April 13, 1965 A. H. BAHNSON, JR 3,177,515

TRAVELLING CLEANER FOR TEXTILE MACHINES

Filed Oct. 22, 1962 3 Sheets-Sheet 1

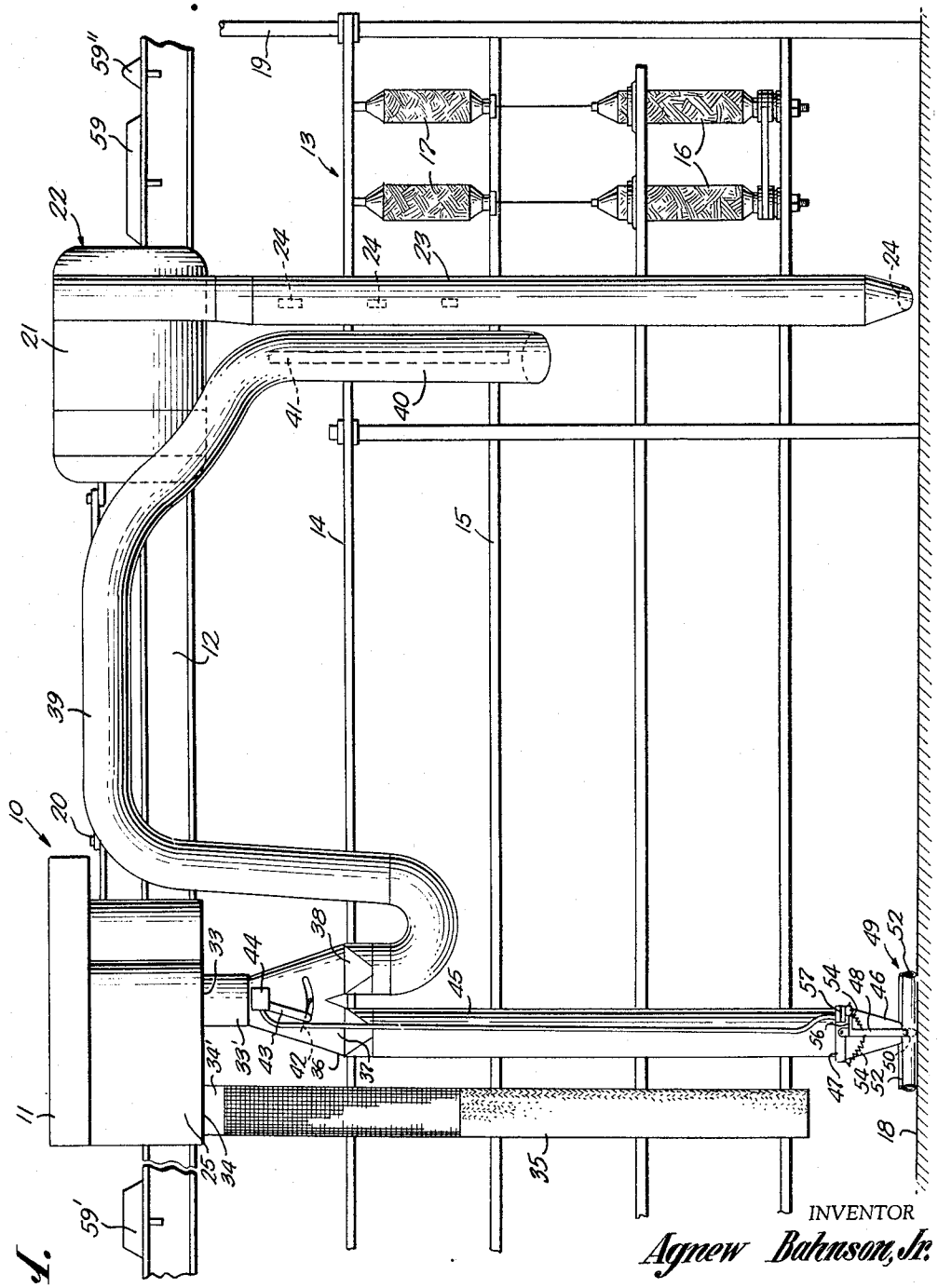

Fig. 1.

