F. P. REED.

MOISTENING DEVICE.

APPLICATION FILED SEPT. 17, 1921.

1,432,733. Patented Oct. 17, 1922.

Fig. 1.

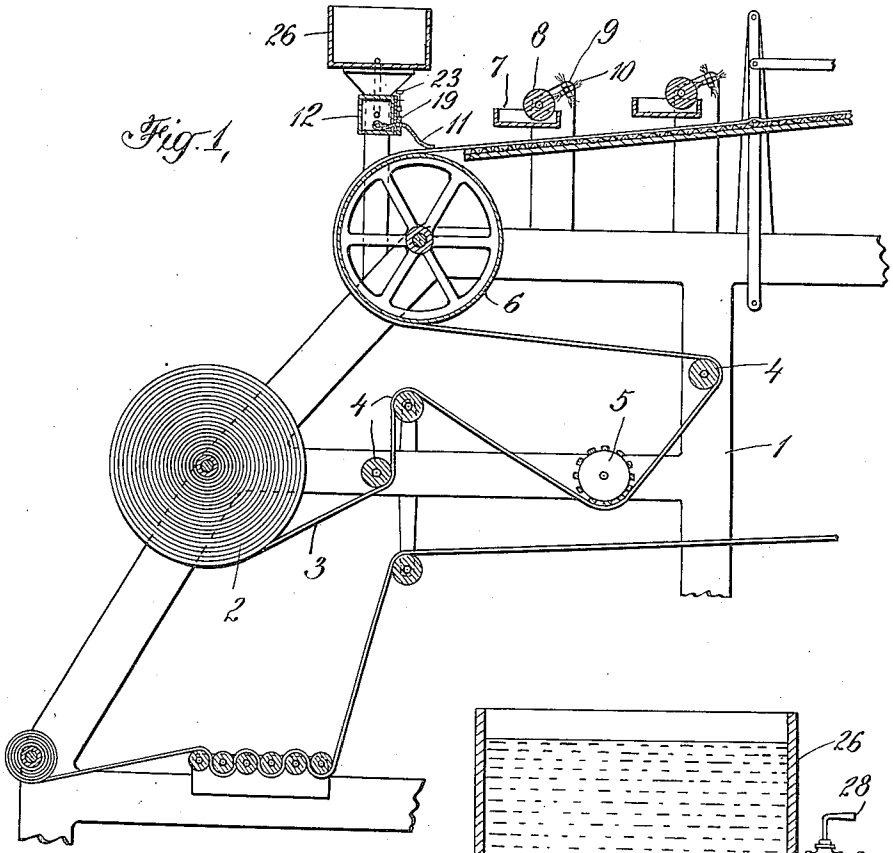


Fig. 2.

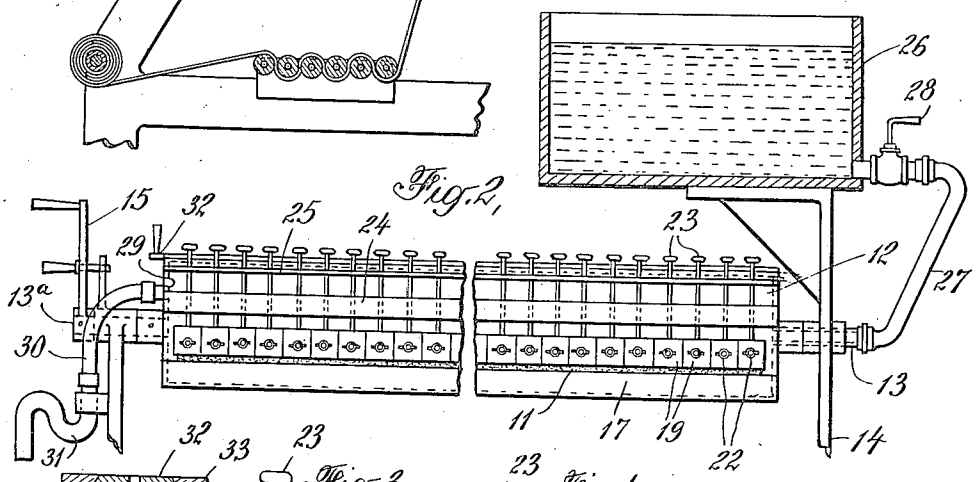


Fig. 3.

