July 1, 1958 W. W. HEWITT 2,840,862

SUCTION HEAD MOUNTING FOR VACUUM CLEARING SYSTEMS

Filed Nov. 10, 1955 3 Sheets-Sheet 1

Fig-1

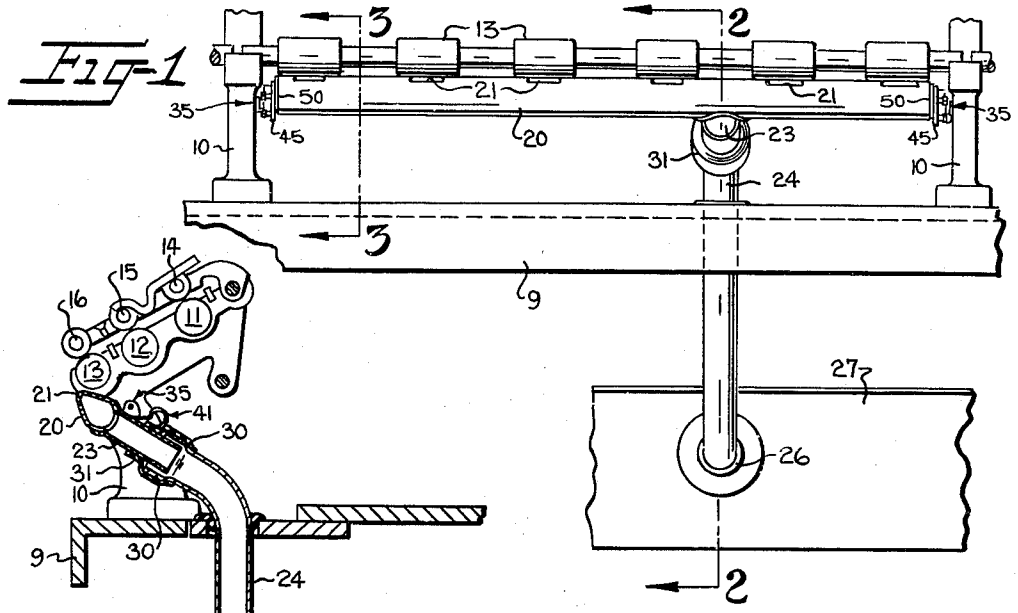
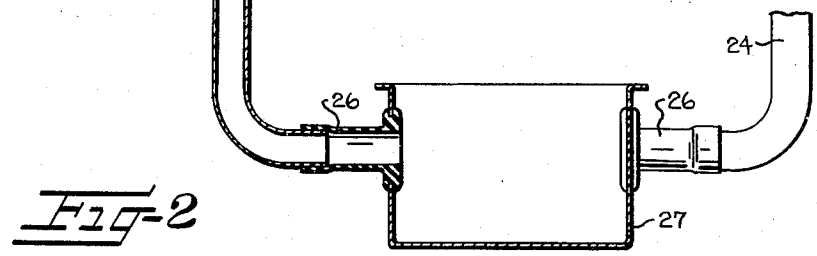


Fig-2



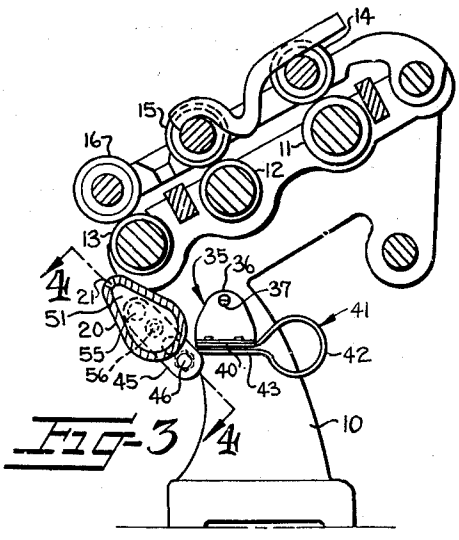


Fig-3

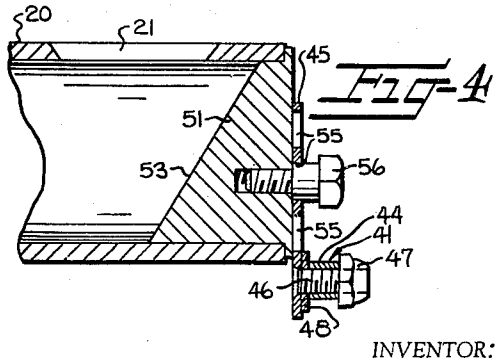


Fig-4

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SUCTION HEAD MOUNTING FOR VACUUM CLEARING SYSTEMS

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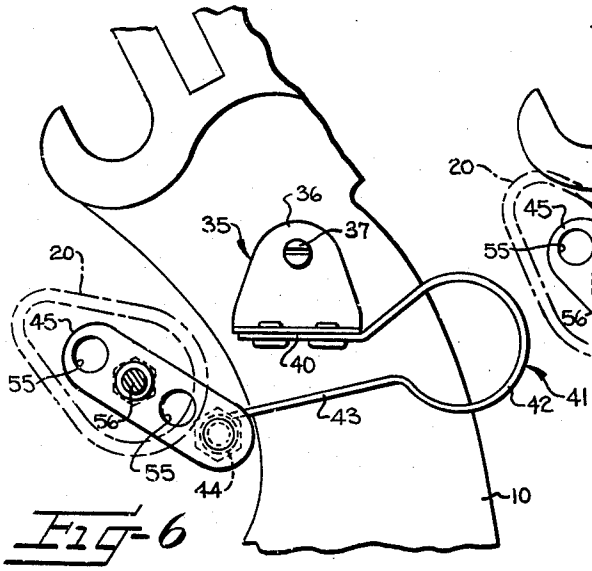


