4

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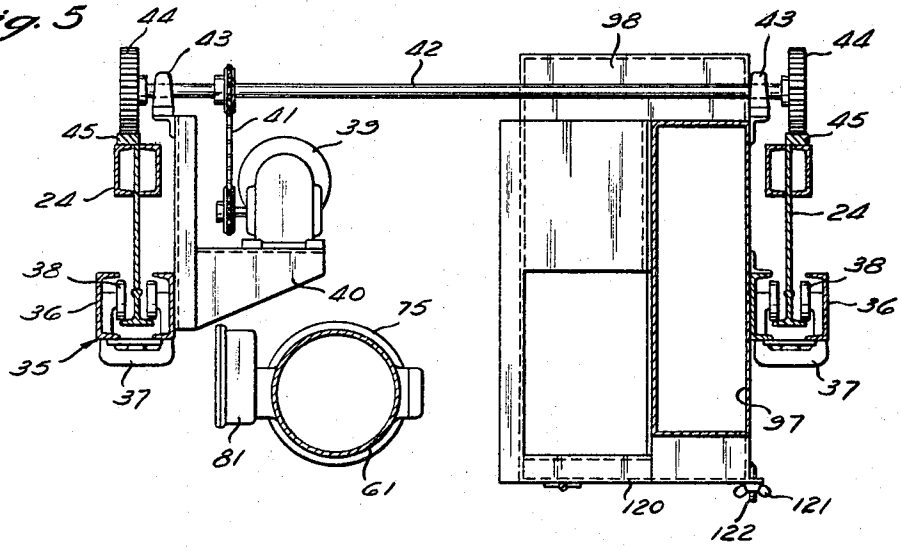
APPARATUS FOR REMOVING AND COLLECTING LINT OR THE LIKE

