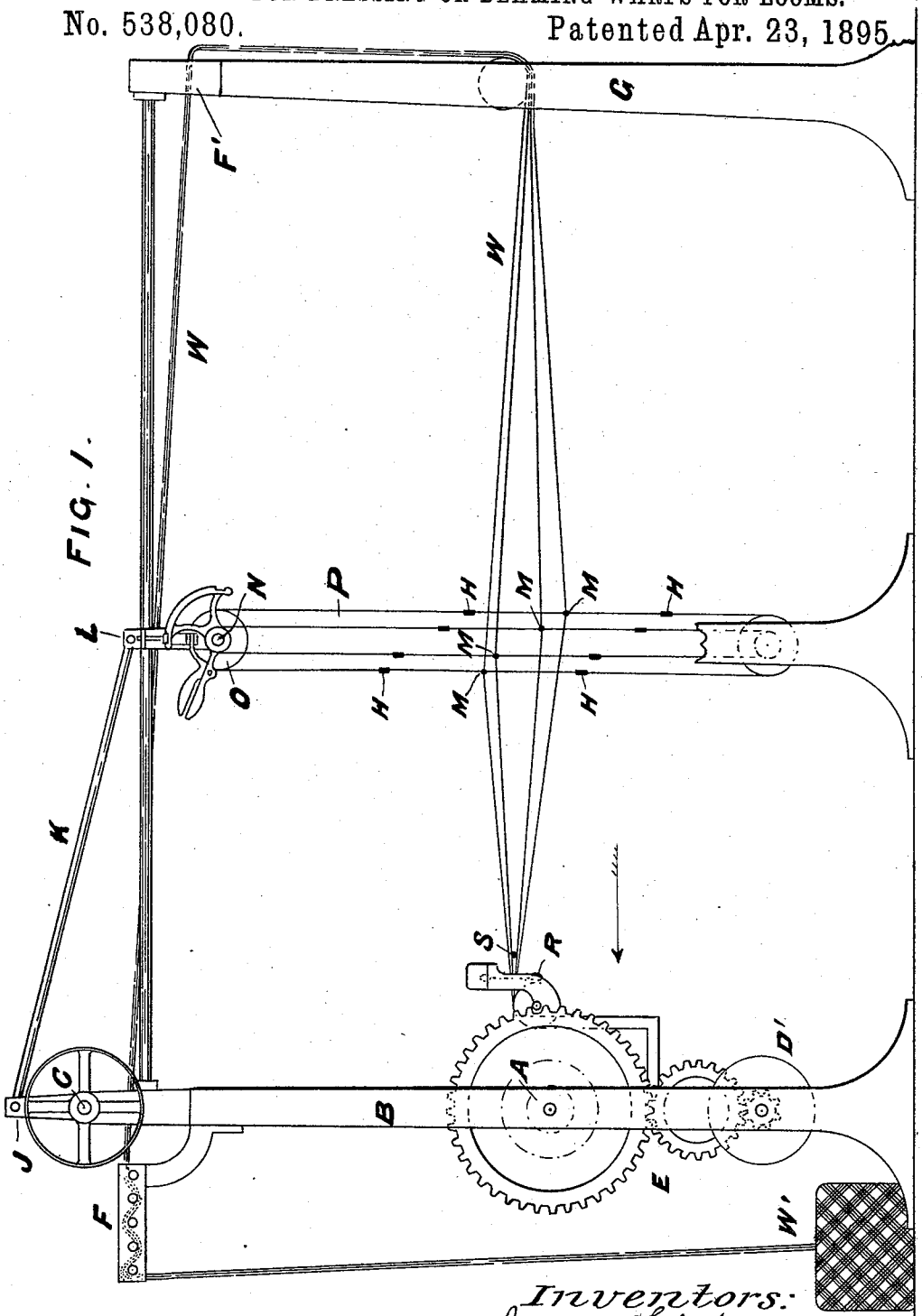
(No Model.) 3 Sheets—Sheet 1.

J. & R. LISTER.

MACHINE FOR DRESSING OR BEAMING WARPS FOR LOOMS.

