Aug. 27, 1963 H. GASSER 3,101,504

CLEANING DEVICE FOR YARN CARRYING ROTARY CYLINDERS OF TEXTILE MACHINES

Filed Sept. 12, 1960 4 Sheets-Sheet 1

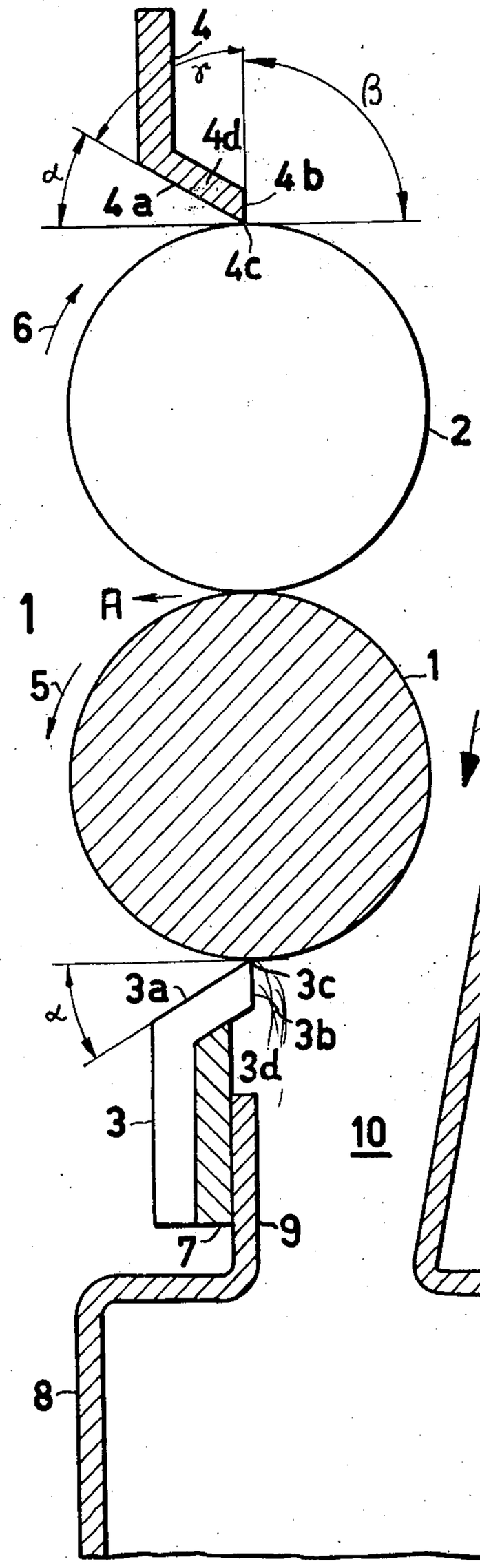

FIG. 1

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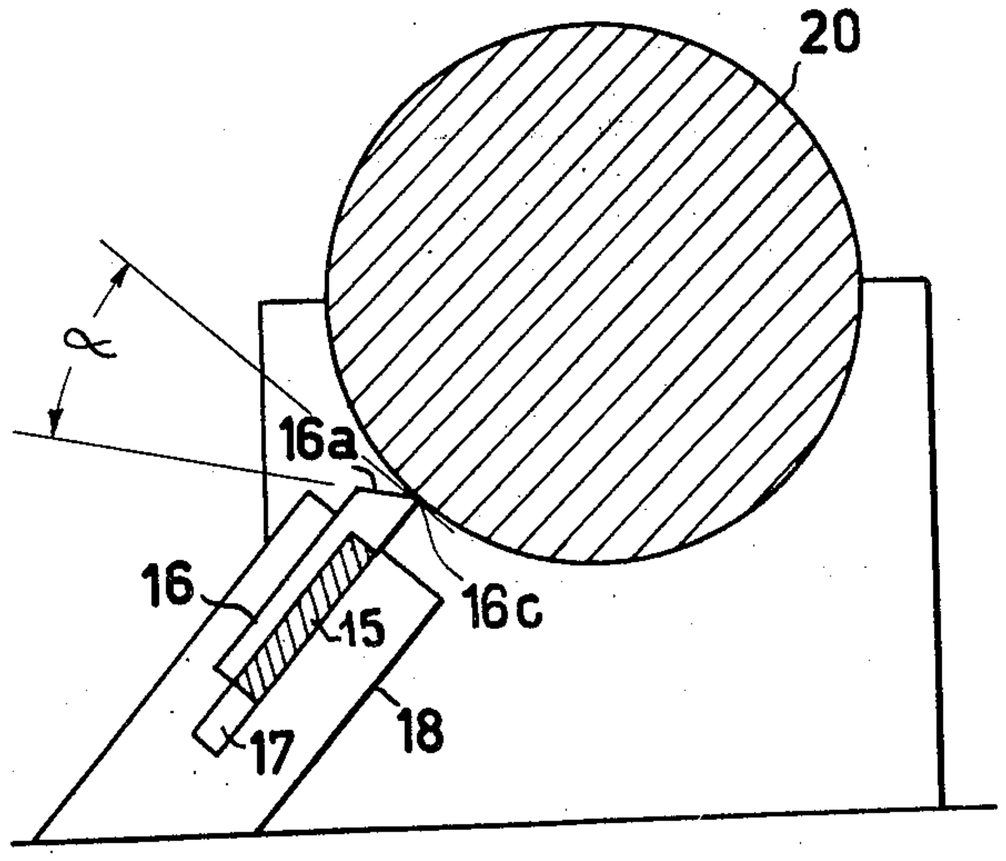

