Oct. 29, 1968 A. GALASSI 3,407,428

SCRAPER ROLL CLEARER

Filed July 12, 1965

FIG. 1.

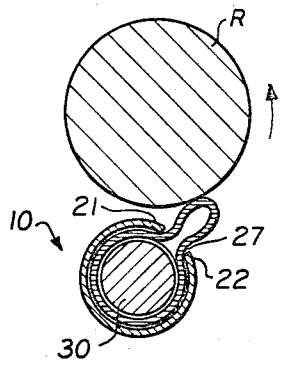


FIG. 2.

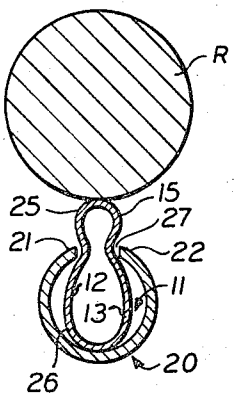


FIG. 3.

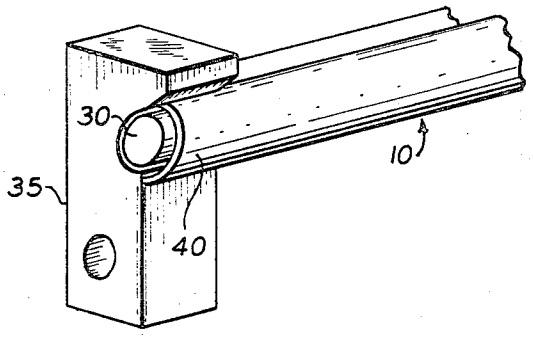


FIG. 4.

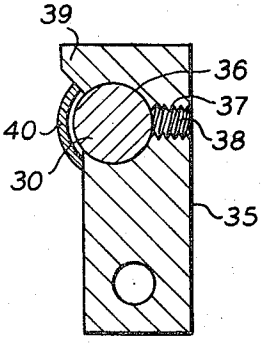
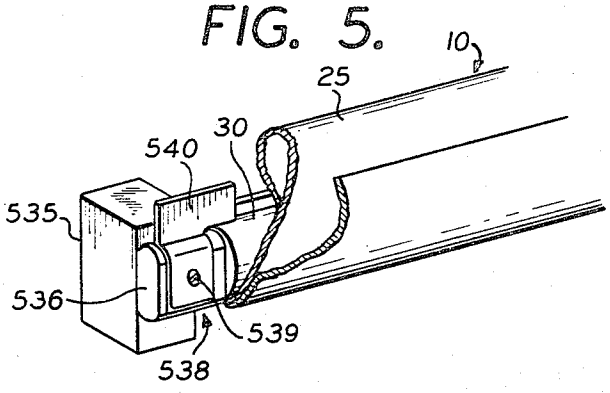


FIG. 5.



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SCRAPER ROLL CLEARER

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ABSTRACT OF THE DISCLOSURE

A roll clearer for removing foreign matter from the surface of the processing rolls of textile machinery, or the like, in which the clearer is constructed with a simply renewable wiper surface by forming the clearer of a flexible walled tubular wiper member arranged with a portion of the tubular wiper member within a slotted cylindrical sleeve which constrains the tubular wiper member into a figure 8 configuration with one lobe within the sleeve and another lobe extending externally thereof. A spreader rod within the wiper tube lobe in the sleeve secures the wiper tube in position. In use, renewal of the wiper surface is accomplished by sliding the wiper tube about the spreader rod.

Background of the invention

This invention relates to the art of clearing textile processing rolls of foreign matter, more particularly to an improved construction for such roll clearers permitting the ready renewal of the wiping surface.

A variety of structures have been evolved implementing the clearing of the surfaces of the processing rolls of textile fabricating machinery so as to remove from the processing rolls any accumulation of material which may interfere with their processing action. Thus, roll clearers of the type here under discussion have been developed for use with pneumatic cleaning equipment. These roll clearers generally comprise a wiping member of a flexible material which is positioned to contact the surface of the roll to be cleared, so that as the roll rotates any foreign matter entrained on the roll surface is removed by contact with the wiping member. These wiping members take a variety of forms, and generally are shaped to extend along the axis of the roll along a line or area of contact. With time due to the friction between the rotating roll surface and the wiping member, the wiping member wears out or becomes distorted, requiring replacement. Since previously evolved clearers generally comprise a relatively elongated wiping element mounted on a rigid support in which the wiping element is secured to the support by means of a plurality of spaced fastening members, replacement of the wiping element requires separation of the wiping element from the support by detaching the fastening member. Thereafter the replaced wiping element must be carefully positioned and adjusted to obtain desired clearing effects. This involves a relatively time consuming and expensive procedure.

Summary of the invention

It is with the above problems and desiderata in mind that the present clearer construction has been evolved, a clearer construction providing an improved technique for supporting a wiping element with respect to a roll surface so that the wiping surface may be readily renewed with little effort and expense.

It is accordingly one of the primary objects of the present invention to provide an improved construction for roll clearers permitting ready renewal of the wiping surface.