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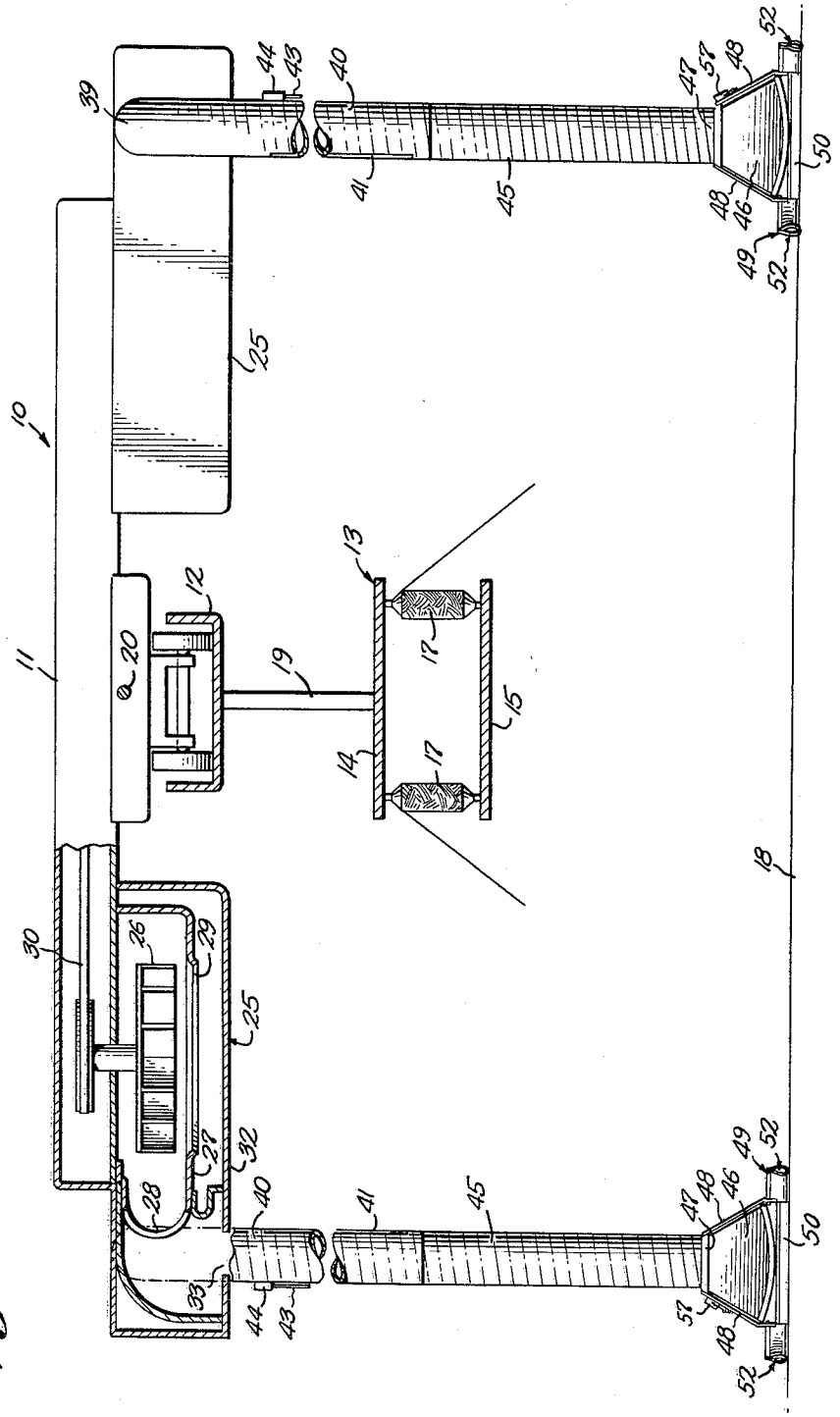

Fig. 2.

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Fig. 4.

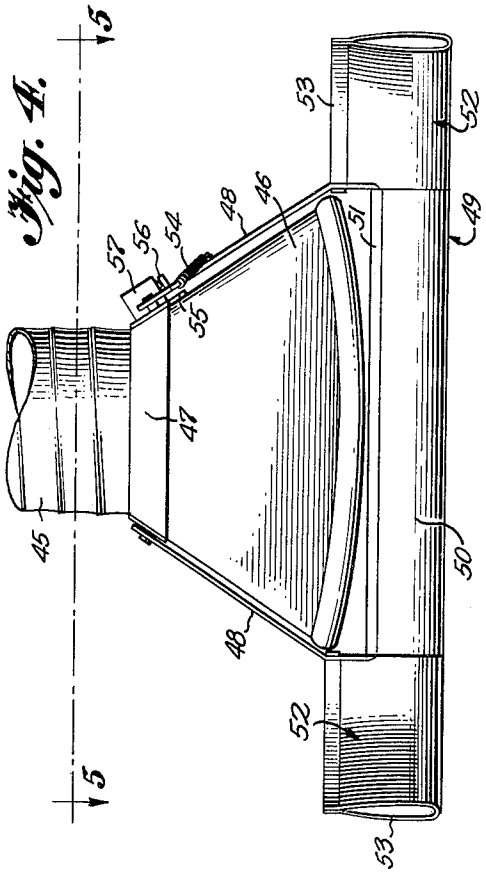


Fig. 5.

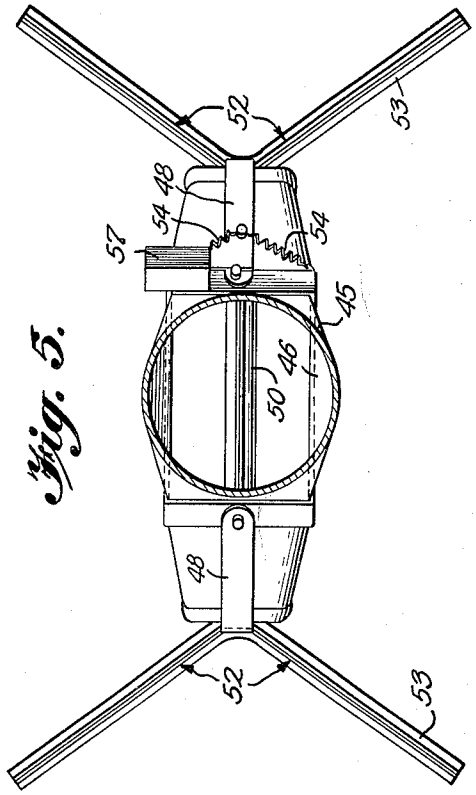


Fig. 3.

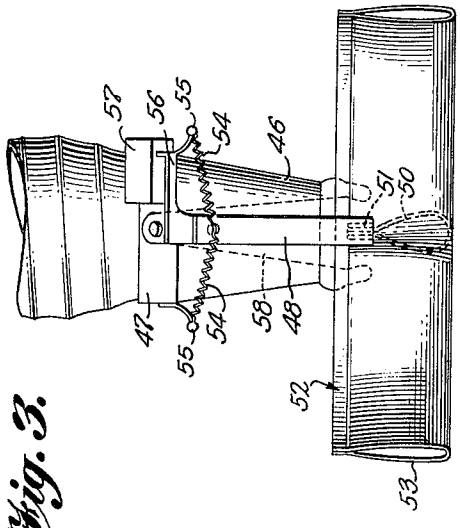
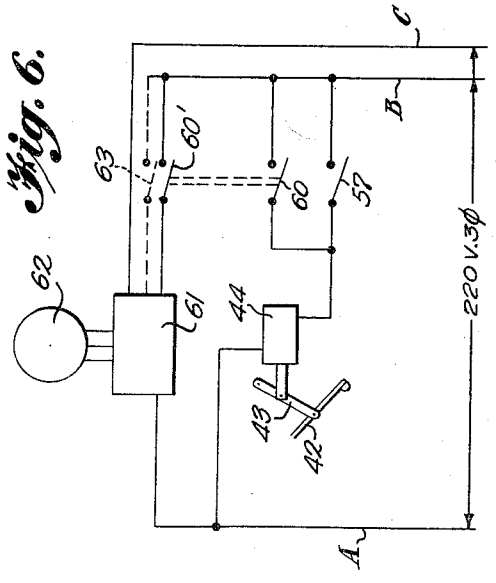


Fig. 6.



