No. 840,353. PATENTED JAN. 1, 1907.

W. E. LYFORD.

YARN PRINTING MACHINE.

APPLICATION FILED JUNE 28, 1906.

3 SHEETS—SHEET 1.

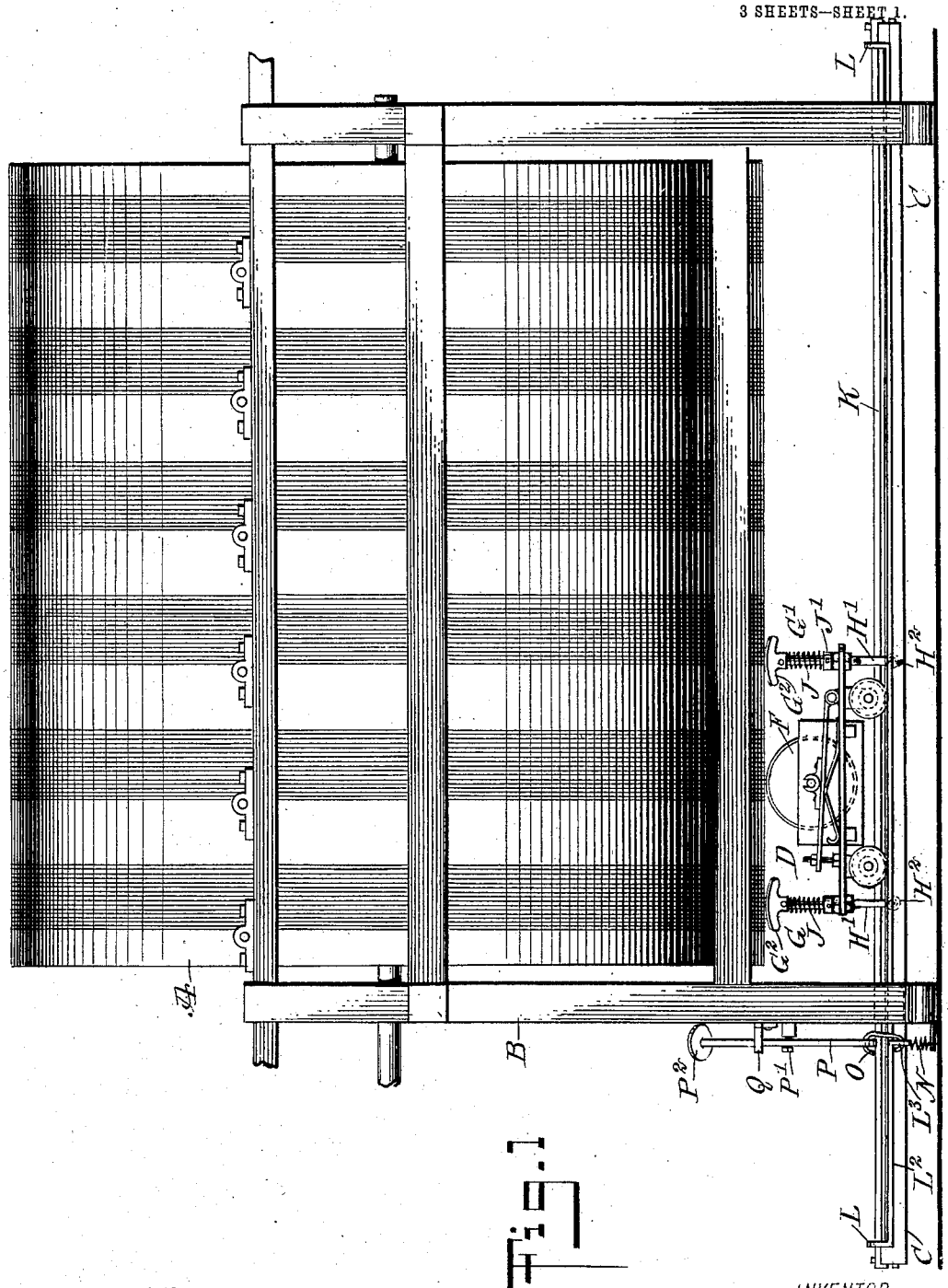


Fig. 1.