Fig-6

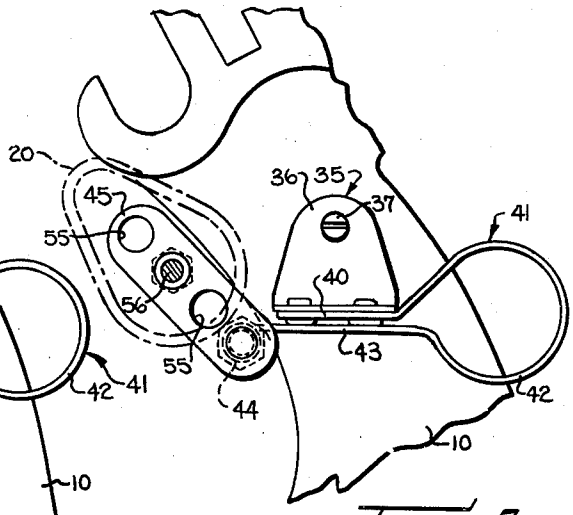


Fig-5

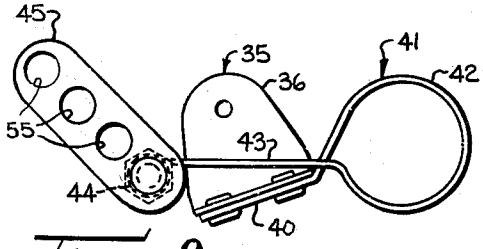


Fig-8

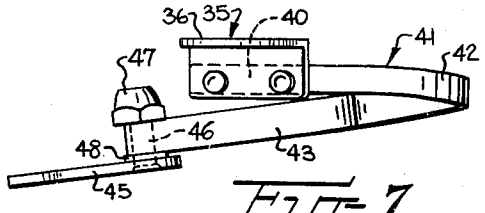


Fig-7

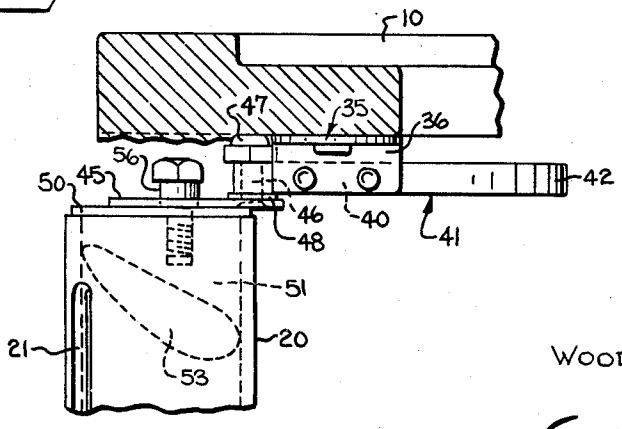


Fig-9

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SUCTION HEAD MOUNTING FOR VACUUM CLEARING SYSTEMS

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Fig-11

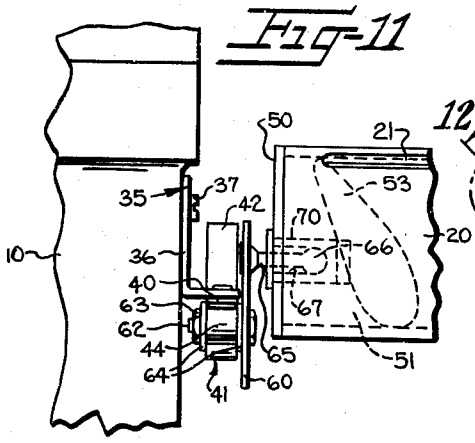
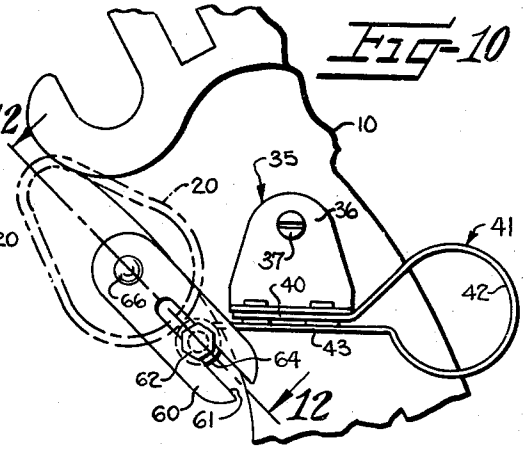


