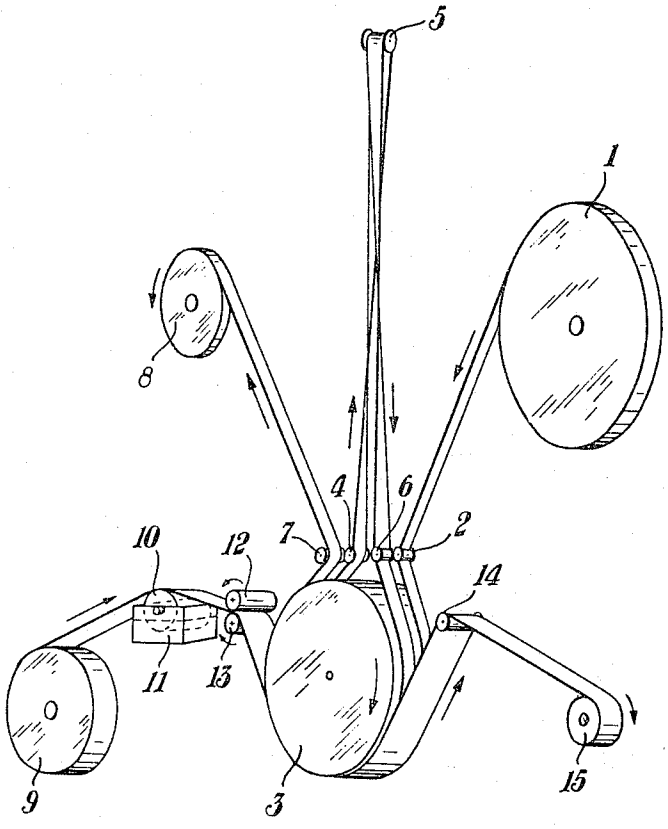
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DEVICE FOR SIMULTANEOUSLY TREATING BOTH SIDES OF RUNNING LENGTH FILM

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DEVICE FOR SIMULTANEOUSLY TREATING BOTH SIDES OF RUNNING LENGTH FILM

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ABSTRACT OF THE DISCLOSURE

The invention consists in apparatus for the continuous treatment of tape-like materials, comprising a rotating drum about which the tape to be treated is wound, a set of idler rollers over which said tape is caused to pass so as to be wound about said drum with both its surfaces exposed, and a treatment tape, consisting of absorbent material and impregnated with a treatment substance which contacts the tape to be treated and has a gliding direction contrary to the direction of movement of said drum.

The present invention relates to apparatus for the treatment of continuous tape-like material and more particularly to apparatus for cleaning motion picture films.

It is known that in the motion picture printing and projecting processes, the protection and the preservation of the surfaces of the motion picture films, both positives and negatives, is of maximum importance.

An object of this invention is to provide apparatus free from the inconveniences common to all systems used up to now. These inconveniences are due to the fact that the treatment of solvent liquids or substances, generally used, quickly become contaminated by the dissolved substances which are to be removed from the surfaces of the films.

Another object of the invention is to enable the same machine to be used for spreading onto the film substances suitable for the preservation and lubrication of the films, and for removing electrostatic charges.

A further object of the invention is to provide an apparatus having a high performance per hour with low operating costs.

According to one embodiment of this invention, along the path travelled by a motion picture film to be cleaned, there is provided a shaft carrying a reel from which the film unwinds, said film being guided to the support drum which is encircled by the film through almost its entire circumference. The film after leaving the drum, is guided by idler rollers, along a path where it is subjected to an axial twist, the film then being returned upside down onto the drum, thus forming a second loop passing around the drum side by side with the first loop. A reel with a frictional drive takes up the film after it leaves the drum for the second time.

A tape having a width equal to that of the two side by side films, is caused to glide in a direction opposite to the direction of rotation of the drum, said tape extending through about 180° around the drum. The tape, which consists of an absorbent material, unwinds from a reel and receives a uniform application of solvent liquid from a cylinder immersed in the liquid solvent contained in a constant level tank.

