

(No Model.)

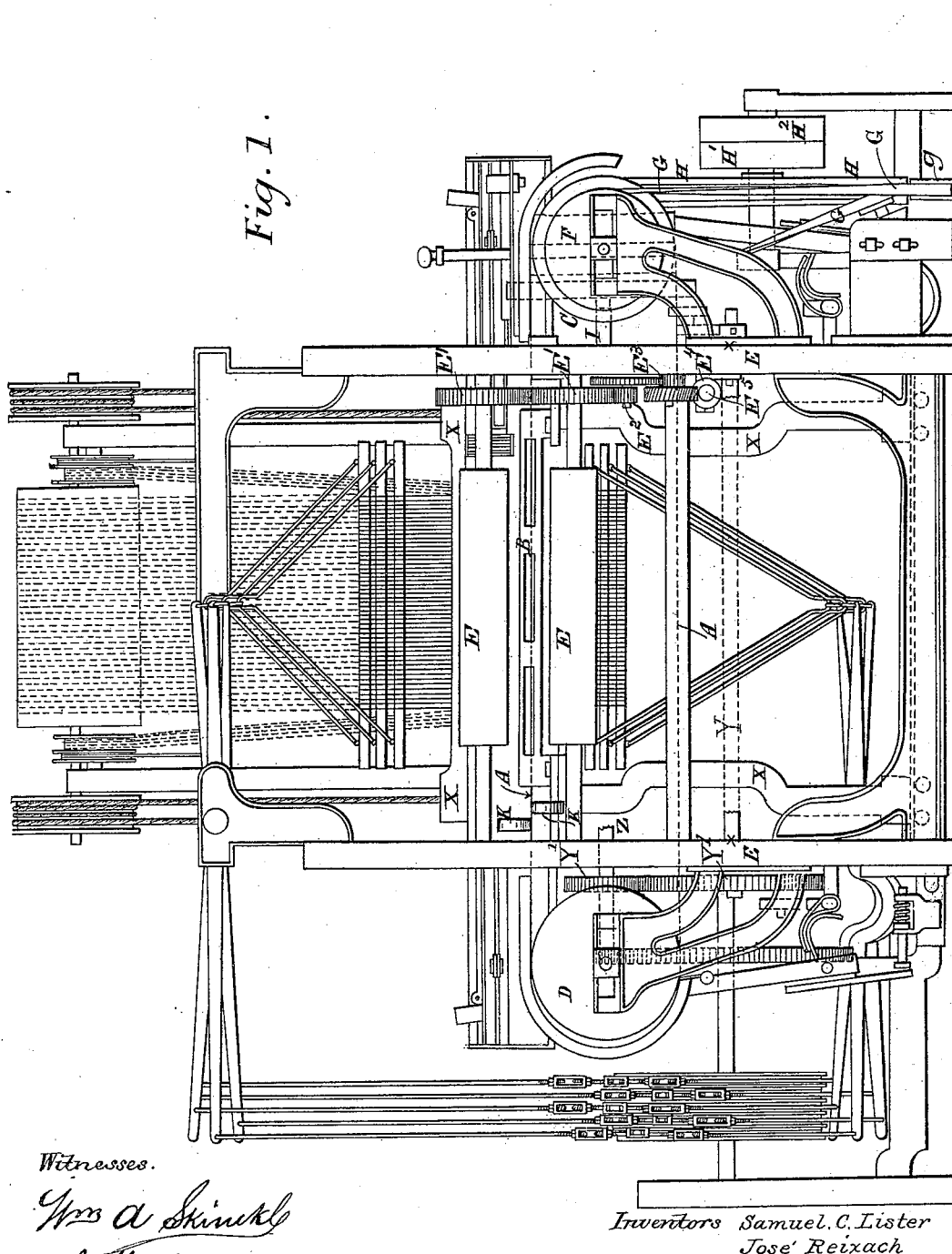
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S. C. LISTER & J. REIXACH.

LOOM FOR WEAVING DOUBLE PILE FABRICS.

No. 263,417.

Patented Aug. 29, 1882.



Witnesses.

*Wm A Skunkle*  
*Wm H. Elmore*

Inventors Samuel C. Lister  
Jose' Reixach

By their Attorneys.

*Baldwin, Hopkins & Taylor.*

(No Model.)

