April 16, 1968 R. D. KINCAID 3,377,665

TEXTILE MACHINE CLEANING SYSTEM AND METHOD

Filed Aug. 13, 1965 3 Sheets-Sheet 1

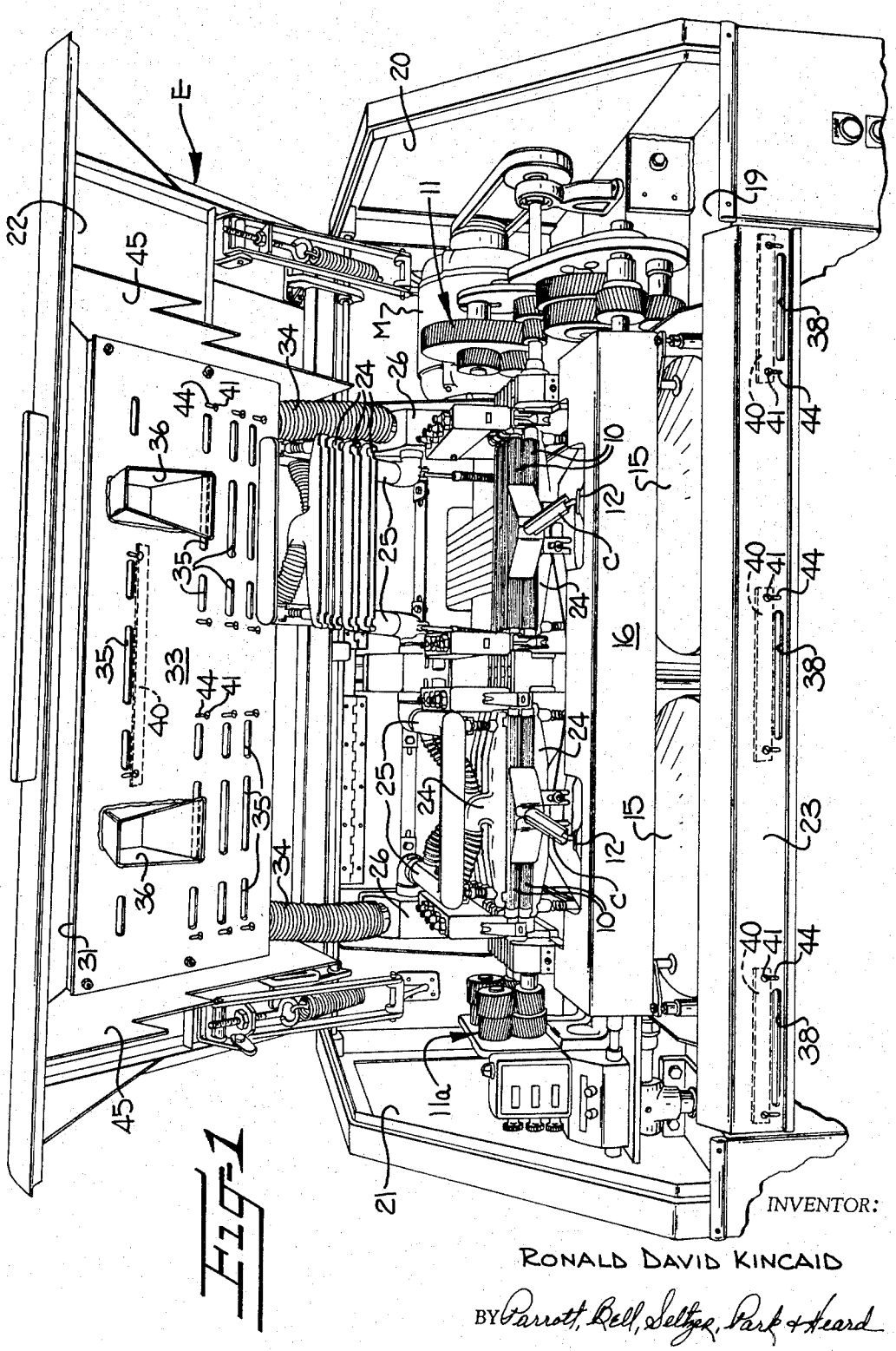


Fig. 1

INVENTOR:

