June 15, 1965 R. L. BLACK, JR 3,188,680

TRAVELING SUCTION CLEANER FOR TEXTILE MILLS

Filed April 24, 1961 4 Sheets-Sheet 1

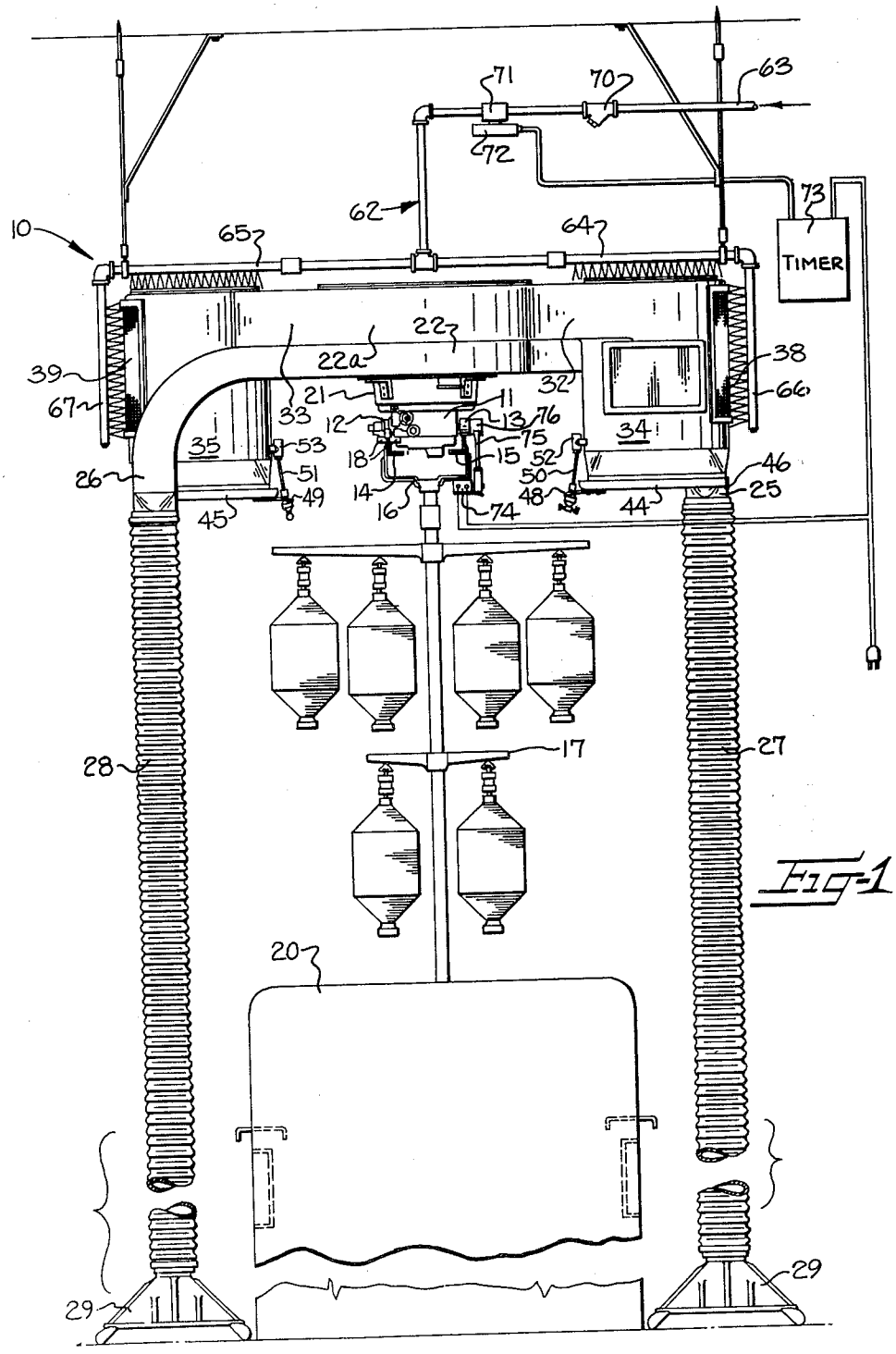

FIG-1

June 15, 1965 R. L. BLACK, JR 3,188,680

TRAVELING SUCTION CLEANER FOR TEXTILE MILLS

Filed April 24, 1961 4 Sheets-Sheet 2

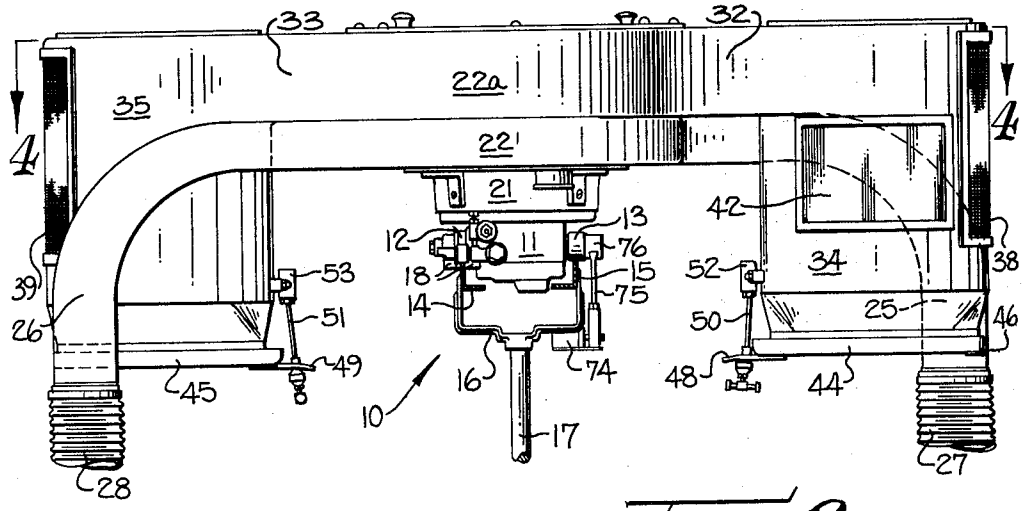

Fig-2

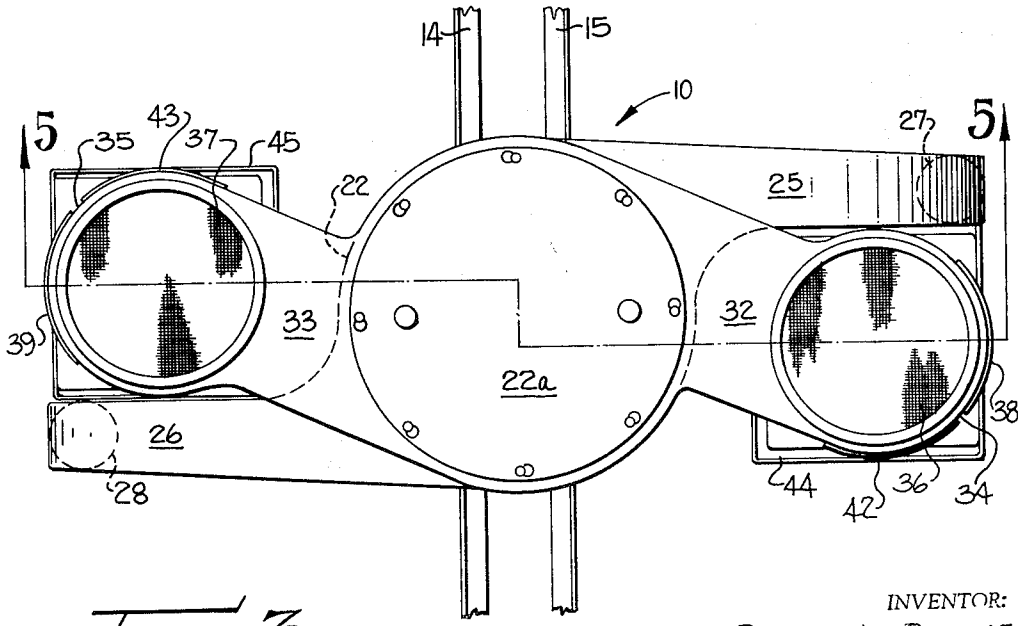

Fig-3

INVENTOR:
ROBERT L. BLACK, JR

BY Eaton, Bell, Hunt & Seltzer
ATTORNEYS

June 15, 1965 R. L. BLACK, JR 3,188,680

TRAVELING SUCTION CLEANER FOR TEXTILE MILLS

Filed April 24, 1961 4 Sheets-Sheet 3

