

(No Model.)

2 Sheets—Sheet 1.

C. CROSSLEY.
MEANS FOR TREATING WOVEN FABRICS.

No. 569,015.

Patented Oct. 6, 1896.

FIG. 1

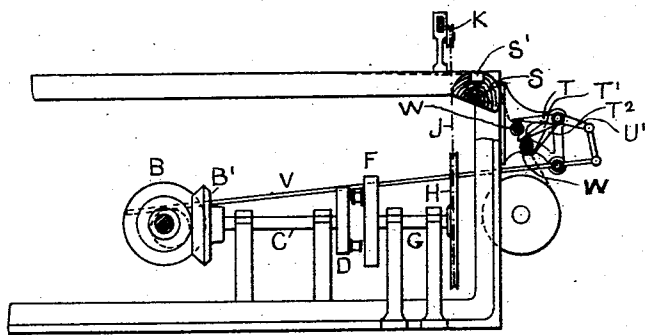
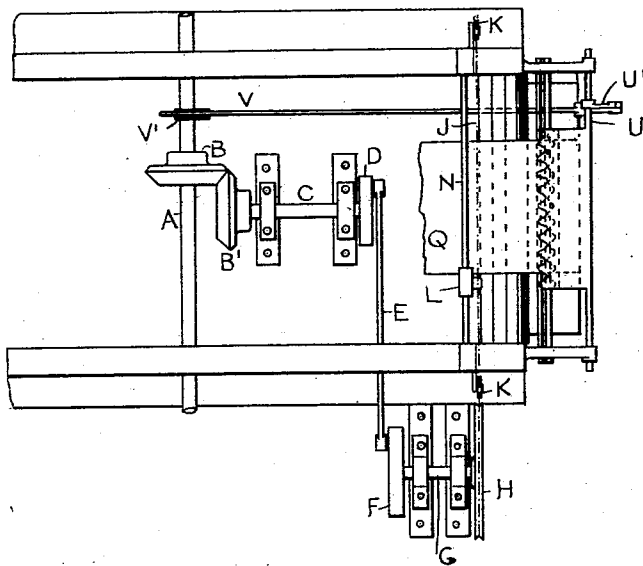


FIG. 2



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FIG. 3.

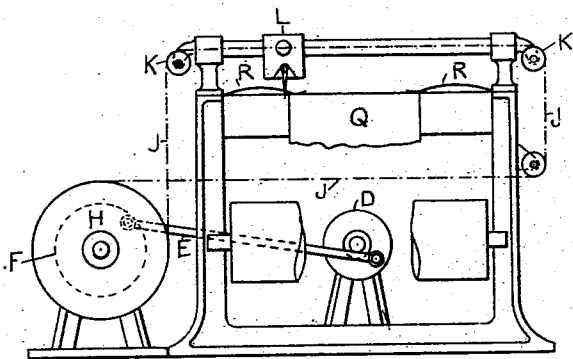
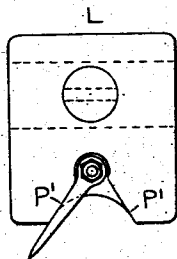
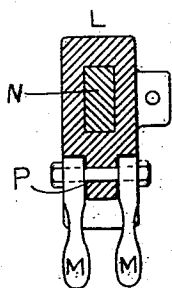


FIG. 4.



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UNITED STATES PATENT OFFICE.

CHARLES CROSSLEY, OF SUDBURY, ENGLAND, ASSIGNOR TO FRANCIS NICHOLAS FENNELL, OF LONDON, ENGLAND.

MEANS FOR TREATING WOVEN FABRICS.

SPECIFICATION forming part of Letters Patent No. 569,015, dated October 6, 1896.

Application filed November 4, 1895. Serial No. 567,901. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CROSSLEY, residing at Sudbury, in the county of Suffolk, England, have invented an Improved Means for Treating Woven Fabrics, of which the following is a specification.