Fig-10



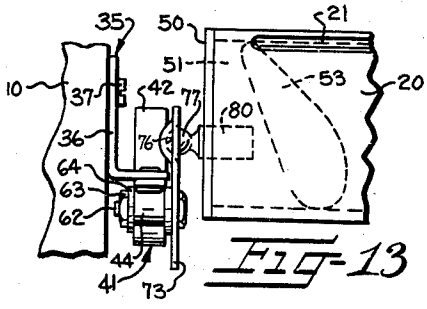


Fig-13

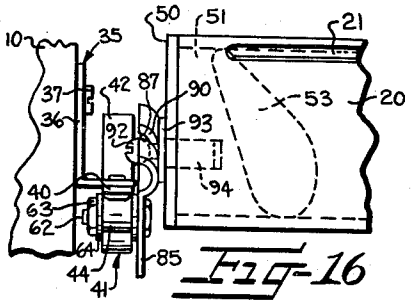


Fig-16

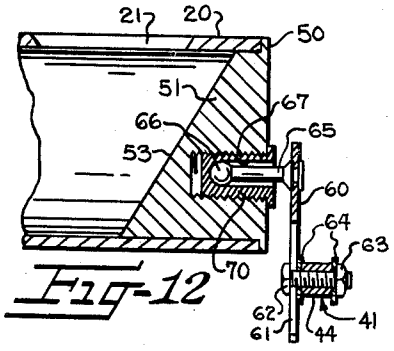


Fig-12

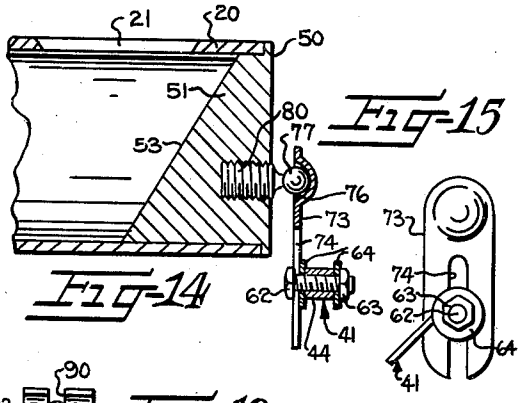


Fig-15

Fig-14

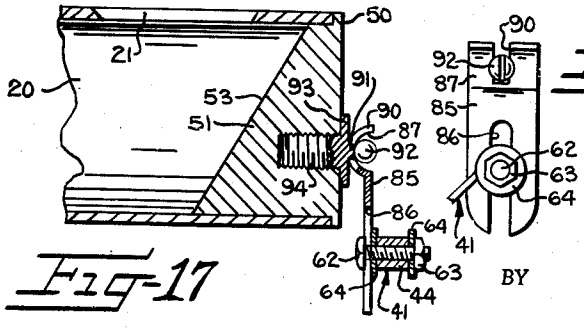


Fig-17

Fig-18

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2,840,862

SUCTION HEAD MOUNTING FOR VACUUM CLEARING SYSTEMS

Woodrow W. Hewitt, Charlotte, N. C., assignor to Spin Sa Vac Corporation, Charlotte, N. C., a corporation of North Carolina

Application November 10, 1955, Serial No. 546,216

16 Claims. (Cl. 19—139)

This invention relates to pneumatic cleaning equipment for textile machinery such as spinning frames, drawing frames and other drafting machines wherein a strand of yarn, sliver or roving is passed through a plurality of rolls and a suction head is disposed adjacent the lower front roll of such machines for sucking lint, broken ends and the like therein to direct them away from the drafting zone.

The present invention is particularly concerned with improvements in devices of the type disclosed and claimed in my copending application, Serial No. 527,262, filed August 9, 1955, and entitled Suction Head Mounting for Vacuum Clearing Systems, of which this application is a continuation-in-part.

The apparatus for mounting each suction head, as disclosed in said copending applicaiton, comprises a pair of brackets which are fixed to the proximal surfaces of corresponding roll stands and each of which has a leaf spring member fixed thereto and which extends rearwardly therefrom and then forwardly and has an arm secured to the forward end thereof. The arm extends upwardly and forwardly at an angle and has a slot therein which is penetrated by a screw threaded into a flanged closure cap for the corresponding end of the tubular suction head. The leaf spring member, in each instance, not only urges the suction head upwardly, but also urges the corresponding arm and closure cap inwardly so as to maintain the flanged closure cap in the corresponding end of the suction head. This facilitates removal of the closure cap from opposite ends of the suction head for removing the suction head, when desired.

Since the closure caps on opposite ends of the suction head of said copending application are fixed to the corresponding arm, the relative position of the suction head and the arms is constant whenever the suction head is moved downwardly away from the lower front roll of the corresponding drafting machine. This has required that the lateral or rearwardly projecting tubular extension on a medial portion of the suction head be disconnected from the corresponding rigid branch pipe leading to the main suction conduit or duct in order that the suction head could be moved downwardly away from the front roll during the tying of broken ends or for various other reasons.

It is an object of this invention to provide a suction head mounting of the character described wherein the closure caps at opposite ends of the suction head are pivotally connected to the arms fixed to the leaf spring members and wherein the lateral tubular extension extending rearwardly and downwardly at an angle from the suction head is loosely received in the corresponding end of a branch conduit or pipe of the cleaning system and is connected thereto by means of a resilient sleeve or boot. Thus, whenever the operator desires to move the suction head downwardly away from the lower front drafting roll, the suction head may be rotated slightly relative to the supporting arms therefor so the lateral tubular extension thereon may be tilted or moved out of axial alinement with the corresponding end of the rigid branch pipe of the vacuum cleaning system. It is apparent that this permits the suction head to move upwardly and to be moved downwardly relative to the corresponding branch pipe without disconnecting or removing the rear lower end of the lateral tubular member of the suction head from the corresponding branch pipe.

