2 Sheets--Sheet 1.

WILLIAM McALLISTER.

Machine for Printing Yarn.

No. 123,921. Patented Feb. 20, 1872.

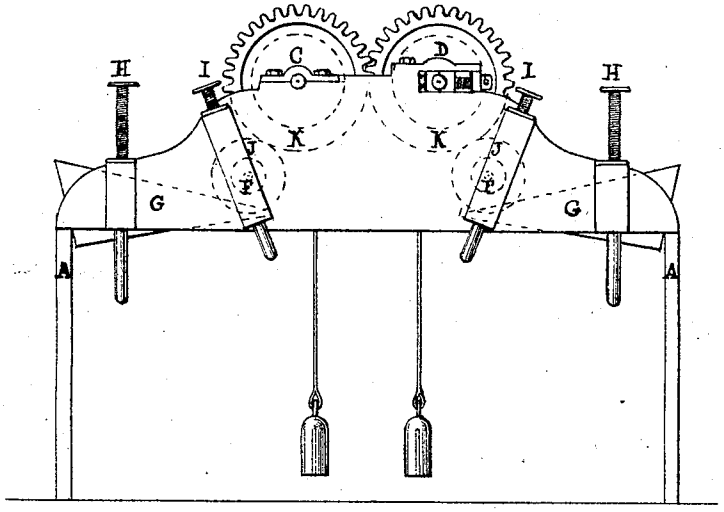

Fig 1

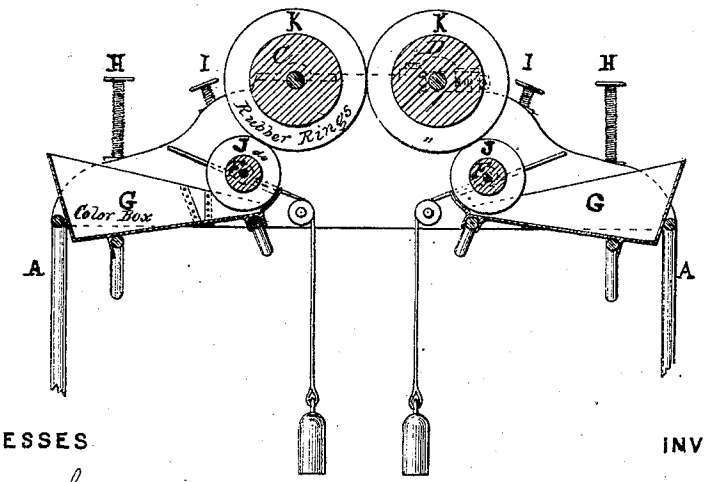

Fig 2

WITNESSES

James Schouler

Wm Schouler

INVENTOR

Wm McAllister

2 Sheets--Sheet 2.

WILLIAM McALLISTER.

Machine for Printing Yarn.

No. 123,921. Patented Feb. 20, 1872.

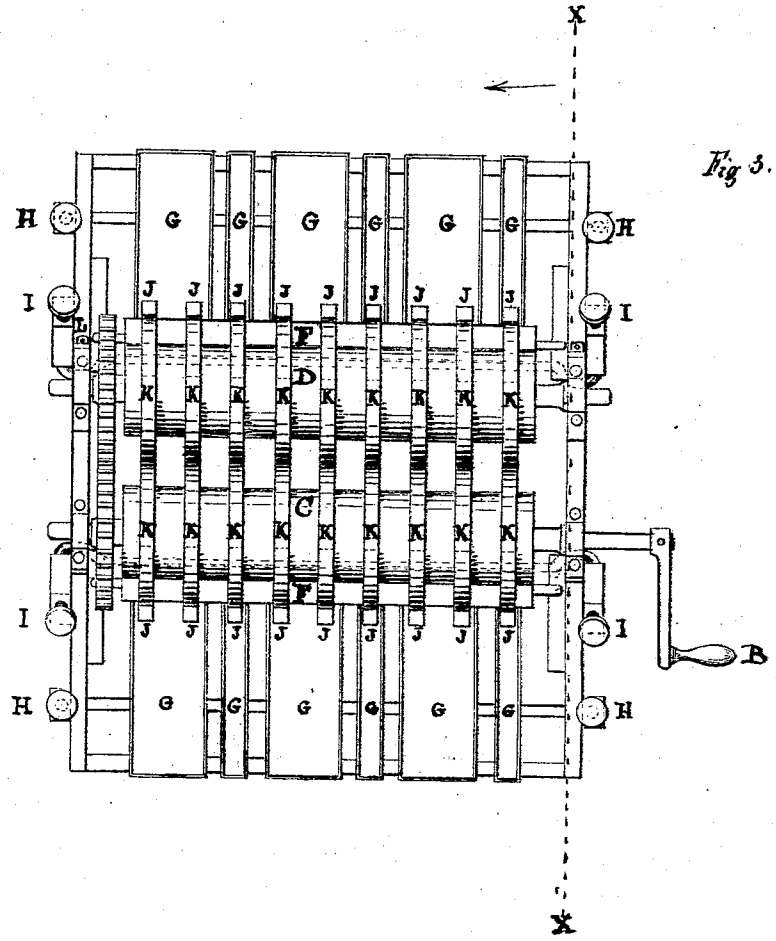

Fig 3.

