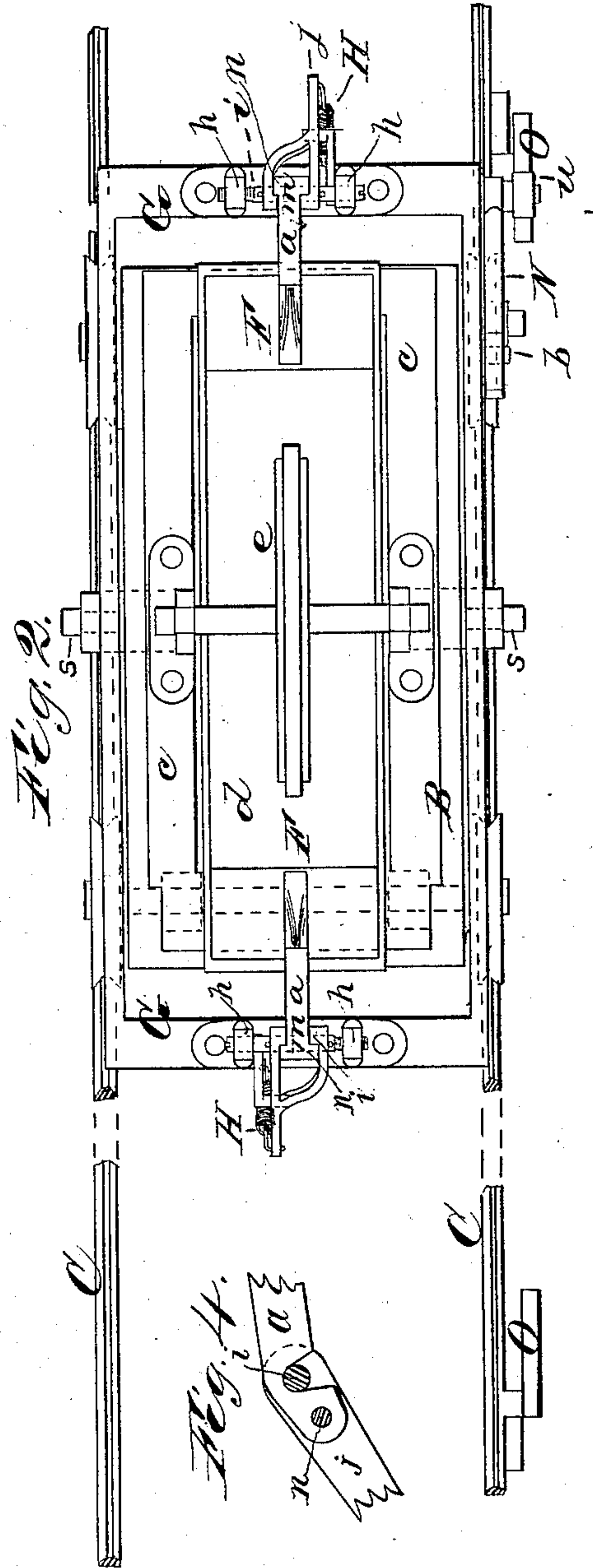
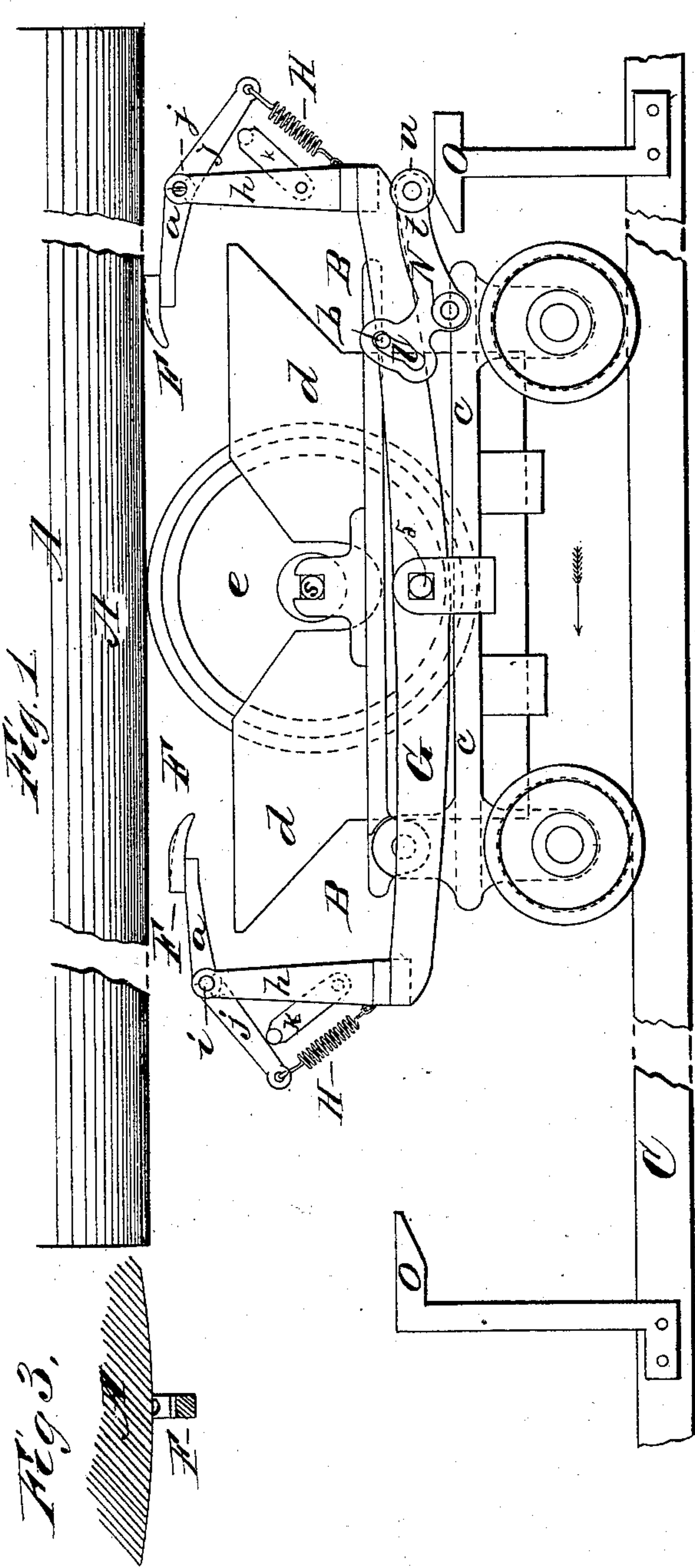