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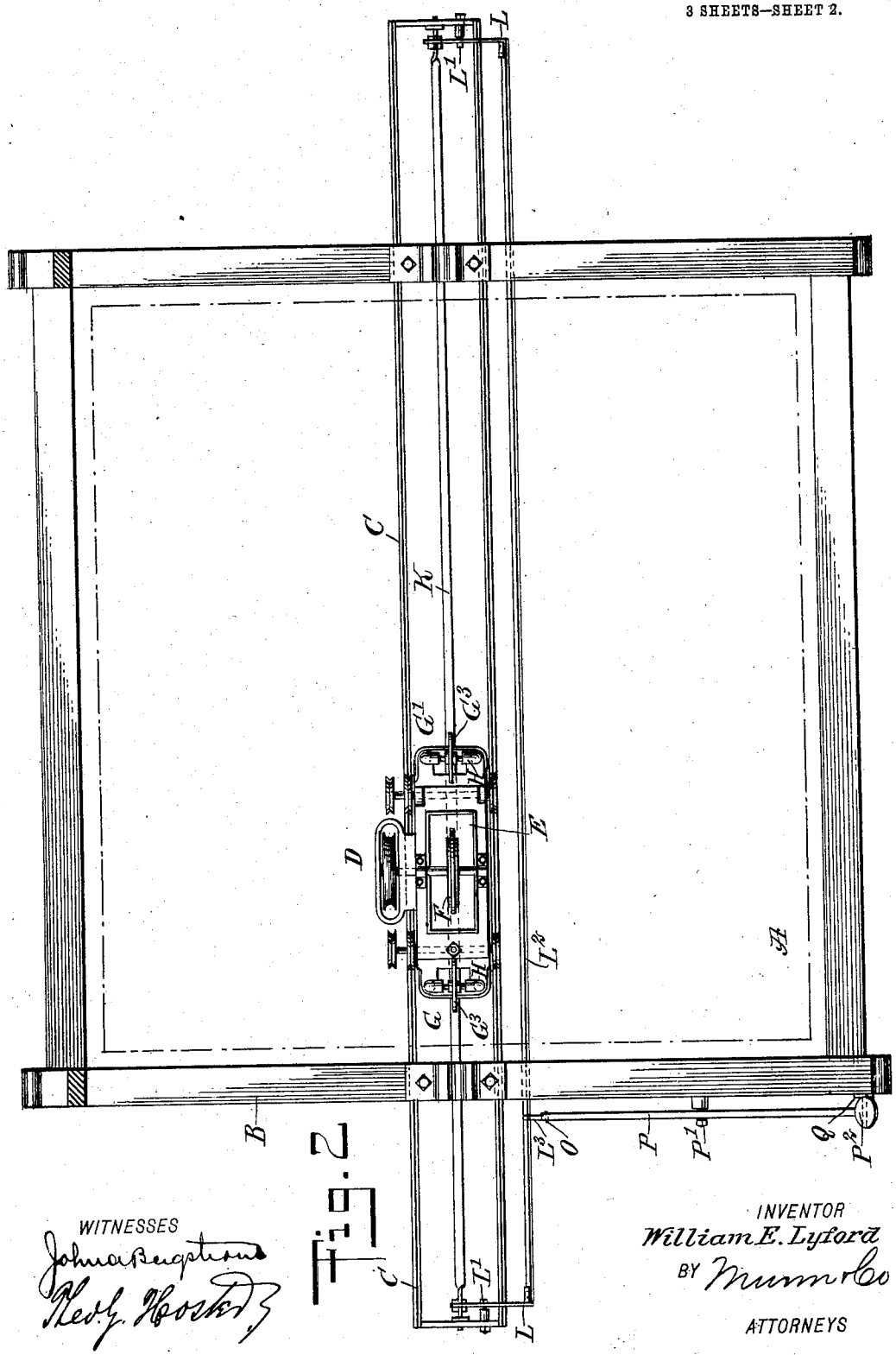


Fig. 2.