No. 538,080. Patented Apr. 23, 1895.

FIG. 1.



Witnesses:
C. B. Bolton
M. Supple

Inventors:
James Lister
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

J. & R. LISTER.

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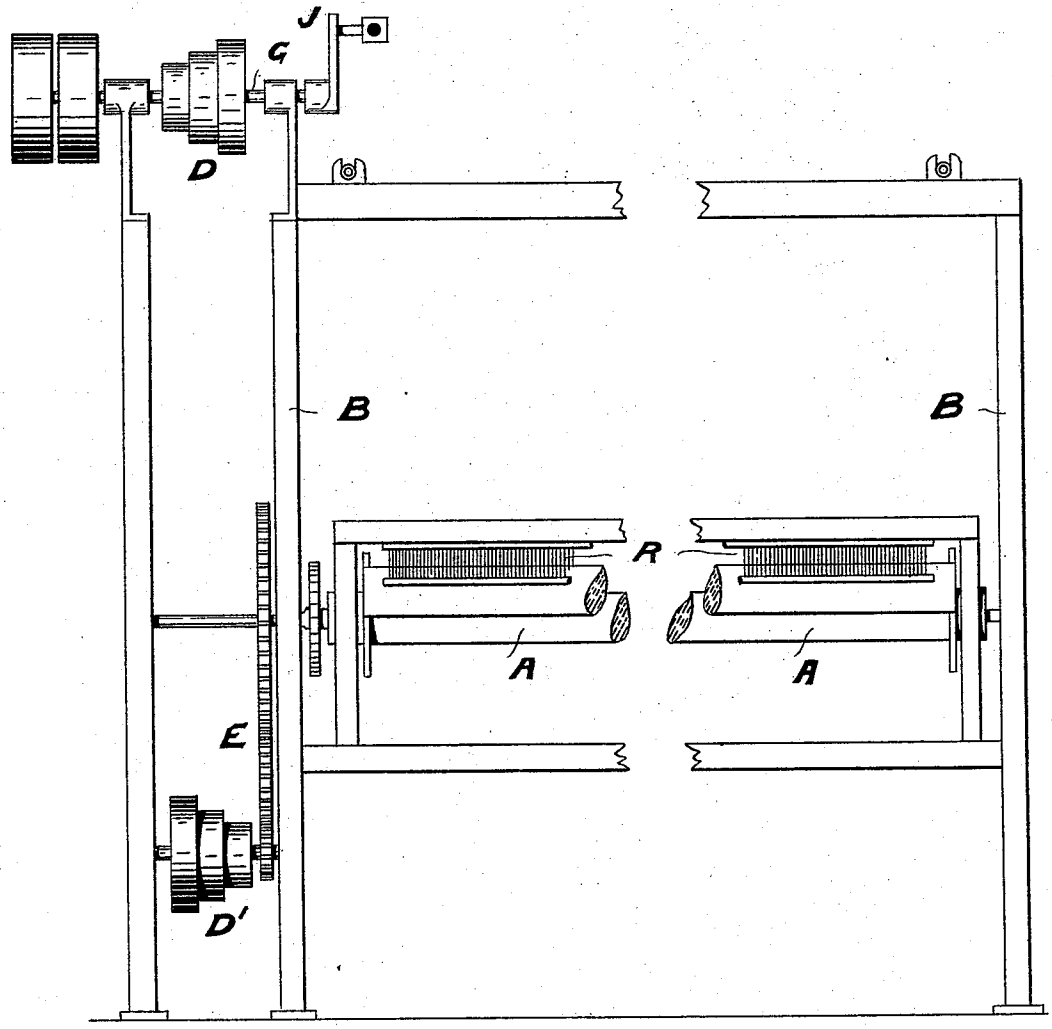

FIG. 2.

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(No Model.) 3 Sheets—Sheet 3.

J. & R. LISTER.

MACHINE FOR DRESSING OR BEAMING WARPS FOR LOOMS.

