May 12, 1964 C. E. PAPPS 3,132,383

CARDED WEB TRANSFER APPARATUS

Filed Oct. 3, 1961

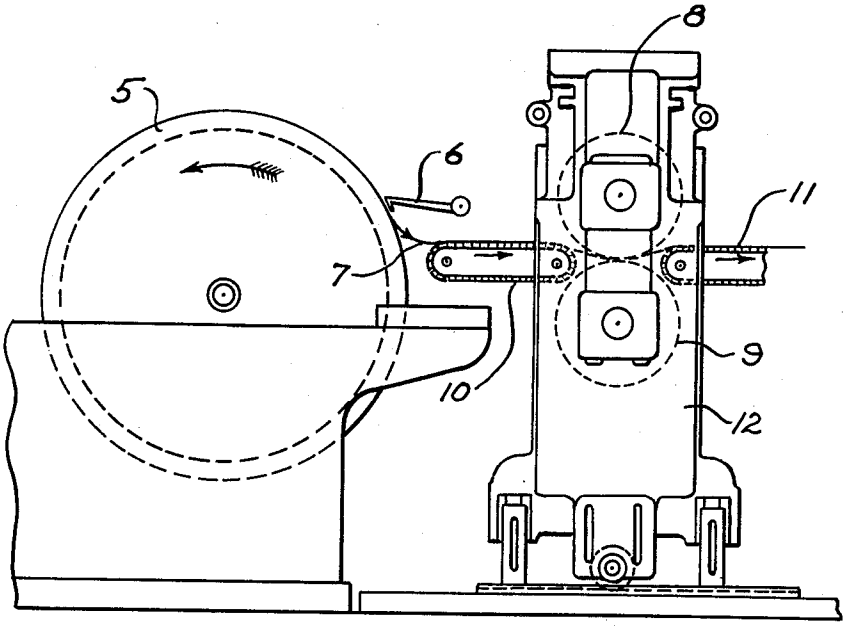


Fig. 1

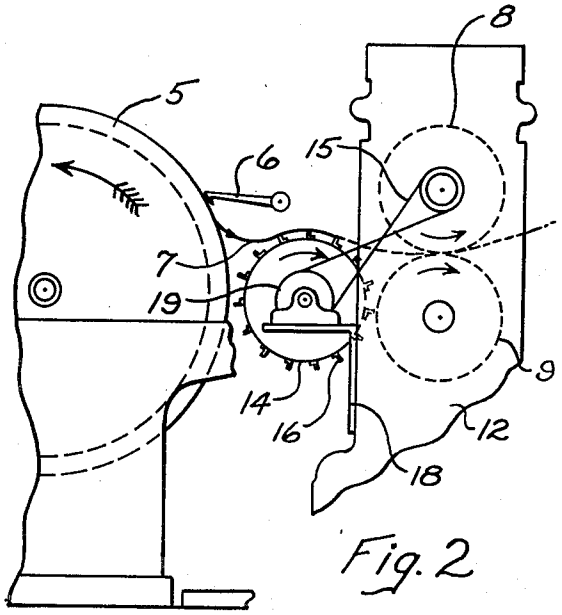


Fig. 2

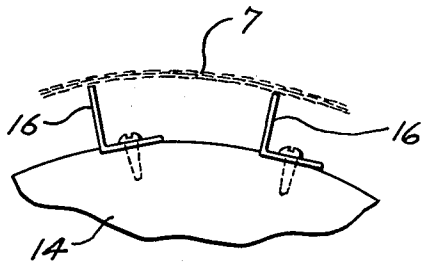


Fig. 3

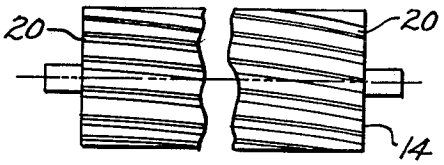


Fig. 4

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CARDED WEB TRANSFER APPARATUS

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1 Claim. (Cl. 19—106)

My invention relates to textile machinery and relates, more particularly, to an improved device for transporting mterial from one processing station to another while such material is flowing through an entire series of textile machine units.

To illustrate my invention, I will use as its setting the feeding of carded wool fibers to, and delivery from, a machine known in the art as a peralta. Such a machine is shown and described in U.S. Patent No. 2,075,156, now expired.

It is necessary to support webs of fibers as they flow from a doffer to a unit like the peralta which functions to crush the fibers between a pair of smooth crusher rolls. After crushing, the fibers must be conveyed from the peralta to the next process. It is common practice to provide a moving platform to support the web of fibers. Two slat-type aprons are generally used, one located on the entry side of the machine and the other located on the delivery side of the machine. These endless aprons are set to the exact height necessary to convey the web from the doffing comb on the card (for example) to the crushing rolls of the peralta. The delivery apron, of similar construction, may convey the web to the next station. The aprons are run at the proper linear velocity to deliver the web at a speed consistent with the entire process.

A long-standing difficulty with the aprons presently in use is the fact that greases and oils used to process the fibers collect on the surfaces of the apron slats. In time, the web sticks to these slats and the fibers consequently do not leave the apron and flow into the machine. In actual practice, the web is broken, thus interrupting the flow of production. Periodic cleaning of the aprons with suitable solvents minimizes the trouble but such maintenance, in itself, is an interruption of production.