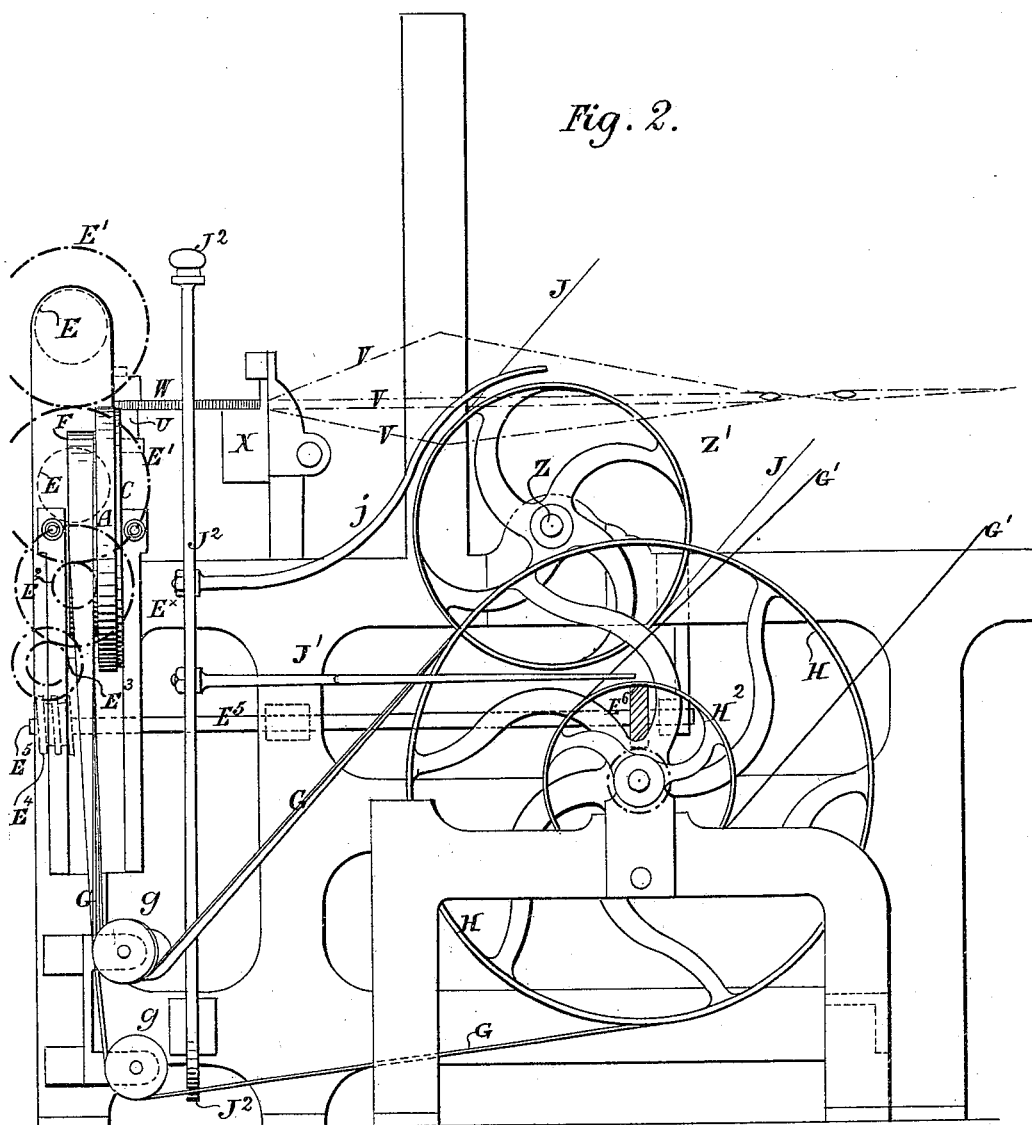
3 Sheets—Sheet 2.

