

T. ROWLEY.
Machine for Preparing Warps for Dyeing.
No. 242,987. Patented June 14, 1881.

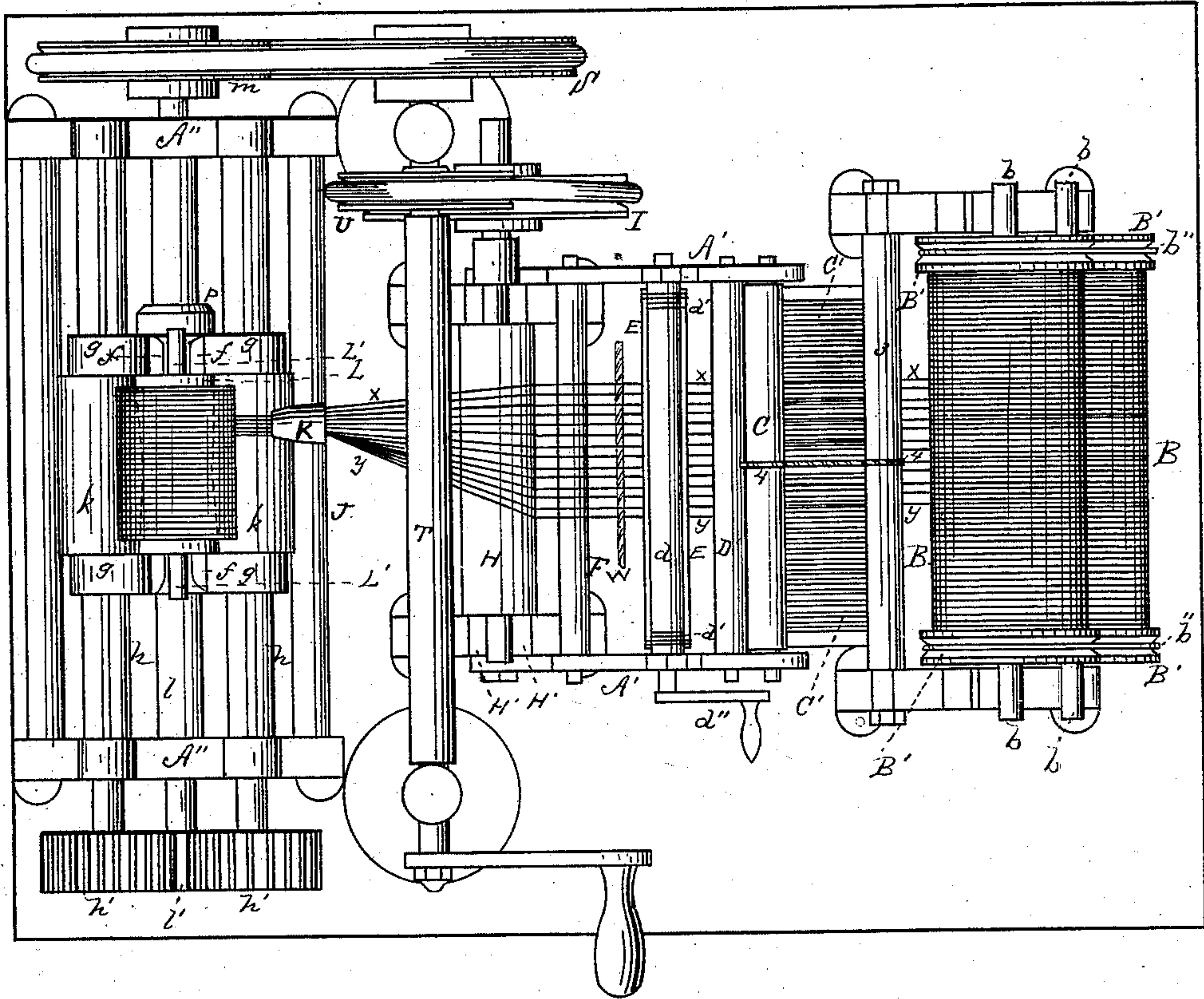


Fig. 1.