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3,177,515

TRAVELLING CLEANER FOR TEXTILE MACHINES

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Filed Oct. 22, 1962, Ser. No. 232,055
13 Claims. (Cl. 15—312)

The present invention relates in general to travelling lint collecting devices for removing lint, dust and other loose material from textile processing machines and the surrounding floor area, and more particularly to apparatus for use with travelling air blast cleaners to collect lint from the air immediately following dislodgment of lint and other undesirable material from textile processing machines by a travelling air blast cleaner and to concurrently accumulate and periodically withdraw settled lint from the floor surface alongside such machines.

Much effort has been directed to the removal of lint, dust and other loose, undesirable material from textile processing machines such as spinning frames, looms and the like, and the surrounding area in spinning rooms of textile mills, as this material, if allowed to remain on or near the machines, reduces the quality of the textile product when it is drawn into the product and constitutes a continuing fire hazard in the textile mill. The technique usually employed to remove the lint, dust and like material from the textile processing machines is to traverse rows of the machines with a travelling blower device which is automatically driven along an overhead track to direct air blasts against various parts of the machinery and dislodge the lint therefrom. The dislodged lint is usually allowed to settle onto the floor and is eventually collected by manual sweeping or by manually operated suction devices, or is removed by travelling blower systems which pneumatically propel the settled material along the floor under groups of machines and across intervening aisles to a suction collecting duct system, or by travelling suction systems which depend from a carriage on the overhead track to a level adjacent the floor and rely upon suction entrainment and withdrawal of the settled material from the floor.

In the use of the travelling floor level suction systems, the overhead carriage for supporting the depending suction duct or trunk is usually connected by a tow bar or link to a powered travelling air blast cleaner so as to avoid the necessity of providing an independent propulsion system for the suction unit carriage. With this arrangement, the suction unit is so close to the air blast cleaner that a high concentration of lint remains in the air high above the floor following passage of the air blast cleaner and does not have time to settle to the floor before the floor level suction device has passed. Consequently, most of the lint dislodged by the air blast cleaner settled to the floor after the floor level suction trunk has passed the adjacent aisle region and cannot be picked up until the next succeeding travel of air blast cleaner and suction unit assembly through that zone.

Attempts have also been made to effect suction entrainment of some of this lint in the air by providing openings along the side of the floor level suction trunk, but this has been found to be unsatisfactory because the restricted space above the spinning frames is not large enough to accommodate suction fans of sufficient size and power to do an adequate job of lint pickup from the air and also an adequate continuous job of suction floor sweeping, fans of such large size and power would be economically unfeasible, and because the floor level suction units are spaced at such a distance behind the air blast cleaner in an effort to allow some lint settlement to the floor that the lint in the air has become too diffused

through the area to permit useful suction withdrawal from the upper levels.

An object of the present invention is the provision of a novel apparatus for use with travelling air blast cleaning devices of the type which dislodge lint, dust and other loose material from textile processing machines and the like by blowing air currents thereagainst, wherein suction air currents are provided in immediate trailing or leading relation to the air blast cleaner to normally withdraw lint from the air above floor level and concurrently accumulate settled lint on the floor alongside the textile processing machines, and wherein the settled lint accumulated on the floor is periodically withdrawn by suction currents.

Another object of the present invention is the provision of a novel apparatus for suction collection of lint from elevated areas above floor level alongside textile processing machines and concurrently sweeping settled lint along the floor besides the processing machines and periodically effecting suction withdrawal of the sweepings therefrom to a collecting zone.

Another object of the present invention is the provision of novel lint collecting apparatus for use with travelling air blast cleaners to effect suction withdrawal of lint from the air in elevated zones above floor level alongside textile spinning frames and the like and concurrently sweeping lint which has settled on the floor along a predetermined path beside the spinning frames and periodically diverting suction from the elevated zones to effect suction withdrawal of the accumulated sweepings on the floor.

Another object of the present invention is the provision of novel lint collecting apparatus for use with travelling air blast cleaners for dislodging lint and the like from textile processing machines, wherein elevated zone suction means are provided to normally effect suction withdrawal of lint from the air over a zone immediately behind the air blast cleaner spaced above the floor level along the upper levels of the processing machines and having floor sweeping means including a floor engaging accumulator member for concurrently accumulating on the floor and moving in a predetermined path along the floor lint which has settled thereon, wherein means are provided for periodically withdrawing suction from said elevated zone suction means and applying the same to said floor sweeping means to periodically effect suction withdrawal of accumulated lint sweepings at said accumulator member.

Another object of the present invention is the provision of novel apparatus of the type described in the next preceding paragraph wherein means are provided for automatically applying suction to said floor sweeping means upon elevation of the accumulator member to a preselected extent to effect immediate suction withdrawal of lint sweepings accumulated by said accumulator member.

Another object of the present invention is the provision of novel apparatus of the type described in the second preceding paragraph wherein means are provided for automatically stopping travel of the suction cleaning apparatus when it reaches a predetermined position near an end of a textile processing machine and applying momentary suction to the floor sweeping means to effect suction withdrawal of the accumulated floor sweepings from the accumulator member to a collecting zone.

Other objects, advantages and capabilities of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawing illustrating one preferred embodiment of the invention.