FIG. 2

FIG. 3

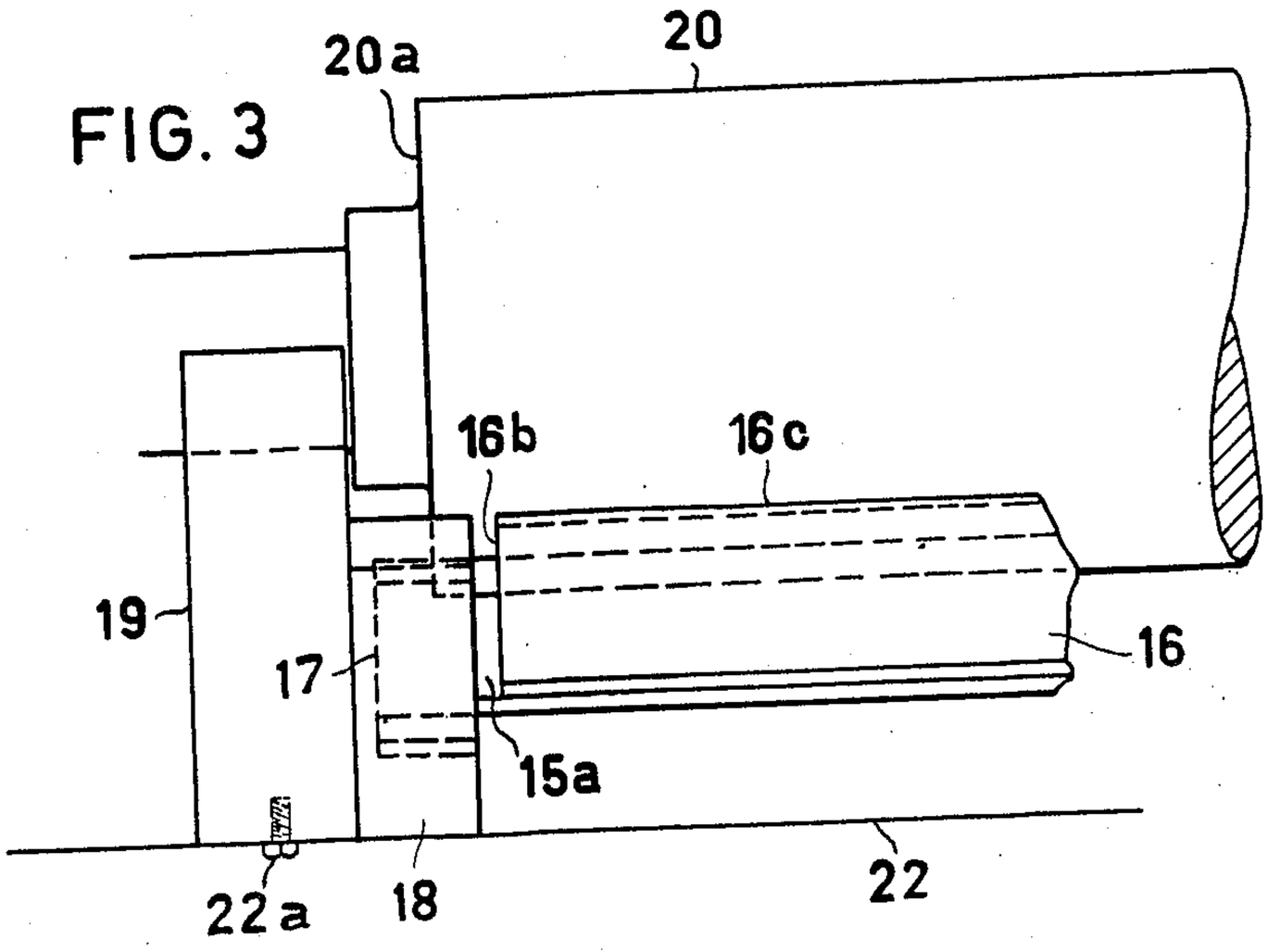

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FIG. 4

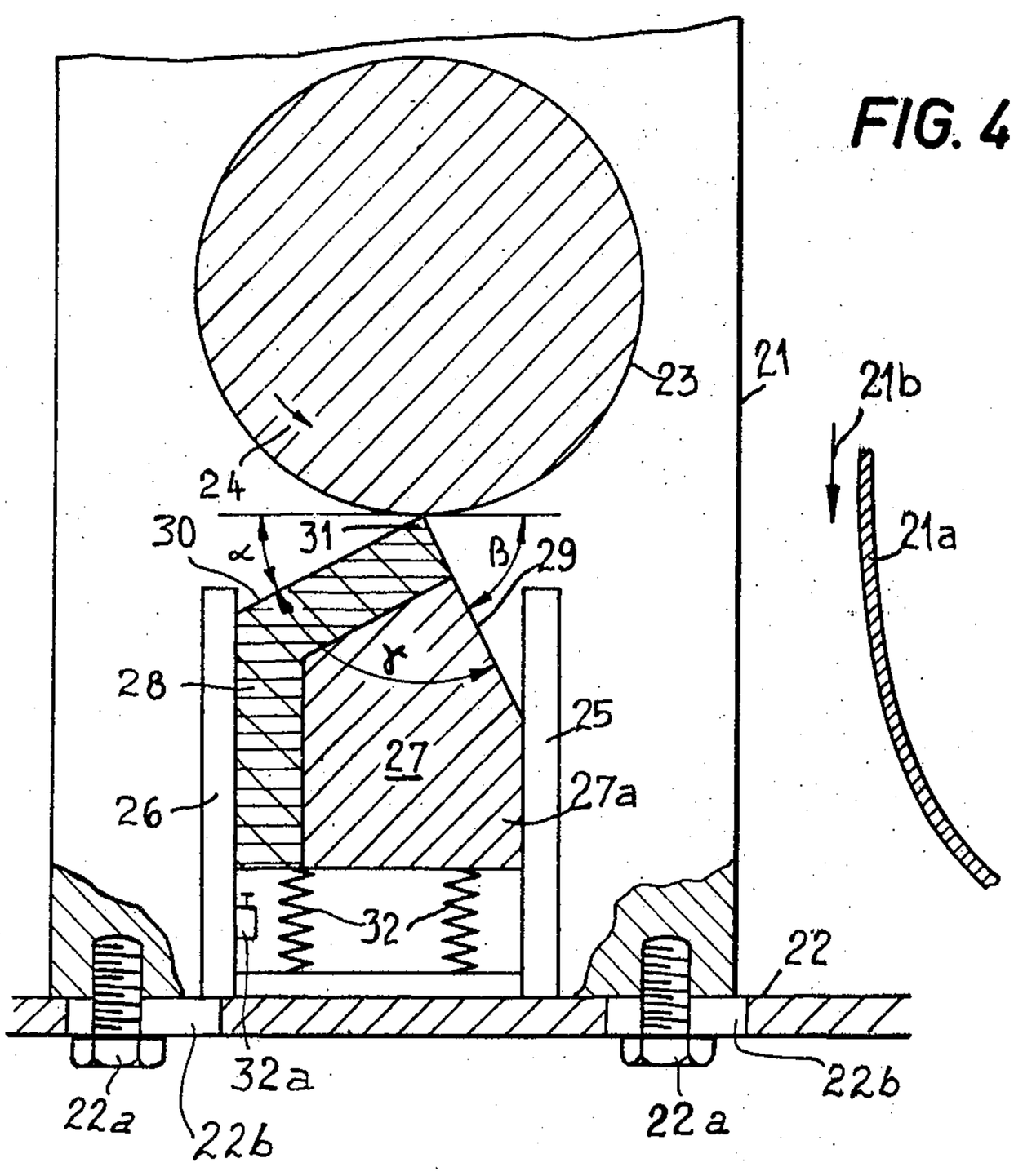
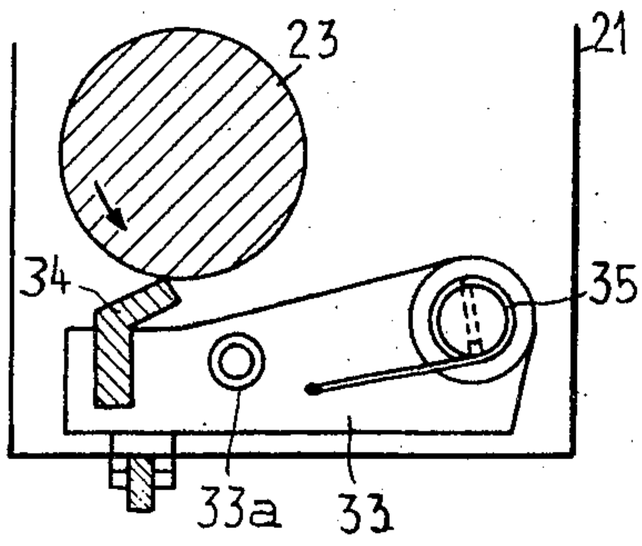


FIG. 5



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CLEANING DEVICE FOR YARN CARRYING ROTARY CYLINDERS OF TEXTILE MACHINES

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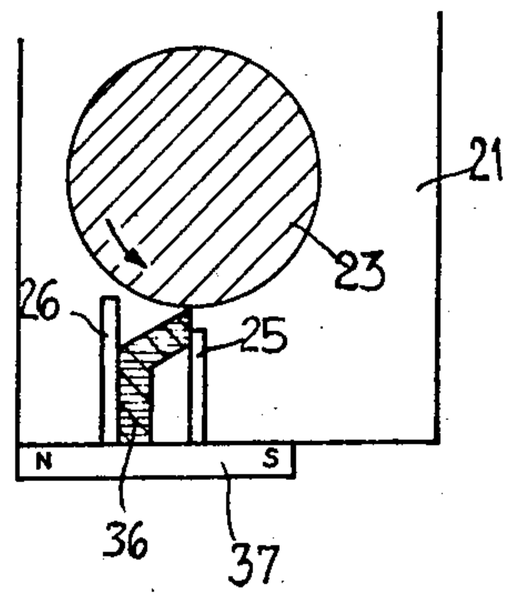
FIG. 6