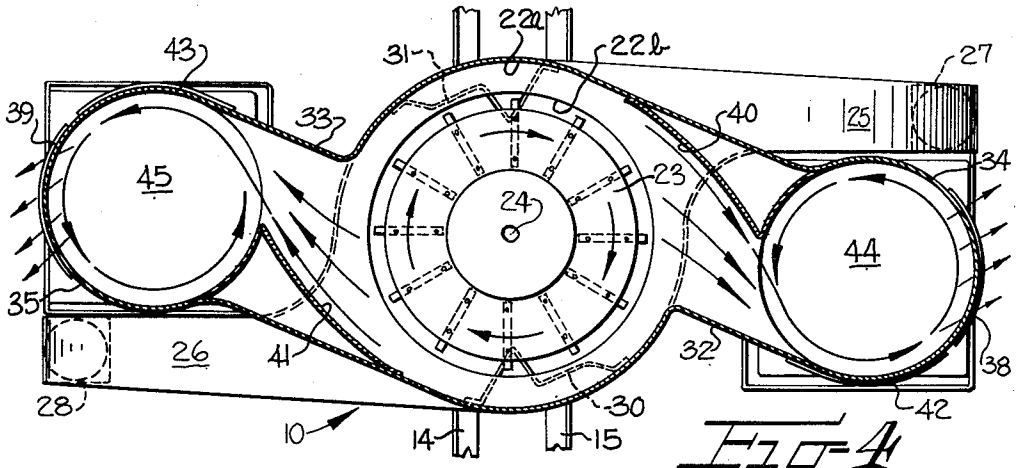

Fig-4

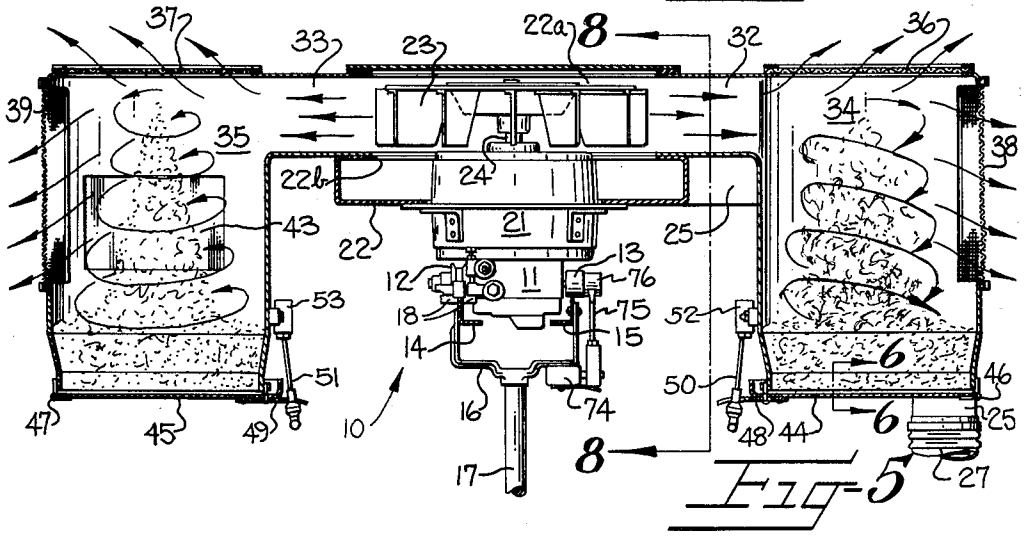

Fig-5

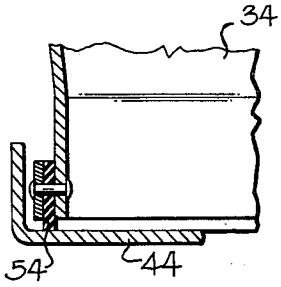

Fig-6

INVENTOR:
ROBERT L. BLACK, JR.

BY Eaton, Bell, Hunt & Deltzer

ATTORNEYS

June 15, 1965 R. L. BLACK, JR 3,188,680

TRAVELING SUCTION CLEANER FOR TEXTILE MILLS

Filed April 24, 1961 4 Sheets-Sheet 4

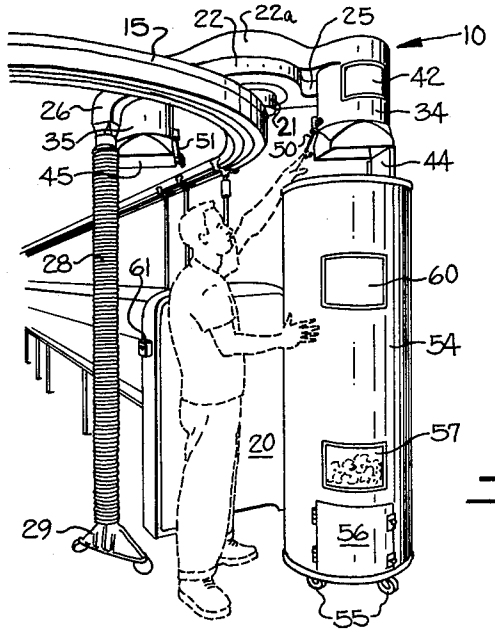

Fig-7

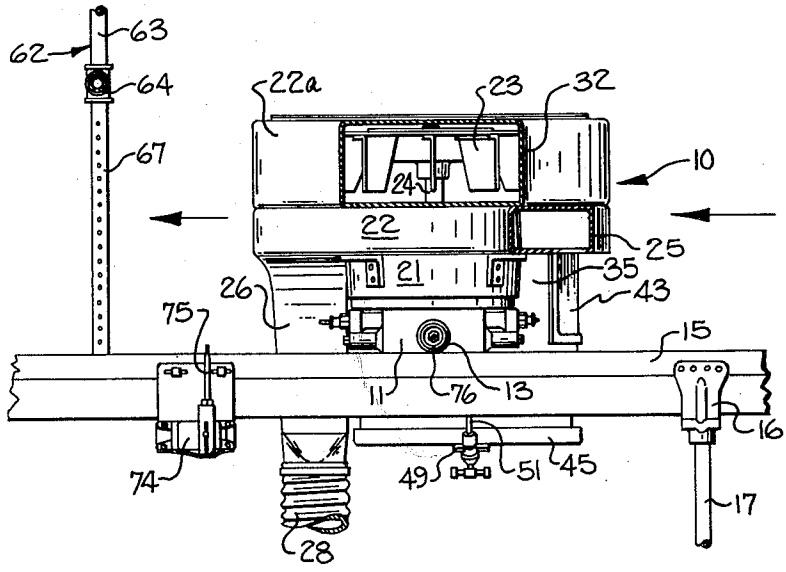

Fig-8

INVENTOR:
ROBERT L. BLACK, JR.

BY Eaton, Bell, Hunt & Seltzer

ATTORNEYS

United States Patent Office 3,188,680 Patented June 15, 1965

3,188,680

TRAVELING SUCTION CLEANER FOR TEXTILE MILLS

Robert L. Black, Jr., Charlotte, N.C., assignor to Parks-Cramer Company, Fitchburg, Mass., a corporation of Massachusetts

Filed Apr. 24, 1961, Ser. No. 105,073
11 Claims. (Cl. 15—312)

This invention relates to a traveling suction cleaning apparatus particularly devised for removing lint, dust and other light material from room and machine surfaces in manufacturing plants, particularly in textile mills. More particularly, this invention relates to an improved material collection system for such a traveling suction cleaning apparatus.