Filed March 3, 1965 4 Sheets-Sheet 3

Fig. 5



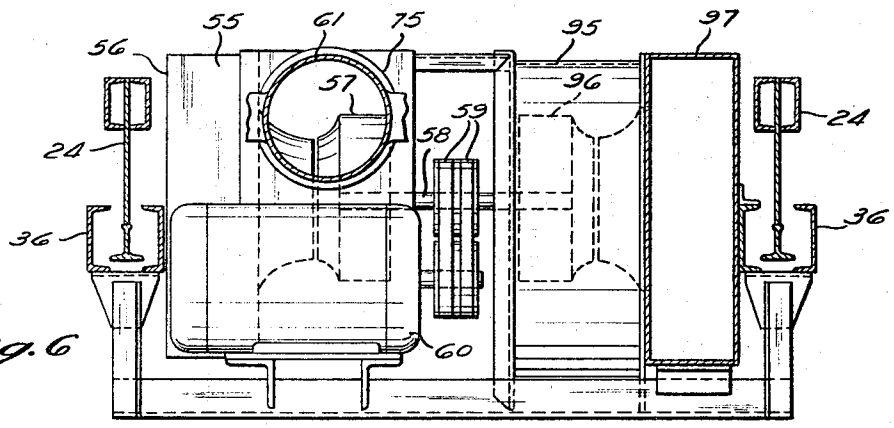


Fig. 6

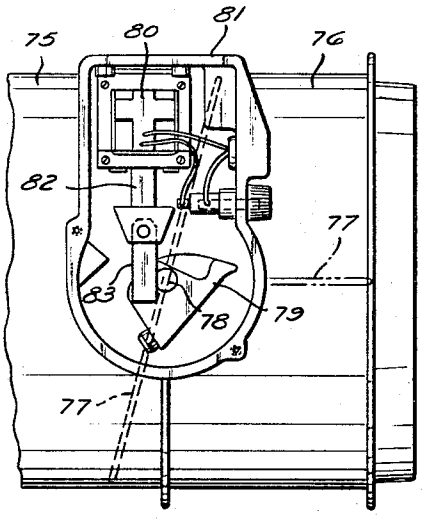


Fig. 7

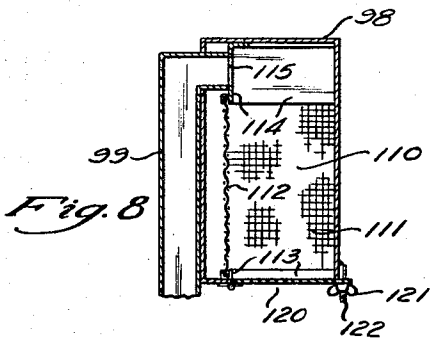


Fig. 8

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APPARATUS FOR REMOVING AND COLLECTING LINT OR THE LIKE

Filed March 3, 1965 4 Sheets-Sheet 4

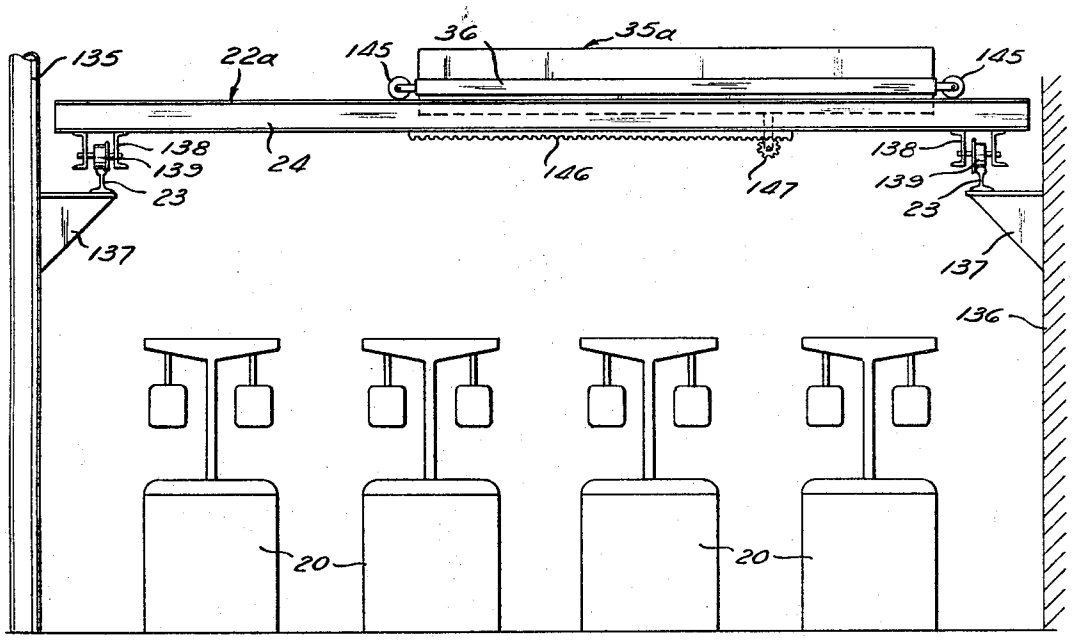

Fig. 9

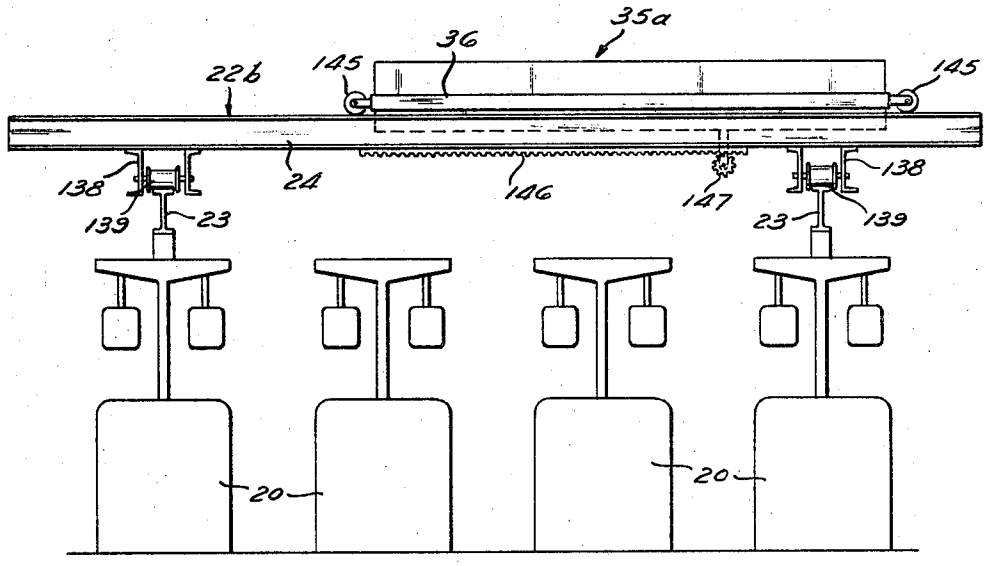

Fig. 10

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United States Patent Office 3,401,419 Patented Sept. 17, 1968

3,401,419

APPARATUS FOR REMOVING AND COLLECTING LINT OR THE LIKE

Loyd R. McEachern, Greenville, S.C., assignor to The American Monorail Co.

