M. DUPUIS.

MACHINE FOR PRINTING FABRICS.

APPLICATION FILED JULY 24, 1912.

1,153,046. Patented Sept. 7, 1915.

Fig. 1.

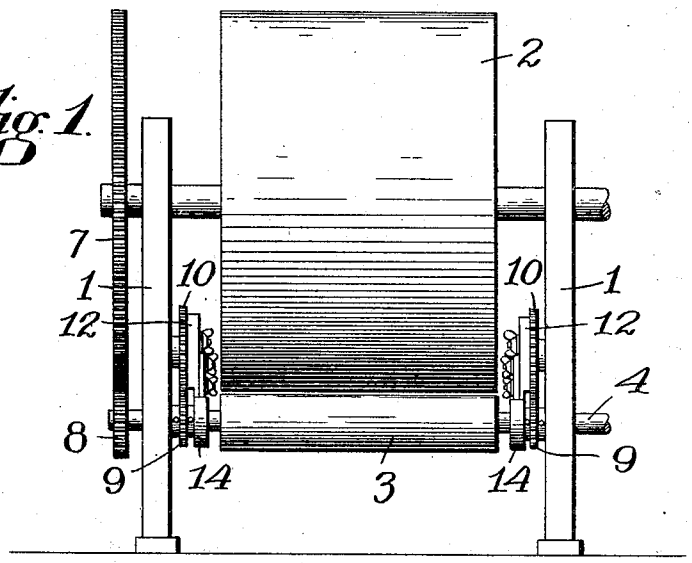


Fig. 2.

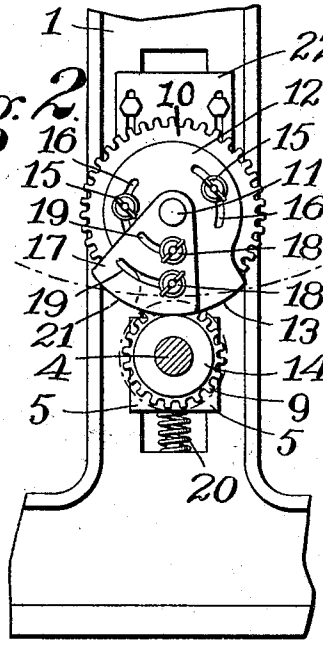


Fig. 3.

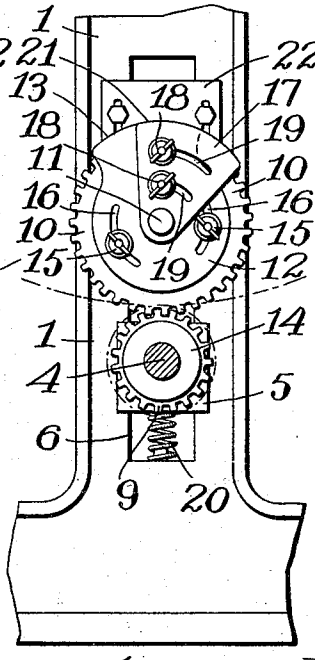
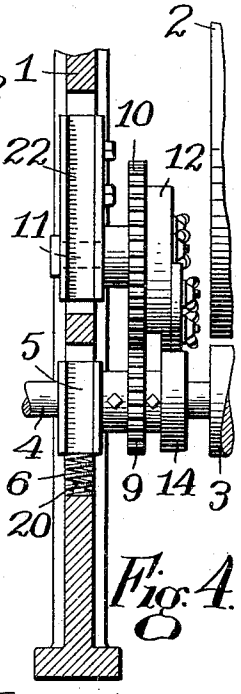


Fig. 4.



Witnesses.

R. D. Tolman.

Penelope Bauberbach.

Inventor

Moses Dupuis.

By Rufus B. Fowler

Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MOSES DUPUIS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO ALLEN-HIGGINS WALL PAPER COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MACHINE FOR PRINTING FABRICS.