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*Witnesses*

Lloyd B. Night  
James Young

*Inventors:*

Samuel C. Lister,  
José Reizach,

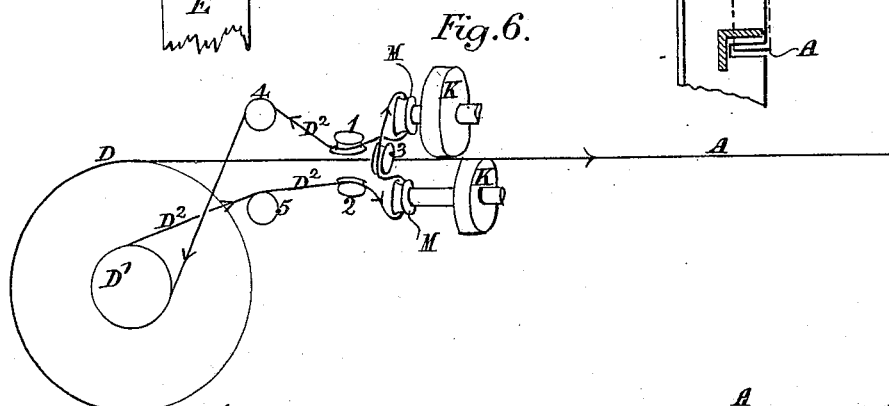
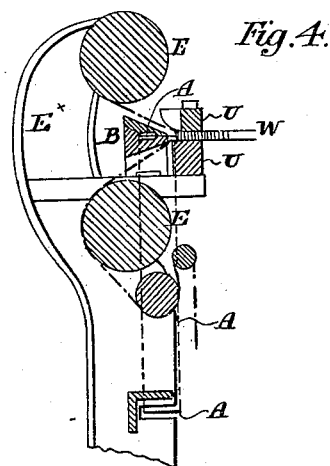
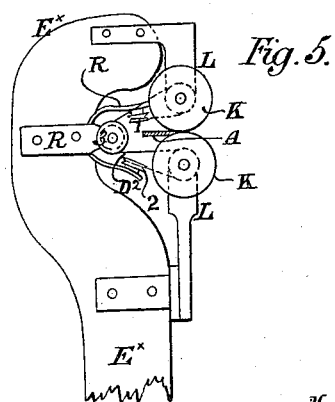
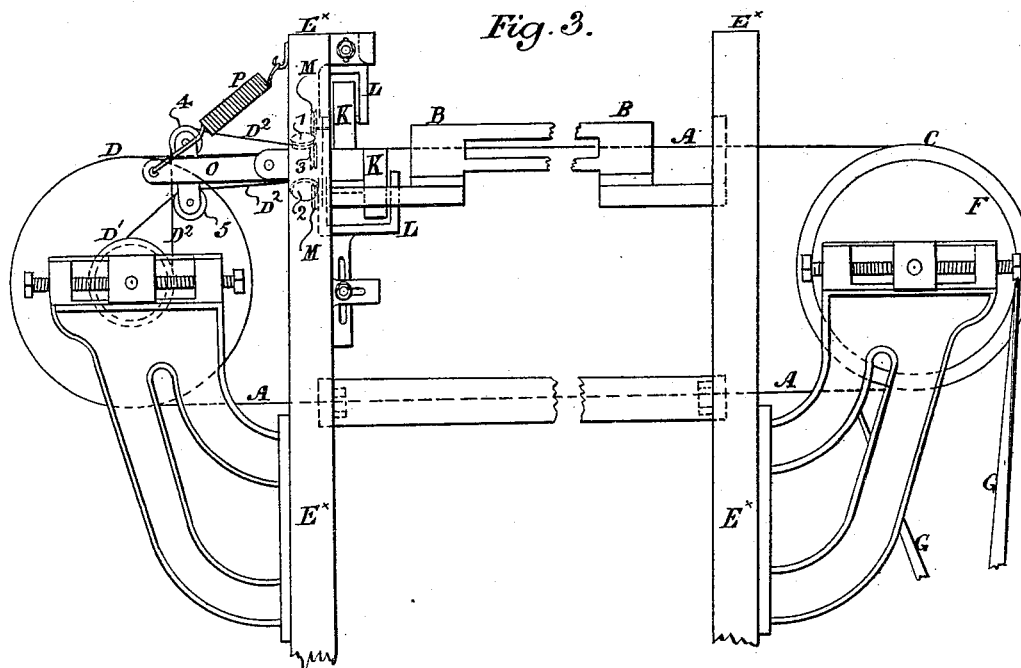
By their attorneys -  
Baldwin, Hopkins & Peyton.

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Witnesses  
Lloyd B. Wright  
James Young

Samuel C. Lister } Inventors  
Jose Reixach }  
By their attorney &c.  
Melvin, Hobbs & Hayton.

# UNITED STATES PATENT OFFICE.

SAMUEL C. LISTER AND JOSÉ REIXACH, OF MANNINGHAM, COUNTY OF YORK, ENGLAND.

## LOOM FOR WEAVING DOUBLE-PILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 263,417, dated August 29, 1882.

Application filed January 13, 1881. (No model.) Patented in England February 10, 1880, No. 500.