This invention relates to means for treating woven fabrics in the course of manufacture on a power-loom to give equal density or opacity to the fabric throughout by uniformly spreading or flattening the threads of the tissue. The knives or rubbers employed for this treatment are one or more sets of pivoted knives upon a holder or holders traversing mechanically the fabric transversely across its length immediately after the fabric has been woven, and one or more knives with serrated finger-blades vibrating in a direction longitudinal to the length of the fabric, in conjunction with a plain vibrating knife giving a final finish or polish to the back face of the material, as hereinafter fully described.

Figure 1 is a side elevation of part of the frame of a power-loom with this improved apparatus attached. Fig. 2 is a plan of the same. Fig. 3 is a front elevation of the same. Fig. 4 is a detail section and elevation of the traveling knife-holder.

To any rotating shaft A of the power-loom I apply a miter or bevel wheel B, from which is driven by another miter or bevel B' a counter-shaft C under the frame of the loom. Upon the counter-shaft C is a disk and crank-pin D of small throw, attached by a connecting-rod E to a second crank-pin and disk F on counter-shaft G of much larger throw, so arranged that the rotation of the crank-pin D only produces a rock, backward and forward, of one-fourth turn of the disk F and counter-shaft G. On this counter-shaft is a grooved wheel H, carrying an endless catgut or other rope, wire, or band J, which, passing over the guiding-pulleys K K, is attached to the knife-holder L. This knife-holder L (shown in enlarged detail in Fig. 4) carries one or two hanging pivoted knives M M, and is adapted to travel backward and forward on the rod-guide N by the pull of the catgut, wire, or band J in opposite directions as the pulley H rocks backward and forward.

The knife or knives M hang loosely from

the pivot P and are caused to pass over the edge of the fabric Q at either side. On the return of the knife over the fabric the knife takes an angle of inclination from the perpendicular away from the direction of motion until it comes against the stops or cheeks P' on the knife-holder.

Spring-fingers R are attached to the side frames of the loom and rest on the fabric, depressing and holding down the edges of the fabric where the knife enters on to the back face of the fabric to prevent the knife curling up the edges of the fabric.

As the pivoted knives M rub alternately with either inclined face of the knife the edge of the knife is thus kept uniformly sharp by wear, and is not blunted so as to require constant sharpening.

Below the half-round loom-rail S are fitted a pair of knives T T', with serrated edges, giving finger-like projections where the edges rub on the fabric, the finger projections of one knife-blade being coincident with the indentations of the other knife, so that the whole of the surface of the fabric is rubbed longitudinally by these knives. A lower plain knife T² is also provided to give a final polish to the fabric. These knives are affixed to a rocking shaft U, which is given a rocking motion by the arm U' and lever V, operated by a cam V' on the shaft A or on any other conveniently-situated and revolving shaft of the loom, thus causing the knives T T' T² to have a small reciprocating rubbing travel over the stretched fabric, which is supported against the pressure of the knives by the burnished bars W W.

As a result of this method of treatment of the fabric at the moment of weaving it is found that the fabric has acquired an exceedingly uniform density, opacity, a brilliant face without the tissue being injured in any way, or without it having lost the feeling of "body" or substance, which is considered one of the indications of durability.

Having now described my invention, I declare that what I claim is—

1. In combination with a power-loom, a guide-bar N; a reciprocating knife-holder L; means for the reciprocation of the same; supports for the guide-bar N affixed to the loom-

frame between the traverse of the shuttle-thread and the loom-rail, two depending knives M, M of a rounded contour at their ends, adapted to spread and open the twisted
5 longitudinal threads immediately after the fabric has been woven to give opacity to the same and without tearing or injury thereto, substantially as described.

2. In combination with a power-loom, transversely-operating knives adapted to spread
10 and open the twisted longitudinal threads immediately after weaving to give opacity to the same, and oscillating knives with serrated

edges alternating in position, means for oscillating said knives longitudinally of the fabric
15 for spreading the transverse threads; and bars W, W, supporting the fabric under the action of the oscillating knives, substantially as described.

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

CHARLES CROSSLEY.

Witnesses:

REGINALD WILLIAM JAMES,
RICHARD A. HOFFMANN.