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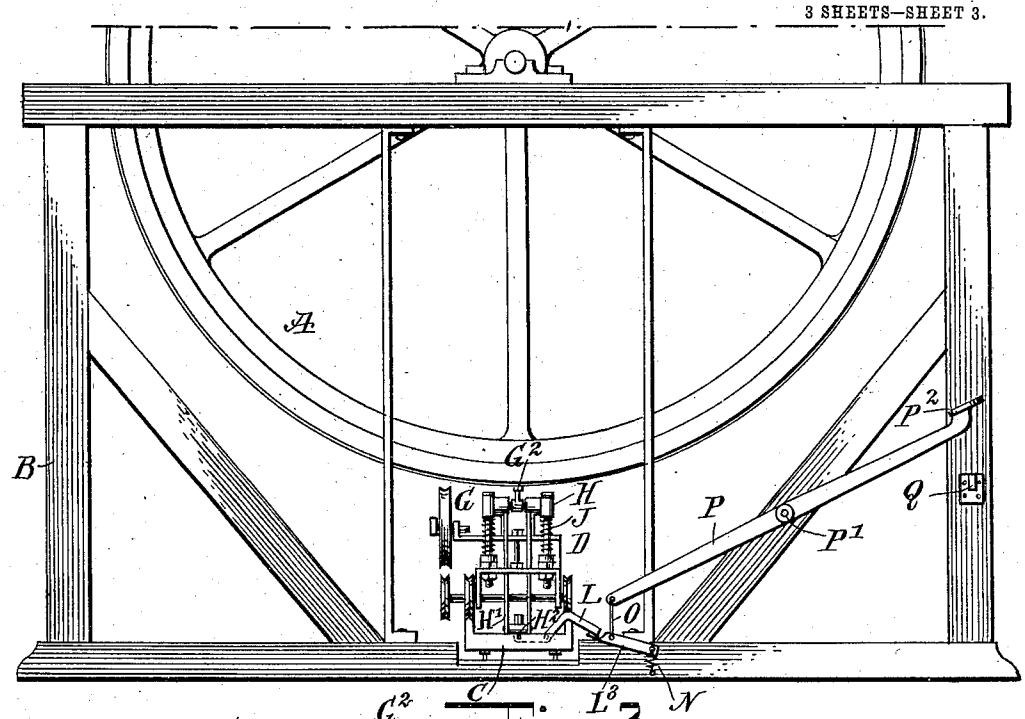