RONALD DAVID KINCAID

BY Parrott, Bell, Seltzer, Park & Heard

ATTORNEYS

April 16, 1968 R. D. KINCAID 3,377,665

TEXTILE MACHINE CLEANING SYSTEM AND METHOD

Filed Aug. 13, 1965 3 Sheets-Sheet 2

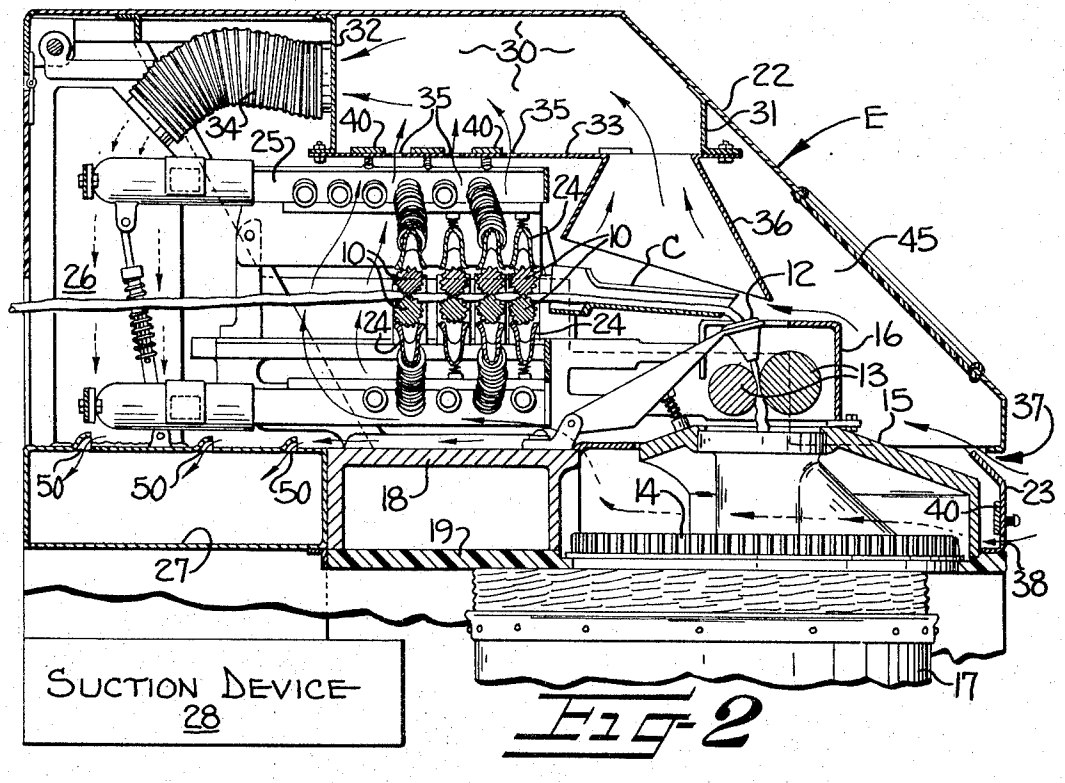


Fig-2

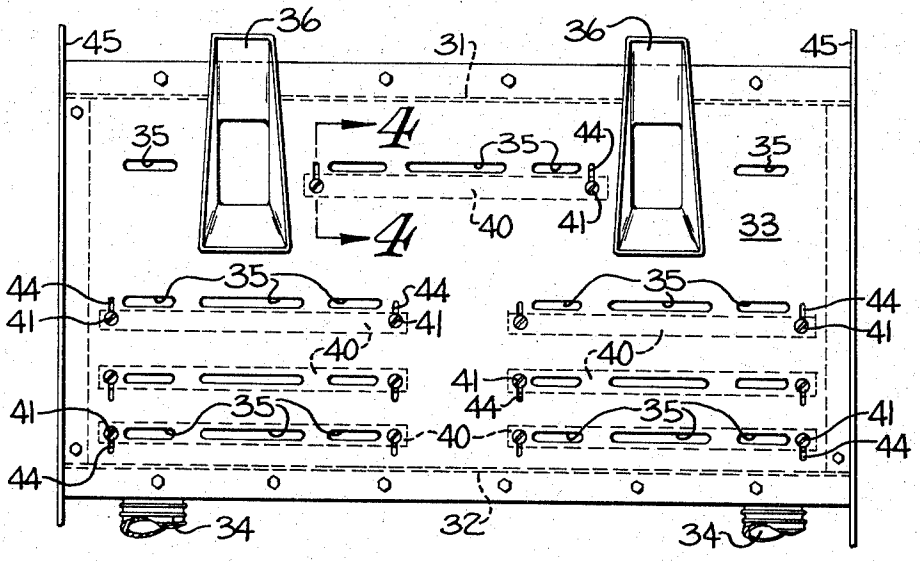


Fig-3

INVENTOR:
RONALD DAVID KINCAID

BY Parrott, Bell, Seltzer, Park & Heard

ATTORNEYS

April 16, 1968 R. D. KINCAID 3,377,665

TEXTILE MACHINE CLEANING SYSTEM AND METHOD

Filed Aug. 13, 1965 3 Sheets-Sheet 3

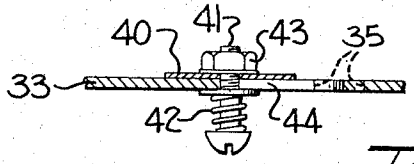


Fig. 4

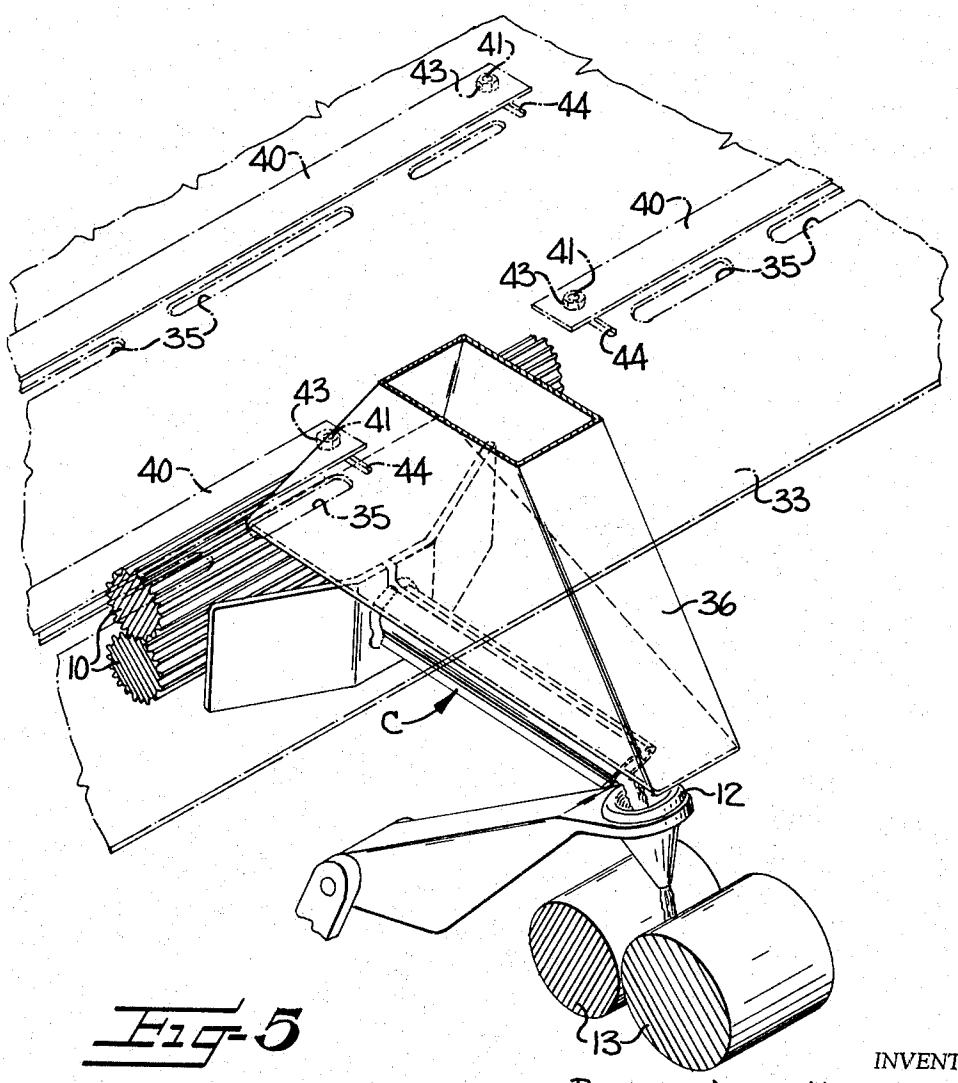


Fig. 5

INVENTOR:
RONALD DAVID KINCAID

BY Parrott, Bell, Seltzer, Park & Heard

ATTORNEYS

United States Patent Office 3,377,665 Patented Apr. 16, 1968

3,377,665

TEXTILE MACHINE CLEANING SYSTEM AND METHOD

Ronald David Kincaid, Kings Mountain, N.C., assignor to Ideal Industries, Inc., Bessemer City, N.C., a corporation of North Carolina

Filed Aug. 13, 1965, Ser. No. 479,554
14 Claims. (Cl. 19—263)

ABSTRACT OF THE DISCLOSURE

A pneumatic cleaning system for textile machines of the type having a drafting system and a coiler wherein suction air currents are applied substantially throughout the area between the drafting system and the coiler for disposing of lint and fly generated by the passage of textile material therethrough, and wherein other suction air currents are applied to sweep across the coiler and surrounding areas and underneath and past the drafting system, as well as above the drafting system, for removing and disposing of waste generated by the textile material being drafted.

This invention relates to textile machines, such as drawing machines, and is particularly concerned with a pneumatic cleaning system for removing and preventing excessive accumulation of fiber waste, including lint, dust, pepper trash and other light waste material, on various surfaces of such machines and/or the textile material in process and which surfaces may include areas which are difficult to reach or grain access to with manual or mechanical cleaning devices, especially during operation of the machine.

As is well known, fiber waste generated as an incident to the operation of drawing machines frequently causes malfunction thereof if the fiber waste is permitted to accumulate on various parts of the machines. Also, the settling of fiber waste on or the adherence of fiber waste to the textile material in process has deleterious effects on the textile material which reduce the quality of yarn and textile products made therefrom.