After being wetted by the solvent liquid the tape is caused to move forward by two rotatable pressure rollers and is finally wound up on a take-up reel.

In the space between the presser rollers and the take-up reel, the tape performs its cleaning function of the two surfaces of the film. This cleaning action occurs by the combined action as follows:

(1) Delivery to the film of constantly fresh and clean solvent and tape;

(2) Dissolution of the substances deposited on the surfaces of the film and absorption of said substances by said tape; and

(3) Mechanical action of the tape for removing the solid particles adhering to the surfaces of the film and not dissolved by the solvent.

In order that the invention may be more readily understood, reference will now be made to the accompanying drawing which shows, diagrammatically, one embodiment of apparatus according to the invention for cleaning motion picture films.

Referring to the drawing, the apparatus comprises a supply reel **1** from which the film to be clean is unwound. The film is guided by an idler roller **2**, around almost the entire circumference of the drum **3**, over an idler roller **4** and along an upward path to an idler roller **5** in which the film is twisted through 90°, this twist being repeated in the downward direction after which the film moves over the roller **6** and around the drum **3** again in the direction of rotation of the latter as shown by the arrow. After having travelled the second turn, side-by-side to the first turn, the film passes around an idler roller **7**, and onto a take-up reel **8**.

The twist given to the film as it travels between the rollers **4**, **5** and **6**, serves the purpose of causing said film to rest on the drum **3**, in the first turn with one face turned outwards and in the second turn with the other face turned outwards. In other words, the film contacts the drum **3** firstly with its support and secondly with its emulsion.

The drum **3** is driven by a motor through a speed reducer.

A tape unwinding from a reel **9** is caused to glide across the lower part of the drum **3** (on which part the film rests), in a direction opposite to that of the direction of rotation of the drum and for a distance overlying a certain arc of the periphery of the drum itself.

The tape, which is made of an absorbent material, after unwinding from the reel **9**, takes up a certain amount of solvent liquid from a cylinder **10** immersed in the solvent liquid which is contained in a tank **11**. Two rotating presser rollers **12** and **13** impart a constant very slow forward movement to the tape which will bear with a suitable pressure to the two surfaces of the film resting on the drum **3**; the tape which is subsequently guided by the idler roller **14** is finally wound up on the receiver roller **15**.

The receiver roller **15** is controlled by a motor which keeps the tension of the cleaning tape constant by means of an electrically operated tensioning device having a lever resting on the tape. This device is not shown in the drawing as it is known per se.

The liquid solvent contained in the fibers of the cleaning tape serves to dissolve substances deposited on the film and of holding said substances due to its absorbent power. Solid substances, insoluble in the solvent, are adhered to the tape by mechanical friction, but do not, however, damage the surfaces of the film due to the lubricant action of the solvent. The aforesaid cleaning action of the tape is constant all the time since, due to the continuous feeding of the cleaning tape, fresh solvent and absorbent tape are constantly moved into contact with the film and, due to this fundamental reason, the film at the outlet from the cleaning zone carries no residue of any kind which may be damaging for photographic purposes.

It should be appreciated that using the apparatus according to the invention it is possible either to spread onto the film chemical substances suitable for preserving

the surfaces of the film, or to carry out other desired treatments.

The present invention has been described with reference to one preferred embodiment only, but it should be understood that changes in this embodiment may be adopted without departing from the scope of the invention as defined by the appended claim.

We claim:

A device for simultaneously treating both sides of running length film comprising in combination a supply reel for the film to be treated, a taking up reel for the treated film, a rotary driven drum arranged with its axis parallel to the axes of said supply and taking up reels, a pair of inlet rollers and a pair of outlet rollers aligned with said both reels, respectively, for guiding said film in contact with said drum, and a twist roller having its axis arranged at right angles to the axis of the drum for overturning the film, a treatment tape being driven in contact with both surfaces of the film at the lower circumferential portion of said drum in a motion direction contrary to that of the film to cause said tape to slide on the film surfaces.

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