Fig. 3

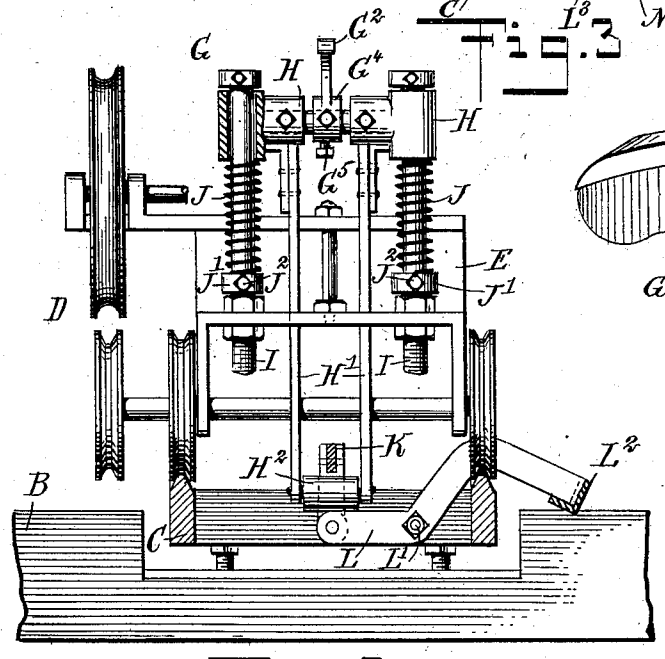


Fig. 4

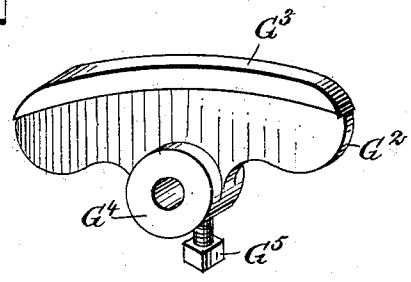


Fig. 6

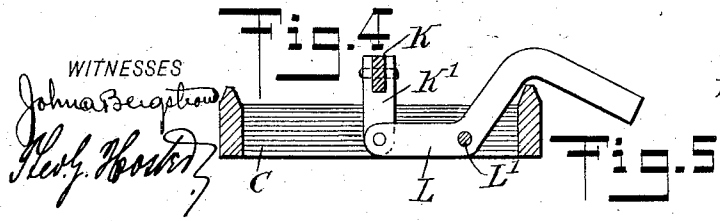


Fig. 5

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UNITED STATES PATENT OFFICE.

WILLIAM EDWARD LYFORD, OF THOMPSONVILLE, CONNECTICUT, ASSIGNOR TO THE HARTFORD CARPET CORPORATION, OF THOMPSONVILLE, CONNECTICUT, A CORPORATION OF CONNECTICUT.

YARN-PRINTING MACHINE.

No. 840,353. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed June 28, 1906. Serial No. 323,804.

To all whom it may concern:

Be it known that I, WILLIAM EDWARD LYFORD, a citizen of the United States, and a resident of Thompsonville, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in Yarn-Printing Machines, of which the following is a full, clear, and exact description.

The invention relates to yarn-printing machines for producing printed yarns, such as are used by carpet-manufacturers in making tapestry and other carpets, rugs, and like fabrics.

The object of the invention is to provide certain new and useful improvements in yarn-printing machines whereby a proper and intense rubbing or scraping of the color is had to insure a thorough penetration of the color into the yarn, thus producing a printed yarn of high quality.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a yarn-printing machine provided with the improvement. Fig. 2 is a plan view of the same, the printing-drum being shown in dotted lines. Fig. 3 is a front end elevation of the same. Fig. 4 is an enlarged end elevation of the traverse-carriage, parts being shown in section. Fig. 5 is a sectional front view of part of the mechanism for moving the rubbing devices out of action whenever desired, and Fig. 6 is a perspective view of one of the rubbing or scraping blocks.

The printing-drum A, of any approved construction, is journaled on the frame B, supporting the track C for the traverse-carriage D to travel on in the usual manner. The traverse-carriage D is provided with the color-box E and the printing-roller F, employed for applying the color to the yarn wound on the printing-drum A; but as this arrangement is the same as in yarn-printing machines as now constructed and used further detailed description of the same is not deemed necessary.

The color applied to the yarn by the printing-roller F is rubbed or scraped into the yarn by the use of rubbing devices G and G′, yieldingly mounted on the traverse-carriage D and located on opposite sides of the printing-roller F, the said rubbing devices G and G′ being simultaneously active and capable of rubbing the color into the yarn on the travel of the traverse-carriage D in either direction.

The rubbing devices G and G′ are both alike in construction, and each is provided with a rubbing-block G^2, having a rubbing-face G^3, curved from the middle downwardly in opposite directions and in the direction of the travel of the traverse-carriage D, as will be readily understood by reference to the drawings, the faces G^3 of the blocks G^2 of the devices G and G′ being in alinement with the peripheral face of the printing-roller F. (See Fig. 2.)

Each printing-block G^2 has a hub G^4 secured by a set-screw G^5 to a cross-head H, mounted to slide up and down on posts or other guideways I, secured to the traverse-carriage D. Each cross-head H rests on springs J, coiled on the posts I, and the lower ends of the said springs J rest on collars J′, adjustably secured by set-screws J^2 to the posts I, so that the tension of the springs J can be regulated by moving the collars J′ farther up or down on the posts I.

The cross-head H of each rubbing device G G′ is provided with depending arms H′, in the lower ends of which is journaled a friction-roller H^2, extending immediately below a rail K, having its ends mounted to slide up and down in suitable bearings arranged on the ends of the track C.