A further object of the invention is to provide an improved roll clearer construction permitting ready mounting of a flexible wiping element.

Another object of the invention is to provide an improved clearer construction in which the wiping element of the clearer may readily be changed with minimum effort.

These and other objects of the invention which will become hereafter apparent are achieved by forming a roll clearer with a wiping element made up of flexible sheet material having two spaced side walls flexibly movable with respect to each other, and joined by an arcuate portion. This wiping element is preferably made up of an elongate flexible walled tube. A holder is provided for the wiping element which engages the side wall of the wiping element and urges the side walls together so as to bend them along a curve having a center of curvature externally of the space between the wiping element side walls. An elongate slotted pipe or sleeve is found particularly suitable for use as a holder. Arranged between the side walls of the wiping element at a point remote from the free edge of the wiping element on the side opposite the line of inward urging of the wiping element by the holder, is a spreader which is preferably formed by means of a rod dimensioned to extend within the pipe employed as a holder.

A feature of the invention resides in the fact that the wiping element may readily be removed from the holder, and repositioned to provide a renewed wiping surface without the use of special tools, or the exercise of particular skills.

Brief description of the drawing

The specific details of the invention, and their mode of functioning, will be made most manifest and particularly pointed out in clear, concise and exact terms in connection with the accompanying drawings, wherein:

FIG. 1 is a schematic cross-sectional elevational view of a clearer made in accordance with the teachings of this invention shown in operative position with respect to a textile processing roll; and

FIG. 2 is a schematic cross-sectional view similar to FIG. 1 showing the clearer in the process of installation with respect to a textile processing roll, and illustrating the relationship between the wiping element and the holder for the wiping element; and

FIG. 3 is a perspective view showing a support for the clearer; and

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

FIG. 5 is a perspective view, with parts broken away, illustrating another arrangement for supporting the clearer.

Description of the preferred embodiment

Referring now more particularly to the drawings, like numerals in the various figures will be taken to designate like parts.

As seen in the drawings, the clearer **10** comprises a wiping element **11**, as best seen in FIG. 2. Wiping element **11**, as illustrated, is formed of a flexible sheet material having two spaced side walls **12** and **13** joined by an arcuate wiping portion **15**. As shown in the illustrated embodiment of the invention, the wiping element **11** is preferably made up of an elongate tube.

The wiping tube **11** is contained within a holder **20** having two spaced holder portions **21** and **22** which extend along the exterior surface of wiping elements side walls **12** and **13** to urge them together, bending the side walls **12** and **13** along a curve having a center of curvature externally of the space between the side walls **12** and **13**. As a result of this inward urging of the side walls **12** and **13**, the wiping tube **11** is forced into the FIGURE 8

configuration illustrated in FIG. 2 with a free upper wiping lobe **25**, and an anchoring lobe **26**. Holder **20** is preferably formed by means of an elongated slotted pipe member. The slot **27** (as best seen in FIGS. 1 and 2) separates the holder portions **21** and **22** urging the side walls **12** and **13** on wiper **11** towards each other. Holder portions **21** and **22** are formed with rounded edges minimizing the abrasive effect of the holder portions **21** and **22** on the two side walls **12** and **13**.

In order to insure desired positioning of the wiping element **11** with respect to the holder **20**, a spreader **30**, as best seen in FIGS. 1, 3 and 5 is provided. Spreader **30** is preferably made in the form of an elongate rod having a cross-sectional dimension such as to fit within holder **20** with sufficient clearance to permit wiper element **11** to be sandwiched between the exterior surface of spreader **30** and the interior surfaces of holder **20** as best seen in FIG. 1.

Mounting of the clearer **10** for operative use may be accomplished in a variety of ways. According to one embodiment of the invention, as illustrated in FIGS. 3 and 4, a support block **35** is provided with a spreader seat **36** dimensioned to receive the free end of spreader **30**. A tapped recess **37** is provided in support block **35**, with set screw **38** threadedly engaging in the threaded recess **37** to bear against spreader rod **30**, as best seen in FIG. 4.

Slotted holder sleeve **20** is formed with an extension **40** which in the illustrated embodiment is contoured as an arcuate segment of the circular holder. Extension **40** lies beneath the cam shoulder **39** of support block **35** and against the wall of the support block, as best seen in FIGS. 3 and 4.

In the embodiment of the invention illustrated in FIG. 5, an alternative support arrangement is shown. According to the support arrangement shown in FIG. 5, a support block **535** is arranged adjacent each extremity of the clear **10**. The spreader rod **30** is formed with flattened extension **536** at each end thereof, having a surface adapted to lie flush against the surface of support block **535**. A flange plate **538** is secured to the extension **536** by means of a screw or the like fastening member **539**. Upstanding from this flange plate **538** is a flange **540** arranged to lie within the slot **27** of slotted holder sleeve **20**, while according to this embodiment of the invention only extends up to the support block **535**.

Operation

In use the aforedescribed clearer structure **10** finds particular applicability in clearing the surface of drafting and delivery rolls of textile machines, where pneumatic cleaning equipment is employed to draw away the foreign matter removed from the rolls by the clearers.