In the past, drawing machines were typically operated at what is now considered a relatively low delivery rate. At such low delivery rates, waste material could be satisfactorily removed from the machine by mechanical cleaning, either with mechanical instrumentalitites or by hand. Even though such cleaning was not wholly effective, the somewhat uneven product and recurrent interruptions in production were tolerated as acceptable within the then-known use of drawing machines. More recently, drawing machines have been improved and are now operated at substantially higher delivery rates than were previously considered possible. With such higher delivery rates, malfunctions caused by inadequate cleaning have become much more acute. The inadequacy of mechanical cleaning, particularly for the drafting instrumentalities, has resulted in the development of improved cleaning systems which have largely eliminated problems caused by accumulation on the instrumentalities which otherwise were aggravated by increase in the delivery rates of drawing machines. However, such improved cleaning systems have not overcome the problems caused by accumulation of waste material in the areas beneath the drafting instrumentalities, around the coiler mechanism and between the drafting instrumentaltiies and the coiler mechanism.

Further, the accumulation of pepper trash and broken fibers in many areas of the textile machine which are normally inaccessible during operation of the machine, such as the upper surface of the main beam, creates additional hazards for textile operations, including but not

limited to increased danger of fire. With increased rate of production, an increased rate of accumulation of such waste material results, and the non-productive time expended in cleaning normally inaccessible areas of the machine becomes more critical.

The primary object of this invention is to provide an improved method of and apparatus for cleaning and/or preventing excessive accumulation of fiber waste on textile drawing machines which will overcome the aforementioned deficiencies of the prior cleaning systems and wherein the drafting instrumentalities and the upper portion of the coiler mechanism of the textile drawing machines are substantially enclosed, and a localized suction zone is applied to an area including substantially the entire path of travel of the textile material from its point of emergence from the instrumentalities to its point of entry into the coiler mechanism. The enclosure is provided with one or more air inlet openings which channel air flow into the enclosure under impetus of the suction zone on a level below that of the path of travel of the textile material such as to cause the air flow to sweep machine surfaces below said path of travel and to pass upwardly past the textile material and to entrap fiber waste in the air flow to the suction zone, the fiber waste thus entrapped being conveyed from the suction zone to a collection area.

A more specific object of this invention is to provide, in combination with a textile machine of the type described, a chamber spaced above and overlying the drafting instrumentalities and the area between such instrumentalities and the coiler mechanism, and into which a flow of air is induced to remove waste material from the areas adjacent the drafting instrumentalities and between the instrumentalities and the coiler mechanism.

Another object of this invention is to provide, in combination with a textile machine of the character described and including condensing and guiding means defining the path of movement of textile material between the drafting instrumentalities and coiler mechanism, a hood defining a lint pick-up passage having an open mouth spaced above and overlying the condensing and guiding means and into which a flow of air is induced effective for removing waste material from the area surrounding the condensing and guiding means without displacing the path of movement of textile material from the guiding means.

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

FIGURE 1 is a perspective view looking at the front upper portion of a textile machine incorporating the present invention and showing an enclosure surrounding the upper portion of the machine with its cover in raised position;

FIGURE 2 is a vertical sectional view taken through one of the sets of drafting instrumentalities and other corresponding parts of the machine of FIGURE 1, with the cover portion of the enclosure occupying a closed position;

FIGURE 3 is an inverted plan view of the suction chamber shown in the upper portions of FIGURES 1 and 2;

FIGURE 4 is a fragmentary sectional view, taken substantially along line 4—4 in FIGURE 3, showing a valve means used with the cleaning system of the present invention; and

FIGURE 5 is a perspective view, from above, showing a hood overlying the condensing means between delivery rolls of one set of drafting instrumentalities and the adjacent trumpet, with a lower wall of the suction chamber being shown in phantom lines.

Referring more particularly to the drawings, FIGURES 1 and 2 illustrate a textile machine and the combination therewith of the cleaning system of the present invention. The textile machine may include one or more deliveries or sets of drafting instrumentalities, there being two sets shown in FIGURE 1, and each of which may comprise a plurality of drafting rolls **10**, for drawing textile material supplied to the back of the machine as a plurality of slivers. Suitable drive mechanism such as a motor M and gearing indicated generally at **11**, **11***a*, at opposite sides of the machine, is provided for rotating all the rolls of the machine.

The textile machine additionally has coiler mechanism, for each delivery, located at the forward or delivery side of the machine. Each coiler mechanism comprises a trumpet **12**, a pair of calender rolls **13** and a rotary coiler plate or tube gear **14**. With a multiple delivery machine, as illustrated, the pair of calender rolls are common to both deliveries or are mounted on common shafts extending laterally of the machine. Conventionally, at least the forward portion of each tube gear **14** is covered by truncated partially conical cover **15**, to prevent the accumulation of waste material on the tube gear. Further, the calender rolls or shafts thereof are substantially covered by a member **16** extending transversely of the machine at the forward portion thereof, to reduce accumulation of waste material on the calender rolls and increase operator safety.