Heretofore, a preferred type of traveling suction cleaner has been in the form of a track mounted overhead suction blower having a volute casing, to the inlet or inlets of which one or more suction ducts were connected, with an at least partially foraminate lint collection chamber connected to the outlet thereof. The free ends or nozzles of the suction ducts moved closely adjacent surfaces to be cleaned, such as the floor and various parts of the textile machines, and would suck lint and other light material thereinto and convey the same through the casing and into the chamber. Means were provided for automatically opening the chamber at predetermined intervals to discharge the collected material into a corresponding receptacle located adjacent the path of travel of the chamber. Such a receptacle was usually connected to a suction duct for conveying the material received therein to a point remote from the textile machines. Due to the fact that the collection chamber is automatically emptied quite frequently, the chamber need be of only relatively small capacity.

The aforementioned type of traveling suction cleaner is very economical in many textile plants in view of its efficiency in automatically collecting and disposing of residual lint and other light material which usually accumulate on the floor and upon various parts of textile machines and upon the material being processed. However, some textile plants have a relatively small number of textile machines, so that the savings to be realized from fully automatic disposal of collected lint are less pronounced than in a plant containing a much larger number of machines. There is a need, therefore, for a traveling suction cleaner equipped with high capacity means for collecting and storing large quantities of lint and other light material which may be removed and disposed of manually at relatively infrequent intervals. In view of the space limitations in textile mills, it is important that such a device be constructed in a compact manner without materially increasing the overall height or width of the cleaning apparatus, but at the same time keeping the entire waste collection chamber above head height.

It is therefore an object of this invention to provide a traveling suction cleaner of the general character described with at least one collection chamber for receiving and collecting large amounts of lint and other light material picked up by the suction ducts which chamber has at least one side wall portion, which is foraminate to form an air filter, and wherein the chamber is so connected to the suction blower that the lint-laden air enters the chamber in an offset path relative to the vertical axis of the chamber and flows in a circuitous or helical manner within the chamber so as to create an area of reduced pressure adjacent said axis. Such reduced pressure area causes the lint to gather and become intermingled in the central portion of the chamber; away from the side walls and the filter of the chamber, thus assisting in preventing clogging of the

interstices of the filter, and permitting a larger amount of material to be collected without adversely affecting efficiency of the suction cleaner.

It is another object of this invention to provide a traveling suction cleaning apparatus of the character described wherein the collection chamber comprises a substantially circular, and substantially upright cylinder connected to the blower side of the suction impeller in such a manner that lint-laden air enters the chamber substantially parallel to an imaginary line tangent to the inner periphery of the chamber whereby the air and lint initially impinge against a portion of the inner periphery of the chamber closely adjacent the point at which the lint-laden air enters the chamber. Thus, the air tends to flow in a helical manner around the interior of the chamber and creates a low pressure area in the vertical center of the chamber so the lint and other light material collects in the center of the chamber and gradually drops to the bottom thereof. A portion of the side wall, preferably opposite the air ingress opening therein, is provided with a foraminate air filter through which the air may escape while the lint is being entrapped within the chamber. The circuitous or helical flow of air past the filter and at substantially right angles to the openings in the filter assists in preventing the filter openings from becoming clogged by the collected lint. A door means normally closes the bottom of the chamber and may be opened for emptying the chamber, when desired.

Another object of the present invention is to provide an improved traveling suction cleaning apparatus of the type adapted to be moved over textile machines having a suction casing with air inlet and outlet ducts, a suction blower fan, a pair of collection chambers, at least one foraminous screen mounted in each of said collection chambers, each of the air outlet ducts and collection chambers being constructed and arranged such that the air stream directed thereinto aids in the prevention of the collection of material on the inside surface of the screens and wherein means is provided for periodically directing an air stream inwardly through the foraminous screens into the collection chambers for aiding in the removal of any material which may have collected on the inside surfaces of the foraminous screens so that the air may be freely exhausted from the collection chamber.

Some of the objects in 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 an end elevation of a preferred embodiment of the present invention partially in section and with portions shown schematically;

FIGURE 2 is an enlarged elevation of the upper portion of the apparatus shown in FIGURE 1 with portions broken away and removed for clarity;

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

FIGURE 4 is a sectional plan view taken substantially along line 4—4 of FIGURE 2;

FIGURE 5 is a transverse vertical section taken substantially along line 5—5 of FIGURE 3;

FIGURE 6 is an enlarged fragmentary detail taken substantially along line 6—6 of FIGURE 5;

FIGURE 7 is a perspective view of the apparatus of the present invention showing one manner in which the collection chambers may be emptied of collected material; and

FIGURE 8 is a sectional elevational view taken substantially along line 8—8 of FIGURE 5 with portions broken away.

Referring now to the drawings and more particularly to FIGURES 1, 2, 5 and 8, the apparatus generally indicated

at 10 comprises a carriage 11. Carriage 11 has suitable driven wheels 12 on one side and an idler wheel 13 on the other side which support carriage 11 on suitable tracks 14, 15. A set of wheels 18 are provided for holding carriage 11 on tracks 14 and 15. Tracks 14, 15 are mounted on suitable brackets 16, only one of which is shown, which are supported on the floor or by a creel 17 mounted on a textile machine 20 over which the tracks 14, 15 extend. The machine 20 represents a row of textile machines in this instance.

A suction blower unit is mounted on carriage 11 and includes a suitable motor 21 fixed on carriage 11. Motor 21 is provided with suitable connections disposed within carriage 11 for driving wheels 12 to move carriage 11 over tracks 14, 15. A suction casing 22 is suitably mounted on motor 21 and has a volute blower casing 22*a* mounted thereon. Suction casing 22 has a pair of opposed inlet ducts 25, 26 (FIGURES 1 and 2) communicatively connected thereto.