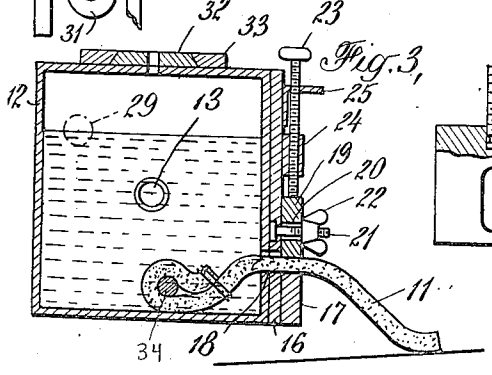
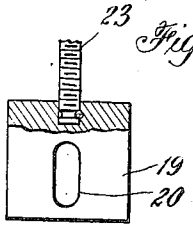


Fig. 4.



INVENTOR
Frederic Payson Reed

BY
Kenni Davis Morris & Edmonds
ATTORNEYS

Patented Oct. 17, 1922. 1,432,733

UNITED STATES PATENT OFFICE.

FREDERIC PAYSON REED, OF EAST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CHARLES C. ORCUTT.

MOISTENING DEVICE.

Application filed September 17, 1921. Serial No. 501,341.

To all whom it may concern:

Be it known that I, FREDERIC PAYSON REED, a citizen of the United States, residing at East Orange, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Moistening Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains, to make and use the same.

My invention is an improvement in moistening devices, of the character shown and described in my copending application, Serial No. 443,007, filed July 2, 1921, and relates particularly to mechanism for regulating the feed of the liquid in accordance with the requirements of different portions of the paper. In the above mentioned application, I have shown a device for applying a film of moisture to a sheet or web of paper, wherein there is provided a wiper through which the moisture feeds from a constant level reservoir, and I have provided means in connection with the reservoir for controlling the aggregate flow through the wiper during a specified time. I have experienced difficulty however, in applying the moisture in such manner that every portion of the surface of the sheet or web will have the same degree of surface moisture, because of the fact that the paper is not uniformly resistant to the penetration of the moisture. Some parts of the sheet or web are more absorbent than others, because of looser texture, or because the adjacent portion of the surface is more highly glazed. Hence, after the film has been applied, some portions of the surface of the paper may show the film, while others may be relatively free from moisture, such moisture having been absorbed.

From this results that when the color is applied to the sheet or web, it may be streaked or blotched, and may not dry so uniformly nor will the color spread in the manner desired.

The object of the present invention is to provide mechanism in connection with the device forming the subject matter of the above mentioned application for permitting the quantity of moisture fed by the wiper to be regulated at any point in the length of the wiper, so that while the total quantity fed during a given time is substantially the same, the feed at any selected point in the length of the wiper may be increased or diminished in accordance with the requirements of the paper at that point.

In the drawings;

Figure 1 is a longitudinal section of a part of a paper coating machine provided with the improved moistening device,

Figure 2 is a rear view of the moistening device with a part in section,

Figure 3 is a transverse section through the reservoir,

Figure 4 is a front elevation of one of the regulating elements.

In the machine forming the subject matter of my applications, Serial No. 241,102, filed June 21, 1918, and Serial No. 241,103, filed June 21, 1918, moisture, as for instance water, is applied to one face of a paper sheet or web, after which the paper is spattered or striped with color. To obtain the best results, it is necessary that the surface moisture of the paper be substantially uniform, in order that the applied color may spread properly and that the paper may dry uniformly.

The present embodiment of the invention is shown in connection with a paper coating machine, comprising a suitable supporting frame 1, upon which is journaled a reel 2 carrying the web 3 of paper which is to be coated. The paper passes from the reel over suitable tension rollers 4 and 5, to a drum 6, over which the web passes to the means for spattering or striping the paper with color. In the present instance, two spattering means are shown, each of the said means comprising a tank 7 supported by the frame, and a roller 8 mounted to dip into the color held by the tank. Above and slightly in the rear of each roller is a shaft 9, mounted to rotate counter to the roller, and carrying series of bristles 10 extending longitudinally of the shaft. These bristles contact with the smooth top face of the roller, and flick off little specks of liquid color, delivering them upon the traveling sheet or web. Before the paper is spattered or striped with the color it is necessary that the face which is to be spattered or striped be provided with a film of moisture, and that the film be uniformly distributed throughout the extent of the paper. The depositing of the film upon