In the processing of textile material, as generally well known, the material supplied to the drafting instrumentalities **10** of each delivery is drafted and subsequently delivered to the associated trumpet **12** to be condensed into a sliver and passed through the associated calender rolls **13** and the associated tube gear **14** to be coiled into a sliver can **17**. The machine includes a conventional main beam **18**, which is a major structural element supporting the various working instrumentalities and a spectacle plate **19** which supports the tube gear **14** and coiler cover **15**. A condensing and guiding means C is provided between each set of drafting instrumentalities **10** and the corresponding trumpet **12** to guide and assist in condensing textile material into a sliver in its course to the coiler mechanism. Such a condensing and guiding means is frequently referred to as a condenser or fly pan. The forwardly extending substantially tubular portion of each condenser C is usually slotted substantially throughout its length to assist in threading stock therethrough.

In the operation of the textile machine and particularly during the operation of such a machine at relatively high speeds, various types of waste material are generated at the drafting instrumentalities **10**. Certain types of waste material, known as pepper trash, result from the dislodgment of non-textile waste material, such as bits of plant stems or leaves, upon the opening of the textile material intermediate successive pairs of rolls, during the drafting process. Other types of waste material, particularly broken fibers, result from the mechanical stresses applied to the textile material during the drafting process. Such waste materials, when permitted to accumulate on the upper surface of the main beam **18** and/or in the area around the condenser C, create problems in operation as previously described.

In order to reduce the accumulation of waste material in the form of broken fibers, several modifications of machines of the general type described above have previously been proposed, and are incorporated into the machine illustrated in FIGURES 1 and 2. More specifically, such textile machines have been provided with enclosures surrounding the drafting instrumentalities and the upper portions of the coiler mechanism, in order to limit the accumulation of waste material on the machine to that waste material generated by the particular machine, by excluding waste material which may be generated in other areas of a plant and carried by air currents to the particular machine. With the machine of FIGURES 1 and 2, such an enclosure is broadly designated at E and comprises side panels **20**, **21**, enclosing the right and left sides of the machine respectively, a main cover member **22** and a forward shield panel **23**. Cover member **22** is mounted for pivotal movement to permit access to the various operating instrumentalities of the machine when raised, as shown in FIGURE 1. However, cover member **22** is normally lowered during operation of the machine, as illustrated in FIGURE 2.

Further, in order to reduce the amount of waste material in the form of broken fibers which may accumulate on the textile machine, a roll-clearing suction system is provided for removing short fibers from drafting rolls **10**. Such a suction system is installed on the machine of FIGURES 1 and 2, and includes elongate suction heads **24** normally positioned immediately above and below the drafting rolls **10**, there being one of the suction heads **24** located closely adjacent to each drafting roll. Suction heads **24** are supported from pivotally mounted suction conduits **25**, which operatively communicate with upright suction stacks or hollow standards **26** disposed adjacent the rear of the machine within enclosure E.

The suction stacks **26** communicate with a main suction duct **27**, which is in turn connected to a suitable suction and cleaning device **28**, such as a fan provided with a filter, effective for inducing a flow of air through main suction duct **27**, the suction stacks **26**, the conduits **25**, and the suction heads **24**. The flow of air thus induced from immediately adjacent the surface of the drafting rolls **10** provides localized suction zones at the roll surfaces and is effective to remove from the surfaces of the rolls **10** any broken or short textile fibers therefrom, and provides further advantages of cooling for the rolls and adjacent roll bearings. In this instance, beam **18**, spectacle plate **19**, coiler covers **15** and main duct **27** serve collectively as a bottom wall for enclosure E.

With the combination of a textile machine and cleaning system as described above, the release of pepper trash and broken fibers in the drafting zones between adjacent pairs of top and bottom drafting rolls **10** and in the area of the condenser C between the drafting rolls and the coiler mechanism perimts the accumulation of waste material on the upper surface of the main beam **18** of the machine and in the area around the condenser C. In order to solve the problems created by the accumulation of such waste material, the present invention provides apparatus in combination with the textile machine for removing the waste material by applying localized suction zones to cause a flow of air through and across the areas subject to such accumulation.

More particularly, FIGURES 1 and 2 illustrate means spaced above the drafting instrumentalities and located within the enclosure E for defining a suction chamber **30**. Suction chamber **30** comprises a front wall panel **31**, rear wall panel **32** and a bottom wall or plate **33**. The front and rear wall panels **31**, **32** may be suitably secured to the main cover member **22**. The bottom wall **33** of chamber **30** overlies the drafting instrumentalities **10** and the area between the instrumentalities and the coiler mechanism. Flexible conduits **34** may provide an operative communication between suction chamber **30** and the suction stacks **26**, so a common suction and cleaning device induces flow of air through suction chamber **30** and the drafting roll suction heads **24**, as is preferred.

