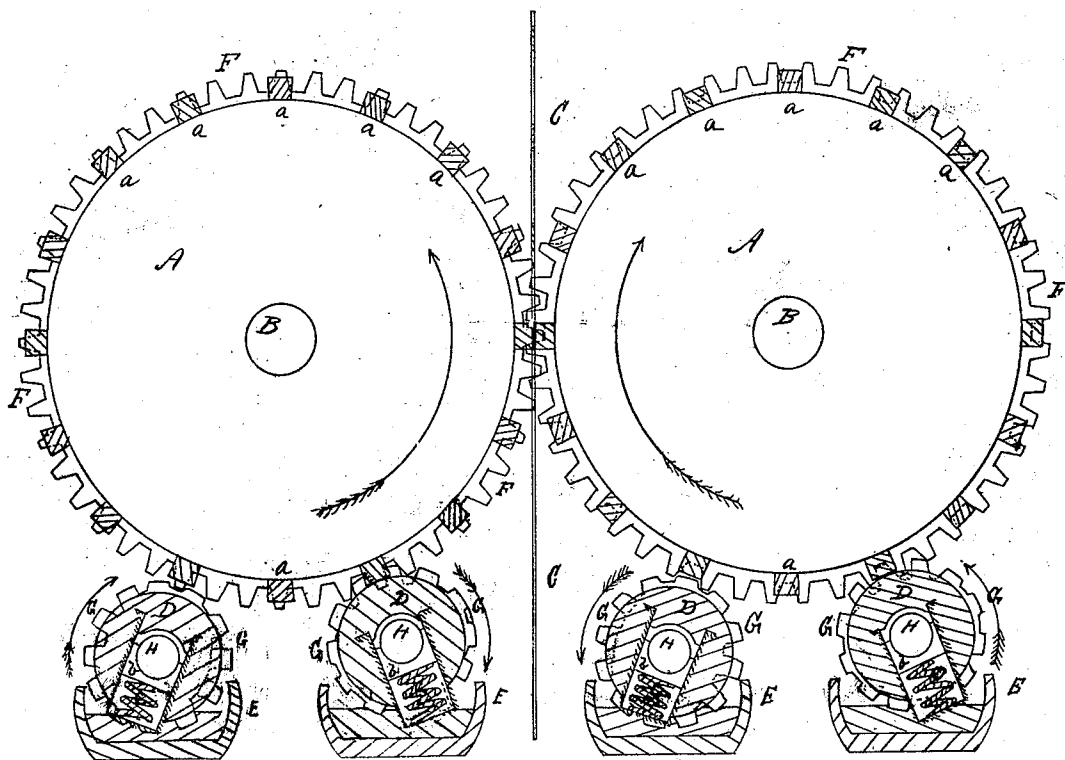


E. J. Stephens.
Printing Yarn.

N^o 83103

Patented Oct. 13, 1868.



Witnesses

Ben J. Thurston

Inventor

John D. Thurston

Edward J. Stephens

United States Patent Office.

EDWARD J. STEPHENS, OF PAWTUCKET, RHODE ISLAND.

Letters Patent No. 83,103, dated October 13, 1868.

IMPROVEMENT IN MACHINERY FOR PRINTING YARN.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EDWARD J. STEPHENS, of Pawtucket, in the county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Machines for Printing Yarn; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

The drawings represent the machine, the purpose of which is to print yarn in different colors, partly in side view, and partly in section.

A A are two cylinders, which, it is to be understood, are mounted on axes, B B. The surfaces of such cylinders are furnished with ribs, *a*, upon whose faces the coloring-matter for the print is to be spread, by appropriate distributing-color rollers, in a well-understood way.

C represents the yarn passing between the cylinders A A in a line tangential to their surfaces, and receiving a print upon both sides, from the ribs of the cylinders respectively, as it passes along.

D D are distributing-color rollers, of which any convenient number may be employed, and are arranged to wallow in a mass of coloring-matter placed in troughs, E E, as is usual.

The invention resides in the means employed for causing the several distributing-rollers so furnishing coloring-matter to skip, during the revolution of the printing-cylinder to which they belong, all those ribs which are to be furnished with some other color than that which they themselves supply.

Upon the ends of the axes of the cylinders A A are placed the toothed wheels F F, which give motion to the series of distributing-color rollers D D, pertaining to each cylinder respectively, such rollers having pinions, G, keyed to their axes.

The rollers D have their axes, H, set in journal-boxes, *b*, which are supported upon springs, *c*, thus constituting for each roller a yielding bearing.

It will be observed that the teeth of the several pinions G are not all cut of uniform depth for each wheel, and that, in consequence, the ends of the teeth of the driving-gears F will bottom in some of the spaces between the teeth of the pinions with which

they engage. From this, it is apparent (the bearings of such pinions being yielding) that the distance between the surfaces of the color-rollers D and the faces of the ribs *a*, upon the cylinders to which such rollers belong, will be variable, and will be determined by the variations in the depth of the teeth of the pinions.

In the operation of the machine, which is driven by a belt in any convenient way, the several color-rollers will obviously supply color to the faces of such of the ribs only of the cylinders which they serve as they are permitted to come into contact with, and that they will skip the surface of every rib where, by reason of the shallow depth to which the teeth of the pinion are cut at that point in its revolution, the ends of the teeth of the gear-wheel F cause such rollers to be forced away.

By arranging the two printing-cylinders A A, and the distributing-rollers D, so that corresponding ribs shall receive the same colors, all the good results can be accomplished which can be produced by any other machine of the class to which it belongs. It is apparent, too, that all varieties of patterns which can be produced by different combinations of colors can be printed upon this machine by simply varying the arrangement of the pinions; and, for convenience in readily adjusting the machine to different patterns, it will be found advisable, instead of having a number of different pinions, to employ one set of pinions, with teeth cut of uniform depth, and insert small strips of wood, or other material, to fill up partially the spaces between such of the teeth as the printing of the pattern selected requires.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination with suitable ribbed printing-cylinders, A A, a series of furnishing-color rollers, D D, hung in yielding bearings, and operated by means of pinions G, with teeth of variable depth, or the equivalents thereof, in the manner substantially as described, for the purposes specified.

EDWARD J. STEPHENS.

Witnesses:

BENJ. F. THURSTON,
JOHN D. THURSTON.