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METHOD OF REMOVING DRY PAPER TRIM

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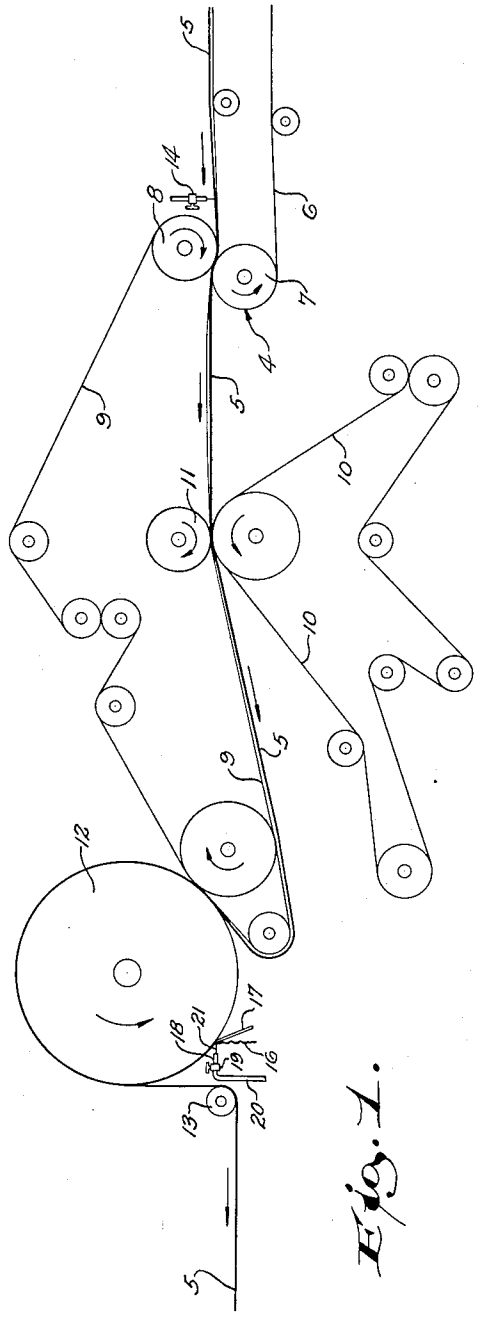


Fig. 1.

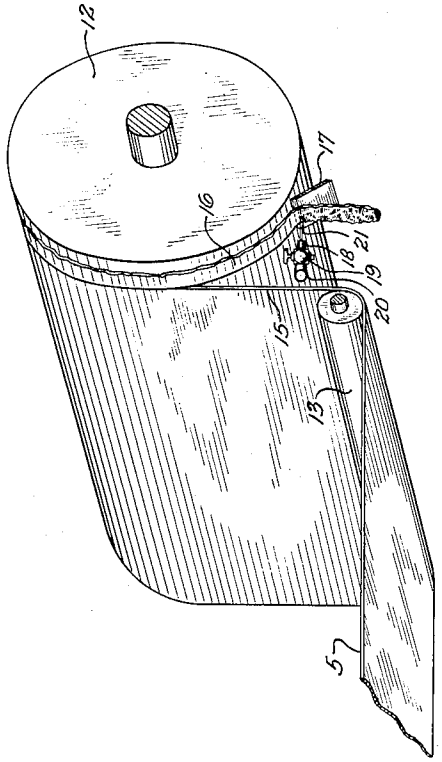


Fig. 2.

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METHOD OF REMOVING DRY PAPER TRIM

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4 Claims. (Cl. 92—38)

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This invention relates to improvements in trim controllers.

In the manufacture of paper it is common practice to trim the edge of the web of paper just before the web leaves the forming wire. The trimmed off portion, which is in the form of a narrow continuous strip, then travels with the main portion of the web through the felts and around the yankee drier roll. The main portion of the web leaves the drier roll for further processing, but the strip of trim adheres to the rotating drier roll and follows it around to a point where a doctor blade scrapes said strip from the drier roll.

Difficulty has heretofore been encountered because of the trim from certain light weight paper webs, such as tissue. As the narrow strip of trim is scraped from the drier roll by the doctor blade, it is acted upon by the air currents which are created by the adjacent rotating rollers and other equipment, and frequently becomes entangled with the finished and trimmed web. This may result in a break in the web which, of course, is very undesirable. In addition, static electricity may cause the strip of trim to be drawn to adjacent objects which have an opposite charge, thus rendering the movement of the strip of trim unpredictable and troublesome.

With the above in mind, it is a general object of the invention to provide means for controlling the movement of a strip of thin paper trim while said strip is being scraped from a rotating roller.

A further object of the invention is to provide a trim controller which neutralizes any static electricity which may be present in the trimmed off strip.

A more specific object of the invention is to provide a trim controller of the class described wherein a fine stream of liquid such as water is directed onto the trimmed off paper strip, thereby weighting said strip so that as it leaves the drier roll it is unaffected by air currents and also thereby neutralizing any static electrical charge which may be present.

A further object of the invention is to provide a trim controller of the class described which is simple in construction, efficient in operation, and well adapted for the purpose described.

With the above and other objects in view, the invention consists of the improved trim controller and all of its parts and combinations, as set forth in the claims, and all equivalents thereof.