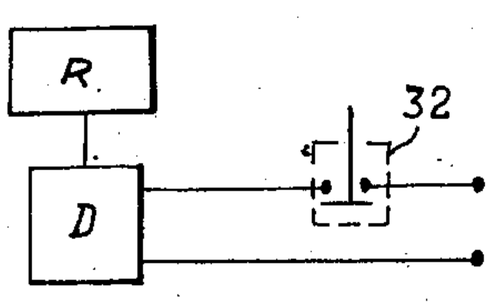


FIG. 8

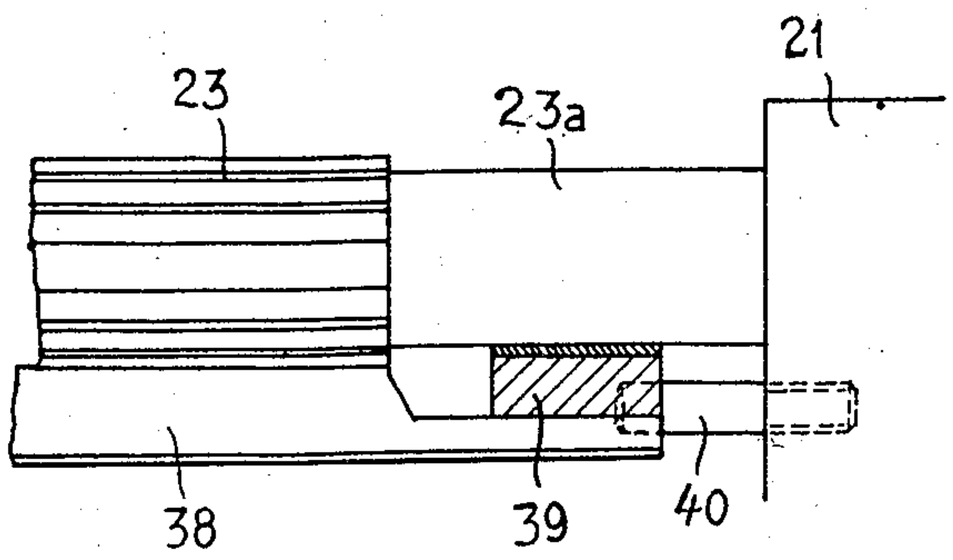


FIG. 7

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3,101,504

CLEANING DEVICE FOR YARN CARRYING ROTARY CYLINDERS OF TEXTILE MACHINES

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Claims priority, application Switzerland Sept. 12, 1959
15 Claims. (Cl. 15—256.51)

The present invention relates generally to a novel cleaning apparatus adapted for use in conjunction with yarn carrying rotary cylinders of textile machines and the like and more particularly, to the cleaning of upper and lower draw rollers of drawing frames.

It is already known in the prior art to clean the rotatable cylindrical rollers of textile machines, as for example, the upper and lower banks of draw rollers of a drawing frame through the intermediary of bar or tongue-shaped scraper elements which contact the peripheral surface of said banks of draw rollers. In a great many of these known installations, the conventional type of scraper element cooperates with a pneumatic suction unit for withdrawing and conveying away the dirt, fibers, fluff and general undesirable material adhering to the respective peripheral surface of the draw rollers and which has been previously removed by the scraper element.

The conventional type cleaning scraper elements or strippers, which may be both the previously mentioned bar or tongue-type scraper, contact the periphery of the cylinder on its outer surface defined by the generatrix of the cylinder. However, with the known scraper elements it has been found that it is impossible to accurately control the cleaning operation of the cylindrical rollers such that the fibers and undesirable material to be removed are always withdrawn and deposited on only one side of the cleaning scraper, that is to say, either on the supply side or the delivery side with respect to the direction of rotation of the roller elements. It has been found to be extremely advantageous and desirable, particularly when employing a pneumatic suction unit for removal of fibers and dirt from the surface of the draw rollers, to loosen and remove such undesirable materials on the same side of the cleaning blade surface or stripper. This is so in view of the fact that said undesirable materials cannot be loosened with equal facility on both sides of the cleaning blade, and further, in view of economical considerations relating to the consumption of air.

It has been found that if tongue-type cleaning blades are employed which are arranged substantially tangentially to the peripheral surface of the rollers to be cleaned, the fibers or other removed undesirable materials are deposited on both sides of the cleaning blade. Accordingly, this renders it exceedingly difficult to remove the undesirable materials now adhering to the surface of the cleaning blade if the latter in the first instance is even able to properly remove said undesirable materials from the peripheral surface of the rollers to be cleaned. The known bar-type strippers which are generally arranged in a more or less radial position with respect to the peripheral surface of the rollers to be cleaned and contact the same by means of their end faces, also have the disadvantage that they remove fibers and undesirable materials adhering to the rollers from the supply side while undesirable materials may collect on the delivery side. Additionally, these cleaning strippers will generally not entrain and remove all fibers adhering to the surface of the rollers, particularly if such fibers are relatively dry and thin.