A fan 23 (FIGURE 5) is mounted on a shaft 24 for rotation therewith within casing 22*a*. Shaft 24 is the output shaft of motor 21 or is operatively connected thereto for rotating fan 23. A pair of ducts 25, 26 extend outwardly from casing 22 and are curved downwardly at their outer ends toward the surfaces to be cleaned. A pair of flexible ducts or tubes 27, 28 (FIGURE 1) are mounted on ducts 25, 26 respectively, and extend downwardly therefrom.

Tubes 27, 28 terminate in suitable nozzles 29 which move in close proximity to the surfaces to be cleaned, which in this case is shown to be the floor of a textile manufacturing plant or the like. Suction casing 22 communicates with blower casing 22*a* through a substantially circular opening 22*b* formed in the proximal walls thereof and encircling the upper portion of motor 21. A pair of substantially diametrically opposed baffles 30, 31 (FIGURE 4) are mounted in suction casing 22 adjacent opening 22*b* and serve to direct the air stream and lint drawn therethrough inwardly toward motor 21 so that the same may be drawn upwardly into blower casing 22*a*.

A pair of outlet ducts 32, 33 (FIGURE 4) are connected to casing 22*a* and extend outwardly therefrom. A pair of substantially cylindrical, upright collection chambers 34, 35 are mounted on the outer ends of ducts 32, 33, respectively, and communicate with casing 22*a* therethrough. Fan 23 creates a suction in casing 22 and inlet ducts 25 and 26 as the same rotates and draws a stream of air laden with dust, lint and other light material through the nozzles 29, tubes 27, 28, ducts 25, 26, casing 22 and opening 22*b* into blower casing 22*a*. Fan 23 discharges the air stream and material carried thereby outwardly through outlet ducts 32, 33 into collection chambers 34, 35.

Each of the collection chambers 34, 35 has an opening in the top thereof and an opening in the outer side thereof opposite the corresponding outlet duct 32, 33. Foraminous screen members or filters 36, 37 (FIGURE 5) are mounted in the openings in the tops of collection chambers 34, 35, respectively. Foraminous screen members or filters 38, 39 are mounted in the openings in the outer sides of collection chambers 34, 35, respectively, opposite the corresponding outlet ducts 32, 33 to allow the air stream to escape from the collection chambers while retaining the lint and other light material therein. Transparent members 42, 43 are mounted in other openings in the sides of collection chambers 34, 35, respectively, to allow the operator of the apparatus to visually monitor the amount of material collected in the collection chamber.

Collection chambers 34, 35 are of generally circular cross-section (FIGURE 4) at least in the area where the outlet ducts 32, 33 communicate therewith for reasons to be presently described. A pair of baffles or air deflectors 40, 41 are mounted in outlet ducts 32, 33, respectively, adjacent the respective collection chambers 34, 35 and serve to channel or direct an air stream into each circular collection chamber in a direction off-set laterally with respect

to the substantially vertical axis of the chamber, or in other words in a substantially tangential manner as shown by the arrows in FIGURE 6.

The air stream is directed into the collection chambers in such a manner that it impinges on the adjacent curved inside surface thereof and is directed thereby in a circular or helical path around the inside of the curved wall of the collection chambers. The curved path of the air stream within the collection chambers causes a cyclonic effect or an area of reduced pressure in the central portion of each of the collection chambers which causes the material carried by the air stream to move into the central portion of the collection chamber where the same is collected. The collection of the lint and other material in the central portion of the collection chambers largely keeps the same away from the foraminous screens 38, 39 in the sides of the collection chambers. In addition, the air stream travels across foraminous screen members 38, 39 in a path perpendicular to the openings therethrough or parallel to the inside surface of the screens therefore performing a wiping operation on the inside surface of the screens which also serves to keep lint and other material from collecting thereon and aids in the removal of any lint or other material which may have collected thereon previously.

Collection chambers 34, 35 may each be of substantially rectangular shape at the bottom portion thereof. The bottom of each chamber 34, 35 is open, thus forming a substantially rectangular discharge opening for removal of the collected material from each of the collection chambers. Doors 44, 45 (FIGURE 5) are respectively mounted on the bottom portions of collection chambers 34, 35 by suitable hinges 46, 47 for pivotal movement to selectively open and close the discharge openings in the collection chambers. Brackets 48, 49 are respectively mounted on doors 44, 45 and have slots formed therein. Latch members 50, 51 are pivotally mounted on the sides of collection chambers 34, 35, respectively, by mounting brackets 52, 53. Latches 50, 51 are manually movable into the slots formed in brackets 48 and 49 to latch doors 44 and 45 in position to close the discharge openings. A sealing member 54 (FIGURE 6) is mounted on each of the doors 44, 45 to seal the discharge openings against the passage of air therethrough when the doors 44, 45 are latched in closed position.

Removal of lint and the like from a collection chamber is easily accomplished after the unit has been stopped at some convenient point along its trackway and a receptacle such as 54 shown in FIGURE 7 is placed under the discharge opening. To open the discharge opening in either of the collection chambers 34 or 35, the corresponding latch 50, 51 is manually removed from the slot in the corresponding bracket 48, 49 and the corresponding door 44, 45 is allowed to swing downwardly about its hinge 46, 47. The collected material in the collection chambers 34, 35 will then fall by gravity therefrom into the receptacle. Receptacle 54 may be mounted on suitable wheels or casters 55 which render the receptacle portable for easy handling and positioning under collection chambers 34, 35. A door 56 is mounted in a suitable opening in the bottom portion of receptacle 54 for removal of the material therefrom. A pair of transparent members 57, 60 are mounted in vertically spaced openings in the side of receptacle 54 for visual monitoring of the level of material therein. A suitable switch 61 (FIGURE 7) is mounted adjacent one end of textile machine 20 for stopping the traveling suction cleaning apparatus in position so that receptacle 54 may be moved beneath either of the collection chambers 34 and 35 for emptying the collected material therefrom.