It is another object of this invention to provide apparatus of the character last described wherein the pivotal connection between each of the closure caps of the suction head and the corresponding supporting arm is in the form of a ball-and-socket joint which permits accurate alinement of the closure caps with the ends of the suction head, although the supporting arms may extend at an angle relative to the closure caps, since the supporting arms are biased inwardly toward opposite ends of the suction head by the leaf spring members to which they are secured.

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 somewhat schematic front elevation showing a portion of a textile drafting machine equipped with a suction head and one form of the improved mounting unit therefor;

Figure 2 is a fragmentary vertical sectional view taken substantially along line 2—2 in Figure 1 showing the suction head in raised or operative position and showing, in particular, how the lateral tubular extension on the suction head is connected to the corresponding branch pipe of the vacuum cleaning system and showing a set of top rolls resting on the bottom rolls;

Figure 3 is an enlarged fragmentary vertical sectional view taken substantially along line 3—3 in Figure 1, and also showing a set of top rolls resting on the bottom rolls;

Figure 4 is an enlarged fragmentary sectional view taken substantially along line 4—4 in Figure 3, and showing one form of means for pivotally connecting the corresponding suction head supporting arm to the closure cap at one end of the suciton head;

Figure 5 is an enlarged detail of the central portion of Figure 3, omitting the drafting rolls and showing the suction head in phantom lines and in raised or operative position;

Figure 6 is a view similar to Figure 5 wherein the suction head is shown in lowered or inoperative position;

Figure 7 is a top plan view of the mounting unit shown in Figure 5 removed from the roll stand and showing the resilient link or leaf spring member in its relaxed state;

Figure 8 is an elevation looking up at the lower side of the mounting unit shown in Figure 7;

Figure 9 is a fragmentary top plan view of the structure shown in Figure 5 with a corresponding end portion of the suction head being shown in solid lines;

Figure 10 is a view similar to Figure 5, but showing a second form of suction head supporting arm;

Figure 11 is a fragmentary view looking at the left-hand side of Figure 10, showing how the supporting arm is universally connected to the corresponding end closure cap of the suction head;

Figure 12 is a fragmentary sectional view taken substantially along line 12—12 in Figure 10;

Figures 13 and 14 are views similar to the respective Figures 11 and 12, but showing a third form of means for pivotally and universally connecting each end closure cap to the corresponding suction head supporting arm;

Figure 15 is a fragmentary view looking at the right-hand side of the suction head supporting arm of Figure 14;

Figures 16 and 17 are also views similar to the respective Figures 11 and 12, but showing a fourth form of

means for pivotally and universally connecting each of the end closure caps of the suction head to the corresponding suction head supporting arm;

Figure 18 is a fragmentary view looking at the right-hand side of the suction head supporting arm shown in Figure 17.

Referring more specifically to the drawings, and, more particularly, Figures 1 and 2, the numeral 9 indicates the frame or girt of a spinning frame, slubber, twister, roving frame or the like, which supports a plurality of roll stands 10. The roll stands 10 accommodate lower or bottom rolls 11, 12, 13 which have corresponding upper rolls 14, 15, 16. Only the front bottom roll 13 is shown in Figure 1.

The present invention resides in improved means for supporting a tubular cleaning conduit or suction head which has a plurality of longitudinally spaced slots or orifices 21 therein, each of which is positioned adjacent the bosses of the front bottom roll 13. The suction head 20 has a lateral, downwardly and rearwardly projecting tubular portion or extension 23 thereon which is connected, in a novel manner, to one end of a corresponding rigid branch pipe or conduit 24 which extends rearwardly and downwardly at an angle and then curves downwardly through the frame 9 and is connected, by means of a flexible tubular coupling 26, to a main suction duct 27 connected to a suitable suction means, not shown, in a conventional manner. It is apparent that a suction head 20 is provided for each roll section and one of the branch conduits 24 is provided for each suction head 20. The suction created in the main suction duct 27 also creates suction in each of the branch conduits 24 and its corresponding suction head 20. This results in air being drawn into the slots 21 to carry away lint and loose fibers which may tend to accumulate on the bosses of the front bottom roll 13.

It will be noted that the branch conduits 24 are made from a rigid material and, in order to loosely connect the lateral tubular extension 23 of the corresponding suction head 20 to the open upper end of the branch conduit 24, the upper end of the branch conduit 24 is enlarged or flared, as at 30, for loosely receiving the lower end portion of the lateral extension 23 of the suction head 20. A flexible tubular member or boot 31, preferably made from rubber, is stretched over and encircles the proximal portions of the branch conduit 24 and the tubular extension 23 to thereby provide an air seal therebetween and to also permit the conduit 23 to be moved upwardly and downwardly, into and out of axial alinement with the inclined upper end portion of the corresponding branch conduit 24. Thus, the boot 31 provides a flexible connection between the lateral extension 23 and the branch conduit 24.

