

UNITED STATES PATENT OFFICE.

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WALL-PAPER-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 736,043, dated August 11, 1903.

Application filed April 1, 1903. Serial No. 150,588. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. WATSON, a citizen of the United States of America, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Wall-Paper-Printing Machines, of which the following is a specification.

In printing wall-paper the strip of paper is usually passed first over a grounding-machine, which lays on the ground color, then over a second printing-machine, which prints the pattern, and sometimes over a third printing-machine for laying on lines or other additional patterns for producing tapestry and other effects. In each printing-machine the paper absorbs a large amount of moisture, and it is the object of the present invention to rapidly dry the paper as it comes from the printing-machine without smearing or blurring the colors, so that the paper may be immediately taken up by the succeeding machine whether the latter be a second printing-machine or a mechanism for calendering, embossing, or reeling.

The invention will be particularly described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a diagrammatic side elevation showing so much of the wall-paper-printing mechanism as is necessary to illustrate the present invention; and Fig. 2 is a plan view of the same, parts being broken away.

Referring to the drawings, A indicates a primary printing-machine, and B a secondary printing-machine. As illustrated, the primary printing-machine is supplied with a single-color roll 1 for putting on the "ground" color on the otherwise blank paper, and the secondary printing-machine is supplied with a plurality of pattern-rolls 2 for laying on the patterns in various colors. The blank paper is supplied from a roll 3, being drawn from the roll by a pair of feed-rolls 4 and delivered upon a slowly-moving belt 5, which forms a reservoir to contain a quantity of slack paper. From the belt 5 the paper passes over tension-rolls 6 and then around the main cylinder of the grounding-machine A. After the ground color is laid on the paper passes over guide-rolls 7 8 and then successively

around heated drying-rolls 9 10 11 12. These drying-rolls are so proportioned and arranged that the back of the paper is in contact with each roll, thus preventing any smearing of the patterns on the face of the paper. I accomplish this by making the first roll 9 of suitable size, the second roll 10 of less diameter, the third roll 11 of still less diameter, &c. Any desired number of rolls may be arranged in this way, the smaller rolls being between the larger rolls. The several drying-rolls preferably have their axes in the same plane, as shown in Fig. 1. The dried paper is delivered from the last heating-roll to a point between the rolls and must be taken out laterally. For this purpose I use a pair of angularly-arranged rolls 13 14. The roll 13 guides the paper out from between the drying-rolls, and the roll 14 restores it to parallelism with the paper running over the drying-rolls. The roll 14 may be omitted if the machine which operates next upon the paper be arranged at right angles to the printing-machine.

When the machines are in tandem, the arrangement shown in Figs. 1 and 2 may be used. The paper is drawn from the roll 14 by feed-rolls 15 and delivered upon a slowly-moving belt 16 or other device for accumulating a quantity of slack paper. From the accumulator 16 the paper passes to the next machine. As shown, it passes over a second series of tension-rolls 17 and over the multicolor-printing machine B, which prints the pattern. A series of drying-rolls, such as those following the primary printing-machine, may be applied to dry the paper as it comes from the secondary printing-machine.

It will be evident that drying-rolls arranged as illustrated and described herein may be used with any printing-machine for drying continuous strips of paper or other fabric. I do not, therefore, limit the present invention to the particular combination and arrangement of elements illustrated. The invention, however, is especially adapted for wall-paper-printing mechanism. In this class of printing the paper runs very rapidly, and it must be rapidly dried in order to save time and floor-space.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. In a wall-paper-printing apparatus, the combination of a primary printing-machine, a series of drying-rolls consecutively decreasing in size, the smaller rolls being located between the larger rolls, and a secondary printing-machine, the paper passing successively and continuously over said primary printing-machine, drying-rolls and said secondary printing-machine.

2. In a wall-paper-printing apparatus, the combination of a primary printing-machine, a series of drying-rolls consecutively decreasing in size, one or more smaller rolls being located between the larger rolls, a diagonally-arranged roll within said series for guiding the paper laterally and a secondary printing-machine, the paper passing over said machine and rolls in the order stated.

3. In a wall-paper-printing apparatus, the combination of a primary printing-machine, a series of drying-rolls operating in succession upon the paper as it comes from the primary

printing-machine, said rolls being so constructed and arranged that the back of the paper travels on each roll, an accumulating device or reservoir receiving the paper from said drying-rolls, and a secondary printing-machine receiving the paper from said accumulating device or reservoir.

4. In a wall-paper-printing apparatus, the combination of a primary printing-machine, a series of drying-rolls having their axes in a common plane, said rolls successively decreasing in size and the smaller rolls being located between the larger rolls, a diagonal guide-roll between the rolls of said series, and a secondary printing-machine, said machines and rolls operating consecutively upon the paper in the order named.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. WATSON.

Witnesses:

H. M. GILLMAN, Jr.,

J. G. AIRGIAL.