(No Model.)

H. SKINNER.
YARN PRINTING MACHINE.

No. 264,112.

Patented Sept. 12, 1882.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HALCYON SKINNER, OF YONKERS, NEW YORK, ASSIGNOR TO THE ALEXANDER SMITH & SONS CARPET COMPANY, OF SAME PLACE.

YARN-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 264,112, dated September 12, 1882.

Application filed April 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, HALCYON SKINNER, of Yonkers, in the county of Westchester and State of New York, have made an invention of certain new and useful Improvements in Yarn-Printing Machines; and I do hereby declare that the following, in connection with the accompanying drawings, is a full, clear, and exact description and specification of the same.

Yarns for tapestry-carpet have usually been printed upon drums on which the yarn is wound, the color being applied in successive stripes by means of a color-wheel whose lower edge dips in a trough of color, called the "color-box," and whose upper edge is borne upward against the yarn, while the wheel and color-box are caused to travel beneath the drum and parallel, or thereabout, with the axis thereof by means of a carriage. In this printing operation a considerable portion of the color is squeezed laterally from between the periphery of the wheel and the yarn, and is deposited upon the yarn in ridges at the sides of the track of the wheel. The object of this invention is to converge the color of the said ridges and to rub it into the yarn by mechanical action. To these ends my invention consists of certain combinations of rubbers and other devices, which are set forth in the claims at the close of this specification.

In order that the said invention may be fully understood, I have represented in the accompanying drawings and will proceed to describe the best mode in which I have embodied the said invention.

Figure 1 of said drawings represents a side view of the color-carriage and other parts of the apparatus. Fig. 2 represents a plan of the same. Fig. 3 represents a transverse section of parts of the apparatus. Fig. 4 represents a view upon a larger scale of the joint, hereinafter described.

The yarn-drum A, parts of which are represented in the accompanying drawings, is constructed and operated in the usual manner, and therefore does not require a detailed description.

The color-carriage B is constructed to run

upon rails C C beneath the yarn-drum A, and its frame *c* is constructed to carry the color-box *d*, which is removable from said frame, and is provided with the usual color-wheel, *e*. In the operation of printing the yarn the color-carriage, with the color-box, is traversed beneath the drum in the usual manner.

In order that the color may be rubbed into the yarn, two rubbers, F F, are provided. These rubbers are mounted upon a rocking frame, G, with their central lines corresponding with the middle of the rim of the color-wheel, each rubber being in this example connected with a standard, *h*, of the rocker by means of a pivot, *i*, and an arm, *a*. The rocking frame or rocker G is connected with the color-carriage by means of pivots *s*, so that when the rocker is tilted in one direction the rubber at one end of it is raised and the rubber at the other end of it is depressed, and when the rocking frame is tilted in the reverse direction the higher rubber is depressed and the lower one is raised. The connection of the rubber with the rocker, through the intervention of a pivot, *i*, permits the rubber to be moved independently of the rocker.