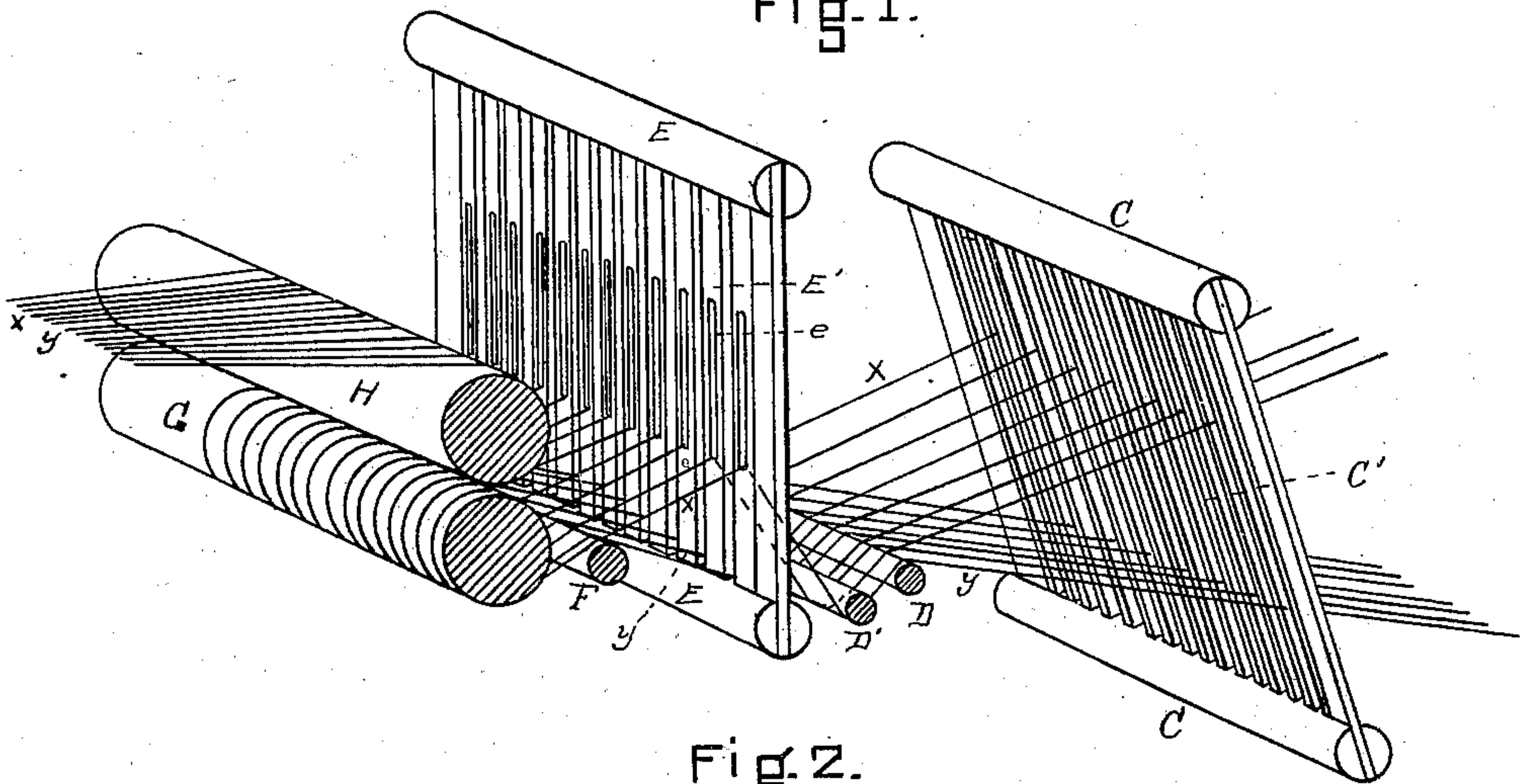


Fig. 2.

WITNESSES

B. M. William
Arthur H. Bridge

Thomas Rowley
By his Atty.