In the drawings:

FIGURE 1 is a side elevation of a travelling lint collecting unit embodying the present invention shown in association with a travelling air blast cleaner;

FIGURE 2 is an end elevation of a travelling lint collecting unit in association with a spinning frame;

FIGURE 3 is an enlarged fragmentary side elevation of the lower end portion of the depending floor cleaning trunk and lint accumulator structure;

FIGURE 4 is a fragmentary front elevation thereof;

FIGURE 5 is a horizontal section view taken along the line 4—4 of FIGURE 3; and

FIGURE 6 is a schematic diagram of an exemplary electrical control circuit for controlling the damper valve in the suction trunk system.

Referring to the drawings, wherein like reference characters designate corresponding parts throughout the several figures, the travelling lint collecting unit of the present invention, indicated generally by the reference character **10**, includes an overhead carriage **11** which in the illustrated embodiment is towed, but which can be a self-propelling unit if desired. The carriage **11** is designed to run overhead on a trackway **12** which extends longitudinally of a row of spinning frames **13**, here shown diagrammatically and including for example the usual creel boards **14**, **15**, spinning bobbins **16**, and roving bobbins **17** spaced above the floor **18**. The trackway **12** is conventional and may be supported in any desired fashion, for example, by posts **19** extending upwardly from the spinning frame **13**. The carriage **11** may, for example, be drawn by a conventional tow bar **20** connected to the overhead carriage **21** of an air blast cleaner **22** of conventional construction, which is self-propelled to move along the track **12** in leading or trailing relation to the travelling lint collecting unit **10**, and has a depending lower trunk **23** which extends substantially to the floor and is provided with inwardly directed air blast openings or nozzles **24**, to direct blasts of air toward desired parts of the spinning frame **13**, for example, toward the creel boards **14**, **15** and bobbins **16**, **17**. An example of such a travelling air blast cleaner is disclosed in detail in my earlier U.S. Patent No. 2,886,843, granted May 19, 1959 and further description of the details of the air blast cleaner is therefore unnecessary here.

The overhead carriage **11** of the lint collecting unit may be of a number of commercially available types. For example, the carriage may be of one known type having a fan of the centrifugal type located directly over the trackway **12**, and including an impeller and scroll providing an air discharge outlet at the top of the carriage **11** and a pair of screened laterally spaced suction air inlets communicating with depending collecting chambers or canisters at the opposite sides of the carriage disposed in flanking relation to the trackway **12**, each having a depending suction inlet fitting at the bottom thereof. However, for simplicity of illustration and description in this application, the ensuing description will be directed to a carriage **11** which is of the type disclosed in the copending application Serial No. 22,900 filed April 18, 1960 by J. Frank King and me, and which has issued as U.S. Patent No. 3,064,299 on November 20, 1962. Such a collecting unit carriage **11** includes a casing **25** located laterally outwardly to each side of the carriage **11** in which is supported a complete fan which is of the centrifugal type and includes an impeller **26** and a scroll **27**. An air discharge outlet **28** from the scroll **27** is arranged tangentially and an air inlet **29** to the impeller **26** is arranged axially of the axis of rotation. The impeller **26** is journaled in suitable bearings for rotation about a vertical axis and is driven by means of a belt and pulley drive **30** from a suitable electric motor supported in a central part of the carriage **11** overlying the trackway **12**. The bottom wall **32** of each casing **25** is provided with two central openings **33**, **34** bounded by depending annular rims or flanges **33'**, **34'**, the opening **33** forming a suction inlet opening to the casing **25** and the opening **34** forming the air discharge opening. An air filtering and dust storage trunk **35** is clamped to the flange **34'** and depends therefrom, the upper part of the storage trunk **35** preferably having a porous upper part for permitting the discharge air to pass into the spinning room while retaining the lint, dust and the like in the storage trunk for gravity discharge toward the bottom thereof.

An inverted Y branch duct **36** is connected in depending relation to the casing **25** by securing its upper open end to the suction inlet flange **33**. The lower open ends of the branches **37**, **38** are spaced longitudinally of the direction of travel of the lint collecting unit. A flexible suction duct **39** is clamped or otherwise secured at one end to the branch **38** of the branch duct **36** and is led alongside the trackway **11** supported in any suitable manner to a position immediately adjacent the blower trunk **23** of the air blast cleaner **22**. The end portion of the suction duct **39** is arranged as a depending, axially elongated section **40** paralleling the blower trunk **23** over the upper region of the trunk **23**. The section **40** has an inwardly directed axially elongated slot or series of openings **41** located at a height corresponding generally to the blower nozzles of the trunk **23** adjacent the bobbins **16**, **17** and creel boards **14**, **15** to effect suction entrainment and withdrawal into the duct **39** of lint and dust which is blown into the air in the upper regions of the spinning frame **13** by the blower trunk **23**. By locating the inlet openings **41** of the suction duct **39** immediately adjacent the blower trunk **23**, the substantial quantities of lint which are blown from the spinning frame parts into the surrounding air by the air blasts from the blower trunk **23** are collected by the suction duct **39** before the lint becomes diffused generally in the air above the spinning frame or begins to settle onto the spinning room floor.

The branch duct **36** is provided with a damper valve **42** which is controlled by lever **43** pivoted on the exterior of the branch duct **36** and regulated by a solenoid **44** to normally close off the branch **37** from the suction source and communicate the branch **38** and suction duct **39** with the suction inlet **33**.

