

April 5, 1932.

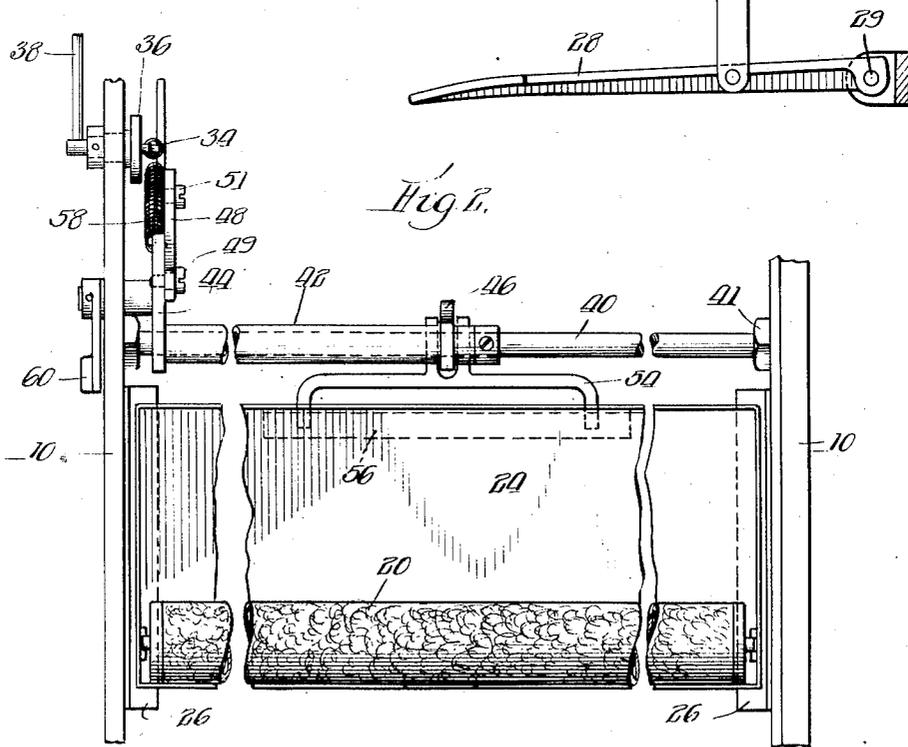
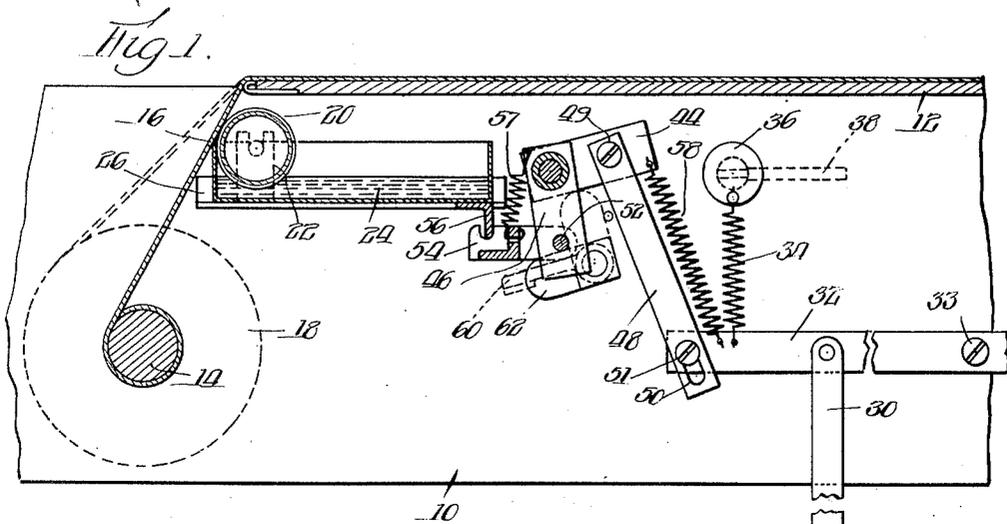
J. P. PEDERSON