INVENTOR

Henry W. Williams

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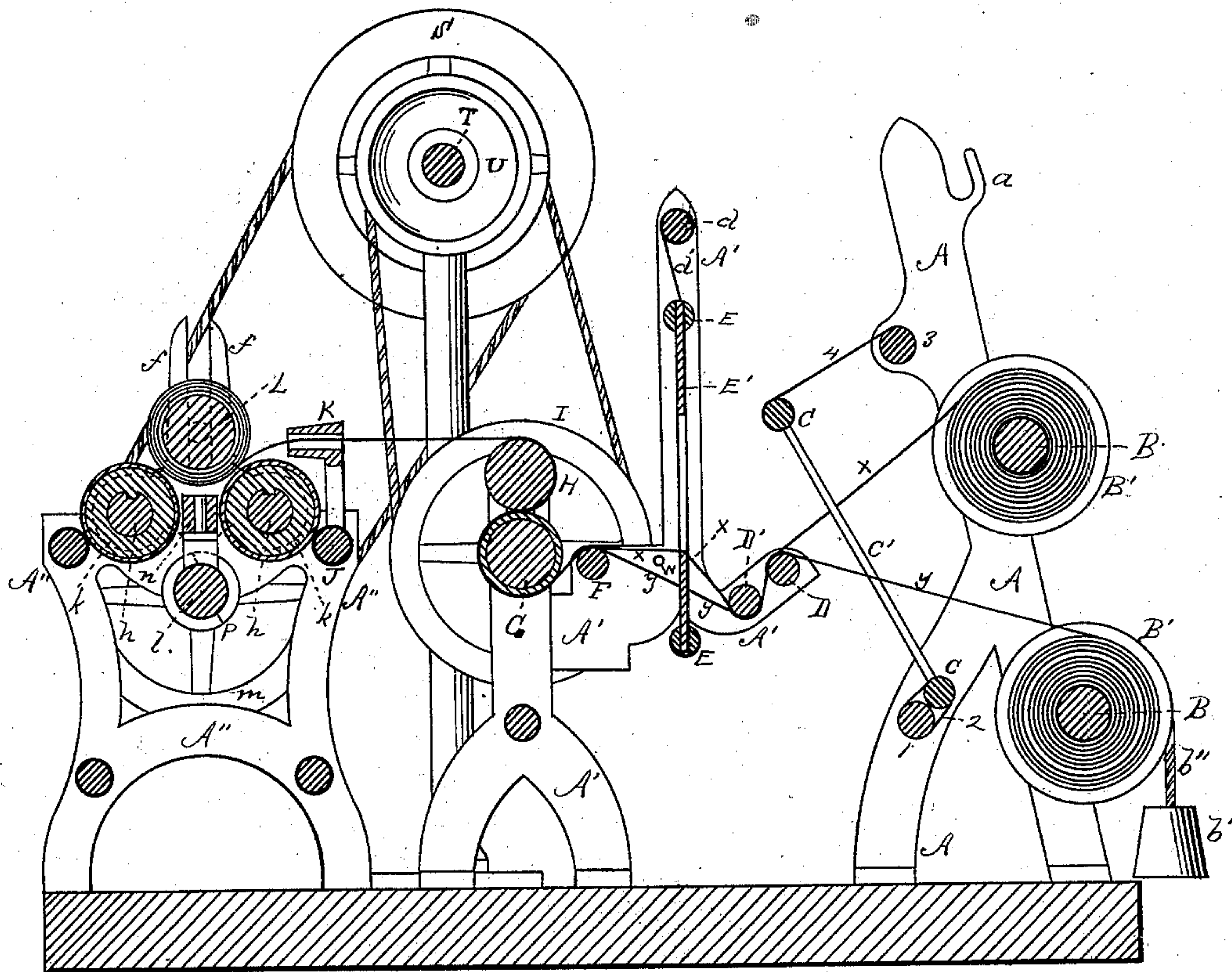


Fig. 3.