Filed Mar. 3, 1965, Ser. No. 436,900
13 Claims. (Cl. 15—312)

This invention relates generally to the art of cleaning, and more specifically to new and improved apparatus for removing and collecting lint in textile operations.

In the production of yarn, many short pieces of fiber are dislodged from the main body of fibers, such as from the sliver, roving or yarn, by the textile machines which are employed in the process. These short fibers, commonly known as "lint," are light and float around in the air until they collect on parts of the textile machines, parts of the building, including beams, the roof, and other overhead structures, and, to a considerable extent, on the floor. Such lint accumulations may become entangled in the yarn to produce lumps, slubs, knots, and the like, in the woven fabric. Therefore, it has long been recognized necessary continuously to remove and collect the lint which results during the manufacture of yarn.

One type of lint removal apparatus which has been used in the past included a tri-rail track supported on the creels of a row of spinning machines. A blower device and, in certain instances, a suction device coupled to the blower device in a tandem arrangement were mounted on the track for movement along the single row machines. The blower device was effective to draw high pressure air streams onto the machines disperse the lint into the air, and the lint which collected on the floor at the sides of the machines was removed by the suction device.

More recently, apparatus has been devised comprising a crane which is supported to travel over a plurality of rows of machines and provided with equipment for simultaneously blowing lint from machines in each of the several rows traversed by the crane and for sucking up air and lint from near the floors of the aisles between adjacent rows. This apparatus, which is more particularly disclosed in my copending application Ser. No. 380,217 filed July 6, 1964, also includes means for removing lint from the air at a substantial height above the machines, collecting the lint, and periodically transferring it to a central disposal station.

The crane-type cleaning apparatus referred to above has been used successfully in commercial operations. Among other advantages, it affords a solution to most phases of the lint problem by removing or eliminating the lint floating in the room air, as well as removing lint from the textile machines, collecting the lint from the aisle floors, and handling the collected lint. Because of the crane arrangement, several rows of machines can be cleaned in a single pass of the apparatus. The independent support of the crane rails above the textile machines also has advantages in permitting installation and rearrangement of the machines without disturbing the overhead cleaning system, and eliminating vibrations encountered with creel-supported equipment.

The present invention is particularly concerned with improvements in crane-type cleaning apparatus. In general, the invention provides a new construction which has many of the advantages discussed above and which is further characterized by new and distinct advantages and results which are not obtainable with prior art apparatus.

In its preferred embodiment, the apparatus of this invention comprises an overhead crane runway and a crane which is mounted to travel along the runway over several rows of the machines. A carriage is supported on

the crane and is movable lengthwise of the crane bridges into indexed positions relative to a plurality of the rows. The carriage is provided with a blower system and a suction system including blower and suction tubes which depend from the carriage on opposite sides of machines in each of several selected rows. The blower system is operable to direct high pressure, high velocity air streams onto the machines and the suction system is operable to suck up air and lint from near the floor at the sides of those rows.

The preferred embodiment of this invention also contemplates the provision of lint collection chambers which are mounted on the carriage as part of the suction system. The lint which is taken up from the aisles by the suction system is retained in these chambers during operation of the apparatus until such time as the collected lint can be conveniently removed. This provision of lint collection chambers makes it possible to eliminate the need for separate collection systems which have been used in the past in association with the cleaning apparatus. It will be apparent, however, from the ensuring description that a suitable lint collection system, such as that disclosed in copending application Ser. No. 380,217, now Patent No. 3,299,463 issued Jan. 27, 1967, can be used with the apparatus of this invention if desired.

In use, the indexing carriage is positioned on the crane so that pairs of the blower and suction tubes extend downwardly adjacent the machines in selected rows traversed by the crane, as for example, adjacent the machines in every other row. The crane is then actuated from one end of the track to the other to clean those rows. When the crane reaches the end of its trackway, the carriage is indexed to a new position on the crane and the direction of crane movement is reversed to clean the alternate rows of machines.