As best shown in FIGURES 1, 3 and 5, bottom wall or plate **33** of suction chamber **30** is provided with a plurality of spaced suction inlet openings **35**, with the majority of the openings preferably being in the form of elongate slots extending transversely of suction chamber **30**. Aligned rows of such transversely extending slots **35** are provided in spaced relationship substantially parallel to the front and rear edges of plate **33**, such as to cause air to flow through the areas to be cleaned, as will be more clearly described hereinafter.

The suction chamber 30 is provided with means within the enclosure defining a lint pick-up passage extending substantially throughout the distance between each set of drafting instrumentalities or drafting rolls 10 and the respective coiler mechanism, such means being embodied in a substantially tubular hood 36 carried by and depending from bottom plate 33 of suction chamber 30. Each hood 36 communicates with the interior of suction chamber 30 and thus serves to define a suction inlet thereto and has an open bottom or mouth forming said lint pick-up passage and which is positioned in close proximity to and overlies the area between each corresponding coiler mechanism. Thus, the lint pick-up passage or mouth overlies the corresponding condensing and guiding means C. The area of the mouth of each hood 36 is substantially equal to or greater than the area through which the textile material passes in its course from each front pair of drafting rolls to the corresponding trumpet 12.

In order to assure adequate cleaning without displacing the textile material from the desired path of movement between the drafting instrumentalities and coiler mechanism, the mouth of each hood 36 is spaced a predetermined distance above the path of travel of the textile material, as defined by the condensing and guiding means C. This is most clearly shown in FIGURE 2, wherein the mouth of hood 36 is shown to lie in a plane which extends at a slight angle to the path of movement of the textile material. This has been found advantageous, inasmuch as the textile material enters the condensing and guiding means C as a thin web which is more easily displaced by the flow of air, and thus the greater displacement of the rearward portion of the mouth of the hood 36 lessens the likelihood of the textile material being drawn upwardly into the suction chamber 30 by the flow of air induced into the hood 36.

In order to provide a flow of air for induction into the suction chamber 30, and cleaning of the areas where waste material would otherwise accumulate, a forward portion of the enclosure is provided with air inlet openings. More specifically, when cover member 22 occupies closed position, as shown in FIGURE 2, a depending forward portion thereof is spaced from the front shield member 23 so as to define a transversely extending slot 37 operative as one air inlet opening. Additional air inlet openings may be provided in the form of several elongate transversely extending slots 38 through the front shield member 23, for purposes to be later described.

In order to provide for adjustment of the volume of air flow induced by the application of suction to suction chamber 30, valve means are provided for varying the effective size of the transverse slots 35, 38 in the bottom wall 33 of suction chamber 30 and in shield member 23. Preferably, such valve means are each in the form of a plate member 40, adjustably secured to the corresponding plate member 33 and the forward shield member 23 adjacent a corresponding one of the transversely extending inlets 35, 38. The preferred attachment of the bar members 40 is illustrated in FIGURE 4, wherein a sectional view through plate member 33 shows a bolt 41 extending through a compression spring 42, the plate 33, the bar 40, and secured by a nut 43. As shown in FIGURES 1, 3 and 4, each bolt 41 passes through an adjustment slot 44 extending perpendicularly to the direction of the immediately adjacent elongate suction inlet 35, 38, thus facilitating adjustment of each valve bar 40 to vary the effective area or size of each air inlet or slot 35, 38. As the spacing between adjacent pairs of upper and lower drafting rolls 10 will be varied with variations in the fiber length of the textile material being processed, the effective size of the several transverse slots 35 in the bottom wall 33 may be varied to adjust the quantity and paths of air flow for optimum cleaning.

As heretofore stated, the drafting rolls 10 are driven in the proper speed relationships by gearing 11, 11*a*, positioned at opposite sides of the machine and effective to

drive all the rolls from a common power source. Such gearing, as shown in FIGURE 1, is subject to substantial damage if waste material is permitted to accumulate thereon. In order to reduce the danger of damage to the gear drives, the combination of the present invention provides means for limiting the cleaning flows of air to predetermined areas, for excluding such air and the waste material carried thereby from flowing around or over the drive mechanisms. Preferably, this means takes the form of two interior panels 45, secured to and depending from the lower surface of cover member 22 adjacent the lateral ends of the suction chamber 30, and thereby serving as opposed side walls of suction chamber 30. The lower edges of panels 45 are stepped or otherwise configured to lie closely adjacent the bearing supports for the drafting instrumentalities and to extend past opposed ends of shield member 23 so as to effectively block the flow of lint-laden air, induced by the suction cleaning system, in the region of gearing 11, 11*a*.