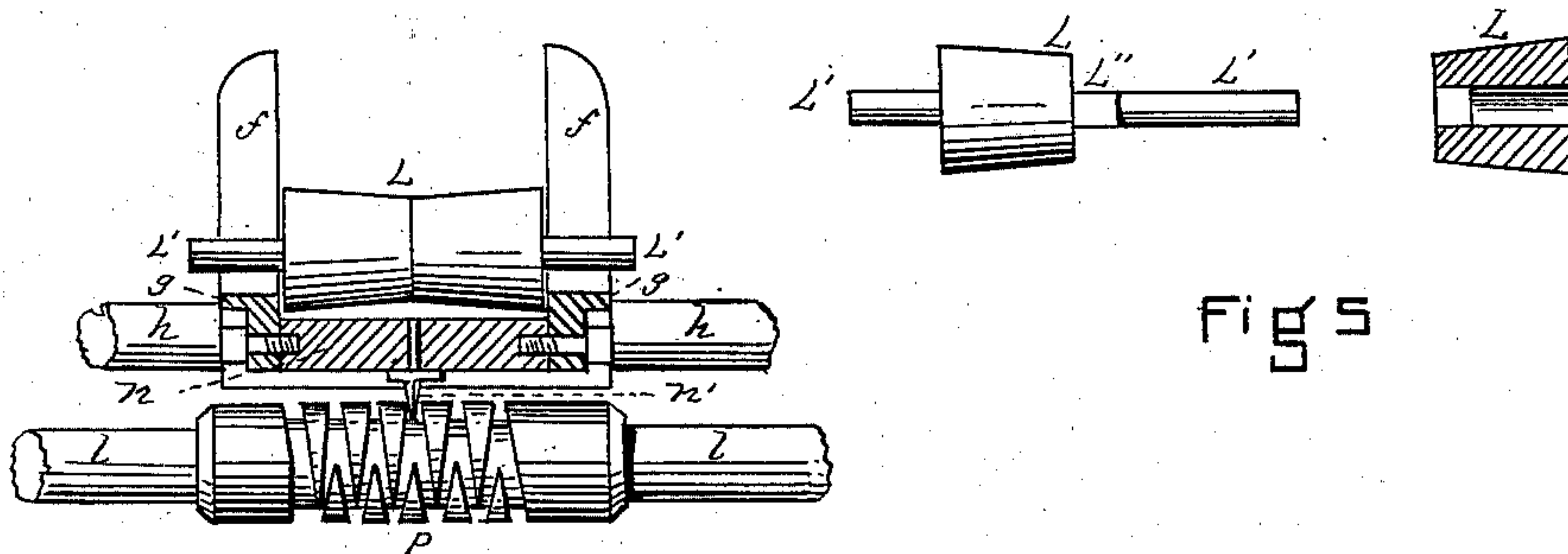


Fig. 4.

WITNESSES

B. M. Williams
Arthur H. Bridge.

Thomas Rowley INVENTOR
By his Atty.
Ferry Williams.

UNITED STATES PATENT OFFICE.

THOMAS ROWLEY, OF LAWRENCE, MASSACHUSETTS.

MACHINE FOR PREPARING WARPS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 242,987, dated June 14, 1881.

Application filed February 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ROWLEY, of Lawrence, in the county of Essex and State of Massachusetts, have invented new and useful
5 Improvements in Machines for Preparing Warps for Dyeing, of which the following is a specification.

The present mode of preparing cotton warps for dyeing is as follows: The warp is taken
10 from, say six beams, run through starch and around a steam-cylinder to individualize, dry, and stiffen each thread; then it is wound upon a beam; then the leases are picked by hand, and, finally, it is coiled and sent to be dyed.

15 By means of the machine below described, the starching, drying, pulling off the large beam, and the laborious hand lease-picking are dispensed with, and much time saved in the dye-house. Thus much time, labor, and
20 money are saved.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a plan view of the machine. Fig. 2 is a detached perspective view of the plain
25 and block reeds and adjacent parts, with the thread in the act of forming the lease. Fig. 3 is a longitudinal vertical section of the machine. Fig. 4 is a detached view of the tapering roll L, the cam *p*, and adjacent parts, a portion being in section. Fig. 5 is a view, partly
30 in elevation and partly in section, of the tapering roll L taken apart.

A is a frame supporting the beams B (two or three in number) carrying the warp. The
35 bearings *b b* of the beams lie in supports or arms *a* in the frame. The beams B are provided with grooved flanges *B'*, by means of which weights *b'* are hung from ropes *b''* in the grooves, the object being to keep the beams
40 from turning too easily, and thus to keep the thread taut.

Swung, as shown in Fig. 3, from the rod 3, by means of a cord, 4, or similar device, and secured to the rod 1 by means of a cord, 2, or
45 similar device, is the plain reed C, between whose dents *C'* the thread *x* from the upper beam and the thread *y* from the lower beam pass alternately, every other dent taking an upper, and every other a lower, thread.

50 The frame *A'* supports the friction-rolls D and D', the threads from both beams passing over the former and under the latter, the block-

reed E, the friction-roll F, driving-roll G, and friction-roll H. The dents *E'* are alternately blocked, and are of the same number as the
55 dents *C'*.

