E. W. HORTON & R. B. CALDWELL.

SKEIN AND WARP PRINTING-MACHINE.

No. 183,499. Patented Oct. 24, 1876.

Fig. 1.

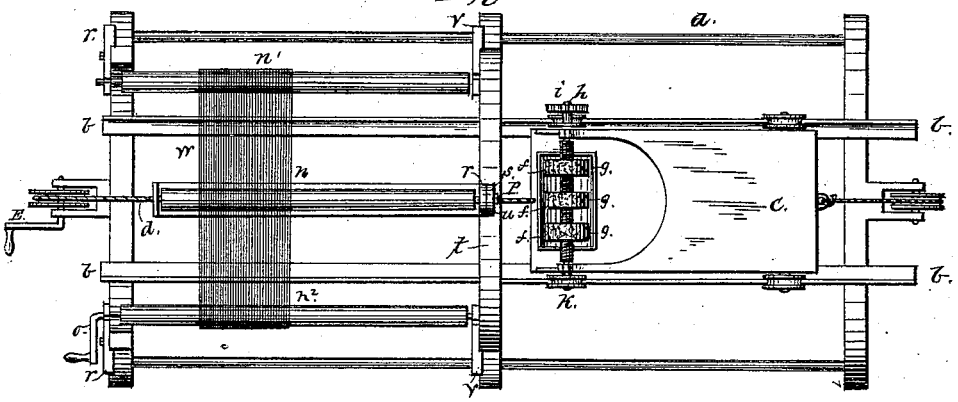


Fig. 2.

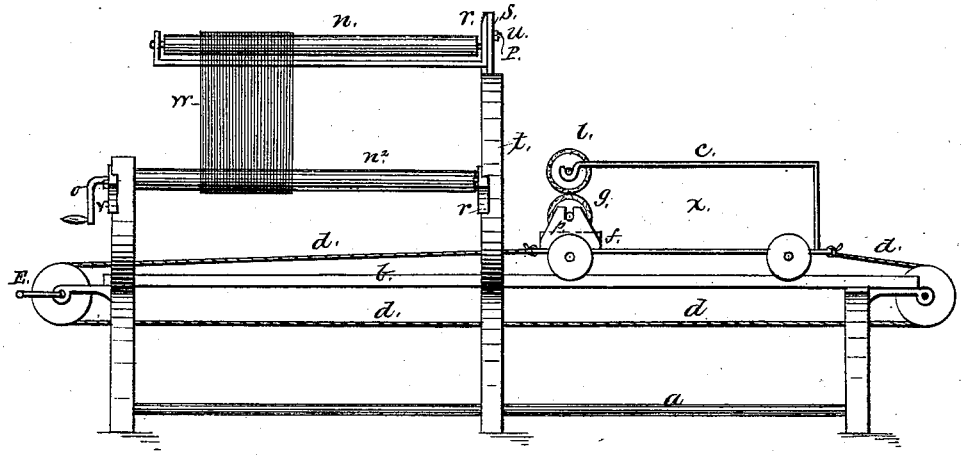
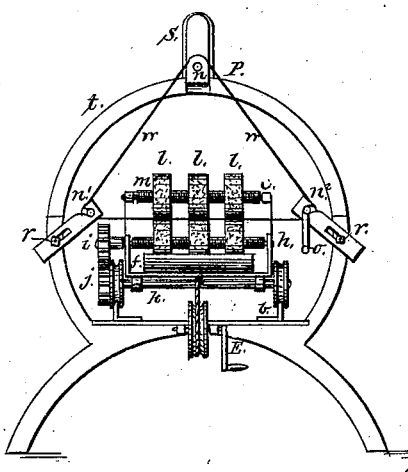


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDMUND W. HORTON, OF NORTH MANCHESTER, AND ROBERT B. CALDWELL, OF SOUTH MANCHESTER, CONNECTICUT.

IMPROVEMENT IN SKEIN AND WARP PRINTING MACHINES.

Specification forming part of Letters Patent No. **183,499**, dated October 24, 1876; application filed March 4, 1876.

To all whom it may concern:

Be it known that we, EDMUND W. HORTON, of North Manchester, in the county of Hartford and State of Connecticut, and ROBERT B. CALDWELL, of South Manchester, in said county and State, have invented certain new and useful Improvements pertaining to a Skein and Warp Printing Machine, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a top view. Fig. 2 is a side view. Fig. 3 is a front view.

The machine is intended for coloring or printing skeins of woolen, silk, or cotton threads, which may or may not be afterward woven into cloth, and for analogous uses.

The letter *a* denotes the frame of the machine; *b*, ways for the carriage; *c*, the carriage; *d*, the cord attached to the carriage; *e*, the cranked pulley by which the cord may be operated, and the carriage moved back and forth; *f f f*, color-boxes for containing different (or they may all contain the same) colored dyes; *g g g*, brass felt-covered color-rolls running in the color-boxes being on the shaft *h*, which is a threaded shaft, and the color-rolls screw thereon so that they may be adjusted toward or from each other; *i*, a gear on shaft *h*, meshing into and driven by gear *j* on truck-shaft *k*, whereby rotation is imparted to rolls *g*; *l l l*, upper set of color-rolls on threaded shaft *m*, caused to rotate by their resting upon rolls *g*, *n* n^1 n^2, skein-rolls for holding the skein, one of them bearing a crank, *o*, whereby the skein may be made to traverse the path of the color-rolls. The horizontal line of the skein, when on the skein-rolls, is such that it will pass between the two sets of color-rolls when the carriage moves back and forth. The skein-rolls are all adjustable toward and from a common center, the top one, *n*, by means of the bolt end *p*, from the supporting-frame *r*, running through a mortise in the upright *s* on the hoop *t*, and bearing the nut *u*; the lower two by means of the similarly-adjustable bearings *v v v v*.

The manner of using the machine is as follows: The skeins hang on a peg, the operator lifts the skein-rolls n^1 n^2 from their bearings, takes the skein thereon, and places the rolls back into their bearings, hanging the skein meanwhile also on roll *n*, as shown in the drawings, where letter *w* denotes the skein. He then, by rotating cranked pulley *l*, moves the color-carriage back and forth, the color-rolls pass one set over and one set under the horizontal line of the skein, rotating as the carriage moves, and impart such colors as may be in the color-boxes to the skein where it lies in their path. The skein is moved on the skein-rolls by means of crank *o*, till the whole skein has been acted on.

The carriage *c* has an opening, *x*, behind the color-rolls to permit the entrance therein of the horizontal line of the skein.

We claim as our invention—

1. The hoop *t*, and the three skein-rolls *n* n^1 n^2, adjustable toward and from a common center, in combination with the reciprocating carriage *c* having the opening *x*, and carrying the two sets of color-rolls *g l*.

2. In combination the two sets of color-rolls *g l*, both set on threaded shafts.

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