In order that each rubber may be pressed against the yarn with a yielding pressure, each rubber F is combined with a spring, H, the combination in the present example of my invention being made by means of an arm, *j*, whose movement in a downward direction is restricted by a stop, *k*, so that when the rubber is depressed (as the left-hand rubber is represented to be in Fig. 1) the spring cannot force the rubber into contact with the yarn above. The spring H is connected with the rubber through the intervention of a joint, *m*, in such manner that the rubbers can be turned upward by hand when the color-box is at one side of the yarn-drum, so as to permit the color-box to be removed from the carriage and a different color-box to be applied thereto. I prefer to construct said joint as represented in the accompanying drawings, the arm *j* being constructed with a fork in which the shank of the rubber-arm *a* is engaged, the arm *a* being connected with the arm *j* by the joint-pin *n*, and having a notch in its under side, so

that it can rest either upon the pivot *i* or upon a piece connecting the forks of the arms *j*, so that the arm *a* can be turned upward and backward upon the joint-pin *n* to remove it from over the position of the color-box *d*.

In order that the rocker *G* may be tilted, it is connected with a tilting-lever, *N*, which is pivoted to the carriage, and is connected with the rocker by means of a pin, *b*, secured to the rocker, and an eccentric slot, *l*, formed in one arm of the tilting-lever, so that by turning the said tilting-lever on its fulcrum-pivot the rocker is tilted on the carriage.

In order that the tilting may be effected automatically, a shifting-block, *O*, is arranged at each end of the railroad-track in a position to act upon the longer arm *t* of the tilting-lever, which is fitted with a friction-wheel, *u*, to enable it to move readily upon the inclined surfaces of the shifting-blocks. The inclined surfaces of the shifting-blocks *O* are reversed in direction, so that when the carriage is run from right to left (in the drawings) the left-hand shifting-block depresses the arm of the tilting-lever *N*, tilts the rocker, depresses the right-hand rubber *F*, and raises the left-hand rubber *F* to the proper position to act upon the yarn at the next right-hand movement of the carriage. As the carriage reaches the right-hand end of its travel the right-hand shifting-block, acting upon the tilting-lever, reverses the positions of the rubbers, leaving them, as represented in Fig. 1, with the right-hand rubber raised and ready to operate during the left-hand movement of the carriage. The left-hand shifting-block *O* is set in such position relatively to the yarn-drum that the color-carriage can at that end of its travel be run clear of the drum above, thus permitting the rubbers to be raised by hand and the color-box to be changed for a different one.

In order that the rubbers may converge the color left upon the yarn in ridges at the sides of the track of the color-wheel, the upper or rubbing surfaces of the rubbers are sloped downward toward their points, and are also made concave crosswise, the concavity being greatest toward the points of the rubbers, and gradually vanishing toward their butts. By reason of this form of rubbing-surface each

rubber, when in operation, gathers toward the central line of its track the ridges of the color left upon the yarns, and rubs this gathered color into the yarn with the yielding pressure of its appropriate spring.

The above-described mechanism may be modified, without ceasing to embody the invention, as circumstances or the views of users may render expedient. Thus, for example, in place of combining each pressure-spring with its rubber in the manner represented in the drawings, the springs may be applied between the tilting-lever and the rocker, so as to operate upon the rubbers through the intervention of the rocker. In this case a single plate-spring may be arranged to operate alternately in opposite directions, and to act to press each rubber upward alternately. The shifting-blocks also may be so arranged as to effect the shifting of the rocker suddenly through the intervention of a spring or springs or a tumbling bob.

I claim as my invention—

1. The combination, substantially as before set forth, of the color-carriage, the rocker, and the rubbers mounted upon said rocker.

2. The combination, substantially as before set forth, of the color-carriage, the rocker, and the shifting-blocks.

3. The combination, substantially as before set forth, of the color-carriage, the rocker, the rubbers, and the springs for bearing said rubbers against the yarn.

4. The combination, substantially as before set forth, of the rocker, the rubber connected by a pivot therewith, the spring for said rubber, and the stop which limits the action of the spring.

5. The combination, substantially as before set forth, of the rocker, the rubber, the spring for said rubber, and the joint between the rubber and spring, which permits the rubber to be turned upward by hand.

In testimony whereof I have hereto set my hand this 11th day of April, A. D. 1882.

HALCYON SKINNER.

Witnesses:

ROBERT H. NEVILLE,
S. E. GETTY, Jr.