One of the major advantages of the invention is that the crane with the indexing carriage can be economically installed in existing mills to take the place of conventional creel-mounted cleaning equipment. By indexing the carriage, the operation of the new apparatus can be made to simulate the path of creel-mounted equipment, thereby reducing the number of blower and suction tubes in each aisle space, as compared to prior crane-type cleaning apparatus.

Another feature that makes it possible economically to substitute the new apparatus for existing creel-mounted equipment is the provision of the lint collection chambers which are constructed so that automatic lint removal systems heretofore required can be eliminated. At the same time, the apparatus of this invention offers the distinct advantages over creel-mounted equipment of providing much greater blower and suction air capacities and the ability simultaneously to clean a plurality of rows of machines with four or more vacuum tubes, as compared to the use of two hoses and the cleaning of a single row.

Since the carriage can be indexed lengthwise of the crane so that the pairs of blower and suction tubes are moved along the sides of alternate rows of machines as the crane is moved back and forth on its runway, the apparatus of this invention has another advantage of eliminating the time which has been lost in cycling adjacent prior crane-type cleaners along the several bays of machines in a textile room. The indexing movement of the carriage also results in less inconvenience to the workers in aisle spaces, since the number of blower and suction tubes in each aisle is reduced.

Other features and advantages and a fuller understanding of the invention will be had by reference to the following detailed description and the accompanying drawings.

In the drawings:

FIGURE 1 is a schematic end elevational view of one embodiment of the invention installed in a spinning room;

FIGURE 2 is a perspective view, with portions broken away for clarity, of the apparatus of the invention;

FIGURE 3 is a top plan view of the apparatus shown in FIG. 2;

FIGURE 4 is a cross-sectional view taken on the line 4—4 of FIG. 3;

FIGURE 5 is a cross-sectional view taken on the line 5—5 of FIG. 3;

FIGURE 6 is a cross-sectional view taken on the line 6—6 of FIG. 3;

FIGURE 7 is a fragmentary view, partially in cross-section, of a portion of the apparatus;

FIGURE 8 is a fragmentary, cross-sectional view of another portion of the apparatus; and

FIGURES 9 and 10 are schematic illustrations of modified embodiments of the invention.

Referring now to the drawings, there is shown in FIG. 1 a typical portion or bay of a textile room containing a plurality of spinning machines **20** or the like. The machines **20** are arranged in rows with aisle spaces **21** being provided between adjacent rows. It will be understood that there may be a plurality of bays, such as that shown in FIG. 1, in a single room and that each bay may contain any number of rows.

In accordance with this invention, an overhead crane **22** extends across the several rows of spinning machines in the bay. The crane **22** is mounted for travel along a runway formed by rails **23**. These rails extend lengthwise of the rows and may be supported by hangers which depend from overhead beams (not shown). The overhead beams are part of the room structure and are typically supported by pillars or columns. Other ways of supporting the rails **23** will be apparent to those familiar with the industry. For example, the rails **23** may be installed on brackets connected to the columns and walls of the room. It is also possible to support the rails on the creels of the spinning machines.

As in FIGS. 1, 2 and 3, the crane **22** is comprised of side beams or bridges **24** which are connected by suitable cross-bracing including end frame members **25** so as to form a strong, rigid structure. Each end of the crane **22** is provided with spaced wheel trucks **26** (FIG. 1) which are suspended by trolleys **27**. The trolleys **27** include wheels running on the lower flanges of the rails **23**. The crane **22** is provided with a conventional propelling unit (not shown) for moving it along the runway. As disclosed, for example, in U.S. Patent No. 2,812,251, issued Nov. 5, 1957, to C. De V. Miller et al., such a propelling unit may comprise traction wheels which are mounted near the ends of the frame to engage the undersides of the runway rails **23** and are driven by a suitable reversible motor mounted on the crane.

Various other cranes can be substituted for the specifically disclosed structure in accordance with the teachings of the present invention. It is to be understood, therefore, that the construction of the crane **22** is not limiting of the invention and that the illustrated embodiment has been chosen only for purposes of clearly disclosing to those skilled in the art one complete and operative system.