A depending sweeper trunk **45** is secured at its upper end to the branch **37** of the branch duct **36** and extends to a level near the floor **18**, terminating in a laterally flared suction intake nozzle **46** at its lower end. An annular mounting ring **47** is provided at the upper end of the lower suction nozzle **46** to which is pivoted a pair of depending links **48** having a lint accumulator or sweeper **49** fixed to the lower end thereof. The accumulator **49**, in one preferred example, comprises a transversely extending accumulator blade or floor wiper **50** formed of a recurved strip of rubber, Neoprene or similar flexible plastic material secured along its upper edge to mounting strips **51** connected at their opposite ends to the depending links **48** and having a length to fully span the width of the suction nozzle **46**. Flanking angularly configurated retainers or sides **52** are also secured to the links **48** outboard of the accumulator blade **50** and comprise similarly formed recurved wiper strips **53** extending forwardly and rearwardly of the accumulator blade **50** in outwardly diverging relation to the direction of travel of the lint collector unit so as to retain accumulated sweepings which impinge upon the accumulator blade **50** and are moved along the direction of travel therewith in a pile or mass directly beneath the suction nozzle **46**. Centering springs **54** are connected between an anchoring stud on one of the depending links **48** and stationary anchors **55** depending from the mounting ring **47** to continuously tend to dispose the links **48** in alignment with the axis of the sweeper trunk **45**. An integral actuator arm **56** extends in right-angular relation from one of the links **48** and forms an actuator for a snap-action switch **57** mounted on the mounting ring **47** to close the contacts of snap-action switch **57** when the depending links **48** are in substantial axial alignment with the sweeper trunk **45** and to open the snap-action switch contacts

when the links 48 are in either the forwardly or rearwardly inclined positions indicated by broken lines in FIGURE 3.

The purpose of the pivoted suspension of the lint accumulator 49 from the sweeper trunk 45 and the snap-action switch 57 is to provide a safety facility which will automatically effect momentary energization of the solenoid 44 to shift the damper valve 42 to a position closing the branch 38 coupled to suction duct 39 and communicating the sweeper duct 45 with the suction inlet opening 33 whenever the sweeper trunk 45 strikes an obstruction such as a doffer cart or personnel in the aisles and begins to lift the accumulator 49 off of the floor. It will be appreciated that by reason of the pivoted suspension of the lint accumulator, frictional resistance of the accumulator blade 50 with the floor of the spinning room will cause the accumulator to be drawn to a rearwardly inclined or trailing position, for example as indicated by the broken line 58 in FIGURE 3, during movement of the lint collector unit 10 and air blast cleaner 22 along the trackway 12. In this rearwardly inclined position of the accumulator, or for that matter, in the other inclined position, on reverse movement of the unit, the snap-action switch 57 will be in an open circuit condition. The line accumulator blade 50 during travel of the lint collector unit 11 along the trackway 12 will then physically sweep up and push along the floor before the sweeper trunk 45 the lint which has settled to the floor of the spinning room in the path of travel of the sweeper. When the sweeper trunk 45 strikes an obstruction, rearward flexing of the sweeper trunk begins to lift the lint accumulator 49 off of the floor, permitting the accumulator and links 48 to settle to the normal center position, determined by the springs 54 and activating the snap-action switch 57 to close the contacts thereof. Closure of the snap-action switch contacts, as will be later discussed, completes a supply circuit to the solenoid 44 energizing this solenoid to shift the damper valve 42 to a position placing the sweeper duct 45 under suction and immediately sucking the accumulated lint sweepings retained by the accumulator blade 50 into the casing 25 of the lint collecting unit 10.

Provision may also be made to momentarily activate the damper valve 42 to place the sweeper trunk 45 under suction at predetermined points during the travel thereof along the trackway 12. To this end, the trackway 12 may be provided with suitably located, fixed track cams 59 to activate the snap-action switch 60 on the carriage 11 which also energizes the solenoid 44 to shift the damper valve 42 to a position closing the suction duct 39 and communicating suction to the sweeper trunk 45 to suck the accumulated lint sweepings collected by the accumulator blade 50 to the casing 25 of the collecting unit 10. It has been found in practice that momentary application of suction to the sweeper trunk 45 for a period of about two seconds during the travel thereof at intervals of about 20 seconds or longer is adequate to suck the accumulated lint sweepings collected by the accumulator blade 50 into the collecting facility of the carriage 11.

If desired, the track cam may be foreshortened in length, as indicated at 59', and disposed at a position on the trackway adjacent an end of a spinning frame, or row of spinning frames, just before the air blast cleaner and collecting unit assembly proceeds into the spinning room aisle beyond the end of the row of spinning frames or across the transverse aisle intervening between two longitudinally aligned spinning frames to stop the travel of the assembly for a predetermined period or until the same is manually restarted. This may be accomplished by providing another switch, indicated at 60' in FIGURE 6, responsive to the track cam 59' to terminate the current to the propulsion motor of the air blast cleaner 22, or by providing a pair of track cams or a single complex cam so located as to first activate switch 60' to reverse the direction of drive of the air blast cleaner propulsion motor 62 through a motor controller unit 61 and then activate a second switch 63 to terminate the supply to the same, operating in a manner similar to the reversing and supply terminating switches for the propulsion motor disclosed in my earlier U.S. Patent No. 2,886,843.

As will be seen from FIGURE 6 illustrating one exemplary control circuit which may be employed, the switches 57 and 60 may be connected parallel with each other between one terminal of the solenoid 44 and one of the three-phase supply conductors A, B, C, for example, the supply conductor B, while the other terminal of the solenoid 44 is connected to another one of the three-phase supply lines A. Thus, if either the switch 57 which responds to elevation of the accumulator 49 off of the spinning room floor, or the switch 60 which responds to the track cam 59' is closed, the solenoid 44 will be energized for the period of closure, actuating the pivoted lever 43 to shift the damper valve 42 to the position communicating the sweeper trunk 45 with the suction source. If it is desired that the air blast cleaner 22 and lint collecting unit 10 be stopped in their travel at a preselected point such as the end of a spinning frame or row of spinning frames, and that the solenoid 44 be energized at that time to effect suction collection of the mass of accumulated lint adjacent the accumulator blade 50, a switch 60' which is either an independent switch or may be linked with the switch 60 may be provided to be actuated by the track cam 59' to control appropriate relays in the motor controller 61 and effect termination of the three-phase supply to the propulsion motor 62 of the air blast cleaner 22, and of any blower motors in the assembly. This may be accomplished by circuitry similar to that disclosed in my earlier Patent No. 2,886,843 by either energizing a reversing relay to first reverse the direction of rotation of the propulsion rollers controlled by the propulsion motor 62, after which other relays in the controller 61 may be actuated responsive to another switch such as that indicated in broken lines at 63 in FIGURE 6, or the switch 60' may simply terminate the supply to the propulsion motor 62 through the motor controller 61 and simultaneously activate a braking device such as a magnetic brake unit to quickly bring the assembly to a halt.