The rail K is provided at or near its ends with downwardly-extending links K′, pivotally connected with a U-shaped lever L, fulcrumed at L′ on the track C. The middle bar L^2 of the lever L extends outside of the track C and is provided with an arm L^3, pressed on by a spring N (see Fig. 3) and pivotally connected by a link O with a treadle P, fulcrumed at P′ on the frame B, the said treadle having a foot-piece P^2 to enable the operator to conveniently press the treadle downward whenever it is desired to do so, the downward-swinging motion of the treadle being limited by a suitable stop Q, at-

tached to the frame B. Now it is evident that when the foot-piece P^2 of the treadle P is pressed the link O is raised, and thereby imparts a swinging motion to the lever L, so that the rail K is caused to move downward and in doing so acts on the friction-rollers H^2 to cause the cross-heads H of the rubbing devices G and G′ to slide downward on their posts I and against the tensions of the springs J. The cross-heads H in moving downward carry the rubbing or scraping blocks G^2 along to move the rubbing-faces G^3 out of engagement with the yarn on the printing-drum A. It is understood that when the operator releases the pressure on the treadle P then the spring N immediately returns the lever L to its normal position, so that the rail K is raised and the springs J return the cross-heads H and their blocks G^2 to their normal uppermost position.

When the yarn-printing machine is in operation, the traverse-carriage D travels in the usual manner on the track C and across the peripheral surface of the printing-drum A to cause the printing-roller F to apply color to the yarn in the form of a transverse stripe, and this color is rubbed or scraped firmly into the yarn by the action of the rubbing-blocks G^2.

It is understood that both rubbing-blocks G^2 are simultaneously in engagement with the yarn on the printing-drum A and during both the forward and return travel of the traverse-carriage D, and consequently an intense rubbing action is had to insure uniform and thorough rubbing of the color into the yarn to completely penetrate the same. When it is desired to interrupt the rubbing action at any time, it is only necessary for the operator to press the treadle P, as above described, to remove the rubbing-blocks G^2 of both rubbing devices G and G′ simultaneously out of action—that is, away from the yarn on the printing-drum A.

It is understood that by giving the curvature described and shown to the rubbing-face G^3 of each rubbing-block G^2 it is evident that the said face can act on the yarn when the carriage travels in either direction. As one of the blocks travels in advance of the printing-roller F and the other in the rear thereof and both blocks are active simultaneously, it is evident that a double rubbing or scraping is given to the color on the yarn, and hence a thorough penetration of the color into the yarn is had.

The improvement shown and described is very simple and durable and can be readily applied to yarn-printing machines as now constructed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A yarn-printing machine provided with a traverse-carriage having sets of posts at the ends thereof, cross-heads mounted to slide on the sets of posts, springs normally retaining the cross-heads in their uppermost positions, rubbing-blocks adjustably mounted on the cross-heads, said cross-heads having spaced depending arms, rollers journaled between the arms at the lower ends thereof, a rail extending across the machine above the rollers, links pivoted to the rail at each end thereof, a U-shaped lever having the arms thereof pivotally connected with the links, a spring connected with the body portion of the lever for normally maintaining the track in its elevated position, and a treadle connected with the U-shaped lever for depressing the track whereby to depress the rubbers.

2. A yarn-printing machine provided with a traverse-carriage having sets of posts, cross-heads mounted to slide on the posts, springs for supporting the cross-heads, rubbing-blocks on the cross-heads, spaced depending arms on the cross-heads, rollers journaled between the arms at the lower ends thereof, a rail extending across the machine above the rollers, and means for depressing the rail whereby to depress the rubbers.

3. A yarn-printing machine provided with a printing-drum, a traverse-carriage having a color-box, a printing-roller and rubbing devices, each rubbing device being yieldingly mounted and provided with a rubbing-block having a curved rubbing-face capable of rubbing the yarn on the travel of the said traverse-carriage in either direction, a rail for engaging the rubbing devices to move the same simultaneously out of action, a lever pivotally connected with the ends of the said rail, and a treadle connected with the said lever.

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

WILLIAM EDWARD LYFORD.

Witnesses:
ROBERT A. MITCHELL,
J. K. BISSLAND.