1,153,046. Specification of Letters Patent. Patented Sept. 7, 1915.

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To all whom it may concern:

Be it known that I, MOSES DUPUIS, of the city and county of Worcester, in the Commonwealth of Massachusetts, have invented a new and useful Improvement in Machines for Printing Fabrics, of which the following is a specification, accompanied by drawings forming a part of the same.

My invention relates to that class of fabric printing machines in which the material to be printed is moved continuously in contact with the periphery of a revolving drum or cylinder. Impressions of different colors, or decorative designs, are imparted to the material by means of printing rollers running in contact with the material to be printed. The printing rollers are revolved continuously and act in succession, the rotating parts being connected by gearing so that the impressions are placed upon the material in proper order and correct registration. In machines of this class several colors may be printed upon the material, a single color being applied by each of the rollers.

My present invention is particularly designed for the printing of wall paper. In wall paper printing machines a series of rollers are usually employed, each containing a specific pattern and each being supplied with an individual color. As the paper passes between the printing rollers and the revolving drum, each of the patterns and colors upon the rollers of the individual printing rollers are successively applied to the paper in regular sequence.

It is the object of my present invention to provide a simple and efficient means whereby one or more of the printing rollers may be periodically thrown into and out of contact with the paper, thereby interrupting the sequence of patterns or colors as may be desired. By means of my present invention I am enabled to repeat the pattern upon a strip of wall paper for a predetermined distance, and then to interpose a distinctive pattern adapted to form a frieze for the room to be papered. This object I accomplish by means of a mechanism by which the radial distance of one or more of the printing rollers from the revolving drum or cylinder may be varied, in order to carry the printing rollers into or out of operative contact with the paper as hereinafter described, the novel features being pointed out in the annexed claims.

In the accompanying drawings I have shown so much of a wall paper printing machine as will be necessary to illustrate my present invention.

Figure 1 represents a front view of the revolving drum or cylinder over which the paper passes, and also one of the printing rollers located beneath the drum together with my improved mechanism for moving said roller toward or away from the drum. Fig. 2 represents a portion of the framework, showing a side view of my roller moving mechanism in the position of holding the roller out of contact with the paper. Fig. 3 represents the same view as Fig. 1, but with the roller moving mechanism in position to allow the printing roller to run in contact with the paper. Fig. 4 represents a portion of the framework, shown in sectional view, with the mechanism embodying my present invention supported thereby.

Similar reference characters refer to similar parts in the different views.

Referring to Fig. 1, 1, 1 denote portions of the supporting sides of the framework of the machine. In the sides 1, 1 is supported a revolving drum 2 over which the paper is passed in the usual manner. Beneath the revolving drum 2 is a printing roller 3 supported on a shaft 4 which is journaled in boxes 5 capable of a vertical movement in ways 6 in the framework of the machine. The shaft of the drum 2 and the shaft 4 of the printing roller are geared together by means of gears 7 and 8, Fig. 1, by which the same peripheral speed of the drum 2 and roller 3 is secured. The shaft 4 is provided with pinions 9, 9 which engage gears 10, 10 rotating loosely on studs 11 held in the framework of the machine. Loosely mounted upon the studs 11 are cam plates 12 having their raised surfaces 13 adapted to contact with a collar 14 carried upon the shaft 4 of the printing roller.

The cam plates 12 are attached to the sides of the gears 10 by means of clamping thumb bolts 15 which pass through concentrically curved slots 16 and are screwed into the gears 10, thereby enabling a slight rotative adjustment to be given to the cam plates 12. Mounted upon the cam plates 12 are the supplemental cam plates 17, attached to the cam

plates 12 by means of the clamping thumb bolts 18 which pass through concentrically curved slots 19 and are screwed into the cam plates 12, thereby permitting a rotative adjustment of the supplemental cam plates 17. The curved peripheries of the supplemental cam plates 17 correspond with the raised cam surfaces 13 of the cam plates 12. Each pair of cam plates 12 and 17 form in effect a single two part cam, the two parts being relatively adjustable to vary the effective length of the raised portion of the cam.