The suction head 20 is of tubular construction and is generally tear-shaped in cross section so as to present a relatively narrow portion thereof adjacent the front bottom roll 13. In order to adjustably and movably support the suction head 20 between an adjacent pair of said roll stands 10, there is provided a pair of mounting units, each of which is broadly designated at 35. The mounting units 35 adjacent opposite ends of the suction head 20 are identical except being opposite hand and, accordingly, only the mounting unit 35 at the left-hand side of Figure 1, which is also shown in Figures 3 through 9, will be described in detail.

Each mounting unit comprises a substantially L-shaped bracket or angle clip 36 which is suitably secured, as by a screw 37 to the side of one roll stand 10 nearest the corresponding suction head 20. A straight fixed end portion 40 of a leaf spring member or resilient link, broadly designated at 41, is suitably secured to the horizontal flange of the angle clip or bracket 36. The leaf spring member or resilient link 41 extends rearwardly from the fixed end portion 40, in the form of a thin strip of flexible metal, such as spring steel, and is bent to serve as a torsion spring, in the form of a loop 42. The loop portion 42 curves through an arch of approximately two hundred seventy degrees and the metal is then bent forwardly to form a straight free end portion 43 which is of substantially greater length than the straight fixed end portion 40.

The straight free end portion 43 extends forwardly beyond the normal vertical plane of the fixed end portion 40 and is formed into a relatively small loop or eye portion 44. This eye portion is adjustably fixedly secured to the lower end of a corresponding suction head supporting arm 45 by a screw 46 which penetrates the arm 45 and the eye 44 of the resilient link 41 and has a nut 47 threaded thereon for clamping the eye portion 44 on the resilient link 41 against the arm 45 or against a washer 48 provided between the arm 45 and the eye portion 44. Thus, by loosening the nut 47, the arm 45 can be arcuately adjusted with the screw 46, after which the nut 47 is driven home to secure the arm 45 in the desired adjusted attitude relative to the resilient link 41.

It will be observed in Figures 7 and 8 that the straight free end portion 43 of the resilient link 41, when the resilient link is relaxed, extends upwardly at an angle past the fixed end portion or arm 40 thereof and also extends at an angle thereto so that, when the link 41 is positioned as shown in Figures 5 and 6, the free end 43 is normally biased upwardly, but is limited as to upward movement by engagement with the lower surface of the fixed end portion 40 or the heads of the rivets securing said fixed end portion 40 to the bracket 36. Also, it is apparent that the straight free end portion 43 is normally urged toward the observer in Figures 5 and 6.

Each end of the tubular suction head 20 is closed by a flanged closure cap 50 having a reduced body portion 51 thereon which is shaped to loosely fit in and conform to the shape of the suction head 20. In other words, the reduced body portion 51 of each closure cap 50 is also substantially tear-shaped in cross section and removably fits in the corresponding end of the suction head 20. It is apparent that the closure caps 50 prevent air from flowing into opposite ends of the suction head 20 so the air is drawn into the suction head 20 only through the slots 21 adjacent the bosses of the front bottom roll 13. The inner surface of the reduced body portion 51 of each closure cap 50 is preferably inclined inwardly within the suction head away from the endmost air inlet slot or orifice 21, as shown at 53, to thereby prevent turbulence of air as it is drawn through said endmost slots into the suction head 20.

The body portions 51 of the caps 50 are loose in the head 20 only to the extent that they may be easily slid into and out of the ends of the head 20 for cleaning or replacement of the head. The clearance between the body portions 51 and the head 20 is so slight that very little, if any, air will flow therebetween. Air leakage is further limited by engagement of the enlarged outer ends of the caps 50 with the end edges of the head 20.

The parts as heretofore described are substantially the same as similar parts disclosed in said copending application, Serial No. 527,262 and the novelty of the present invention resides in four different forms of suction head supporting arms, one of said arms being the arm indicated at 45 in Figures 3 through 9, and novel means for connecting the end closure caps 50 at opposite ends of the suction head 20 to the corresponding suction head supporting arms.

As heretofore stated, the lower end of each suction head supporting arm 45 of the first form of the invention is adjustably and fixedly secured to the forward end of the free end portion 43 of the corresponding resilient link 41. Heretofore, as shown in said copending application, the end closure caps of the suction head have also been secured to the suction head supporting arms and, accordingly, it has been necessary to remove the boot, such as the boot 31 in Figure 2, or to provide a flex-

ible tube extending from the extension 23 to the main duct 27 in place of the rigid tube such as that indicated at 24 in Figure 2, in order for the operator to swing the suction head downwardly with the supporting arms therefor and the corresponding resilient links.

In order to facilitate vertical movement of the suction head 20, in addition to providing the flexible connection 31 between the extension 23 and the flared upper end of the corresponding branch conduit 24, there are provided means for pivotally connecting closure caps 50 of the suction head 20 to the supporting arms 45 so the suction head 20 may rotate or turn relative to the supporting arms whenever the supporting arms and suction head are moved upwardly or downwardly relative to the front bottom roll 13. This permits the lateral tubular extension 23 to be moved about an axis generally further from the front ends of the free end portions 43 of the resilient links 41 than the general axis about which the flat free end portions 43 of the resilient links 41 move whereby the lower rear portion of the lateral tubular extension 23 may remain loosely confined within the flared portion 30 of the corresponding rigid branch conduit 24 and may also remain confined in the boot 31.