A carriage **35** is supported on the crane **22**. The carriage is longitudinally movable on the crane transversely of the rows of spinning machines **20**. As shown, the carriage **35** comprises parallel side beams **36** which are suitably connected together and provided at their ends with trolley yokes **37**. The yokes **37** carry wheels **38** which run on the lower flanges of the crane bridges **24**. A reversible drive motor **39** is supported on a bracket **40** of the carriage and is connected by a chain **41** to a sprocket on a drive shaft **42**. The drive shaft **42** extends transversely of the carriage **35** and is supported by upstanding bearing members **43**. Rack gears **44** are mounted on the ends of the drive shaft and mesh with racks **45** which are secured to and extend along the tops of the crane bridges **24**. With this construction, actuation of the motor **39** serves to rotate the shaft **42** and thereby propel the carriage **35** along the crane **22** to a selected position above the rows of spinning machines.

In accordance with this invention, the carriage **35** carries a blower system suitable for creating and discharging high pressure, high velocity air streams onto the spinning machines **20** and a suction system suitable for sucking up air and lint from near the floors of the aisles **21** and filtering the lint from the air. The illustrated blower system comprises a fan housing **55** having an air inlet side **56**. A blower fan **57** is mounted in the housing on a shaft **58** which is connected by belts **59** to a drive motor **60**. Blower ducts **61** extend from the fan housing **55** toward opposite ends of the carriage. As shown most clearly in FIG. 1, a plurality of longitudinally spaced blower tubes **62** are connected to the ducts **61** by blower drops **63**. The tubes **62** depend from the carriage **35** and, as shown, may be located on opposite sides of alternate rows of the spinning machines **20**. Suitable blower tube constructions which can be used are more fully described in my U.S. Patent No. 3,946,521, issued July 26, 1960, and in U.S. Patent No. 2,974,342, issued Mar. 14, 1961 to C. L. Fell.

With the described arrangement of the blower system, operation of the fan **57** serves to draw room air into the housing **55** through its inlet side **56** and to create high pressure air streams which are directed into the upstream ends of the blower ducts **61**. These air streams are exhausted through outlets **65** of the blower tubes **62** against opposite sides of the spinning machines. Thus, as the crane **22** is propelled along the runway rails **23**, lint will be blown from the machines onto the floor. In the preferred construction, a filter screen **64** is provided in the fan housing **55** over its inlet side **56**. This filter screen is effective to clean the room air above the machines **20** by filtering the lint from the air which is drawn into the housing **55** and directed into the ducts **61**. The use of lint-free air streams to blow accumulations from the spinning machines materially reduces the amount of lint which is dispersed into the room.

In order to control the flow of high pressure air through the ducts **61** into the tubes **62**, each of the blower drops **63** is preferably provided with a rotatable damper **66**. These dampers are mounted in the blower drops on rotatable shafts having external operating handles **67** so that the dampers can be rotated to a desired position. Maximum air flow through the blower drops is obtained when the dampers **66** are positioned vertically and reduced air flow results when the dampers are positioned as shown in FIG. 1. The air flow into the blower drops **63** can be selectively cut-off by rotating the dampers to positions wherein the mouths of the blower drops are closed.

In some instances, it has been found desirable to provide means in addition to the blower drop dampers **66** for automatically preventing air flow through either of the ducts **61**, as when the carriage **35** is moved over a spinning frame that is not in use. To accomplish this, a solenoid-actuated shut-off valve **75** is mounted in each of the ducts **61** near the fan housing **55**. As illustrated in FIG. 7, each of the valves **75** comprises a tubular body **76** which is adapted to have its ends connected to the adjoining ends of the blower duct. A shutter **77** is rotatably mounted in the valve body **76** on a shaft **78**. The shutter **77** is rotatable from the closed position shown in broken lines in FIG. 7 to an open position in which the shutter extends parallel to the axis of the valve body in the direction of air flow.

An axially off-set weight **79** is fixed to the shaft **78** so that the weight tends to rotate the shaft counterclockwise, as viewed in FIG. 7, to place the shutter in its closed position. The shutter is actuated to the open position by

a solenoid 80 which is mounted in a housing 81. The armature 82 of the solenoid is pivotally connected by a linkage structure 83 to the weight 79. When the solenoid 80 is actuated, the armature 82 is retracted against the action of the weight 79 to rotate the shaft 78 clockwise and thereby place the shutter 77 in its open position. When the solenoid is opened, the weight 79 causes the shaft to rotate in the opposite direction to return the shutter to the closed position.