The suction device 28 operates continuously during the processing of textile material to apply localized suction zones to predetermined areas of the machine and induce a flow of air inwardly from the exterior of the enclosure through the air inlet openings 37, 38 at the forward portions of the enclosure E, as represented by the front upper flow arrows in FIGURE 2. The relative positions of the enclosure air inlets 37, 38, the suction chamber inlets 35 and hood 36 effect a channeled flow of air through the more critical areas of the machine. In this regard, it will be appreciated that a portion of the air mass entering the air inlet opening 37 defined between cover member 22 and forward shield 23 is channeled to flow upwardly adjacent the upper portion of the coiler mechanism and over shield member 16 and to flow through and around the area between the drafting instrumentalities and coiler mechanism. This flow of air is induced to flow inwardly through the localized suction zone defined by the hood 36 and into the suction chamber 30, to entrap and convey waste material from the area between the drafting instrumentalities and the coiler mechanism and including substantially the entire path of travel of the textile material from its point of emergence from the former to its point of entry into the latter. As previously stated, the mouth of each hood 36 has an area substantially equal to the area to be cleaned between the drafting rolls and the coiler mechanism and is spaced a predetermined short distance above the path of movement of textile material through such area, thus rendering the flow of air in that area effective to remove waste material for subsequent collection in the suction device 28 without displacing the textile material from the desired path of movement.

Other air flows are induced to enter the transverse air inlet slots 38, in the forward shield member 23, as indicated by the lower arrows in FIGURE 2. In FIGURE 2, it will be observed that the upper wall of duct 27 extends rearwardly from, and occupies substantially the same level as, the upper surface of beam 18. The upper wall of duct 27 is provided with longitudinally extending louvered openings or slots 50 which are of sufficient length to correspond, at least, with the width of the slivers passing through each set of drafting rolls 10. Thus, since the coiler covers 15 extending over tube gears 14 are tapered somewhat and do not entirely fill the transverse width of the textile machine, the air flow entering air inlet slots 38 is also channeled to flow more directly rearwardly within the machine enclosure, passing beneath the calender rolls 13 and across and over the upper surface of the main beam 18, with some of the air flowing into louvered slots 50 and some of the air being channeled upwardly through open suction inlets 35, spaced above several areas of the drafting instrumentalities, and into suction chamber 30.

Thus, relatively heavy waste material, such as pepper trash, which tends to accumulate on beam 18 is dislodged therefrom and conveyed through slots 50 into main suc-

tion duct 27. At the same time lighter waste material, such as fly and short fibers shed from the textile material in process, is conveyed upwardly and into suction chamber 30 by the corresponding air stream or streams.

Simultaneously with the cleaning provided by the air flows just described, the suction cleaning device 28 is effective to induce an air flow through the localized suction zones, defined by the suction heads 24, immediately adjacent drafting rolls 10, for the purposes previously described.

Accordingly, a novel combination of a textile machine and cleaning system for the machine has been described which avoids the interruption of production and other hazards resulting from the accumulation of waste materials either in inaccessible areas or in the areas intermediate the drafting instrumentalities and coiler mechanisms of a textile machine of the type described.

It is to be noted that the apparatus of the present invention is so arranged that it will not interfere with operation of the machine. Also, the suction chamber 30 and its hood or hoods 36, being carried by the enclosure cover 22, are readily movable out of the way of the operator whenever it is desirable to inspect or make changes or adjustments in the drafting instrumentalities, the coiler mechanism, the gearing 11, 11*a* or other adjacent components.

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. The combination with a textile machine having drafting instrumentalities and coiler mechanism receiving textile material from the instrumentalities, of cleaning apparatus for removing fiber waste from the area between the instrumentalities and the coiler mechanism comprising:

an enclosure surrounding the instrumentalities and the upper portion of the coiler mechanism,

means within said enclosure defining a lint pick-up passage extending substantially throughout the distance between the instrumentalities and the coiler mechanism and positioned adjacent said area,

means inducing an inward flow of air into and through said pick-up passage, and

said enclosure having at least one inlet opening for ingress of air into said enclosure and being so located that air flows therefrom past and against the textile material at said area in the course of the flow of air into said passage such as to cause fiber waste throughout the entirety of said area to be carried into the passage by said flow of air.

2. The combination of claim 1, wherein the lint pick-up passage overlies said area.

3. In combination with a textile machine having drafting instrumentalities and coiler mechanism receiving a textile material from the instrumentalities, a cleaning apparatus comprising:

an enclosure surrounding the instrumentalities and the upper portion of the coiler mechanism and having at least one air inlet opening,

at least one tubular hood within said enclosure and overlying the area between the coiler mechanism and the instrumentalities and having an open-bottomed mouth positioned closely adjacent said area,

means within said enclosure defining a chamber communicating with said hood and having a plurality of spaced apart suction inlets therein communicating with the interior of the enclosure adjacent the instrumentalities, and

means for inducing an inward flow of air through said air inlet opening, through said suction inlets and hood into said chamber to cause waste material from said area and adjacent the instrumentalities to be carried into the chamber by said flow of air.