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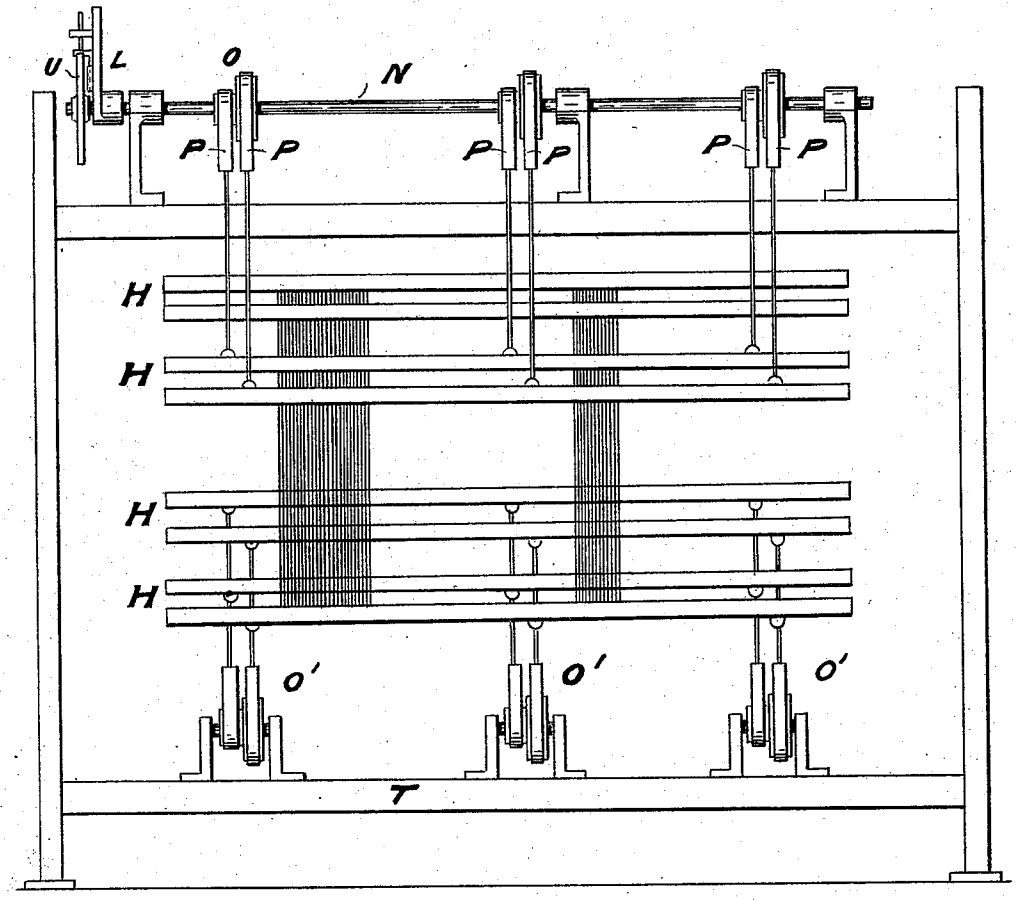

FIG. 3.

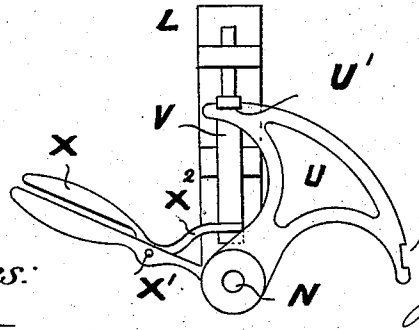

FIG. 4.

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UNITED STATES PATENT OFFICE.

JAMES LISTER AND RICHARD LISTER, OF KEIGHLEY, ENGLAND.

MACHINE FOR DRESSING OR BEAMING WARPS FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 538,080, dated April 23, 1895.

Application filed January 13, 1894. Serial No. 496,736. (No model.) Patented in England August 2, 1893, No. 14,786.

To all whom it may concern:

Be it known that we, JAMES LISTER and RICHARD LISTER, subjects of the Queen of Great Britain and Ireland, residing at Keighley, in the county of York, England, have invented a certain Improved Machine for Dressing or Beaming Warps for Looms, (for which a patent has been granted to us by the Government of Great Britain and Ireland, No. 14,786, dated August 2, 1893,) of which the following is a specification.

