Dec. 14, 1926. 1,610,545

E. v. ASTEN

APPARATUS FOR CLEANING THE WET FELTS OF PAPER MACHINES

Filed April 15, 1926

FIG. 1.

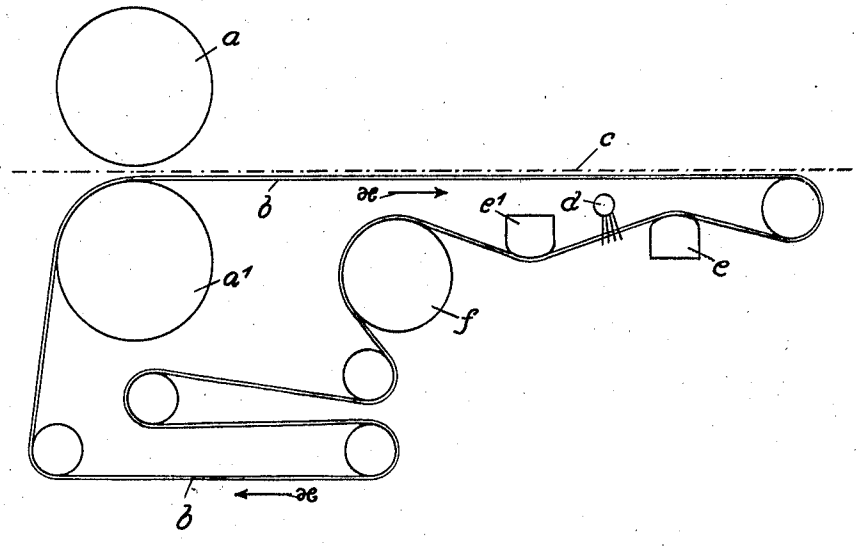
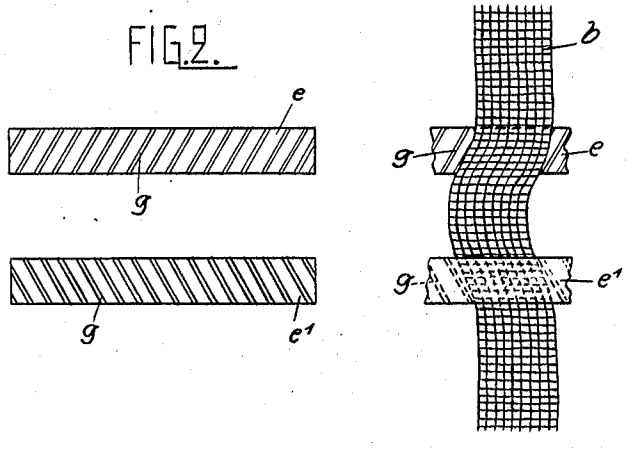


FIG. 3.

FIG. 2.



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EDUARD v. ASTEN, OF EUPEN, BELGIUM.

APPARATUS FOR CLEANING THE WET FELTS OF PAPER MACHINES.

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In paper machines the draining of the paper web on the press part of the machines is effected by passing the paper web by means of the wet-felt between two superimposed presser rolls by which the water is squeezed out of the paper web and allowed to flow off through the wet-felt which is a loosely woven fabric. In the course of working, minute particles of the paper pulp which are carried along by the water pressed through the wet-felt settle in the pores of the felt so that same are clogged up. A continuous cleaning of the wet-felt on the paper machine is therefore required.

According to the felt cleaning methods now in use, the felt is, for instance, cleaned by directing a strong jet of water by means of spray tubes onto or through the felt and thereafter squeezing the felt out again between rubber rolls. The felt is injuriously affected and its wear accelerated by this squeezing action between the rubber rolls. Other felt cleaners include a suction box adapted to be moved to and fro below the felt and designed to remove from the felt by suction the impurities and the water previously injected into it by the spray tubes. This last-said device is complicated and expensive in manufacture and use.