4. The combination as claimed in claim 3, in which said chamber is located above said instrumentalities and has a bottom wall provided with said suction inlets.

5. The combination as claimed in claim 3, wherein said air inlet opening is located adjacent a forward portion of said enclosure on a level below that at which the textile material passes through the drafting instrumentalities.

6. The combination as claimed in claim 3, further comprising valve means for varying the effective size of at least one of said suction inlets.

7. The combination as claimed in claim 3, in which the area of said mouth is substantially equal to the area between the instrumentalities and the coiler mechanism through which the material passes.

8. In combination with a textile machine having drafting instrumentalities and coiler mechanism receiving a textile materal from the instrumentalities, an apparatus for cleaning the area between the coiler mechanism and the instrumentalities comprising:

an enclosure surrounding the instrumentalities and the upper portion of the coiler mechanism and wherein a forward portion of said enclosure defines at least one air inlet opening,

means positioned within said enclosure and defining a chamber with a lower wall spaced above and overlying the instrumentalities and said area and having a plurality of spaced open suction inlets therein with at least one of said inlets being located closely adjacent and overlying the area between the coiler mechanism and the instrumentalities, and

means for inducing an inward flow of air through said air inlet opening, through said suction inlets and into said chamber to cause waste material from said area and the instrumentalities to be carried into the chamber by said flow of air.

9. A structure according to claim 8, wherein said machine includes a main beam spaced beneath said instrumentalities and upon which relatively heavy components of the waste material tend to accumulate, a suction duct having an upper wall extending rearwardly from the main beam and defining a portion of a bottom wall for said enclosure, said upper wall having at least one opening therein corresponding substantially to the width of corresponding drafting instrumentalities and spaced rearwardly therefrom, and said inducing means being effective to induce an inward flow of air into said last-named opening such as to cause air to flow from said air inlet opening over the beam to carry with it said heavy components of waste material from the beam into the duct.

10. A structure according to claim 8, wherein said instrumentalities comprise a plurality of drafting rolls, an elongate suction head extending longitudinally of and disposed in close proximity to each drafting roll and defining openings for sucking lint off said rolls, said means for inducing an inward flow of air including a suction device communicating with said chamber, and said suction device also being communicatively connected to said suction heads to cause air to flow into said openings therein.

11. In combination with a textile machine having drafting instrumentalities and coiler mechanism including a trumpet receiving textile material from the instrumentalities; the combination therewith of suction cleaning means for applying a suction cleaning action to said drafting instrumentalities, and apparatus for cleaning the area between the coiler mechanism and the instrumentalities, said apparatus comprising:

means defining a lint pick-up passage extending substantially throughout the distance between the instrumentalities and the coiler mechanism and so constructed and positioned adjacent said area as to be

effectively further away from the textile material emerging from the drafting instrumentalities than the textile material passing into the trumpet of the coiler mechanism, and

means communicating with said passage and with said suction cleaning means for inducing an inward flow of air throughout the entirety of said area and into said passage effective for removing waste material from said area.

12. A structure according to claim **11**, wherein said passage overlies the area between the drafting instrumentalities and the coiler mechanism and extends from adjacent the point at which textile material emerges from the drafting instrumentalities to a point adjacent said trumpet and is of a width about equivalent to the width of the emerging material.

13. A structure according to claim **12**, wherein said passage defining means comprises a tubular member having walls which form an open mouth and are spaced a substantially greater distance above the level at which textile material emerges from said instrumentalities than they are adjacent the trumpet so the emerging textile material will not be drawn into said mouth by the flow of air into the same.

14. A method of preventing excessive accumulation of fiber waste such as fly, dust, pepper trash and the like in the vicinity of drafting instrumentalities and coiler mechanism of a drawing machine and textile material being processed thereby, which method comprises:

substantially enclosing the instrumentalities and the upper portion of the coiler mechanism,

applying a localized suction zone to an area including substantially the entire path of travel of the textile material from its point of emergence from the instrumentalities to its point of entry into the coiler mechanism, while

creating additional suction zones at various locations spaced above and below several areas of the drafting instrumentalities, while

applying a localized suction zone immediately adjacent each of the drafting instrumentalities, while

channeling air flow into the enclosure under impetus of the suction zones at a level below that of said path of travel of the textile material and such as to cause portions of the air flow to sweep machine surfaces below said path of travel and below said drafting instrumentalities and other portions of the air flow to pass upwardly past the textile material, and

conveying the fiber waste in the air flows to a collection area to entrap the waste.

References Cited

UNITED STATES PATENTS

3,247,551	4/1966	Whitehurst	19—263 X
3,287,768	11/1966	Rakhorst	19—263 X

FOREIGN PATENTS

641,022	6/1962	Italy.
861,514	2/1961	Great Britain.

ROBERT R. MACKEY, *Primary Examiner.*