Slots *e* are provided in the blocked dents. The threads *x* from the upper beam pass through the slots *e* in the blocked dents, and the threads *y* from the lower beam pass be-
60 tween the plain dents. Thence the threads pass over the friction-roll F, around the actuating-roll G, and over the friction-roll H. The rolls G and H have their bearings in the vertically-bifurcated portion *H'* of the frame *A'*, and the
65 former is actuated by the wheel I, while the latter lies upon the former and is turned by friction.

The block-reed E is adapted to be raised and lowered by means of cords *d' d'* passing around
70 a shaft, *d*, which is operated by a crank, *d''*, all supported by the frame *A'*, the object of such vertical movement being to form the lease, as below described.

From the roll H the warp passes through
75 the eye K, supported by the rod J, which forms a part of the frame *A''*. From the eye it passes to and is wound upon the tapering roll L, the construction of which is below described. This is a friction-roll having its bearings *L'* in the
80 bifurcated supports *f f*, extending up from the sliding frame or carriage *g*, which slides upon the shafts *h h* in order to reciprocate longitudinally the roll L, for the purpose of distributing the warp evenly upon it.

85 Splined to the shafts *h h* are the cloth or felt covered rolls *k k*, which are arranged to rotate a little faster than the roll L, resting upon them, so that the roll L is constantly slipping, and hence winding the warp closely
90 and solidly upon itself. The gear *h' h'*, which actuates the shafts *h h*, meshes into gear *l'*, (below and between them,) fixed to shaft *l*, which is actuated by the wheel *m*, all supported by the frame *A''*.

95 The follower *n* is fixed in the frame *g* and provided with the finger *n'*, which is engaged by the cam *p*, secured to the shaft *l*. (See Fig. 4.) Thus the follower *n* and frame *g* reciprocate the roll L for the purpose of evenly dis-
100 tributing the thread.

S is the driving-pulley, and is fixed to shaft T. The pulley S is belted to pulley *m*, which drives the mechanism upon the frame *A''*, and

the pulley U upon the shaft T is belted to the pulley I, which rotates the roll G, and through its means draws the warp over or under the various rolls and through the reeds from the beams B.

It will thus be seen that the warp leaves the beams B B, passes through the plain reed C, the upper threads, *x*, and the lower threads, *y*, taking alternate dents over roll D, under roll D', through block-reed E, the upper thread, *x*, passing through the blocks, and the under thread, *y*, passing through the plain dents, thence over roll F, under and around roll G, over roll H, through the eye K, when it is wound upon the tapering roll L.

To take the lease, which is done once in, say, five hundred and twenty yards, lift the block-reed E by means of the crank *d''*. By this means the upper threads, *x*, which pass through the block-dents are raised, as in Fig. 2. Then pass a cord, *w*, through the space between the two rows of thread. Then drop the reed E as far as it will go, by which means the upper threads, *x*, are pressed down by the said block-dents, return the other end of the cord through this space, raise the reed to the center, and the warp may be tied and cut off. The roll L with its contents may be removed and the warp taken off and sent to be dyed.

By examining Fig. 5 it will be seen that one-half of the roll L may be slid off the central shaft, L', which passes through it. To remove the warp, therefore, draw off the detachable

portion and then it is easy to pull the warp off the remaining tapering portion and run a stick into the hole to keep the warp in shape.

A portion of the detachable part of the roll is made rectangular on the inside, so as to fit over a similarly-shaped part, L'', of the shaft for the purpose of rotating the roll.

Thus it will be seen that the warp is run directly from the beams into a ball for dyeing purposes, instead of, as by the old method, taking it off the beams, starching and dyeing the warp, then putting it upon beams again and picking the lease, and then coiling for the dye-house.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent, is—

The herein-described machine for preparing cotton-warps for dyeing, the same consisting of the frame A, adapted to support the beams B, and provided with the plain reed C O', the frame A', provided with the block-reed E E', the driving-roll G, and measuring-roll H, and the frame A'', provided with the eye K, tapering roll L, friction-rolls *k k*, and mechanism for evenly distributing the warp upon the roll L, all constructed and arranged substantially as and for the purpose set forth.

THOMAS ROWLEY.

Witnesses:

CHAS. H. BARNES,
ALFRED P. ROWELL.