The journal boxes 5 are mounted upon spiral springs 20, by which the printing roll is normally held in its highest position and in contact with the revolving drum 2, causing the pattern of the printing roller to be applied to the paper except at that period in its revolution in which the raised cam surface 13 and periphery 21 of the supplemental cam plate 17 are brought into contact with the collar 14. When this occurs the printing roll is forced radially downward, compressing the springs 20 and bringing the periphery of the printing roll out of contact with the paper, causing an interruption of the printing by the printing roll 3 during the action of the cam 12 upon the collar 14. The period of this action may be increased or diminished by the adjustment of the supplemental cam plate 17. The action of the cam plate 12 relatively to the rotative movement of the printing roll may be varied by the adjustment of the cam plate on the side of the gear 10, thereby causing the printing roll to be moved into an inoperative position during any desired period of its contact with the paper, causing a part or the whole of the pattern upon the printing roll to be omitted. Other adjustments of the mechanism may be made by varying the relative size of the gears 9 and 10. To provide for an adjustment by a change of gears, I carry the stud 11 in a plate 22 vertically adjustable on the side frames 1, 1. The teeth of the gears 9 and 10 are sufficiently long to prevent their disengagement when separated by the action of the cam 12.

In the operation of my improved mechanism, the gear 10 is selected which, driven by the gear 9, will give the desired relative speed to the cam 12. The cam plate 12 and supplemental plate 17 are then attached to the gear and the assemblage mounted upon the stud 11. An adjustment is then made of the cam plate 12 upon the gear 10 to produce the action of the cam at the proper period in the rotation of the printing roller. The supplemental cam plate 17 is then adjusted to give the desired duration to the operation of the cam. The gear 10 is then brought into proper engagement with the gear 9 in order to produce the movement of the printing roller at the desired position of the roller relatively to the drum 2.

I claim,

1. In a machine of the kind specified, a framework, a drum, a printing roller, gears mounted on said framework in adjustable bearings, gears carried by said printing roller and engaged by the gears on said framework, cams carried by the gears on the framework, collars on said printing roller, and yielding means for holding said collars in contact with said cams.

2. In a machine of the kind specified, a drum, a printing roller, collars on the printing roller, cams engaging the collars to move the printing roller away from the drum, yielding means for holding the collars in contact with the cams, and means for driving the drum, printing roller, and cams at predetermined relative angular velocities.

3. In a machine of the kind specified, a drum, a printing roller, a collar on the printing roller, a two part cam engaging the collar to move the printing roller away from the drum, the two parts of the cam being relatively adjustable to vary the effective length of the raised portion of the cam, yielding means for holding the collar in contact with the cam, and means for driving the drum, printing roller, and cam at predetermined relative angular velocities.

4. In a machine of the kind specified, a drum, a printing roller, a collar on the printing roller, a two part cam engaging the collar to move the printing roller away from the drum, the two parts of the cam being relatively adjustable to vary the effective length of the raised portion of the cam, and means for driving the drum, printing roller, and cam at predetermined relative angular velocities.

5. In a machine of the kind specified, a drum, a printing roller, a two part rotatable cam for moving the printing roller away from the drum, the two parts of the cam being relatively adjustable to vary the effective length of the raised portion of the cam and being also adjustable together about their axis, and means for rotating the drum, printing roller, and cam at predetermined relative angular velocities.

6. In a machine of the kind specified, a drum, a printing roller carrying a gear and a collar, an adjustable stud carrying a gear and a cam, the two gears being in mesh and the collar being engaged by the cam to change the distance between the drum and the printing roller.

Dated this twentieth day of July, 1912.

MOSES DUPUIS.

Witnesses:

PENELOPE COMBERBACH,

RUFUS B. FOWLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."