1,852,331

MOISTENER

Filed Oct. 9, 1929

2 Sheets-Sheet 1



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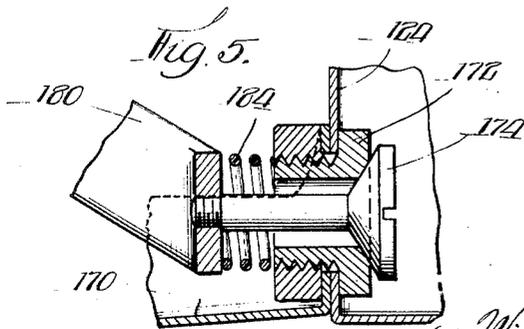
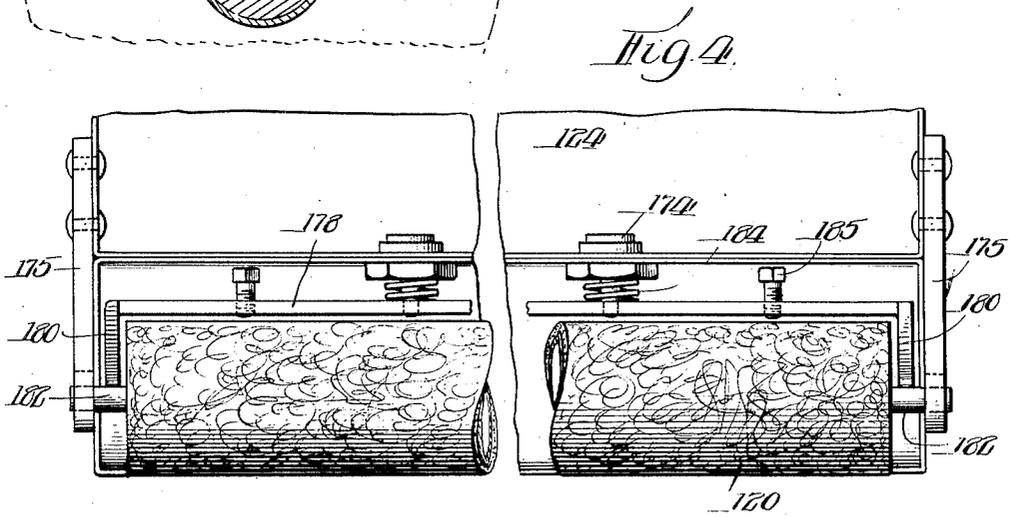
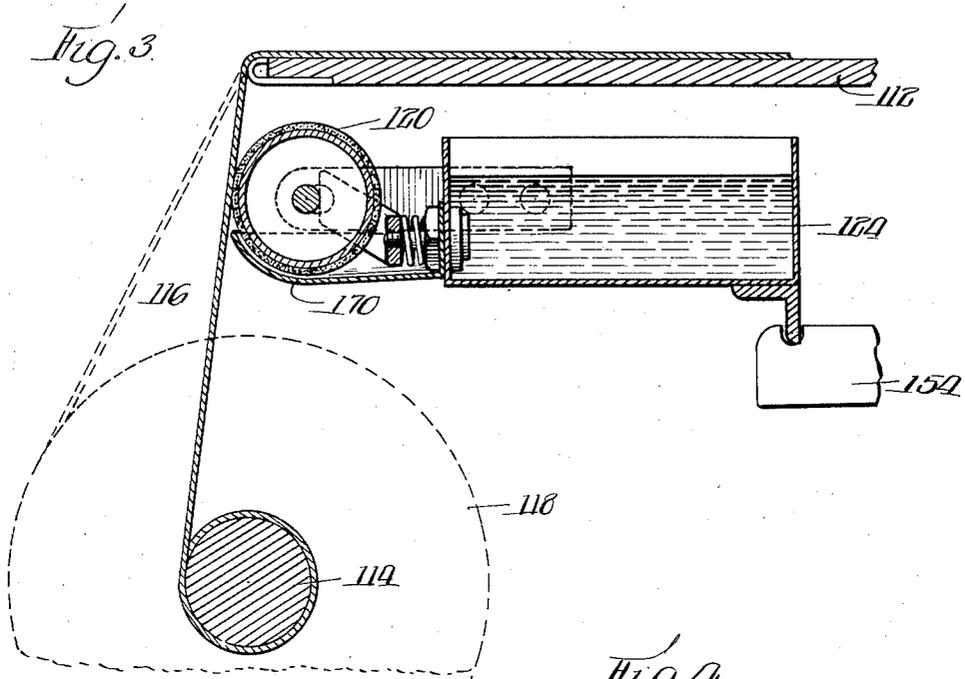
J. P. PEDERSON

1,852,331

MOISTENER

Filed Oct. 9, 1929

2 Sheets-Sheet 2



Inventor:
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UNITED STATES PATENT OFFICE

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MOISTENER

Application filed October 9, 1929. Serial No. 398,324.