WITNESSES

James Schumer

Wm Schumer

INVENTOR

Wm McAllister,

UNITED STATES PATENT OFFICE.

WILLIAM McALLISTER, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN MACHINERY FOR PRINTING YARN.

Specification forming part of Letters Patent No. 123,921, dated February 20, 1872.

Specification describing certain Improvements in Machines for Printing Yarn, invented by WILLIAM McALLISTER, of Lawrence, Essex county and State of Massachusetts.

The first part of my invention relates to the feeding and printing rollers of the machine for printing yarn, and consists in making them of rubber rings mounted on a rigid cylinder. The second part of my invention relates to the color-boxes, and consists in so mounting them that, by changing their position, the supply of color to the feed-rolls can be regulated.

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a vertical section, showing those parts of the machine which are at the right hand of the line *x x* drawn across Fig. 3. Fig. 3 is a plan of the machine.

A is the frame of the machine. B is a crank or pulley on the main shaft. C is the main roller from which motion is communicated to the operating parts. D is the other printing-roller. F and F′ are feed-rolls by which color is drawn from the boxes. G G are the color-boxes. H H and I I are adjustable rods, supporting the color-boxes. J J are rubber rings upon the feed-rolls. K K are rubber rings upon the printing-rolls. L L are set-screws to adjust roller D.

The shafts of the feed-rolls are made to revolve upon a slanting support or some mechanical device by which the periphery of the rings on the feed-rolls may rest against the periphery of the rings on the printing-rolls. The feed-rolls may be kept in place by means of springs, weights, or any equivalent device. The shaft of roller D should be hung on slotted bearings in order that this roller may be adjusted with regard to the roller C to suit yarn of different thickness.

The color-boxes are provided with a curved lip projecting up under the feed-rolls to catch the drippings. These boxes should also have a water-tight joint in the bottom, and, to allow for the motion on this joint, the sides of the boxes should be cut with a gore made tight with rubber or some flexible material.

For the rings on the feed-rolls and printing-rolls I use elastic rubber with a rough surface, as this is an excellent material both for taking up and conducting the color from the boxes, and also for printing the yarns. It is obvious, however, that the rings on the feed-rolls may be of any material that properly conducts the color to the printing-rolls. The rings on the printing-rolls should be of rubber or some elastic substance in order that there may be the best possible pressure upon the yarn, and also that these rings may be easily moved upon the rollers, and yet keep well in place without other fastening than their own elasticity.

The rods H and I have set-screws or some equivalent device by which they can be elevated or depressed, thereby regulating the supply of color to the feed-rolls. The function of the rods I I is more especially to regulate the position of the inner end of the color-boxes, and the depth of immersion of the rings on the feed-rolls. These rods will also be convenient when it is desired to remove the boxes for cleaning or repairs.

The rings on the feed-rolls should correspond in number, width, and position with those on the printing-rolls, and may be supplied with color separately or two or more from the same color-box. The number of these boxes will be according to the number of colors or pattern required.

To prepare the machine for use, the rods H H are depressed and the boxes G G are charged with the proper colors. By means of the rods I I the inner ends of the boxes are raised or lowered until the periphery of the rings on the feed-rolls touch the color-liquid. After the printing-rolls have been sufficiently supplied with color, the yarn is passed through between the printing-rolls and printed. As the supply of color is gradually drawn out from the boxes, their position can be regulated by the adjusting-rods H and I until the supply of color is exhausted. In this way frequently filling the boxes is avoided, which is found objectionable in practice on account of the liability of making a change in the shade or color.

It is evident that my invention secures a very economical use of the color-liquid, as nearly all of it can be used from the boxes without refilling; and it is believed that in no other manner can several colors be simultaneously applied to such advantage.

Instead of yarn, warp, cloth, or any fabric

may be substituted, and the principle of my invention still retained.

I claim as my invention—

1. The roller above described, consisting of a rigid shaft and a series of rubber rings, arranged together, substantially as above described.

2. The combination of the color-boxes G G and the adjustable rods H H and I I, substantially as described.

WM. McALLISTER.

Witnesses:

JAMES SCHOULER,

WM. SCHOULER.