The clearer **10** is positioned adjacent the rolls R to be cleared such as shown in FIGS. 1 and 2 with the wipping lobe **25** of the wiping member **11** arranged to contact the surface of the roll to be cleared. Desired positioning of the clearer member **10** so that the wiping lobe **25** is in a desired operative position is accomplished by arranging the clearer **10** on the support **35** or **535** in conventional fashion. The wiping lobe **25** of wiping element **11** flexes with respect to the support sleeve **20**, and is moved under the rotational action of roll R to the position shown in FIG. 1. Due to the anchoring effect of spreader rod **30**, which is apparent to those skilled in the art, the wiping element **11** is securely held with respect to support sleeve **20**. Additionally the spreader rod is anchored at its ends in the support blocks, as best seen in FIGS. 3 and 5.

With time, the surface of wiping lobe **25** in contact with roll R becomes worn, and desired clearing is adversely affected. At such time, renewal of the clearing surface is accomplished, in the case of the FIGS. 3 and 4 embodiments of the invention, by loosening set screw **38**, and removing spreader rod **30** from the support block **35**, and rotating the wiping element **11** so as to position a new portion of the wiping elements in the wiping lobe configuration **25**. Thereafter the spreader rod **30** is reinserted into the support block **35** and the set screw tightened. Desired positioning of the wiping lobe **25** with respect to roll R is insured by virtue of the fact that the slot **27** through which the wiping lobe **25** extends is maintained in a relatively fixed position due to the fact that the extension **38** at the end of the holder sleeve **20** are maintained in a fixed position against the shoulder **39** of the support block **35**.

In connection with the FIG. 5 embodiment of the invention, the slot **27** is maintained in desired fixed position by virtue of flange **540** which is fixed in position with respect to the support block and the rolls to be cleared thereby insuring the fact that upon repositioning of the wiping elements **11**, the position of the slot **27** is maintained in its desired initial orientation.

It is thus seen that a simple clearer construction has been provided in which a wiping element of the clearer may have its active surfaces replaced as desired, without the exercise of particular skills or requiring the utilization of particular tools in the adjustment of the clearer.

The above disclosure has been given by way of illustration and eucidation, and not by way of limitation, and it is desired to protect all embodiments of the herein disclosed inventive concept within the scope of the appended claims.

What is claimed is:

1. A roll clearer for removing foreign matter from the surface of the processing rolls of textile machinery or the like, said roll clearer comprising: an elongate flexible walled tubular wiping element; an elongate slotted pipe-like holder sleeve within which said tubular wiping element is positioned with a portion of said wiping element extending through the slot of said holder sleeve, the spacing between the holder portions adjacent the slot being such as to urge the side walls of said tubular wiping element towards each other to contour the wiping element into a figure **8** cross-section with the portion of the wiping element extending from the holder providing a wiping lobe, and the portion within the holder providing an anchoring lobe; a spreader rod in said anchoring lobe of said wiping element in said holder, said spreader rod dimensioned to sandwich the anchoring lobe between said spreader rod and the interior of said holder sleeve, the spacing between said rod and said holder sleeve being approximately one and one-half times the thickness of said wiping element.

2. A roll clearer for removing foreign matter from the surface of the processing rolls of textile machinery or the like, said roll clearer comprising an elongate flexible walled tubular wiping element; an elongate slotted pipe-like holder sleeve within which said tubular wiping element is positioned with a portion of said wiping element extending through the slot of said holder sleeve, the spacing between the holder portions adjacent the slot being such as to urge the side walls of said tubular wiping element towards each other to contour the wiping element into a figure **8** cross-section with the portion of the wiping element extending from the holder providing a wiping lobe, and the portion within the holder providing an anchoring lobe, the width of the slot in said holder sleeve being between 3 and 5 times the thickness of the wiping element tube wall.

3. A roll clearer for removing foreign matter from the surface of the processing rolls of textile machinery or the like, said roll clearer comprising an elongate flexible walled tubular wiping element; an elongate slotted pipe-like holder sleeve within which said tubular wiping element is positioned with a portion of said wiping element extending through the slot of said holder sleeve, the spacing between the holder portions adjacent the slot being such as to urge the side walls of said tubular wiping element towards each other to contour the wiping element into a figure **8** cross-section with the portion of the wiping element extending from the holder providing a wiping

lobe, and the portion within the holder providing an anchoring lobe; a spreader rod inserted in said anchoring lobe of said wiping element in said holder, with said spreader rod dimensioned to sandwich the anchoring lobe between said spreader rod and the interior of said holder sleeve; and supports at each end of said clearer, said supports engaging the ends of said spreader rod.

4. A roll clearer as in claim 3 in which said support is provided with a seat in which the end of said spreader rod is received; and an extension is formed on said holder sleeve engaging said support in a fixed orientation.

5. A roll clearer as in claim 3 in which said spreader rod is formed with flattened extensions engaging said support, and a flange plate is secured with respect to said flattened portion, said flange plate having a flange engaging in the slot of said holder sleeve.

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