The invention relates to improvements in duplicating machines of the type employing a matrix adapted to receive impressions and roller means for pressing a master or copy sheet thereupon to communicate and receive the impressions, and has reference more particularly to novel means for maintaining the surface of the gelatine matrix in a fit and suitable condition for properly receiving and communicating the impressions.

The above type of duplicating machines are commonly known as hektograph machines, and employ as a printing medium a gelatine surface which is commercially supplied in the form of a canvas band or strip having a layer of gelatine cemented thereto, the whole being wound upon spindles to form gelatine rolls. In the operation of the machines the gelatine band is fed from the roll over the flat platen or printing bed to expose a portion of the gelatine surface and is then wound upon another spindle journaled at the front end of the machine.

It has become the practice immediately before the printing operation to sponge the surface of the gelatine bands with water, which has heretofore been done by the operator by using a sponge or other suitable means. The addition of water to the gelatine has been found to be very beneficial as it renders the substance soft and pliable and therefore removes the undesirable brittleness from the printing surface. To render the feeding of the gelatine band over the platen surface as frictionless as possible and to maintain the gelatine in a soft and yielding condition whereby the efficiency of the machine in communicating legible impressions is increased, the present invention provides for applying water in desired quantities to the gelatine surface through a novel form of apparatus.

One of the objects of the present invention, therefore, is to provide hektograph machines with novel means for applying moisture to the surface of the gelatine matrix to maintain the gelatine in a soft and pliable condition during the time the rolls are stored for future use.

Another object of the present invention is to provide hektograph machines with an im-

proved device for applying moisture to the gelatine surface which may be thrown into and out of operation as desired.

Yet another object is to provide hektograph machines with a novel form of apparatus for applying moisture to the gelatine bands during the feeding operation of the band.

A yet further object is to provide hektograph machines with a novel form of moistener which can be located under the printing bed of the machine adjacent the gelatine rolls and which will be simple and durable in construction and reliable in operation.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawings and claims appended hereto.

In the drawings, which illustrate an embodiment of the device and wherein like reference characters are used to designate like parts—

Figure 1 is a fragmentary sectional view through the forward end of a hektograph machine showing the moistener embodying the features of the present invention applied thereto;

Figure 2 is a plan view of the moistener as shown in Figure 1 with the platen and gelatine band of the machine removed;

Figure 3 is a fragmentary sectional view through the forward end of a hektograph machine showing a modified arrangement of moistening apparatus applied thereto;

Figure 4 is a plan view of the modified moistener shown in Figure 3; and

Figure 5 is an enlarged detail view of the valve mechanism employed in the modified form of moistener.

Referring particularly to Figures 1 and 2 of the drawings, the invention is embodied in a machine wherein 10 represents the side frame members having the flat platen 12 secured thereto to form the printing bed of the machine. Journaled within the side frames at each end of the platen are spindles 14 upon which the matrix or gelatine band 16 is wound to form the rolls 18. The platen

has stretched or supported thereon an exposed portion of the gelatine band sufficient to form a suitable printing surface which may be changed after a printing operation to expose a clean portion of the gelatine by winding of the bands onto the gelatine rolls.

A moistening device is located under the platen 12 and comprises a felt-covered roller 20 which is journaled for rotation in upright supports 22 secured by suitable means within the water container 24. Angle bars 26 are secured within the side frames 10 and are adapted to support the water container so that it is free to slide towards and from the gelatine band 16, which constitutes the operative and inoperative position of the moistener, respectively.

The actuating mechanism for operating the moistener consists of a foot pedal 28 which is pivoted to a suitable part of the machine at 29. A vertical link 30 and the horizontal arm 32 are so pivotally secured that movement imparted to the foot pedal will transmit through link 30 similar movement to the horizontal arm 32. The arm 32 is pivoted to the machine at 33 and is held under tension by spring 34 which is in turn fastened to the disk 36 mounted for rotation in the side frame 10 by means of a handle 38. This arrangement functions to increase the tension on the arm 32 by rotating the handle through 180°.

A tie rod 40 is secured to the side frames by means of nuts 41 and has mounted thereon, so that it is free to rotate, a tubular rod 42. A bell crank is secured to the rod 42 and consists of the arm 44 located at the extreme left hand end and a depending arm 46 at the right hand end as disclosed in Figure 2. A link 48 is secured to the free end of arm 44 at 49 and to the free end of arm 32 through the slot 50 and pin 51. The slot 50 and spring 34 are provided since the extreme right hand end of the arm 32 actuates mechanism to release a brake on the rear spindle through the movement imparted to the pedal 28. The normal position of the arm 32 and spring 34 tends to apply pressure to the brake and thus to the spindle so that the gelatine band is maintained in a stretched condition over the surface of the platen. This construction, however, constitutes no part of the present invention and is therefore not shown in detail.