The present invention obviates these aforementioned difficulties by providing a new and improved bar-type cleaning blade member or scraper which engages the peripheral surface of the roller to be cleaned by means of a forwardly arranged blade edge defining a line of contact

with said roller surface. The blade edge is formed through convergence of two adjacent surfaces of the blade portion of the cleaning blade member or scraper in the direction of the roller and forms an acute angle between said converging surfaces. One of said adjacent converging surfaces of said blade portion located at the delivery side of the blade edge with respect to the direction of rotation of the roller, in other words, downstream of the direction of the advancing movement of the web fed through said draw rollers, is positioned at an angle of 20 to 50 degrees with respect to a tangential plane taken through said line of contact of said blade edge contacting the periphery of the roller. Additionally, the cleaning blade member or scraper is adapted to be displaceably secured to a suitable support member in order that said cleaning blade member or scraper may yield its position or give way should undesirable obstructions appear between the cleaning blade and its associated roller element. Such may occur should the web break and rather than continue moving between the upper and lower banks of draw rollers, said web would tend to wind about one of the rollers and exert an excessive force on the cleaning blade member or scraper. It is further possible to arrange the cleaning scraper so as to cooperate with an electrical device to actuate an electrical contact or close a signalling circuit in order to stop the operation of the drawing frame when said cleaning blade member or scraper is displaced or under the influence of excessive force. Another principle of the present invention is to cause the cleaning blade member or scraper to engage and contact the roller element at all times with substantially the same coefficient of friction. Thus, by way of example, with a steel cylinder the cleaning blade member or scraper is formed of a relatively softer rubber-like material, and with a rubber cylinder the cleaning blade member or scraper is formed of a more rigid material such as hardwood or metal. It is not always necessary that both the upper and lower roller elements be formed of the same material so long as the respective cleaning blade member or scraper contacts its associated roller element with the same or substantially the same coefficient of friction.

Accordingly, it is an important object of the present invention to provide means for reliably and economically cleaning the surface of roller elements and depositing the thus removed waste on the same side of a cleaning scraper.

It is another object of the present invention to provide a novel arrangement of cleaning scraper for removing undesirable materials adhering to the surface of draw rollers and to deposit them on only one side of said cleaning scraper in the vicinity of an associated pneumatic suction unit.

Still a further object of the present invention is the mounting of cleaner units for roller elements in such a manner that said cleaner units may be displaced or yield when acted upon by undesirable forces, which displacement of said cleaner units may be utilized to actuate a control system or switch in order to stop said roller elements.

Another important object of the present invention is to ensure that each of the cleaning elements always contacts its associated roller element with the same or substantially the same coefficient of friction by suitably selecting the materials forming each of said cleaner elements and its associated roller element.

These and still further objects of the present invention and its entire scope and applicability will become apparent from the detailed description given hereinafter; it should be understood, however, that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the

spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

In the drawings:

FIGURE 1 is an elevational sectional view of a cleaning device for roller elements pursuant to a first embodiment of the present invention;

FIGURE 2 is a sectional view of a cleaning arrangement pursuant to a second embodiment of the present invention;

FIGURE 3 is a fragmentary front view of the cleaning arrangement shown in FIGURE 2;

FIGURE 4 is an elevational sectional view of a further embodiment of cleaning apparatus for roller elements pursuant to the present invention;

FIGURE 5 is an elevational sectional view through another cleaning arrangement pursuant to the present invention;

FIGURE 6 illustrates a further arrangement of cleaning scraper and associated roller element employing magnetic holding means for the cleaning scraper;

FIGURE 7 is a fragmentary front view of a cleaning scraper and roller element also employing magnetic means but somewhat modified with respect to the arrangement shown in FIGURE 6;

FIGURE 8 schematically illustrates one form of control for deenergizing the drive for the rollers.

Referring now to the drawings and, more particularly to FIGURE 1, there is illustrated an upper cylindrical drafting or draw roller **2** and a lower cylindrical drafting or draw roller **1** of a drawing frame. For convenience in description, the remaining upper and lower draw rollers of the drawing frame between which the web passes in the direction of the arrow A have not been shown. It is of course to be appreciated that each roller would have associated therewith a respective cleaning element. By way of example, the upper roller **2** is formed of rubber whereas the lower roller **1** may be formed of steel. Associated with each of the lower and upper roller members **1, 2** is a cleaning member or scraper element **3** and **4**, respectively. The cleaning element **3** cooperable with the steel roller **1** is formed of rubber, whereas the cleaning element **4** cooperable with the rubber cylinder is formed of steel. Of course, the materials for the rollers and the associated cleaner elements may be different than those recited, the only requirement being that the cleaner element contact the roller element with the same or substantially the same coefficient of friction.

Each of the cleaning elements **3** and **4** is provided at its forward end **3***d* and **4***d*, respectively, with a blade edge **3***c*, **4***c* adapted to define a respective line of contact with its associated roller element **1** and **2**, respectively. The blade edge **3***c* of the cleaner or scraper element **3** is formed by the convergence of the blade surface portions **3***a* and **3***b*. Similarly the blade edge **4***c* of the scraper element **4** is formed by the converging of the blade surface portions **4***a* and **4***b*. The respective converging blade surface portions **3***a*, **3***b* and **4***a*, **4***b* enclose an acute angle α therebetween. The respective blade edges **3***c*, **4***c* of cleaner elements **3** and **4** contact their associated roller elements **1** and **2** substantially throughout the length of said rollers at said line of contact with a slight pressure.

In the embodiment shown in FIGURE 1 it is to be assumed that the roller elements **1** and **2** rotate in the direction of the arrows **5** and **6**, respectively. The blade surface portions **3***a* and **4***a*, located on the delivery side of the respective blade edges **3***c* and **4***c* with respect to said direction of rotation, that is to say, on the downstream side of the line of contact and with respect to the direction of the web travel A, form an acute angle α with respect to a plane tangent to the respective rollers **1** and **2**, and taken through the line of contact of the blade edges **3***c* and **4***c*. On the other hand, the blade surface portions **3***b* and **4***b* located on the upstream side of the contact are located in an axial plane extending in the vertical direction through said respective line of contact formed by said blade edges **3***c* and **4***c* and the axis of rotation of said rollers. These blade surface portions **3***b* and **4***b* form substantially a right angle β with respect to said tangential plane in the shown embodiment.