At spaced points along tracks 14, 15, as desired, a filter cleaning device generally indicated at 62 (FIGURES 1 and 8) may be mounted adjacent the tracks for directing high velocity air currents inwardly through foraminous screen members 36, 37, 38 and 39 for aiding in the cleaning of the inside surfaces of the screens of any accumula-

tion of lint and the like. Screen cleaning device 62 comprises an air supply pipe 63 communicating with any suitable source under pressure such as a compressor (not shown). A pair of pipes 64, 65 are connected at one end to air supply pipe 63 and extend outwardly therefrom to a position overlying collection chambers 34, 35 as the same move past said point on tracks 14 and 15. Pipes 64, 65 have openings formed in the bottom thereof in the area immediately overlying the path of travel of foraminous screen members 36, 37 for delivering currents of air downwardly against and through the screens. A pair of pipes 66, 67 are connected at one end to pipes 64, 65, respectively, at a point outwardly of the collection chambers and extend downwardly therefrom to positions spaced outwardly of and parallel to foraminous screen members 38, 39. Pipes 66, 67 have openings therein in the side facing the screens and in the area thereof opposite from the screens for delivering currents of air inwardly against and through screen members 38, 39.

Air supply pipe 63 has an air strainer 70 mounted therein for removing any impurities from the air passing therethrough and a two-way valve 71 mounted therein for controlling the flow of air therethrough. Valve 71 is opened and closed by a solenoid 72, the valve being opened when solenoid 72 is energized and closed when solenoid 72 is de-energized.

An electric control box 73 is suitably connected to solenoid 72 for energizing the same. Control box 73 has timing means (not shown) for maintaining solenoid 72 energized for a predetermined length of time after initial energization. Since such timing means are well known, an illustration and description thereof is deemed unnecessary. Such a timing means is shown in FIGURE 18 of U.S. Patent No. 2,751,621 for example. A switch 74 is suitably connected to control box 73 for initially energizing the same which, in turn, energizes solenoid 72 to open valve 71.

Switch 74 is mounted on one of the brackets 16 on the side adjacent track 15 a distance rearwardly of pipes 64, 65, 66 and 67, relative to the direction of travel of said apparatus, not less than one-half the horizontal dimension of screen members 38, 39 and preferably a distance exceeding this dimension. The spacing of switch 74 rearwardly of pipes 64–67 in combination with the timing means which maintains solenoid 72 energized for a length of time not less than the time required for the apparatus to travel along tracks 14 and 15 a distance equal to the horizontal dimension of screens 38, 39, insures that the entire surface of each screen 36–39 is subject to currents of air.

Switch 74 has a feeler arm 75 mounted thereon and extending upwardly therefrom to a point spaced above and outwardly from track 15. An extension 76 is mounted on the side of wheel 13 and extends substantially horizontally outwardly therefrom. Extension 76 engages feeler arm 75 which closes switch 74 as the same moves along with the apparatus.

In operation, traveling suction cleaning apparatus 10 travels over textile machines 20 and removes lint, dust and other light material from the room and machine surfaces. Fan 23 is rotated by motor 21 drawing an air stream laden with the lint, dust and other light material up through inlet ducts 25, 26 into casing 22*a*. The lint, dust and other material is discharged from casing 22*a* by fan 23 and moves outwardly through outlet ducts 32, 33 into collection chambers 34, 35.

Baffles 40, 41 direct the air stream into collection chambers 34, 35 in such a manner that the air currents within the collection chambers assume a circular path, as aforementioned, causing the lint and other material to collect in the central portion of the collection chambers away from foraminous screens 38 and 39 such that the screens are kept substantially free from lint and other material which otherwise could clog the same and interfere with the discharge of the air stream from the collection chambers. Also, the circular path of each air current which is parallel to the inside surface of the screens has a tendency to wipe or blow any collected material therefrom and carry it around until it falls to the lower portion or is drawn into the central portion of the corresponding collection chamber. The air currents within the collection chambers escape outwardly and upwardly through screens 36, 37, 38 and 39 leaving the lint and other material within the collection chambers.

The operator of textile machines 20 may visually monitor the amount of material collected in collection chambers 34, 35 through transparent members 42, 43. When enough material has collected within a collection chamber, the operator stops apparatus 10 by means of switch 61, moves receptacle 54 into position and opens doors 44 or 45.

As the suction cleaner travels over tracks 14, 15, the extension 76 on wheel 13 engages the feeler arm 75 of switch 74 to close the same. Switch 74 actuates the electric control box 73 which energizes solenoid 72 to open valve 71. When valve 71 opens, air flows through the air supply pipe 63 into pipes 64, 65, 66, 67 and outwardly through the openings therein against and through screens 36, 37, 38, 39 to remove any lint and other material which may have collected on the inside surfaces of the screens.