A four-position 360° drum switch 86 is provided in association with each of the shut-off valves 75. As shown, for example, in FIG. 1, a drum switch 86 is mounted near each end of the carriage 35 so that the switches will be above the rows of spinning machines being cleaned by the blower tubes 62. Each of the switches 86 has a rotatable actuating element in the form of a star wheel 87 so that the switch can be actuated in alternate off-on conditions by rotating element 87 in either direction. A trip arm 88 is mounted at both ends of the spinning frames in each row. In operation, the trip arms at both ends of the frame of any spinning machine which is not in use are vertically disposed in the position shown in FIG. 1 to contact the star wheels 87. Thus, when the carriage 35 approaches that frame, the first arm 88 will rotate the star wheel of the switch one position to open the connected solenoid 80 of the valve 75 which controls the flow of air to the spinning frame. This results in closing of the valve so as to prevent air flow from the tubes 62 as the carriage passes over the spinning frame. When the carriage reaches the end of the frame, the second trip arm 88 will again rotate the star wheel one position to close the connected solenoids, thereby restoring the valve 75 to a fully opened position. The trip arms 88 can be moved from the operative position shown in FIG. 1 so that the valves 75 will be closed only when desired during movement of the carriage.

The suction system which is provided on the carriage 35 comprises a fan housing 95 in which is disposed a suction fan 96. As shown, the suction fan is mounted on the shaft 58 and is driven by the motor 60. The low pressure or suction side of the fan 96 is communicated to a duct 97 which is connected between two lint collection chambers 98. Low pressure, lint-carrying air streams are drawn into the chambers 98 through suction tubes 99, each of which depends from the carriage 35 adjacent a blower tube 62. In the illustrated construction, the two end tubes are connected to the chambers 98 by duct extensions 100, while the two intermediate tubes are connected directly to the sides of the chambers in communication with their inner top portions. The suction tubes 99 have air inlets 101 adjacent the floors of the aisles 21 so that lint in the area of influences of the suction which is created will be drawn into the tube inlets. Various low pressure air tube constructions suitable for use in sucking up the lint in the manner described are more fully set forth in my U.S. Patents No. 3,003,178, issued Oct. 10, 1961, and No. 3,086,891, issued Apr. 23, 1963.

The lint-carrying, low pressure air streams flow upwardly in the tubes 99 into the collection chambers 98. As best shown in FIGS. 3, 4 and 8, a lint collection area 110 is defined in each of the chambers 98 by filter screens 111 and 112. The screen 111 is positioned in parallel spaced adjacency to the end wall of the chamber through which the duct 97 communicates and the screen 112 is parallel to and spaced from a side wall through which is connected a suction tube 99. The screens are secured between channel members 113 at the bottom of the chamber and baffle plates 114 which are connected to the top of the chamber. In the illustrated arrangement, the tube 99 communicates with the area 110 through a hole 115 in the adjacent baffle plate, while the duct extension 100 communicates directly with the lint removal area through an end wall of the chamber. Thus arranged, air and lint is drawn into the chamber area 110 and the air then flows outwardly of this area through the screens 111 and 112 into the duct 97. The lint which is drawn into each collection chamber is thereby deposited on the high pressure sides of the screens within the area 110. In order to facilitate removal of the collected lint from the chambers 98, each chamber is preferably constructed with a hinged bottom wall 120. As shown, the bottom walls 120 are hinged along one side and are held closed by wing nuts 121 or the like along the other side of the bottom wall. The wing nuts 121 are threaded on studs 122 which project through holes in the edges of the doors 120. In use, the doors 120 can be swung downwardly to provide access into the lint collection areas 110.

The air which is drawn through the duct 97 by the fan 96 is exhausted through an outlet 123 of the fan housing 95. As best shown in FIG. 2, the outlet 123 is directed upwardly so that the air stream exhausted from the vacuum system is projected onto the ceiling of the room. In this manner, the exhaust air stream is effective to remove and prevent accumulations of the lint on the ceilings of the spinning room and other overhead structure.

The operation of the described apparatus may be best explained with reference to FIG. 1. As there shown, the carriage 35 is indexed by the motor 39 so that the carriage is at one end of the crane 22. In this position, the blower tubes 62 and suction tubes 99 depend from the carriage on opposite sides of the right hand row of machines and on opposite sides of the third row of machines. The crane 22 is then actuated to move the tubes along these rows from one end of the bay to the other. During such movement of the crane 22, the blower fan 57 and the suction fan 96 are actuated to remove lint from the machines and to suck up the air and lint from near the floors of the aisles. The lint removed from the floors is deposited in the chambers 98 on the upstream or high pressure sides of the screens 111 and 112 so that it can be later removed through the dump door 120. As explained above, the drum switches 86 may be actuated over selected spinning frames by the trip arms 88, thereby to prevent the flow of high pressure air streams to those machines.