As shown in FIGURE 1, the cleaner elements or scrapers **3** and **4** are designed in the form of angle plate sections or bar members which extend substantially throughout the length of the roller elements **1** and **2**. The scraper element **3** formed of rubber is reinforced by a metal bar **7** securely connected to the material of the scraper element **3**, preferably by a vulcanization process. The cleaner elements or scrapers **3** and **4** may be attached to a suitable portion of the machine or drawing frame, as for example of the frame or support for the rotatable cylinder rollers **1** and **2**. It is necessary, however, that the mode of securing the scraper elements **3** and **4** enable the latter to retain a predetermined relative position with respect to its associated roller member, particularly if the latter is adjustable relative to the position of the other rollers constituting the draw roller bank of the drawing frame. As shown in FIGURE 1, the scraper element **3** may also be attached to the neck portion **9** of a channel-type suction head **8** which serves to withdraw the previously removed undesirable materials, as for example fibers and dirt adhering to the surface of the rollers, away from the blade edge **3***c*, **4***c* and blade portion **3***b*, **4***b* by means of an indraft of air. The inlet neck portion of the suction head **8** is located on the supply side of the blade edge **3***c*, **4***c*. that is to say upstream of the line of contact and with respect to the direction of travel of the web. The neck portion or baffle **9** of the suction head **8** extends in the direction of the scraper element **3** and its associated roller **1** to define therewith a suction nozzle **10** through which a conveying fluid medium, such as air, is drawn in the direction of the arrow **11**. The draw-in air also passes over the blade surface portion **3***b* of the stripper **3** and removes any fibers or undesirable materials adhering thereto. Should the roller members **1** and **2** be adjustable, then the suction head **8** is preferably arranged so as to also be adjustable along with the adjustment of said rollers in order that said suction head **8** and its attached scraper element **3** always maintain their predetermined relative position.

It has been determined that irrespective of the specific material employed to form the scraper or cleaner elements **3** and **4** and their associated roller elements **1** and **2**, a certain relationship exists between the angle α and the specific type of fiber material to be removed from the surface of the rollers. The angle α should be made larger for fibers which are oily or contaminated with wax, whereas the removal of dry fibers permits the angle α to assume smaller values. Similarly, relatively thick fibers require an enlargement of the angle α while thin fibers may be handled by using a smaller angle α. The useful range of the angle α is from 25 to 45 degrees and, depending upon the fiber material and cleaner material different coefficients of friction should be selected. The metallic scraper **4** formed of steel may preferably be hard-chromium plated. The rubber qualities used for the scraper **3** cooperating with the steel draw roller **1** are, for example, "Acotex" or "Pirelli green." At any rate, the rubber must be relatively hard and should possess anti-static properties in order to prevent, insofar as possible, the formation of an electrostatic charge. Naturally, the rubber may be replaced by other rubber-type or synthetic rubber materials.

It is to be understood with respect to the hereinafter described embodiments that the positioning of the cleaner elements is similar to that hereinabove described with respect to FIGURE 1 insofar as defining the desired limits of the angle α and the maintenance of a constant or substantially constant coefficient of friction between the cleaner element and its associated roller element. Additionally, for convenience in description only a lower

roller element and associated cleaner element has been shown. It is to be understood, however, that a correspondingly similar arrangement may be provided for the upper roller element and for each group of upper and lower roller elements comprising the drawing frame or the like.

In the embodiment according to FIGURES 2 and 3, there is shown a metal reinforcement bar 15 which is partially embedded into the material of the elongated cleaner element or scraper member 16 extending substantially throughout the length of its associated roller element 20. The lateral ends 15*a* of the metal reinforcement bar project beyond the ends 16*b* of the scraper element 16 formed of rubber or the like and are seated in slots or recesses 17 provided in the guide members 18 (only one being shown) carried by the laterally positioned bearing brackets or supports 19 provided for the roller element 20 adjacent its ends 20*a*. The recesses 17 provided in each guide member 18 extend substantially radially with respect to its associated roller element. The bearing brackets 19 are displaceably or movably mounted on the frame 22 of the machine, as for example, by means of an adjustable screw 22*a* cooperable with a slot member 22*b*, more clearly seen in the embodiment of FIGURE 4. Due to the attachment of the guide members 18 directly to the bearing blocks or brackets 19, the position of the cleaning element or scraper 16 and, more specifically, the angle α defined by its blade surface 16*a* with the tangent plane taken at the line of contact of blade edge 16*c* with the roller element 20 always remains the same, even if said roller element is displaced by repositioning of the adjustment screw 22*a* in its cooperating slot 22*b*. The scraper element 16 is again secured to the metal reinforcement bar 15, as for example, by vulcanizing. The reinforcement bar and its supported scraper element 16 may be urged in the direction of the roller element 20 by means of suitable compression springs (not shown, but similar to springs 32 shown in FIGURE 4) provided in the recesses 17 of the guide member 18 to force blade edge 16*c* with light contact pressure against the peripheral surface of the roller element 20.