It will be understood that the switches 57 and 60, instead of being directly connected to the solenoid 44 may be connected to a conventional timing device to start the timing device, which in turn controls the current supply to the solenoid 44 to energize the solenoid 44 for a preset interval of time. In this way, the period over which suction is applied to the sweeper trunk 45 is controlled by the timing device rather than the length of the track cam, so that the track cam can be merely a short trip such as is shown at 59'' in FIGURE 1. An independent timing device responsive to the switch 60 may be provided to regulate both the activation of solenoid 44 and the stopping of the propulsion motor 62, which not only shift the damper valve 42 to apply suction to sweeper trunk 45 for a preselected interval, but stops the propulsion motor 62 for the same interval or a longer selected interval, and then automatically reestablishes the supply circuit to the propulsion motor 62 to resume travel of the assembly and operation of the fans.

Also, the solenoid 44 may be activated by a switch responsive to deflection of the sweeper trunk 45 to a preselected angular extent from vertical as by striking a person or an object in the aisles, in the manner disclosed in my earlier U.S. Patent No. 2,886,843, instead of relying upon return movement of the accumulator blade 50 toward center position. In such an arrangement, the switches 46 and/or 49 in my said Patent No. 2,886,843 would respond to deflection of the trunk 45 to complete a supply circuit to the solenoid 44 or to a timing device controlling the supply circuit to solenoid 44 and shift the damper valve 42 to apply suction to the nozzle 46 of trunk 45.

In the operation of the above-described apparatus in connection with removal and collection of lint from a row of textile spinning frames in a spinning room, the assembly of a self-propelled air blast cleaner **22** and towed lint-collecting unit **10** are caused to travel on the overhead trackway **12** describing a desired path of travel along the rows of spinning frames so as to serve a selected number of such frames. The blower trunks **23**, sweeper trunks **45** and the depending terminal portion **40** of the suction duct **39** hang alongside the spinning frames at the opposite sides thereof in the aisles between adjacent rows of frames, the trunks **23** and **45** extending almost to the floor and the portion **40** of suction duct **39** being spaced above the floor in the zone of the creel boards **14, 15** and bobbins **16, 17** of the spinning frames **13**. As the assembly moves along the trackway **12**, the lint will be blown off of the parts of the spinning frames in the path of the air blast discharged by the nozzles of the blower trunks **23** and will gradually settle to the floor. The suction established at the inlet openings **33** of the collector unit carriage **11** by the fans is normally applied to the suction duct **39** by the damper valve **42** closing off the sweeper trunk **45**, thus sucking in lint from the air zones adjacent the slots **41** in each duct portion **40** and conveying the lint through the duct **39** to the casing **25** and storage trunk **35** where the lint is separated from the air and collected. Because the suction intake openings **41** of the duct portions **40** are located immediately adjacent the blower trunks **23** relative to the direction of travel, the lint in the air adjacent the upper region of the spinning frames will be withdrawn into the suction duct **39** by suction currents immediately after the lint is blown into the air by the blower trunks **23** and before the lint becomes generally diffused from this region. By this means, a great portion of the lint dislodged from the spinning frames is removed by suction before it diffuses or settles to the floor. Concurrently, the accumulator blades **50** depending from the sweeper trunks **45** sweep along predetermined rectilinear paths on the floor surface alongside the spinning frames at opposite sides thereof to accumulate lint sweepings against the blades **50** immediately beneath the nozzles **46**. At selected intervals, for example at the end of each spinning frame or row of frames, the solenoid **44** is energized by a track cam **59** and responsive switch to shift the damper valve **42** to the opposite position closing off suction duct **39** and applying suction for a short interval to sweeper trunk **45** to withdraw the accumulated lint sweepings against the accumulator blade **50** through the nozzle **46** of each sweeper trunk **45** and into the associated casing **25**. This may be done either on the run or when the assembly has been stopped in its travel as heretofore explained. By this arrangement, effective suction is applied from a fan or fans of feasible size and cost to normally withdraw dislodged lint from the air immediately adjacent the blower trunks and sweep settled lint on the floor at the sides of the spinning frames along the floor, and to periodically withdraw suction from the suction duct **39** and apply it to the sweeper trunk **45** to remove the accumulated sweepings, so that suction is not required to be applied to both the duct **39** and trunk **45** at the same time.

It will be appreciated that other arrangements embodying the principles of the above-described embodiment of the invention may be employed, such for example as single blower and collection unit wherein the blower trunk and the upper level suction duct and sweeper trunk at each side of the spinning frames are supported from a single overhead carriage, or such a single carriage unit where the upper level suction duct is coaxially arranged about the sweeper trunk and is valved similar to the herein-described embodiment to normally apply suction to the outer annular duct surrounding the upper portion of the sweeper trunk to perform the functions of the suction duct section **40** and to transfer suction periodically to the sweeper trunk to withdraw the sweepings collected against the floor engaging accumulator blade. It is desired therefore that only such limitations be placed on the invention as are imposed by the prior art and are set forth in the appended claims.