To this end, it will be observed in Figures 3 through 9 that the first form of the improved suction head supporting arm 45 is made from a flat rigid material and has a plurality of longitudinally spaced apertures or bores 55 therein, any one of which is loosely penetrated by a shoulder screw 56 whose reduced threaded portion is threaded into the outer end of the corresponding flanged closure cap 50. It is thus seen that each closure cap 50 is pivotally connected to the corresponding support arm 45. It is apparent that the suction head 20 is maintained in the proper position relative to the bottom front roll 15 when in operative position due to the fact that the lateral tubular extension 23 thereon is resiliently attached to the upper inclined forward end of the corresponding rigid branch conduit 24. Of course, the suction head 20 may be adjusted toward and away from the front bottom rolls 15 relative to the arms 45 by positioning the corresponding shoulder screws 56 in the desired holes 55, as is clearly apparent by reference to Figures 3 and 5. It is also apparent that the reduced body portions 51 of the closure caps 50 are maintained in opposite ends of the suction head 20 due to the inward pressure exerted thereon by the resilient links 41 through the intervening arms 45.

Since suction heads of the character described are sometimes mass produced and the distance between roll stands of some machines may vary relative to others, it will quite often happen that the movable or free end portions 43 of the resilient links 41 associated therewith will extend at an angle relative to the fixed portions 40 thereof and, also, relative to the axis of the corresponding suction head. Accordingly, in the three forms of the invention shown in Figures 11 through 17, means are provided for not only pivotally connecting opposite ends of suction heads to the corresponding supporting arms, but to also universally connect opposite ends of the suction heads to the corresponding supporting arms.

In the second form of the invention shown in Figures 10, 11 and 12, all parts which are substantially the same as similar parts shown in Figures 1 through 9 will bear the same reference characters and only the parts peculiar to the form of the invention shown in Figures 10, 11 and 12 will be described in detail.

In Figures 10 and 12, it will be noted that the second form of the invention is embodied in a ball-and-socket connection between each closure cap and its suction head supporting arm. In this instance the suction head support arm, which is designated at 60, is also shown in the form of an elongated relatively narrow, relatively thin and flat rigid member whose lower portion is provided with a longitudinally extending adjustment slot 61 which is penetrated by a screw 62 which also penetrates the

eye portion 44 of the corresponding resilient link 41 and has a nut 63 threaded thereon for adjustably securing the arm 60 to the resilient link 41. If desired suitable washers 64 may be provided on opposite sides of the eye portion 44 as best shown in Figure 12.

The upper portion of the supporting arm 60 has a shaft or rod 65 suitably secured thereto and projecting inwardly therefrom toward the corresponding end of the suction head 20. The free end of the shaft 65 has an enlarged rounded or segmentally-spherical portion or ball 66 thereon which seats in the correspondingly rounded bottom of a cavity 67 provided in an externally threaded seat element or screw 70 threaded into the corresponding closure cap 50. Since the shaft 65 is of smaller diameter than the cavity 67 it is apparent that the ball portion 66 thereon permits universal movement of the corresponding closure cap 50 relative to the arm 60 so the broad flat surface of the arm 60 may extend at an angle relative to the axis of the suction head 20.

The forms of the invention shown in Figures 13–15 and 16–18 are also embodied in ball-and-socket connections between the closure caps for the suction head and corresponding supporting arms. In the third form of the invention shown in Figures 13, 14 and 15, those parts shown which are identical or similar to corresponding parts appearing in Figures 3 through 9 will also bear the same reference characters. The suction head supporting arm shown in Figures 13, 14 and 15 is indicated at 73 and is also in the form of a relatively thin, relatively narrow and elongated metallic or rigid member whose lower portion is also provided with a longitudinally extending adjustment slot 74 therein for adjustably securing the supporting arm 73 to the eye portion of the resilient link 41. In this instance, the supporting arm 73 is shown as being adjustably secured to the resilient link 41 in identically the same manner in which the arm 60 is shown and, accordingly, the same reference characters shall apply to the corresponding parts and a repetitive description thereof is deemed unnecessary.

The supporting arm 73 shown in Figures 13, 14 and 15 differs from that shown in Figures 10, 11 and 12 in that the upper portion thereof is provided with a shallow concave recess 76 which serves as a socket for loosely receiving a ball or rounded member 77 formed integral with a screw 80 which is also threaded into the outer end of the corresponding closure cap 50. It is thus seen that the ball and socket arrangement shown in Figures 13, 14 and 15 will serve in substantially the same manner as the ball and socket arrangement shown in Figures 10, 11 and 12 to permit pivotal and universal movement of the closure caps 50 on opposite ends of the suction head 20 relative to the corresponding mounting units.

Many of the parts shown in the fourth form of the invention shown in Figures 16, 17 and 18 are also similar or identical to parts shown in Figures 3 through 9 and, here again, like parts shall bear like reference characters. The form of suction head supporting arm shown in Figures 16, 17 and 18 is indicated at 85 and is also in the form of a relatively thin and narrow elongated rigid member having a longitudinally extending slot 86 therein which is substantially the same as the slots 74 and 61 in the respective supporting arms 73 and 60 and which is provided for adjustably securing the supporting arm 85 to the eye portion 44 of the resilient link 41. Here again, the arm 85 is adjustably secured to the link 41 in identically the same manner in which the arm 60 is secured to the link 41 and, therefore, the same reference characters will apply to the corresponding elements to avoid repetitive description.