In FIGURE 4 of the drawings, there is shown a further embodiment of the invention wherein the bearing block means 21 (only one is shown) for the roller element 23 is again displaceably or adjustably mounted on the machine frame 22, as for example, by means of the threaded bolt 22*a* and cooperable slot 22*b* arrangement. The roller element 23 is supported for rotation by said bearing block means 21 and rotates in the direction of the arrow 24. The bearing block means 21 are provided with lateral guide plates 25 and 26 for receiving therebetween a bar shaped cleaner or scraper element generally designated by reference numeral 27, which is radially adjustable relative to the roller element 23. The scraper element 27 is provided with an outer portion or covering 28 formed of synthetic rubber vulcanized to the reinforcement support 27*a*. The forward end of the scraper element 27 adjacent the draw roller 23 is provided with the two blade surface portions 29 and 30 which converge in the direction of said roller 23 to define a blade edge 31. The blade edge 31 of the scraper element 27 contacts the peripheral surface of the draw roller 23 along a line of contact and forms an acute angle α with a plane tangent to said line of contact. In order to maintain proper contact with said draw roller 23, the scraper element 27 is forced against the peripheral surface of said draw roller with a slight predetermined contact pressure by means of the resilient spring members 32. Between the blade surface portions 29 and 30 there is formed an acute angle α, whereas an acute angle β is formed between the tangent to the line of contact and blade surface 29.

During the operation of the drawing frame or the like, any fibers or other undesirable material adhering to the

peripheral surface or wall of the respective draw rollers pass between said peripheral surface and the blade edge 31 of the associated scraper element 27. The undesirable materials will thus be removed from the wall of the draw roller by the scraper element 27 and may slightly adhere to the blade surface 29 thereof, so that they can be then completely removed by a pneumatic suction unit cooperable with said scraper element 27. Such a pneumatic suction unit is diagrammatically represented at 21*a*, the arrow 21*b* indicating the direction of flow of the conveying air current. If the web handled by the draw rollers should break and thus begin to wind around the draw roller to form fiberlaps, the scraper element 27 will yield or move against the normal urging force of the spring means 32. The displacement of the scraper element 21 in the downward direction may be utilized to actuate a suitable control device 32*a* in such a manner, that the power supply to the roller drive means is shut off (see FIGURE 8), or by way of example, a contact of a signalling or control circuit is closed and a relay in the driving circuit of the machine is opened in a conventional manner. Thus, the machine or drawing frame may be stopped should web breakage occur.

In the embodiment shown in FIGURE 5, the displaceable cleaner or scraper element 34 is arranged so as to be pivotable about a pivot shaft or fulcrum 33*a* supporting a pivotable lever 33. The pivot shaft 33*a* is carried by the bearing block or bracket 21 which may also be displaceably mounted by a bolt 22*a* and slot 22*b* arrangement (not shown) similar to that hereinabove mentioned with respect to the description of FIGURE 4. The scraper element 34 is supported on said pivot lever 33 which is further provided with a torsion spring 35 tending to normally urge said pivot lever in the direction of the roller element 23 so that said cleaner or scraper element 34 continuously maintains slight bearing contact with the peripheral surface of said roller element. The aforementioned arrangement also permits yielding movement of the scraper element 34 should web breakage occur and can be utilized to actuate a control member to stop the machine as already noted hereinabove.

A further manner of arranging a cleaner or scraper element is shown in FIGURE 6. In this embodiment, the scraper element 36 is retained between the lateral guide plates 25 and 26 and is provided at its lower end remote from the roller element 23 with a magnetic plate 37 which may be either integral with said scraper element 36 or rigidly secured thereto. The magnetic plate 37 is held by magnetic attraction or magnetically linked to the bearing block or bracket 21 formed of a ferrous metal. Thus, the scraper element 36 will be maintained in contact with the peripheral surface of the roller element 23. Should undesirable forces act on the scraper element 36, as for example due to web breakage and subsequent winding thereof on the roller element 23, the scraper element 36 will force the magnetic plate 37 away from the bearing block 21 to overcome the force of attraction of the magnetic field thereby freeing said magnetic plate 37 and its associated scraper element 36 by dropping through the guide plate 25 and 26 until it comes to rest on a suitable stop member (not shown). It will be readily apparent that the single or integral magnetic plate 37 can be readily replaced by two separate magnetic plates arranged at both ends of the scraper element 36.

In the embodiment shown in FIGURE 7, the cleaner or scraper element 38 is retained in its roller contact position by means of a magnet 39 cooperating with the neck portion 23*a* of the roller element 23 and adheres to said neck portion by magnetic attraction. In order to prevent the scraper element 38 from rotating with the roller element 23, a stop 40 is provided on the bearing block 21 and is located forwardly of the scraper element 38 with respect to the direction of rotation of the roller element 23. In a manner as already described, the bear-

ing block 21 of FIGURES 6 and 7 may also be adjustably mounted.

In all the embodiments disclosed in FIGURES 2 through 7, the cleaner or scraper element is yieldably mounted so that it may be forced away from its associated cylindrical roller element if fiber laps occur due to web breakage and which pass between said scraper element and its roller element. It is accordingly possible to employ this yielding movement of the scraper element in all such cases to actuate in a known manner suitable control devices which may either stop the machine or actuate an indicating unit which signals a disturbance in the operation of said machine. FIGURE 8 schematically indicates one such control system, wherein the yielding movement of the scraper element actuates a control unit 32 to open the power supply circuit of the drive means D for the bank of rollers R. Similarly, the control unit 32 may be employed to actuate a relay to shutoff power to the drive circuit D for said roller bank R. With the yielding or displacement of the cleaner element under the influence of the formation of fiber laps, it is of particular importance to note that the cleaner element is given a radially directed outward force component by the fibers due to the surface of the blade at the downstream side of the line of contact being oriented at an acute angle. As will be readily appreciated a wedge action occurs when a fiber lap engages the inclined surface of the blade portion of the cleaning element. Additionally, it is possible to employ any desired combinations of the hereinabove disclosed cleaner element arrangements for the upper and lower banks of rollers.