*To all whom it may concern:*

Be it known that we, SAMUEL CUNLIFFE LISTER and JOSÉ REIXACH, subjects of the Queen of Great Britain, residing at Manningham, near Bradford, in the county of York, England, have invented certain new and useful Improvements in Looms for Weaving Double-Pile Fabrics, (for which we have received Letters Patent in England, No. 590, dated 10th February, 1880,) of which the following is a specification.

In the manufacture of pile fabrics woven double—that is, of two separate cloths connected by pile-threads which have to be cut to divide the two cloths one from the other—endless bands of steel kept distended between two pulleys and made to revolve by the revolving of one or other of the pulleys are sometimes used for severing the pile-threads, and the bands are kept sharp by revolving sharpening-rollers. When such endless bands of steel are used for severing the pile in accordance with our invention we drive the revolving sharpening-rollers (by which the cutting-edge of the band is sharpened) by means of a cord passing over a band-wheel on the axis of one of the pulleys, by which the endless band of steel is kept distended, thereby with great certainty causing the endless steel band and sharpening-rollers to start and stop simultaneously, as otherwise the knife would cut the rollers or the rollers spoil the edge of the knife.

Figure 1 of the drawings shows a front view of such parts as it is deemed necessary to illustrate of a loom for weaving two cloths connected by pile-threads, and in which the severing of the pile-threads is effected by an endless band of steel sharpened on its front edge. In this figure the sharpening-rollers are shown, but not the way in which they are driven. Fig. 2 is a side view, on a larger scale, to show the way of driving one of the pulleys between which the endless steel band is distended, and so of causing the steel band to revolve. Fig. 3 is a front view, on the same scale, of the pulleys and the cutting and sharpening devices, showing how motion is given from one of the pulleys to the sharpening-rollers. Fig. 4 is a cross-section of the front portion of the loom, showing the guide through which the endless band passes while cutting, and the way in

which the woven fabric passes up to it to be cut. Fig. 5 is a side elevation of the sharpening-rollers, showing how they are carried from the frame. Fig. 6 is a diagram view to show more clearly how the sharpening-rollers are driven by the endless driving-cord.

The loom to which we have shown our improved cutting and cutter-sharpening mechanism applied is the same loom as that to which are applied other improvements made by us, and set forth in our applications Nos. 46,762, 46,763, and 46,764 for United States Letters Patent for improvements in the manufacture of pile fabrics, filed November 28, 1881; but the improved way herein described of sharpening the edge of an endless band of steel used for cutting the pile of a double-pile fabric may be used with other looms for weaving double-pile fabrics, or for cutting the pile of double-pile fabrics woven in a separate loom.

Z is the crank-shaft or driving-shaft of the loom.

Y is a shaft driven therefrom by the toothed wheels Y', as shown at Fig. 1. This shaft serves as the picking-shaft of the loom for actuating the picker-staffs which throw the shuttles, as in all ordinary looms.

X is the batten, moved to and fro by cranks on the crank-shaft Z.

W is the double-pile fabric. V are the ground and pile warps from which it is made.

U is the velvet-rail, composed of two bars, between which the fabric passes just previously to the pile being cut by the endless knife.

E are the take-up rollers, over which the two fabrics, when separated the one from the other, are passed, so that they may continuously draw forward the unsevered double-pile fabric up to the cutting-knife. The two rollers E are geared together by toothed wheels E'. The lower toothed wheel, E', gears with a pinion, E<sup>2</sup>, which turns on a fixed pin carried by the framing of the machine. On the pinion E<sup>2</sup> is a toothed wheel which gears with a pinion, E<sup>3</sup>, also turning on a fixed pin carried by the framing of the machine. Fast with the pinion E<sup>3</sup> is also a worm-wheel, into which gears a worm, E<sup>4</sup>, on an axis, E<sup>5</sup>, carried in bearings by the frame of the machine. On the opposite end of this axis is a skew-gear wheel, E<sup>6</sup>, into which gears a corresponding

wheel on the axis Y, which is driven from the crank or driving shaft, as hereinbefore described.

The above arrangement of driving-gear for giving a continuous revolving motion to the take-up rollers is a convenient arrangement for the purpose; but any other suitable train of driving-gear might be employed for giving to the take-up rollers a continuous revolving motion.

We will now proceed to describe the way in which the endless band of steel forming the cutting-knife is mounted and the way in which it is driven.