The supporting arm 85 differs from the other three forms of the invention in that its upper end is formed with a substantially semicircular portion 87 which is provided with a longitudinally extending slot 90 therein for loosely receiving a reduced neck portion or shaft 91 having a rounded outer end or ball 92 thereon which

loosely fits in the recess defined by the substantially semicircular portion 87. The neck 91 also has an enlarged flange portion 93 integral therewith against which the convex inner surface of the rounded portion 87 of the arm 85 bears. The flange 93 has a reduced threaded portion 94 integral therewith which is threaded into the closure cap 50 in the corresponding end of the suction head 20. It is apparent that the slot 90 in the curved portion 87 of the fourth form of supporting arm 85 is sufficiently larger than the shaft 91 to permit universal movement of the corresponding end of the suction head relative to the arm 85.

It is thus seen that I have provided a novel mounting unit for each end of a suction head of a vacuum cleaning system for textile drafting machines wherein various forms of means are provided for pivotally connecting the closure caps at opposite ends of the suction head to the upwardly and inwardly biased arms and wherein the latter three forms of the invention also permit relative movement between the suction head supporting arms and the closure caps of the suction head in practically any direction, thereby facilitating self-alinement of the pivotal connections between the closure caps and the supporting arms and also whereby the suction head may be pivoted about its longitudinal axis as it is raised and lowered relative to the bottom front drafting roll.

In the drawings and specification there have been set forth preferred embodiments 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. Apparatus for supporting tubular suction heads of vacuum cleaning systems adjacent textile drafting rolls mounted on roll stands comprising a bracket for each end of a suction head, means connecting said brackets to the proximal surfaces of adjacent roll stands, a resilient link for each of said brackets, said links each having a fixed end secured to its corresponding bracket and a free end terminating forwardly of its bracket, the free ends of said links being normally biased upwardly and toward each other, a flanged closure cap for each end of the suction head and having a reduced portion removably fitting in the tubular suction head, an elongated relatively thin and relatively narrow suction head supporting arm having its lower end secured to the free end of each of said resilient links, and means pivotally connecting an upper portion of each of said supporting arms to the outer end of the closure cap for the corresponding end of the tubular suction head whereby the suction head may be rotated relative to the supporting arms whenever the suction head is manually lowered, released and then moved upwardly by the resilient links.

2. A structure according to claim 1 wherein said means for pivotally connecting each supporting arm to the corresponding closure cap is in the form of a shoulder screw loosely penetrating the corresponding arm and having a reduced portion threaded into and secured in the corresponding closure cap.

3. A structure according to claim 2 wherein said upper portion of each supporting arm is provided with a plurality of longitudinally spaced apertures, any one of which may loosely receive the corresponding shoulder screw to thereby facilitate adjustment of the displacement between each end of the suction head and the free end of the corresponding resilient link.

4. A structure according to claim 1 wherein said means pivotally connecting each supporting arm to the corresponding closure cap comprises a ball and socket connection between each supporting arm and the adjacent closure cap.

5. A structure according to claim 4 wherein said ball and socket connection comprises a shaft fixed to and projecting inwardly from the upper portion of each supporting arm and having an enlarged rounded portion on its free end, an element fixed in the closure cap at each end of the suction head, and said element having a cavity in its outer end provided with a rounded bottom for receiving the enlarged rounded end of the shaft projecting inwardly from the corresponding supporting arm.

6. A structure according to claim 4 wherein said ball and socket connection comprises an element fixed in the outer end of each of said closure caps and projecting outwardly therefrom toward the corresponding arm and having a rounded portion on its outer end, the upper portion of the corresponding supporting arm having a recess in its surface adjacent said rounded portion of the corresponding element thus providing a seat for said rounded portion whereby the resilient link urges the seat into engagement with the rounded portion of the element projecting outwardly from the corresponding closure cap to permit pivotal and universal movement of opposite ends of the suction head relative to the supporting arms therefor.

7. A structure according to claim 4 wherein said ball and socket connection comprises an element fixed in the outer end of each of said closure caps and projecting outwardly therefrom toward the corresponding arm and having a substantially spherically-shaped portion on its outer end, the upper portion of the corresponding supporting arm having a recess in its surface adjacent the outer end of the corresponding element thus providing a seat for said outer end whereby the resilient link urges the seat into engagement with the rounded end of the element projecting outwardly from the corresponding closure cap to permit pivotal and universal movement of opposite ends of the suction head relative to the respective supporting arms.

8. A structure according to claim 4 wherein said ball and socket connection comprises an element having a neck portion fixed to and projecting axially outwardly from each closure cap, an enlarged rounded portion on the outer end of said neck portion, the upper portion of each supporting arm having an inwardly formed substantially concavo-convex portion thereon provided with a slot therein opened at its upper end and extending generally longitudinally of the corresponding supporting arm, the slot being of a width greater than that of the neck portion for receiving the neck portion therein and being of a width substantially less than the enlarged rounded portion on the outer end of the neck portion and the length of the neck portion being slightly larger than the thickness of the concavo-convex portion on the corresponding supporting arm whereby the concavo-convex portion of each supporting arm is prevented from having axial movement relative to the neck portion on each end of the suction head and whereby the suction head may be pivotally and universally moved relative to the supporting arm at each end thereof.