What is claimed is:

1. A travelling cleaner for textile processing machines comprising an overhead carriage movable longitudinally of the machines having a suction source, a suction duct dependingly supported on said carriage connected at its upper end to said suction source and extending downwardly alongside upper parts of the machines, said suction duct having at least one suction opening facing the machines located alongside upper parts of the machine to attract and withdraw airborne lint from the air in the region of said upper parts and convey the lint to said carriage, a sweeper trunk connected at its upper end to said suction source and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging accumulator member immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machine, adjustable valve means for normally closing off said sweeper trunk from communication with said suction source and communicating said suction duct with said suction source, and means for operating said valve means to terminate communication between said suction duct and suction source and to establish communication between said sweeper trunk and suction source to effect suction withdrawal of lint sweepings accumulated by said accumulator member to said carriage.

2. A travelling cleaner for textile processing machines comprising an overhead carriage movable longitudinally of the machines having a suction source and lint collecting receptacle supported on said carriage, a suction duct dependingly supported on said carriage connected at its upper end to said suction source and extending downwardly alongside upper parts of the machines, said suction duct having at least one suction opening facing the machines located alongside upper parts of the machine to attract and withdraw airborne lint from the air in the region of said upper parts and convey the lint to said collecting receptacle, a sweeper trunk connected at its upper end to said suction source and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging wiper member immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machine, adjustable valve means for normally closing off said sweeper trunk from communication with said suction source and communicating said suction duct with said suction source, and means for operating said valve means to terminate communication between said suction duct and suction source and to establish communication between said sweeper trunk and suction source to effect suction withdrawal of lint sweepings accumulated by said wiper member to said collecting receptacle.

3. A travelling cleaner for removing lint from a row of textile processing machines comprising an overhead carriage movable longitudinally of the row of machines having a suction source, a travelling air blast blower unit movable along the machines with said carriage having at least one depending blower trunk extending alongside of the machines to blow off lint from the machines, a suction duct dependingly supported on said carriage connected at its upper end to said suction source and extending downwardly along one side of the upper parts of the machines, said suction duct having at least one suction opening immediately adjacent the blower trunk facing

the machines and located alongside upper parts of the machines to attract and withdraw airborne lint from the air in the region of said upper parts while the lint is still airborne following dislodgment from the machine by said blower trunk and convey the lint to said carriage, a sweeper trunk connected at its upper end to said suction source and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging accumulator member immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machine, adjustable valve means for normally closing off said sweeper trunk from communication with said suction source and communicating said suction duct with said suction source, and means for operating said valve means to terminate communication between said suction duct and suction source and to establish communication between said sweeper trunk and suction source to effect suction withdrawal of lint sweepings accumulated by said accumulator member to said carriage.

4. A travelling cleaner for textile processing machines comprising an overhead carriage movable longitudinally of the machines having a suction source, a travelling air blast blower unit movable along the machines with said carriage having a pair of depending blower trunks extending along opposite sides of the machines to discharge lint from the machines, a suction duct dependingly supported on said carriage at each side of the row of machines connected at its upper end to said suction source and extending downwardly alongside upper parts of the machines, said suction ducts having suction inlet openings immediately adjacent the blower trunks facing the machines and located alongside upper parts of the machine to attract and withdraw airborne lint from the air in the region of said upper parts while the lint is still airborne following dislodgment from the machines by said blower trunks and convey the lint to said carriage, a sweeper trunk at each side of the row of machines connected at its upper end to said suction source and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator support on a lower portion of said sweeper trunk having a floor engaging accumulator member immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machine, adjustable valve means for normally closing off said sweeper trunk from communication with said suction source and communicating said suction duct with said suction source, and means for operating said valve means to terminate communication between said suction duct and suction source and to establish communication between said sweeper trunk and suction source to effect suction withdrawal of lint sweepings accumulated by said accumulator member to said carriage.

5. A travelling cleaner for removing lint from a row of textile processing machines comprising an overhead carriage movable longitudinally of the machines, a suction fan on said carriage having a downwardly opening suction inlet, a suction duct dependingly supported on said carriage connected at its upper end to said suction inlet and extending downwardly alongside upper parts of the machines, said suction duct having at least one suction opening facing the machines located alongside upper portions of the machine to attract and withdraw airborne lint from the air in the region of said upper parts and convey the lint to said carriage, a sweeper trunk connected at its upper end to said suction inlet and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging wiper blade immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machines, adjustable valve means for normally closing off said sweeper trunk from communication with said suction inlet and communicating said suction duct with said suction inlet, and means for operating said valve means to terminate communication between said suction duct and suction inlet and to establish communication between said sweeper trunk and suction inlet to effect suction withdrawal of lint sweepings accumulated against said wiper blade to said carriage.

6. A travelling cleaner for removing lint from a row of textile processing machines comprising an overhead carriage movable longitudinally of the machines, a suction fan on said carriage having a downwardly opening suction inlet, a branch duct having an upper end connected to said suction inlet and a pair of lower branch openings, a suction duct dependingly supported on said carriage connected at its upper end to one of said branch openings and extending downwardly alongside upper parts of the machines, said suction duct having at least one suction opening facing the machine located alongside upper portions of the machines to attract and withdraw airborne lint from the air in the region of said upper parts and convey the lint to said carriage, a sweeper trunk connected at its upper end to the other of said branch openings and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging wiper blade immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machines, adjustable valve means in said branch duct for normally closing off said sweeper trunk from communication with said suction inlet and communicating said suction duct with said suction inlet, and means for operating said valve means to terminate communication between said suction duct and suction inlet and to establish communication between said sweeper trunk and suction inlet for a sufficient interval to effect suction withdrawal of lint sweepings accumulated against said wiper blade to said carriage.