When the crane has reached the end of the bay, the carriage 35 may be actuated to place the suction tubes and blower tubes in the broken line positions illustrated in FIG. 1. Thus indexed, the tubes are in position to clean the alternate rows of machines. The crane is then reversed so that it is propelled back to the original end of the bay and the cycle repeated by indexing the carriage to a new position.

Referring now to FIG. 9, there is schematically illustrated a modified arrangement in which the crane 22*a* is mounted to run between a column 135 and a wall 136 of the textile room. As shown, the rails 23 are supported on brackets 137 that are connected to the column and wall. The crane bridges 24 are provided with wheel trucks 138 which carry wheels or rollers 139. These wheels or rollers run on the tops of the rails 23 to provide a top running crane assembly. Another top running crane arrangement 22*b* is illustrated in FIG. 10. According to this modification, the rails 23 are supported on the creels of the spinning machines 20.

In both of the embodiments of FIGS. 9 and 10, the indexing carriage 35*a* may be mounted to run on the tops of the crane bridges 24 instead of being suspended from the crane as in the embodiment of FIGS. 1–6. As shown, wheels 145 are mounted on the ends of the side beams 36 of the carriage for engagement with the upper surfaces of the crane bridges. Racks 146 are connected to the undersides of the bridges 24 and rack gears 147 are connected to the carriage 35*a* in meshing engagement with the racks. The carriage 35*a* in each of the embodiments of FIGS. 9 and 10 is adapted to be driven by a reversible drive motor (not shown) which may be connected to the rack gears 147 in the same manner as the motor 39 of the embodiment of FIGS. 1–6. It will be understood that carriage

35*a* is provided with blower and suction systems (not shown) which operate as previously described.

Many modifications and variations of the invention will be apparent to those skilled in the art in view of the foregoing detailed description. Therefore, it is to be understood that, within the scope of the appended claims, the invention can be practiced otherwise than as specifically shown and described.

What is claimed is:

1. Apparatus for removing lint from spinning machines or the like arranged in rows with aisles between adjacent rows and collecting lint from near the floors of the aisles, said apparatus comprising:

(a) a runway extending lengthwise of said rows above said machines,

(b) crane means mounted for movement along said runway, said crane means extending transversely of a plurality of rows,

(c) carriage means movable along said crane means,

(d) blower means supported on said carriage means including tubes extending to the machines in at least two rows of said plurality of rows, said at least two rows being separated by at least one row of machines, and means to blow air through the tubes onto the machines,

(e) suction means supported on said carriage means including tubes extending to near the floor between a plurality of rows of machines and means for drawing up air and lint through the tubes, and,

(f) drive means connected to said carriage means for moving it along said crane means to change the locations of said tubes.

2. The apparatus as claimed in claim **1** wherein said blower means includes an air inlet for room air, and screening means mounted over said inlet for removing lint from the air.

3. The apparatus as claimed in claim **1** wherein said suction means includes means for removing lint from the air drawn into said suction tubes.

4. The apparatus as claimed in claim **3** wherein said means for removing lint comprises a collection chamber supported on said carriage, and low pressure air screening means mounted in said chamber.

5. Apparatus for removing lint from spinning machines or the like arranged in rows with aisles between adjacent rows and collecting lint from near the floors of the aisles, said apparatus comprising:

(a) a runway extending lengthwise of said rows above said machines,

(b) crane means mounted for movement along said runway, said crane means extending transversely of a plurality of rows,

(c) carriage means movable along said crane means,

(d) blower means supported on said carriage means including tubes extending downwardly on opposite sides of alternate rows of said plurality of rows of machines, each of said tubes having an outlet for directing air toward an adjacent machine, a blower fan, and means connecting said tubes to said fan,

(e) suction means supported on said carriage means including tubes extending downwardly to near the floor of the aisles on opposite sides of a plurality of rows of machines each of said tubes having an inlet for drawing in air and lint, a suction fan connected to said tubes, and means for filtering lint from the air drawn through said tubes, and,

(f) drive means for selectively moving said carriage means on said crane means to index the locations of said tubes relative to the rows of machines, said drive means including a first drive member connected to one of said carriage means and said crane means and extending longitudinally thereof, a second rotary drive member connected to the other of said carriage means and said crane means, with said second drive member interengaged with said first drive member, and motor means for rotating the second drive member.