A is the endless band of steel. B is the guide through which it passes. This guide passes across the loom, and is fixed at its ends to the two side frames of the loom. Its construction is clearly shown by the drawings, Figs. 1, 3, and 4, and as it forms no part of the invention claimed under this patent it is unnecessary to give any description of it.

C D are the two pulleys between which the endless steel band A is held distended. The axes of these pulleys are carried by brackets bolted to the side frames, E<sup>x</sup>, of the loom, as shown. The pulley C has upon it a band-wheel, F, which is driven by an endless band, G, from a band-driving wheel, H, Fig. 2, the axis of which is driven by an endless band, G', continuously actuated from the driving-shafting of the building or shed in which the loom works. The band G passes around guide-pulleys g g. The crank or driving shaft Z of the loom also is driven by another endless band, J, actuated continuously from the driving-shafting.

The ordinary "setting on" or "starting" lever, J<sup>2</sup>, of the loom, by which the endless band J, which drives the loom, can be shifted from the fast pulley Z' to the ordinarily-employed loose pulley on the driving shaft Z to stop or start the loom, has fixed to it, in addition to the ordinary forked arm, j, which moves the band J from the fast to the loose pulley, another arm, J', extending from it, with a fork at its end, by means of which the band G', which is embraced by the fork, can be simultaneously shifted from the fast pulley H', over which it works, to the loose pulley H<sup>2</sup>, which is alongside of it. Thus whenever the loom and consequently the take-up rollers are stopped or started the knife is also stopped or started.

We will now proceed to describe the way in which the sharpening-rollers are mounted.

K K are the sharpening-rollers, the axis of each of which turns in bearings in a fork, L, the stem of which is held by nuts and bolts to an arm standing out from the side frame of the loom, as clearly shown at Figs. 3 and 5, and they are set so that the circumference of the sharpening-rollers just bears against the edge of the endless steel band A.

We will now proceed to describe the way in which the sharpening-rollers are driven from the axis of the pulley D, which is one of the

pulleys between which the endless band of steel, A, is distended.

On the axis of each sharpening-roller is a small grooved pulley, M, over which is led the endless cord D<sup>2</sup>, by which the sharpening-rollers are driven. Bolted to the side frame of the machine is a fork, R, which carries three small guide pulleys, 1 2 3, over which is conducted the driving-cord. The fork R is clearly shown at Fig. 5. The endless cord D<sup>2</sup> is also led over two other guide-pulleys, 4 and 5, carried by an arm, O, which is jointed to a lug which stands out from the frame of the machine, as shown at Fig. 3. This arm is drawn upward by a coiled spring, P, so as to keep the endless driving-cord uniformly in tension. The endless cord D<sup>2</sup> also passes over a grooved wheel, D', on the axis of the pulley D. Thus whenever the endless knife is driven the sharpening-rollers are also driven, and whenever the knife stops the sharpening-rollers stop also. The take-up rollers also simultaneously cease to revolve as the driving-belts G' and J are, by the setting on or starting lever J<sup>2</sup>, simultaneously shifted from the fast pulleys, over which they respectively work, onto the loose pulleys, which are mounted alongside of them. The way in which the endless cord D<sup>2</sup> is led from the grooved wheel D' to the small grooved pulleys M on the sharpening-rollers is shown clearly by the diagram Fig. 6.

We claim as of our invention—

1. The combination of the endless cutting-band, the pulleys around which it passes, the band and band-wheel by which to drive one of said pulleys, the band-driving wheel H, the fast and loose pulleys on the axis of said driving-wheel, and the continuously-actuated endless band G' with the crank or driving shaft of the loom, provided with fast and loose pulleys, the continuously-actuated endless band J, by which said driving-shaft is driven, the take-up rollers, the actuating mechanism by which they are driven from the driving-shaft of the loom, and the setting on lever, by which to simultaneously throw the cutting-band and take-up mechanism into or out of action, substantially as hereinbefore set forth.

2. The combination of the cutting-band, the pulleys C D, around which it passes, the driving-band, the pulley F on the axis of one of the cutting-band pulleys, and the pulley D' on the axis of the other of said pulleys with the sharpening-rollers, the pulleys M M on the axes of said rollers, the endless cord, and the guide-pulleys by which said cord is conducted from the pulley D' to and around the pulleys on the axes of the sharpening-rollers, substantially as and for the purpose hereinbefore set forth.

S. C. LISTER.  
J. REIXACH.

Witnesses:

H. F. KILLICK,  
*Notary Public, Bradford.*  
WILLIAM THORNTON,  
*Solicitor's Clerk, Bradford.*