7. A travelling cleaner for removing lint from a row of textile processing machines comprising an overhead carriage movable longitudinally of the machines, a suction fan on said carriage having a downwardly opening suction inlet, a branch duct having an upper end connected to said suction inlet and a pair of lower branch openings, a suction duct dependingly supported on said carriage connected at its upper end to one of said branch openings and extending downwardly alongside upper parts of the machines, said suction duct having at least one suction opening facing the machines located alongside upper portions of the machines to attract and wtihdraw airborne lint from the air in the region of said upper parts and convey the lint to said carriage, a sweeper trunk connected at its upper end to the other of said branch openings and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging wiper blade immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machines, adjustable valve means in said branch duct for normally closing off said sweeper trunk from communication with said suction inlet and communicating said suction duct with said suction inlet, and means for operating said valve means when said carriage reaches a preselected position in its travel to terminate communication between said suction duct and inlet and to establish communication between said sweeper trunk and suction inlet for a sufficient interval to effect suction

withdrawal of lint sweepings accumulated against said wiper blade to said carriage.

8. A travelling cleaner for removing lint from a row of textile processing machines comprising an overhead carriage movable longitudinally of the machines, a suction fan on said carriage having a downwardly opening suction inlet, a branch duct having an upper end connected to said suction inlet and a pair of lower branch openings, a suction duct dependingly supported on said carriage connected at its upper end to one of said branch openings and extending downwardly alongside upper parts of the machines, said suction duct having at least one suction opening facing the machines located alongside upper portions of the machines to attract and withdraw airborne lint from the air in the region of said upper parts and convey the lint to said carriage, a sweeper trunk connected at its upper end to the other of said branch openings and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging wiper blade immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machines, adjustable valve means in said branch duct for normally closing off said sweeper trunk from communication with said suction inlet and communicating said suction duct with said suction inlet, and means for operating said valve means when said carriage reaches a preselected position in its travel to stop travel of said carriage and terminate communication between said suction duct and inlet and to establish communication between said sweeper trunk and suction inlet for a sufficient interval to effect suction withdrawal of lint sweepings accumulated against said wiper blade to said carriage.

9. A travelling cleaner for removing lint from a row of textile processing machines comprising an overhead carriage movable longitudinally of the machines, a travelling air blast blower unit movable along the machines with said carriage having at least one depending blower trunk extending alongside of the machines to discharge lint from the machines, a suction fan on said carriage having a downwardly opening suction inlet, a suction duct dependingly supported on said carriage connected at its upper end to said suction inlet and having a rectilinear terminal section extending downwardly alongside upper parts of the machines immediately adjacent said blower trunk, said suction duct having at least one suction opening facing the machines located alongside upper portions of the machine to attract and withdraw airborne lint from the air in the region of said upper parts upon dislodgment therefrom by air blasts from said blower trunk and convey the lint to said carriage, a sweeper trunk connected at its upper end to said suction inlet and depending from said carriage to a position adjacent the floor, a suction nozzle at the lower end of said sweeper trunk, a mechanical lint accumulator supported on a lower portion of said sweeper trunk having a floor engaging wiper blade immediately below said suction nozzle to sweep lint which has settled onto the floor along the floor in a path paralleling the adjacent side of the machines, adjustable valve means for normally closing off said sweeper trunk from communication with said suction inlet and communicating said suction duct with said suction inlet, and means for operating said valve means to terminate communication between said suction duct and suction inlet and to establish communication between said sweeper trunk and suction inlet to effect suction withdrawal of lint sweepings accumulated against said wiper blade to said carriage.

10. In a travelling cleaner for removing lint from a row of textile processing machines, the combination recited in claim 1 including means supporting said accumulator member for pivotal movement fore and aft of a selected center position about a horizontal axis transverse to said path to permit displacement of said wiper blade from said center position responsive to frictional engagement with the floor surface during travel along said path, spring means urging said accumulator member to said center position when free of normal engagement with the floor, and switch means responsive to location of said accumulator member at said center position for activating said means for operating said valve means to communicate said sweeper trunk with said suction source.

11. In a travelling cleaner for removing lint from a row of textile processing machines, the combination recited in claim 1 including means pivotally supporting said accumulator member from said sweeper trunk for arcuate movement about a horizontal axis transverse to said path, spring means urging said accumulator member to a selected center position, said accumulator member and pivotal supporting means being displaced in a trailing direction away from said center position by frictional engagement with the floor surface during travel of said carriage, and switch means responsive to the position of said accumulator member for activating said means for operating said valve means to dispose said valve means at a position communicating said sweeper trunk with said suction source when said accumulator member occupies said center position.

12. In a travelling cleaner for removing lint from a row of textile processing machines, the combination recited in claim 5 including means supporting said wiper blade for pivotal movement fore and aft of a selected center position about a horizontal axis transverse to said path to permit displacement of said wiper blade from said center position responsive to frictional engagement with the floor surface during travel along said path, spring means urging said wiper blade to said center position when free of normal engagement with the floor, and switch means responsive to location of said wiper blade at said center position for activating said means for operating said valve means to communicate said sweeper trunk with said suction inlet.

13. In a travelling cleaner for removing lint from a row of textile processing machines, the combination recited in claim 5 including means pivotally supporting said wiper blade from said sweeper trunk for arcuate movement about a horizontal axis transverse to said path, spring means urging said wiper blade to a selected center position, said wiper blade and pivotal supporting means being displaced in a trailing direction away from said center position by frictional engagement with the floor surface during travel of said carriage, and switch means responsive to the position of said wiper blade for activating said means for operating said valve means to dispose said valve means at a position communicating said sweeper trunk with said suction inlet when said accumulator member occupies said center position.

References Cited by the Examiner

UNITED STATES PATENTS

2,876,484	3/59	Wells	15—374
2,886,843	5/59	Bahnson	15—312
3,009,838	11/61	Preston	134—21
3,011,925	12/61	Holtzclaw	134—21
3,045,274	7/62	Sohler	15—312
3,053,700	9/62	Kulp	15—312 X
3,055,038	9/62	Black	15—312
3,060,483	10/62	Black	15—312
3,064,299	11/62	Bahnson et al.	15—312
3,080,598	3/63	McEachern	15—312
3,089,176	5/63	Bahnson et al.	15—312

FOREIGN PATENTS

42,318	3/08	Switzerland.

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