The depending arm 46 is directly connected by means of a pin 52 to a U-shaped actuating bar 54 which in turn has direct engagement with the angle bar 56 secured to the water container 24. Springs 57 and 58 are provided to maintain the linkage in proper position and to hold the actuating bar 54 in engagement with the water container.

In the operation of the parts thus far described, the gelatine roll is fed forward over the platen 12 and wound on the spindle 14 as

disclosed in Figure 1. It is, of course, understood that the winding of the band occurs only during successive printing operations when it is necessary to expose a clean portion of the gelatine for use. It is during these movements of the gelatine band that the moisture is operated. Pressure is exerted upon the foot pedal 28 by the operator which imparts a downward movement to the arm 32 until the pin 51 reaches the bottom of slot 50, whereupon further actuation of the arm 32 exerts a downward movement to link 48, which is in turn imparted to the arm 44 to cause rotation to the tubular rod 42. Rotation of rod 42 causes the depending arm 46 to swing towards the front of the machine, thereby actuating in like manner the U-shaped bar 54 which in turn causes the water container 24 to slide on the guide bars 26 towards the gelatine band. This forward movement of the water container actuates the felt covered roller 20 to contact with the back surface of the band 16 and, as the band is wound upon the spindle 14 during successive feeding operations, a film of water or moisture is distributed over its entire back surface. As the gelatine surface contacts with the back of the bands when wound upon the rolls, the gelatine is therefore kept in a moist condition during the time the rolls are stored, and the surface remains soft and pliable and better able to receive and communicate impressions the next time it is used.

It is sometimes desirable to discontinue the use of the moistening device, in which case actuation of the pedal will function to operate only the brake mechanism in connection with the arm 32. For this purpose a disconnecting lever 60 is provided which, upon actuation, operates a lever 62 directly connected thereto for acting as an abutment or stop upon the arm 44. When the lever is turned so that the arm 62 assumes the dotted position shown in Figure 1 the water container 24 and roller 20 remain in retracted position.

A modified form of moistening device is disclosed in Figures 3 and 4, and is employed in connection with machines in which the printing bed extends well forward and almost directly over the axis of the gelatine rolls. The construction comprises a water container 124 which is operated through an actuating bar 154 and mechanism similar to that disclosed in connection with the form of the device in Figure 1. A curved trough 170 is directly connected to the water container 124 through suitable securing means and has a plurality of vent openings normally closed by means of valves 174. Journaled within the trough in bearing members 175 is a felt-covered roller 120 for contact with the back surface of the bands 116.

As the trough 170 is purposely made shallow and will therefore contain very little

water, valve means are provided which, upon actuation of the roller 120, are opened to admit water for the container 124. The mechanism for opening and closing the valves comprises the bar 178 with end members 180 for abutment against the trunnions 182 of the roller 120. Secured to the bar 178 at spaced intervals are the valves 174 which are normally seated against the vent openings on the inside of the container 124 through tension exerted by the springs 184. Adjustable stops 185 are provided which allow a limited opening of the valves so that a sufficient supply of water is admitted to the trough.

By operation of the bar 154 through the pedal and actuating means described, the water container is given a forward movement which causes the felt-covered roller to contact with the gelatine bands 116. This pressure on the roller tends to move the bar 178 in a rearward direction, and thus spaces the valves from the vent openings 172 which admits a flow of water into the trough sufficient for the present operation. Immediately upon release of the pressure of the roller against the band, the springs 184 will close the valves, and the water supply in the trough is therefore discontinued.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown, which is merely by way of illustration and not limitation, as various and other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a duplicating machine, in combination with a frame having a flat printing bed, a gelatine band supported on said bed, a moistening device adapted to apply water to the rear surface of said band comprising a water container located under said printing bed, roller means journaled in said container and adapted to contact with said band, a pedal pivoted to said frame and actuating means connecting said pedal with said container, whereby operation of said pedal actuates said container to bring said roller into and out of contact with the surface of the gelatine band.

2. In a duplicating machine, in combination with a frame having a flat printing bed, a gelatine band supported on said bed, a moistening device adapted to apply water to the rear surface of said band comprising a water container located under said printing bed, roller means journaled in said container and adapted to contact with said band, a pedal pivoted to said frame, a tubular rod mounted for rotation adjacent said container, means operatively connecting said pedal with said rod and said container with said rod, whereby operation of said pedal actuates said container to bring said roller into and

out of contact with the surface of the gelatine band.