This invention has for its object the dividing or dressing of warp threads prior to weaving the same into a fabric in an automatic simple and efficient manner by apparatus so arranged that, we are enabled to dispense with brushes and other rubbing instruments hitherto used for the purpose of dividing the warp threads and to retain the major portion of the size deposited on the warp threads thereby to preserve the strength and weaving qualities of the warp.

In describing our invention in detail, reference is made to the accompanying drawings, in which—

Figure 1 represents a side view of a warp dressing frame arranged according to our invention. A portion of the center upright is cut away to more clearly show the action of the apparatus. Fig. 2 is a view of the operating mechanism looking in the direction of the arrow; Fig. 3, a similar view showing the heads, and Fig. 4 a detail hereinafter referred to.

The beam A upon which the dressed warp threads W are wound is mounted in any convenient manner between the uprights B. B. and driven from the shaft C through pulleys D. D'. and spur gearing E in a manner common to warp dressing frames to which no claim is made as forming part of this invention.

The ball W' of warp threads is formed and sized in the usual manner and the warp threads W conducted over bars F. F'. and roller G as hitherto, but instead of the warp threads W going direct to the rotating beam A. and mechanically or otherwise brushed between the roller G and beam A for the purpose of dividing the threads, they pass through mails or loops M. in the healds H or the like, reciprocated in a continuous and suitable manner so that, a "shed" is repeatedly formed by one portion of the warp threads reciprocating upward and the other portion downward, by which operation the said threads are divided or separated.

The reciprocation of the healds H and warp threads W may be accomplished by securing to the rotating shaft C. a crank J. and coupling same by a rod K to an arm L. mounted loosely upon a shaft N. upon which are secured pulleys O. To the circumference of each is respectively attached a flexible strap P. such as leather the ends of which are connected to the healds H. and both kept in tension by a similar arrangement of pulleys O' mounted on cross rail T.

Upon the shaft N is secured a quadrant U shown by detail Fig. 4. and is prepared with two recesses U' and U^2. with either of which a sliding bar V mounted in the arm L may engage, so that by the oscillation of the arm L. the quadrant U is operated and shaft N rocked in its bearings, thus giving a reciprocating motion to the healds H and warp threads W. by which motion, the said threads are automatically and repeatedly divided or separated as they are traveling between roller G and fixed reed R. through which they pass to the rotating beam A. the warp threads being by preference kept divided close to the fixed reed R. by a rod S passing between the threads for the entire width of the warp.

The projection on the bar V engaging in one of the recesses in quadrant, U. may be changed from one recess U' or U^2 to the other by pressing the lever X hinged at X' toward the arm Q of the said quadrant. An extension of the lever at X^2 being engaged between projections on the said bar, causes the projecting piece on the bar to be raised clear of the notch. Then the said shaft may be turned by the said quadrant until the projection on the bar engages with the recess.

By changing the position of the projection on the bar V in the quadrant U. the motion transmitted to the healds is reversed, that is to say, those warp threads that formed the top portion of the "shed," now form the bottom, and the bottom threads the top of the "shed," the reciprocating warp threads, by preference meeting in the center and not crossing each other.

In the drawings we have shown four healds

H. but it will be obvious to persons skilled in weaving, that a less or greater number may be used for dividing or separating the warp threads with a greater or less degree of success.

The rising and falling motion imparted to the healds H is continuous so long as the beam A rotates, thereby dividing or separating the warp threads from each other without the intervention of a brush or other rubbing instrument, which as is well known, in addition to separating the healds, removes the size therefrom, thereby reducing the strength and weaving qualities of the warp.

What we claim as our invention is—

In combination with the revolving beam, the guide roller G, the reciprocating healds, the shaft N, the connections therefrom to the healds, the quadrant U on the shaft, the lever L, the sliding bar V carried thereby and adapted to engage the quadrant at different points and the connections to the lever L for operating the same, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES LISTER.
RICHARD LISTER.

Witnesses:
JOHN GILL,
B. S. DANIELL.