Having thus described the invention what is desired to be secured by United States Letters Patent is:

1. A device for cleaning banks of rollers, particularly drafting rolls of textile machines comprising, in combination; at least a pair of cooperating rotatable roller means adapted to pass web in a predetermined direction of travel, cleaner means disposed adjacent each of said roller means and cooperable therewith, each of said cleaner means including a blade portion provided with a pair of converging blade surfaces defining a blade edge normally contacting the periphery of its associated roller means to define a line of contact, one of said converging blade surfaces being oriented at a predetermined inclination on the downstream side of said line of contact relative to said predetermined direction of web travel and with respect to a plane tangent to said associated roller means and taken through said line of contact to define an acute angle, said cleaner means thereby permitting undesirable materials and fibers which are to be removed to initially move between said predetermined inclined downstream side blade surface and its associated roller means, past said blade edge for substantial removal thereof adjacent the other converging blade surface of said blade portion disposed on the upstream side of said line of contact and with respect to said predetermined direction of web travel, whereby said undesirable materials and fibers are removed substantially at only said upstream side of said blade portion.

2. A device for cleaning banks of rollers, particularly drafting rollers of textile machines comprising, in combination; at least a pair of cooperating rotatable roller means adapted to pass web in a predetermined direction of travel, cleaner means disposed adjacent each of said roller means and cooperable therewith, each of said cleaner means including a blade portion provided with a pair of converging blade surfaces defining a blade edge normally contacting the periphery of its associated roller means to define a line of contact, one of said converging blade surfaces being oriented at a predetermined inclination on the downstream side of said line of contact relative to said predetermined direction of web travel and with respect to a plane tangent to said associated roller means and taken through said line of contact to define an acute angle within the range of 20 to 50 degrees, said cleaner means thereby permitting undesirable materials and fibers which are to be removed to initially move between said predetermined inclined downstream side blade surface and its associated roller means, past said blade edge for substantial removal thereof adjacent the other converging blade surface of said blade portion disposed rearwardly of said one converging blade surface on the upstream side of said line of contact and with respect to said predetermined direction of web travel, whereby said undesirable materials and fibers are removed substantially at only said upstream side of said blade portion.

3. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein said respective upstream side blade surface of each cleaner means lies in a plane passing through said line of contact and the center of rotation of said associated roller means.

4. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein said pair of converging blade surfaces of each cleaner means encloses an acute angle.

5. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein displaceable support means are provided for carrying each of said cleaner means and its associated roller means, and means for displacing each of said support means together with said associated roller means so that said predetermined inclination of said blade portion of each said cleaner means is continually maintained.

6. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; including a pneumatic suction unit operably associated with each upstream side blade surface to withdraw undesirable materials and fibers.

7. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein one of said roller means is formed of metal, said cleaner means provided for and associated with said one roller means formed of metal being formed of rubber.

8. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein one of said roller means is formed of rubber, said cleaner means provided for and associated with said one roller means formed of rubber being formed of metal.

9. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein each of said cleaner means and its associated roller means are respectively formed of materials providing for a substantially constant coefficient of friction.

10. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 2; wherein said cleaner means are each provided with a reinforcement bar.

11. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 10; wherein each of said cleaner means is formed of rubber and is vulcanized to said reinforcement bar.

12. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 5; wherein each of said cleaner means are yieldably supported on said displaceable support means, and control means cooperating with said cleaner means upon yielding movement thereof for acting upon a control circuit to perform a desired operation.

13. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 12; wherein each of said cleaner means are yieldably supported on said displaceable support means through the agency of spring members.

14. A device for cleaning banks of rollers, particularly drafting rolls of textile machines according to claim 12; wherein each of said cleaner means are yieldably supported on said displaceable support means by magnet means.

15. In combination with a roller element of the drafting rolls of textile machines past which a web moves in a predetermined direction of web travel, a device for cleaning such roller element which comprises, cleaner means disposed adjacent said roller element and cooperable therewith, said cleaner means including a blade portion provided with a pair of converging blade surfaces meeting to form a blade edge normally contacting the periphery of said roller element to define a line of contact, one of said converging blade surfaces extending at a predetermined inclination from one side of said line of contact in said predetermined direction of web travel and with respect to a plane tangent to said roller element and taken through said line of contact to define an acute angle within the range of 20 to 50 degrees, the other of said converging blade surfaces extending towards said line of contact from a location rearwardly of said one converging blade surface, said cleaner means thereby permitting undesirable materials and fibers which are to be removed to initially move between said predetermined inclined

blade surface and said roller element, past said blade edge for substantial removal thereof adjacent the other converging blade surface of said blade portion, whereby said undesirable materials and fibers are removed substantially only in the region of said other converging blade surface.

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137,421	Germany	Dec. 22, 1902
1,980	Great Britain	of 1910
476,514	Great Britain	Dec. 10, 1937