It will therefore be seen that a traveling suction cleaning apparatus is provided which is capable of operating for relatively long periods of time without the necessity of having the collected material discharged therefrom. A novel method of collecting lint and other light material is provided which is carried out by an improved substantially cylindrical collection chamber which is connected to the corresponding air duct in such a manner as to cause the lint-laden air to enter the chamber in a direction toward a point laterally spaced from the vertical axis of the chamber so the air initially impinges against the curved wall of the chamber and is forced to flow in a circuitous or helical manner which creates a low pressure area centrally of the chamber and causes the lint to collect thereat in the form of a mass which gradually falls toward the bottom of the chamber. Further, the air stream directed into each chamber aids in keeping the screens clear of lint and other material and means are provided for periodically directing air currents inwardly through the screens to assist in the removal of any lint and other material which may collect on the inside of the screens.

In the drawings and specification, there has been set forth a preferred embodiment of the 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 defined in the claims.

I claim:

1. A traveling suction cleaner for textile mills comprising a suction blower fan, means for causing said fan to travel over textile machines, a casing surrounding said fan and having a suction inlet and a blower outlet, a suction duct communicating with the suction inlet of the fan casing and having a suction nozzle adapted to pick up lint generated by the textile machines, an enclosed internally unobstructed lint collection chamber movable with the fan casing and comprising a substantially cylindrical wall substantially vertically disposed and access door means for gaining entry into the interior of the chamber for removal of accumulated lint therefrom, communicative means between the blower outlet of the fan casing and the collection chamber for directing lint laden air from the blower outlet into the collection chamber against the inner surface of the cylindrical wall of the collection chamber and in a path tangent to said wall to cause the air to move around the inner surface of said wall in a helical path and to continuously wipe the same while creating a low pressure area in the central portion of the collection chamber, and a portion of said cylindrical wall being foraminated and serving as an

exhaust filter for the air flowing through said suction duct, the fan casing and the collection chamber, whereby the circulatory wiping action of the air on the inner surface of said cylindrical wall serves to prevent said exhaust filter from clogging up with lint and from restricting the air flow into the suction duct and whereby said low pressure area causes the collected lint directed into said chamber to be bunched in the central portion of the collection chamber.

2. A structure according to claim 1, wherein said access door means serves as a bottom for said chamber and includes latch means releasably maintaining the same in closed position.

3. A structure according to claim 1, including means positioned adjacent the path of travel of said collection chamber for directing currents of air inwardly through said exhaust filter into said chamber to aid in preventing lint from clogging, and impeding the flow of air through, said exhaust filter.

4. A structure according to claim 1, wherein said suction duct extends downwardly from said inlet of the fan casing and has said nozzle positioned on the lower end thereof closely adjacent the floor supporting the textile machines, and a portion of said suction duct being flexible so as to yield upon engagement with an obstruction in its path of travel.

5. A traveling suction cleaner for textile mills comprising a suction blower fan, means for causing said fan to travel over textile machines, a casing surrounding said fan and having a suction inlet and a blower outlet, a suction duct communicating with the suction inlet of the fan casing and having a suction nozzle adapted to pick up lint generated by the textile machines, an enclosed internally unobstructed lint collection chamber movable with the fan casing and comprising a substantially vertically disposed substantially cylindrical side wall and an upper end wall, and access door means for gaining entry into the interior of the chamber for removal of accumulated lint therefrom, communicative means between the blower outlet of the fan casing and the collection chamber for directing lint laden air from the blower outlet into the collection chamber against the inner surface of the cylindrical wall of the collection chamber and in a path tangent to said wall to cause the air to move around the inner surface of said wall in a helical path and to continuously wipe the same while creating a low pressure area in the central portion of the collection chamber, a portion of said cylindrical wall being foraminated and serving as an exhaust filter for the air flowing through said suction duct, the fan casing and the collection chamber, whereby the circulatory wiping action of the air on the inner surface of said cylindrical wall serves to prevent said exhaust filter from clogging up with lint and from restricting the air flow into the suction duct and whereby said low pressure area causes the collected lint directed into said chamber to be bunched in the central portion of the collection chamber, and at least a portion of said upper end wall also being foraminated to serve as an additional exhaust filter.

6. A traveling suction cleaner for textile mills comprising a suction blower fan, means for causing said fan to travel over textile machines, a casing surrounding said fan and having a pair of suction inlets and a pair of blower outlets, a suction duct communicating with each suction inlet of the fan casing and having a suction nozzle adapted to pick up lint generated by the textile machines, a pair of enclosed internally unobstructed lint collection chambers movable with the fan casing, each chamber comprising a substantially cylindrical wall substantially vertically disposed and access door means for gaining entry into the interior of the chamber for removal of accumulated lint therefrom, communicative means between the blower outlets of the fan casing and the collection chambers for directing lint laden air from the blower outlets into the collection chambers against the inner surfaces of the cylindrical walls of the collection chambers and in respective paths tangent to said walls to cause the air to move around the inner surface of each wall in a helical path and to continuously wipe the same while creating a low pressure area in the central portion of each collection chamber, a portion of each cylindrical wall being foraminated and serving as an exhaust filter for the air flowing through said suction ducts, the fan casing and the collection chambers, whereby the circulatory wiping action of the air on the inner surfaces of said cylindrical walls serves to prevent said exhaust filters from clogging up with lint and from restricting the air flow into the suction ducts and whereby said low pressure areas cause the collected lint directed into said chambers to be bunched in the central portions of the collection chambers.