In the drawing accompanying and forming a part of this specification, wherein is shown one complete embodiment of the preferred form of

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the invention, and wherein the same reference characters indicate the same parts in both of the views:

Fig. 1 is a diagrammatic side view illustrating the travel of a paper web from a Fourdrinier machine, over the felts and over a drier roll, and also illustrating the improved trim controller associated with the drier roll; and

Fig. 2 is an enlarged fragmentary perspective view showing a trimmed paper web passing over a drier roll, the improved trim controller being shown associated with said drier roll.

Referring more particularly to Fig. 1 of the drawing, which illustrates an important use for the present invention, the numeral 5 indicates a sheet or web of paper which is formed on a Fourdrinier machine 4 having an endless forming wire 6 extending around a lower couch roll 7. The web 5 travels in the direction indicated in the drawing. Mounted above the forming wire 6 at the discharge end of the Fourdrinier machine 4 is a nozzle 14 which directs a stream of water under pressure at the web 5. The nozzle 14 is positioned adjacent an edge of the web 5 and separates therefrom an edge portion in the form of a continuous strip 16. This operation is known as trimming, and it insures a smooth straight edge 15 (see Fig. 2) on the finished web.

An upper couch roll 8 carries an endless upper felt 9 and coacts with the lower couch roll 7. The upper felt 9 extends around a plurality of rollers, as shown. The sheet of paper and the strip of trim 16 adhere to the upper felt 9 upon passing between the upper and lower couch rolls. An endless lower felt 10 extends around a plurality of rollers, as shown, and the paper web 5 and strip of trim 16 are squeezed between the upper and lower felts as said felts travel between a pair of rollers such as those shown at 11. The paper web 5 and strip of trim 16 continue to adhere to the upper felt until they come in contact with the yankee drier roll 12, said web and trim then traveling upwardly around said drier roll as shown, the web eventually leaving the opposite side of the drum 12, and passing under a roll 13 from which it moves on to the winding or the creping operations.

As the main portion of the web 5 leaves the drier roll 12 and travels beneath the roll 13, the narrow strip of trim 16 adheres to the drier roll 12. In order to remove this trim, a doctor blade 17 is usually employed, which blade acts to scrape the strip 16 from the roll.

The equipment thus far described its con-

ventional, and it is intended that the strip **16**, as it leaves the doctor blade **17**, drop downwardly onto the floor or into any suitable receptacle so that it may be collected. In practice, however, when manufacturing light paper such as tissue, air currents and static electricity cause unpredictable movement of the trim and the strip **16** sometimes becomes entangled with the main web **5**. This may cause a break in the web **5** and result in loss of time and paper before the web can again be properly threaded through its rollers.

To remedy this situation according to the principles of the present invention, a squirt nozzle **18**, which may be connected to a suitable source of liquid, such as water under pressure entering through a valve **19** and conduit **20**, is mounted adjacent the doctor blade **17**. The nozzle **18** is similar to the nozzle **14** and is positioned and adjusted to direct a fine stream of water **21** at the strip of trim **16** preferably as the trim leaves the drier roll **12**. The stream **20** serves to wet the strip **16** and make it sufficiently heavy so that it falls vertically downwardly from the doctor blade **17** and so that it is substantially unaffected by any air currents in the vicinity. In addition, the water from the stream **21** neutralizes any static electrical charge which may be present.

By eliminating the susceptibility of the strip **16** to the influence of air currents and electrostatical charges, said strip leaves the doctor blade in an orderly manner and its movement is at all times under control. The danger of breaks in the main web is greatly reduced and the trimmed off strip **16** is easily collected for reclamation purposes. While it is preferable to have the stream **21** directed at the strip **16** as the strip **16** leaves the drier roll, it is obvious that the improved controller will operate satisfactorily if the stream **21** is directed at the strip **16** either while said strip is still on the drier roll or shortly after it has left the doctor blade.

While the invention has its greatest utility when used in paper manufacture at the location illustrated, it is applicable in any paper handling or manufacturing equipment where the control of trim is necessary or desirable.

Various changes and modifications may be made without departing from the spirit of the invention and all of such changes are contemplated as may come within the scope of the claims.

What I claim is:

1. The method of controlling the movement of a strip of dry tissue paper trim which is being scraped from a rotating roll, comprising wetting said dry strip of trim at approximately the point where it is being scraped from the roll to increase the weight of the trim and neutralize any static electrical charge therein.

2. The method of controlling the movement of a strip of dry tissue paper trim which is being scraped from a rotating roll comprising squirting liquid on said dry strip at approximately the point where it is being scraped from the roll to increase the weight of the trim and neutralize any electrical charge therein.

3. The method of controlling the movement of a strip of dry tissue paper trim which is being scraped from a drier roll following the manufacture of tissue paper comprising squirting liquid on said dry strip at approximately the point where it is being scraped from the roll to increase the weight of the trim and neutralize any static electrical charge therein, and thereby prevent entanglement of the strip with the main web of tissue paper.

4. The method of controlling the movement of a strip of dry paper trim which is being scraped from a drier roll following the manufacture of paper comprising jetting liquid on said dry strip at approximately the point where it is being scraped from the roll to increase the weight of the trim and neutralize any static electrical charge therein, and thereby prevent entanglement of the strip with the main web of paper.

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