3. In a duplicating machine, in combination with a frame having a flat printing bed, a gelatine band supported on said bed, a moistening device adapted to apply water to the rear surface of said band comprising a water container located under said printing bed, roller means journaled in said container and adapted to contact with said band, a pedal pivoted to said frame, a tubular rod mounted for rotation adjacent said container, means secured to one end of said rod for connection to said pedal, means secured to the other end of said rod for connection to said container, whereby operation of said pedal actuates said container to bring said roller into and out of contact with the surface of the gelatine band.

4. In a duplicating machine, in combination with a frame having a printing bed and spindles journaled therein, a gelatine band supported on said bed and adapted to be wound upon said spindle, a moistening device located under said bed comprising a water container, a roller journaled in said container and adapted to contact with the rear surface of said band extending between the spindle and bed, and pedal actuating means for operating said moistener by bringing said roller into and out of contact with said surface of the gelatine band.

5. In a duplicating machine, in combination with a frame having a printing bed and spindles journaled therein, a matrix supported on said bed and adapted to be wound upon said spindle, a moistening device located under said bed comprising a water container, a roller journaled in said container and adapted to contact with the rear surface of said matrix extending between the spindle and bed, and actuating means for said moistener to cause said roller to contact with the said surface of the matrix.

6. In a duplicating machine, in combination with a frame having a printing bed and spindles journaled therein, a matrix supported on said bed and adapted to be wound upon said spindle, a moistening device located under said bed comprising a water container, a roller journaled in said container and adapted to contact with the rear surface of said matrix extending between the spindle and bed, actuating means for causing said roller to contact with the said surface of the matrix, and lever means for rendering said actuating means inoperative.

7. In a duplicating machine, in combination with a frame having a printing bed and spindles journaled therein, a matrix supported on said bed and adapted to be wound upon said spindle, a moistening device located under said bed comprising a water container, a roller journaled in said container and adapted to contact with the rear surface of

said matrix extending between the spindle and bed, means for supporting said container for sliding movement and actuating means for sliding said container to bring said roller into and out of contact with the said surface of the matrix.

8. In a duplicating machine, in combination with a frame and a printing bed, a gelatine band supported thereon, means for applying moisture to the gelatine surface comprising a container adapted to contain a quantity of water, and means journaled in said container for contact with the opposite side of said band.

9. In a device of the class described, in combination with a matrix, means for applying moisture to the printing surface of said matrix, including a roller journaled for contact with the opposite surface of said matrix.

10. In a duplicating machine, in combination with a printing bed, a band adapted to be supported on said bed, a roller for contact with said band, a shallow trough mounted adjacent said band and within which said roller is journaled, a water container secured to said trough, openings extending from said container to said trough and adapted to be normally closed by valves, means for actuating said valves by pressure against said roller, whereby when said roller contacts said band, said valves are actuated to cause said roller to apply water to said bands.

11. In a duplicating machine, in combination with a printing bed, a gelatine band adapted to be supported on said bed, a roller for contact with said band, a shallow trough mounted adjacent said band and within which said roller is journaled, a water container secured to said trough and provided with openings extending into said trough, and means operated by pressure against said roller for normally closing said openings.

12. In a duplicating machine, in combination with a printing bed, a gelatine band adapted to be supported on said bed, a roller for contact with said band, a shallow trough mounted adjacent said band and within which said roller is journaled, a water container secured to said trough and provided with openings extending into said trough, valves for normally closing said openings, and means for imparting movement to said container to simultaneously cause said roller to contact said band and to actuate said valves.

13. In a duplicating machine, in combination with a frame and a printing bed, a matrix supported thereon, means for applying moisture to the backing of the matrix, and spindles journaled in the frame at the ends of the printing bed upon which the matrix is wound, whereby the printing surface of the matrix is maintained in a moistened condition when wound on the spindles as the

surface contacts the back of the adjacent inner convolution.

14. In a duplicating machine, in combination, a frame having a printing bed, a gelatin band supported thereon, means for applying moisture to the gelatin surface of the band, including a member having contact with the opposite surface of the band, and spindles upon which the band is wound, whereby the gelatin surface of one convolution contacts the back of the adjacent inner convolution.

Signed at Chicago, Illinois, this 5th day of October, 1929.

JOHN P. PEDERSON.

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