7. In a suction cleaning apparatus of the type adapted to be moved over textile machines and the like, said apparatus having a suction blower casing, a suction blower fan rotatably mounted within said casing, a pair of air inlet ducts mounted on said casing and communicating with said fan, said inlet ducts extending outwardly and downwardly from said casing into close proximity to at least one surface to be cleaned, said fan being adapted to draw an air stream laden with dust, lint and other light material removed from said surface to be cleaned through said inlet duct into said casing, a pair of outlet ducts mounted on said casing and communicating with said fan; in combination therewith a collection chamber mounted on each of said outlet ducts and communicating with said fan therethrough for receipt of the material-laden air stream, said collection chamber comprising a generally cylindrical side wall and end walls connected thereto to form an enclosed area which is free from obstruction and defines the interior of the chamber, said walls having openings formed therein, foraminous screen members mounted in the openings in the side and one of the end walls of said collection chamber for allowing the air stream to exhaust from said collection chamber while retaining the lint and other light material therein, manually operable means mounted in the opening in the other end wall of said collection chamber for opening and closing said opening so that the material may be collected in and discharged from said collection chamber, means mounted in each of said outlet ducts adjacent the collection chamber such that air will strike the inside surface of the cylindrical side wall at a point adjacent the point of entry causing the air stream to assume a generally circular path causing the lint and other material to be collected in the central portion away from the side wall, the circular path causing the air stream to pass over the foraminous screen members parallel to the inside surface thereof and thereby removing lint and other material collected thereon, and means mounted at spaced points along the path of travel of the collection chambers for periodically directing currents of air inwardly through the foraminous screen members into the collection chambers to aid in the removal of any lint and other light material from the inside surface of the foraminous members for allowing free passage of the air stream outwardly therethrough.

8. In a traveling suction cleaning apparatus having suction blower means with a pair of inlet ducts for drawing air streams laden with lint, dust and other light material from areas to be cleaned and a pair of outlet openings for discharge of the air streams and material carried thereby, a pair of enclosed internally unobstructed collection chambers comprising generally cylindrical side walls with end walls connected thereto, said collection chambers each having an exhaust opening formed in the side wall and one of the end walls, foraminous screen means mounted in said exhaust openings for allowing the air streams to exhaust therefrom while retaining the lint and other material in said chamber, outlet ducts communicatively connecting said collection chambers to

said outlet openings for directing the material-laden air streams from the outlet openings into the corresponding collection chambers, means in said outlet ducts serving to direct the air streams into the collection chambers so that the same will impinge on the inside surfaces of the cylindrical side walls at points adjacent the points of entry of the air streams causing the same to assume a generally helical path within the collection chambers to cause the lint and other light material to be collected within the central portions thereof away from the side walls to prevent clogging of the foraminous screen means, and means positioned adjacent the collection chambers for directing currents of air inwardly through the foraminous screen means and into the collection chambers for aiding in preventing clogging of the foraminous screen means by the lint and other material within the collection chambers.

9. In a traveling suction cleaning apparatus of the type adapted to be moved over textile machines and the like and having suction blower means with at least one inlet duct for drawing an air stream laden with lint, dust and other light material from an area to be cleaned and at least one outlet opening for discharge of the material-laden air stream, an enclosed internally unobstructed collection chamber comprising a generally cylindrical side wall with end walls connected thereto, said collection chamber having at least one opening formed in said side wall, a foraminous screen member mounted within said opening for allowing the air stream to exhaust from the collection chamber while retaining the lint and other material in said chamber, at least one outlet duct communicatively connecting said collection chamber to said outlet opening for directing the material-laden air stream from the suction blower means into the collection chamber, means mounted within the outlet duct adjacent the collection chamber for directing the air stream into the collection chamber so that the same will impinge on the inside surface of the cylindrical side wall at a point adjacent the point of entry of the air stream causing the same to assume a generally helical path therein to cause the lint and other light material to be collected within the central portion of the collection chamber away from the foraminous member to prevent the same from being clogged thereby, the helical path of the air stream serving to cause the air stream to pass across the inside surface of the foraminous member parallel thereto so that any lint and the like which has collected thereon will be removed therefrom, and means positioned at spaced points along the path of travel of said collection chamber for directing currents of air inwardly through the foraminous member for aiding in the removal of collected lint and the like from the inside surface thereof to prevent clogging of the openings in the foraminous member to allow free passage of the air stream therethrough.

10. The structure set forth in claim **9**, including means positioned rearwardly of the air current directing means relative to the direction of travel of the collection chamber and operable in response to movement of the collection chamber thereover for actuating the air current directing means for directing the currents of air inwardly through the foraminous member.

11. The structure set forth in claim **10**, including timing means operable upon actuation of said air current directing means for maintaining the air current directing means operable for a predetermined length of time and for interrupting the operation of said air current directing means at the end of the predetermined time.

References Cited by the Examiner

UNITED STATES PATENTS

1,035,822	8/12	Green.	
1,622,607	3/27	Peterson.	
1,729,103	9/29	Gasner et al.	55—1
1,892,741	1/33	Smith	15—312 X
2,076,988	4/37	Garrett	183—82 X
2,102,499	12/37	Wallace	55—459
2,200,620	5/40	Findley	55—459 X
2,333,961	11/43	Sweeny	183—67.1
2,364,877	12/44	Smellie	55—337 X
2,573,192	10/51	Fontein.	
2,943,698	7/60	Bishop	55—337
2,976,558	3/61	Fain	15—312
3,011,925	12/61	Holtzclaw	134—21
3,064,299	11/62	Bahnson et al.	15—312

FOREIGN PATENTS

797,940	7/58	Great Britain.

OTHER REFERENCES

Parks-Cramer Bulletin #411, published Sept. 25, 1958 (1 page).

CHARLES A. WILLMUTH, *Primary Examiner.*