Now, the invention has for its object to devise a new apparatus for cleaning the continuously travelling wet-felt of a paper machine in the use of which a jet of water may be passed onto or through the felt and the felt simultaneously subjected to a lateral distortion whereby the fabric pores are opened and the impurities seated in the pores loosened. In this manner it is possible to carry out the washing of the felt both sparingly and intensively. The result according to the invention is more or less based on the ordinary natural cleaning or washing of fabrics in practice which is performed not only by wetting the fabric but also by wringing or kneading it manually or mechanically. During such a wringing of the fabric its threads are pulled hither and thither, the fabric is distorted, the pores are opened and the dirt seated in the pores is loosened so that it may be easily removed. Thus, the present method of felt cleaning possesses the advantages of the natural cleaning of fabrics.

The invention has for its further object to provide a simple and efficient structure embodying special guide members arranged at the two sides of one or more spray tubes and having surfaces provided with oppositely inclined ribs over which the felt is guided so as to cause it to be distorted alternately towards opposite sides in the direction of its breadth.

An embodiment of the device according to the invention is illustrated, by way of example, in the accompanying drawing in which:

Fig. 1 is a fragmentary diagrammatic side elevation of the press part of a paper machine;

Fig. 2 is a plan view of the ribbed surfaces of the guide members;

Fig. 3 is a view illustrating the wet-felt in its passage over the ribbed guide members.

Referring now to the drawing, a and a^1 are the presser rolls of the press part, b is the wet-felt, c the paper web, d a spray tube, e, e^1 are the ribbed guid members and f is a suction cylinder. The means for and manner of continuously moving the endless felt b in the direction of the arrow x may be of a kind commonly known in paper-machines.

After leaving the paper web c the felt b travels over the guide members e, e^1. These guide members are shown in the form of oblong blocks. The surfaces of the blocks with which the felt comes into contact, are provided with ribs g, see Figs. 2 and 3. These ribs may be formed in any suitable manner, such as for instance by porcelain plates fastened on the blocks. The blocks may be adjustable vertically for regulating the degree of action of the blocks on the felt. Arranged between the two ribbed blocks e, e^1 is the spray tube d by means of which a strong jet of water is directed onto or through the felt b. The ribs g of the two blocks extend obliquely in opposite directions so that in passing successively over the two blocks the felt is first distorted towards one side and then towards the other side in the direction of its breadth. While thus being distorted the pores of the fabric are displaced and opened and during this operation between the two ribbed blocks the strong jet of water sent by means of the spray tube d into or through the felt washes the impurities out of the pores. As a matter of course, the felt contains the larger amount of impurities on the side which has been in contact with the paper web and consequently it is quite natural that the impurities of the felt are driven

out toward that side. Therefore the spray tube is arranged so as to direct the jet of water ejected by it against that side of the felt which has not been in contact with the paper web.

After the felt has been cleaned in the manner indicated, it is necessary to remove from it the water which it still contains. To this end, the felt is passed over the suction cylinder *f*. Upon leaving the cylinder *f*, the felt is entirely clean, the water in excess is removed and it is again in a proper condition for taking up the paper web and conveying it through the press part.

The ribbed blocks may also be replaced by cylinders provided with a helically extending rib. It will be understood that such cylinders will exert the same distorting action on the felt as the ribbed blocks described.

In carrying out the cleaning of the felt according to the invention, the felt is in no way injuriously affected. The felt is not subjected to any pressure. The cleaning is effected intensively by passing water onto or through the felt and simultaneously distorting the felt whereby the impurities seated in the pores of the fabric are loosened so that they will be readily driven out by the water, the excess of which is afterwards removed from the felt by suction.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

The combination with a paper machine of a device for cleaning the continuously travelling wet-felt, comprising at least one spray tube arranged transversely of the felt, guide members arranged at both sides of the spray tubes, oppositely inclined ribs on the guide members, and means for conveying the felt over the ribbed surfaces of the guide members so as to cause the felt to be alternately distorted towards opposite sides in the direction of its breadth.

In testimony whereof I have signed my name to this specification.

EDUARD v. ASTEN.