9. Apparatus for supporting tubular suction heads of vacuum cleaning systems adjacent textile drafting rolls mounted on roll stands comprising a resilient link for each end of a suction head, said links each having a fixed end, means securing the fixed end of each link to a corresponding roll stand, each link also having a free end projecting forwardly beneath said drafting rolls, the free ends of said links being normally biased upwardly, a flanged closure cap for each end of the suction head and having a reduced portion fitting in the tubular suction head, an elongated relatively thin and relatively narrow suction head supporting arm for each link, means adjustably and fixedly securing one end of each arm to the free end of each of said resilient links, and means pivotally connecting a portion of the other end of said supporting arms to the outer end of the corresponding closure cap whereby the tubular suction head may be rotated with the closure caps and relative to the supporting arms whenever the suction head is manually lowered, released and then moved upwardly by the resilient links.

10. A structure according to claim 9 wherein at least one of said means pivotally connecting the supporting arms to the corresponding closure caps comprises a ball and socket connection between a supporting arm and the adjacent closure cap.

11. A structure according to claim 10 wherein said ball and socket connection comprises a shaft fixed to and projecting inwardly from the upper portion of the last-mentioned supporting arm and having a rounded free end, an element fixed in the adjacent closure cap, and said element having a cavity in its outer end provided with a rounded bottom for receiving the rounded end of the shaft projecting inwardly from the corresponding supporting arm.

12. A structure according to claim 10 wherein said ball and socket connection comprises an element fixed in the outer end of said adjacent closure cap and projecting outwardly therefrom toward the corresponding arm and having a rounded portion on its outer end, the upper portion of the corresponding supporting arm having a recess in its surface adjacent the rounded end of the element thus providing a seat for said rounded end whereby the resilient link maintains the seat in engagement with the rounded end of the element projecting outwardly from the corresponding closure cap to permit pivotal and universal movement of the adjacent end of the suction head relative to the supporting arm therefor.

13. A structure according to claim 10 wherein said ball and socket connection comprises an element having a neck portion fixed to and projecting axially outwardly from said adjacent closure cap, an enlarged rounded portion on the outer end of said neck portion, the upper portion of the last-mentioned supporting arm having an inwardly formed substantially concavo-convex portion thereon provided with a slot therein opened at its upper end and extending generally longitudinally of the corresponding supporting arm, the slot being of a width greater than that of the neck portion for receiving the neck portion therein and being of a width substantially less than the enlarged rounded portion on the outer end of the neck portion, and the length of the neck portion being slightly larger than the thickness of the concavo-convex portion on the corresponding supporting arm whereby the concavo-convex portion of the latter supporting arm is prevented from having axial movement relative to the neck portion on the adjacent end of the suction head and whereby the adjacent end of the suction head may be pivotally and universally moved relative to its supporting arm.

14. In a vacuum cleaning system for textile machines having drafting rolls mounted on roll stands and including an elongated tubular suction head which is substantially tear-shaped in cross-section and is of lesser length than the distance between an adjacent pair of said roll stands, a flanged closure cap for each end of said suction head, each closure cap having a reduced portion thereon of substantially the same configuration as and adapted to fit in the corresponding end of said suction head; the combination of a pair of resilient links each having a fixed end and a free end, means rigidly securing the fixed ends of said links to the proximal surfaces of said pair of roll stands, each of said links extending rearwardly from its fixed end and being curved forwardly so its free end is spaced forwardly of the vertical plane of the fixed end thereof whereby the free end is normally biased upwardly, the free ends of said links also being biased inwardly toward each other, an arm having a lower portion adjustably and fixedly secured to the free end of each resilient link and projecting upwardly and forwardly therefrom at an angle and having an upper portion thereof terminating in the horizontal plane of the corresponding closure cap at each end of the suction head, and a universal connection between the upper portion of each of said supporting arms and the corresponding closure cap whereby the inward pressure of the resilient links cause the supporting arms to apply inward pressure to the closure caps at opposite ends of the suction head and whereby the suction head may be raised or lowered relative to the drafting rolls and may be turned about the axes at which the closure caps thereof are universally connected to corresponding supporting arms, and relative to the supporting arms.

15. Apparatus for supporting tubular suction heads of a suction clearer system adjacent drafting rolls mounted on roll stands of a textile machine comprising a link for each end of a suction head having one of its ends attached to a fixed part of said machine, each link having an upwardly resiliently biased free end extending forwardly beneath corresponding drafting rolls, a supporting arm adjustably and fixedly secured to and projecting upwardly from the free end of each link, a flanged closure cap for each end of the suction head having a reduced portion fitting in the suction head, and a universal connection between each supporting arm and the adjacent closure cap.

16. Apparatus for supporting tubular suction heads of a vacuum cleaning system adjacent drafting rolls of a textile machine comprising an upwardly and inwardly resiliently biased link for each end of a suction head, means connecting one end of each link to a fixed part of the machine, each link having a free end projecting forwardly beneath said drafting rolls, a supporting arm fixed to and projecting upwardly from the free end of each link, a flanged closure cap for each end of the suction head and having a reduced portion fitting in the suction head, and a universal connection between each of said supporting arms and the outer end of the closure cap for the corresponding end of the tubular suction head whereby the suction head may be rotated relative to the links and arms whenever the suction head is manually lowered, released then moved upwardly by the link.

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