6. The apparatus as claimed in claim **5** wherein said suction means comprises a lint collection chamber, screening means mounted in said chamber upstream from said suction fan, and means forming an access to said chamber for permitting periodic removal of the collected lint.

7. The apparatus as claimed in claim **5** wherein said tubes are arranged in pairs with the tubes in each pair being aligned laterally of said carriage means and consisting of a blower tube and a suction tube, and wherein said drive means is actuatable to index the pairs of tubes between different rows of machines.

8. Apparatus for removing lint from spinning machines or the like arranged in rows with aisles between adjacent rows and collecting lint from near the floors of the aisles, said apparatus comprising:

(a) a runway extending lengthwise of said rows above said machines,

(b) a crane mounted for movement along said runway, said crane extending transversely of a plurality of rows,

(c) a rack secured to said crane and extending lengthwise thereof,

(d) a carriage movable lengthwise of said crane,

(e) drive means connected to said carriage for moving it on said crane, said drive means including a gear meshed with said rack and motor means drivingly connected to said gear,

(f) a blower system on said carriage including:

(i) blower duct means extending lengthwise of said carriage,

(ii) an air inlet housing connected to said duct means, said housing having an inlet opening for room air,

(iii) a blower fan in said housing arranged to draw room air into said inlet opening and direct a high pressure air stream into said duct means,

(iv) and blower tubes extending downwardly from said duct means on opposite sides of selected rows of machines traversed by said crane, each of said blower tubes having at least one outlet for directing an air stream toward an adjacent machine to blow the lint therefrom,

(g) a suction system on said carriage including:

(i) lint collection chambers,

(ii) suction tubes connected to said chambers and extending downwardly from said carriage adjacent said blower tubes, each of said suction tubes having an inlet for air and lint near the floors of the aisles,

(iii) a suction fan communicating with said chambers for causing low pressure air streams carrying lint to flow into and up through said suction tubes and into said chambers,

(iv) and low pressure air screening means mounted in said chambers for removing lint from the low pressure air streams, and,

(h) motor means on said carriage for operating said fans.

9. The apparatus as claimed in claim **8** including shut-off valves mounted in said blower duct means upstream from said blower tubes, said valves being operable to block air flow to selected blower tubes.

10. The apparatus as claimed in claim **8** wherein each of said chambers includes a door providing access to the lint collected therein.

11. Apparatus for removing lint from spinning machines or the like arranged in rows with aisles between adjacent rows and collecting lint from near the floors of the aisles, said apparatus comprising:

(a) a runway extending lengthwise of said rows above said machines,

(b) a crane mounted for movement along said runway, said crane extending transversely of a plurality of rows,

(c) a carriage movable lengthwise of said crane,
(d) drive means connected to said carriage for moving it on said crane,
(e) a blower system on said carriage including:
(i) blower duct means extending lengthwise of said carriage,
(ii) an air inlet housing connected to said duct means, said housing having an inlet opening for room air,
(iii) a blower fan in said housing arranged to draw room air into said inlet opening and direct a high pressure air stream into said duct means,
(iv) and blower tubes extending downwardly from said duct means on opposite sides of alternate rows of machines traversed by said crane, each of said blower tubes having at least one outlet for directing an air stream toward an adjacent machine to blow the lint therefrom,
(f) a suction system on said carriage including:
(i) lint collection chambers,
(ii) suction tubes connected to said chambers and extending downwardly from said carriage adjacent said blower tubes, each of said suction tubes having an inlet for air and lint near the floors of the aisles,
(iii) a suction fan communicating with said chambers for causing low pressure air streams carrying lint to flow into and up through said suction tubes and into said chambers,

(iv) and low pressure air screening means mounted in said chambers for removing lint from the low pressure air streams, and,
(g) motor means on said carriage for operating said fans.

12. The apparatus as claimed in claim **11** wherein said drive means include a first drive member connected to said crane, a second rotary drive member carried by said carriage and interengaged with said first drive member, and motor means for rotating said second drive member.

13. The apparatus as claimed in claim **11** wherein said drive means include a first drive member connected to one of said carriage and said crane and extending longitudinally thereof, a second rotary drive member connected to the other of said carriage and said crane, with said second drive member interengaged with said first drive member, and motor means for rotating said second drive member.

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