the paper is brought about by means of a wiper 11 of felt or like porous absorbent material. The said wiper is supported by a reservoir 12, and the reservoir is supported by the frame 1 transversely of the traveling sheet or web of paper, and in front of the first spattering or striping device. The reservoir has hollow journal pins 13, which are journaled in brackets 14 extending upwardly from the frame, and one of the pins has a handle or crank 15 for convenience in turning the reservoir. The other journal pin is an inlet for the moistening liquid, which may be water, or a suitable liquid color, where it is desired to coat the paper with a background or body color before spattering or striping. The reservoir in the present instance is square in cross-section, and the front wall thereof is reinforced by a reinforcing plate 16. The plate 16 and the front wall of the reservoir have registering passages through which the wiper 11 extends, the said wiper being of a length somewhat greater than the width of the paper to be coated, and of a width such that the wiper may extend well beyond the reservoir wall inside and outside the reservoir. A bar 17 is arranged transversely of the plate 16 below the slot 18 through which the wiper passes, and the upper edge of this bar is flush with the lower edge of the slot. A series of adjustable presser plates 19 is supported by the plate 16 above the slot 18. Each of these presser plates has a vertical slot 20, through which passes a screw 21. The heads of the screws 21 are held in counter sinks in the inner face of the plate 16, and each screw is engaged by a wing nut 22 outside the adjacent presser plate. A screw 23 is provided for each presser plate, and these screws 23 which are rotatably connected with the plates, as shown in Figure 4 are threaded through a bar 24 extending longitudinally of the plate 16, above the slot 18. Near their upper ends the screws also extend through a bar 25 extending outwardly from the plate 16. It will be evident that by means of the screws 23, the plates may be raised or lowered, and when in adjusted position, they may be locked in such position, by means of the winged nuts 22. In practice the presser plates 19 may have any desired width, as for instance one inch. By means of the plates, the flow through each inch of the wiper may be controlled independently of the flow in every other part of the wiper.

A constant level of liquid is maintained in the reservoir 12, by means of a tank 26 which is connected to one of the hollow journal pins by means of a connection 27, a valve 28 being provided for controlling the connection. The reservoir has a discharge port 29 at the opposite end, from which leads a pipe 30, and a trap 31 is provided in the said connection for preventing the entrance of air to the reservoir. Air is admitted to the reservoir above the liquid, in regulated quantities, by means of a valve 32 which is mounted to slide in guides 33 on the top of the reservoir, and the valve has openings, adapted to register more or less with openings in the top of the reservoir. It will be obvious that by shifting the valve 32 the amount of air admitted to the reservoir may be regulated whereby to control the feed of the liquid through the wiper. The tank 26 and the overflow pipe 30 maintain a constant level of liquid in the reservoir and the aggregate amount fed through the wiper during a specified time is controlled by the valve 32. By means of the presser plates, the amount of liquid flowing through any selected part of the wiper may be varied, in accordance with the condition of the paper being treated. Thus a film of moisture may be applied to the paper in such manner that the paper will have substantially the same amount of surface moisture throughout its extent, regardless of the varying absorptive qualities of the paper in its different parts. By means of the crank 15 the reservoir may be rotated on its hollow journal pins, to move the wiper into or out of operative position. In order to prevent the inner edge of the wiper from floating, I arrange a rod or the like, indicated at 34 within a hem on the said edge.

I claim:

1. In combination, a reservoir, and a wiper through which the reservoir feeds, and a plurality of means engaging the wiper, at different points, and movable toward and from the wiper for varying the feed at any selected point in the engaging surface of the wiper.

2. In a machine of the character specified, a reservoir, a wiper through which the reservoir feeds, and means for varying the compression of any selected part in the length of the wiper, whereby to vary the feed of liquid through such part.

3. In a machine of the character specified, a reservoir, a wiper through which the reservoir feeds, means for controlling the pressure in the reservoir to regulate the feed through the wiper, and independent means for varying the compression of any selected portion of the wiper whereby to vary the flow of liquid through such portion.

4. In combination, a constant level reservoir, a wiper through which the reservoir feeds, means for controlling the pressure on the liquid in the reservoir to control the feed through the wiper, and a plurality of means engaging the wiper throughout the length thereof for compressing said wiper, and adjustable to vary the compression.

5. In combination, a constant level reser-

voir, a wiper through which the reservoir feeds, means for controlling the pressure on the liquid in the reservoir to control the feed through the wiper, a plurality of means engaging the wiper throughout the length thereof for compressing said wiper, and adjustable to vary the compression, said means comprising a fixed pressure plate for one face of the wiper, a series of pressure plates for the other face and cooperating with the first named plate, and means for independently adjusting said last named plates.

6. In combination, a reservoir, and a wiper through which the reservoir feeds, means for controlling the aggregate flow of liquid through the wiper during a given time, and means for varying the flow at any selected point in the length of the wiper.

In testimony whereof I affix my signature.

FREDERIC PAYSON REED.