It is, accordingly, a principal object of my invention to provide improved means for supporting a web while it flows from one operation to another.

It is another object of my invention to provide an inexpensive, simple, unit readily fitted to existing lines of machinery and which requires no attention or preventive maintenance whatever.

It is yet another object of my invention to provide a web-supporting roll in which the possibility of breaking the flow of continuous fibers is virtually eliminated.

The foregoing and other objects and advantages of my invention will become apparent from the following detailed description and the accompanying drawing, in which

FIGURE 1 is a side elevation of a web feeding unit as taught in the prior art and presently in general use;

FIGURE 2 is a side elevation of a similar station in a textile process showing the invention in use;

FIGURE 3 is a detailed section of the web supporting roll of FIGURE 2; and

FIGURE 4 is a modified form of the roll shown in the immediately preceding figures.

Referring now, more particularly, to FIGURE 1, I show a doffer **5** and a doffing comb **6**. Carded fibers in the form of a web **7** are supported and flow to a pair of burr crushing rolls **8** and **9** by an endless slat-type apron **10**. A similar apron **11** delivers the web from the peralta machine, designated generally at **12**. It will be appreciated that both of these aprons are driven by suitable gearing or other means by which their linear speeds may be synchronized as desired.

As previously stated, any tendency of the web to stick to the flat surfaces of the apron elements may, and usually

does, cause a breakage. This occurs because the web, instead of leaving the apron **10** tends to follow it around when the slats return on the underside of the apron unit. It is virtually impossible to keep the apron clean for any appreciable length of time. The indication that cleaning is necessary usually comes in the form of a breakage and an interruption of the entire process. Needless to say, this is time consuming and therefore very expensive.

Turning now to FIGURE 2, I show the same doffer and comb, and these elements perform their customary functions. In place of the apron **10**, I provide a cylinder **14**, suitably driven as by a belt **15** from one of the rolls **8**. It will be seen that on the periphery of said cylinder, I provide a series of web supporting blades **16**. These are best shown in FIGURE 3 in detail and they may be in the form of metal angle pieces running parallel to the axis of the cylinder. The web supporting blades extend along radial lines from the center of the cylinder. By being formed as angle pieces, they may be conveniently affixed to the surface of the cylinder by screws as shown.

The cylinder **14** is suitably journaled and may be mounted by a bracket **18** on the machine **12**. The cylinder **14** is, of course, as long as is necessary to accommodate the entire width of web being processed. The supporting blades **16** run the entire length of the cylinder to thereby support the web **7** over its entire width.

The pulley **19** may be of variable pitch to facilitate adjustment of the cylinder's speed. Depending on the various machines to which my invention is applicable, the cylinder **14** may be driven by gears, sprockets, servo motors or other devices whereby the desired speed may be obtained and controlled. In practice, it is preferable to run the tips of the blades **16** so that their peripheral velocity is just equal to, or slightly less than, the speed of the web.

It will be appreciated that the web **7** is supported adequately by the blades **16**, but very little surface area between the support and the web is presented. Furthermore, greases and oils do not accumulate on the edges of the blades and no tendency to stick has been observed in hundreds of hours of continuous operation.

A modification of my invention is shown in FIGURE 4. Here, the cylinder **14** is provided with web supporting blades **20** which are disposed along the length of the cylinder in a spiral or helix. In certain applications, where a delicate web may require a more general support, this configuration is advantageous without sacrificing in any way the efficacy of the edge type of carrier.

Previous conveyors include, in addition to the slat-type aprons hereinbefore described, metal rolls, plastic covered rolls, leather aprons and the like. All are subject to the same disadvantages. I have used a wooden cylinder with aluminum blades but a wide variety of materials will be suitable. Instead of angle pieces, flat blades may be inserted in radial slots in the cylinder to accomplish the purposes of my invention.

My web supporting roll is equally effective between a tape doffer and a tape condenser or, indeed, in any situation where conventional aprons are now used. In one practical application, I used a cylinder **14** which was 12 inches in diameter and 60 inches long (the working width of the machine). Fifteen supporting blades 25 degrees apart consisted of 1" x 1" x 1/16" aluminum angle pieces.

While I have described my invention in a particular form and in a particular setting, modifications within the spirit and scope of the following claim may occur to persons skilled in this art. For example, web supporting blades may be affixed to an endless belt or attached to the slats of aprons of the general type now in use. The important feature of my invention is to have the web carried on the edges of a series of supporting blades where-

by the actual area of contact is held to a minimum, while at the same time providing ample support.

Accordingly, I claim as my invention:

A carded fiber web transfer apparatus for supporting a carded fiber web in transit from a doffer, card cylinder and the like to a fiber crushing machine and the like having a pair of rotary superposed pressing cylinders, said apparatus comprising: a rotatable member positioned intermediate the doffer, card cylinder and the like and the fiber crushing machine and the like; a plurality of blades mounted in spaced relation on the rotatable member and extending generally axially thereof; the blades including web supporting outer edges for supporting the carded web during transit; and means for rotating the member so that the speed of the web supporting blade edges coincides with the speed of the supported carded fiber web.

References Cited in the file of this patent

UNITED STATES PATENTS

1,832,717	Marble	Nov. 17, 1931
2,622,281	Duesberg	Dec. 23, 1952
2,706,323	Zabel	Apr. 19, 1955

FOREIGN PATENTS

758,324	Great Britain	Oct. 3, 1956