W. Bradley.

Dressing and Sizeing Warp.

No. 20190. Patented May 11, 1858.

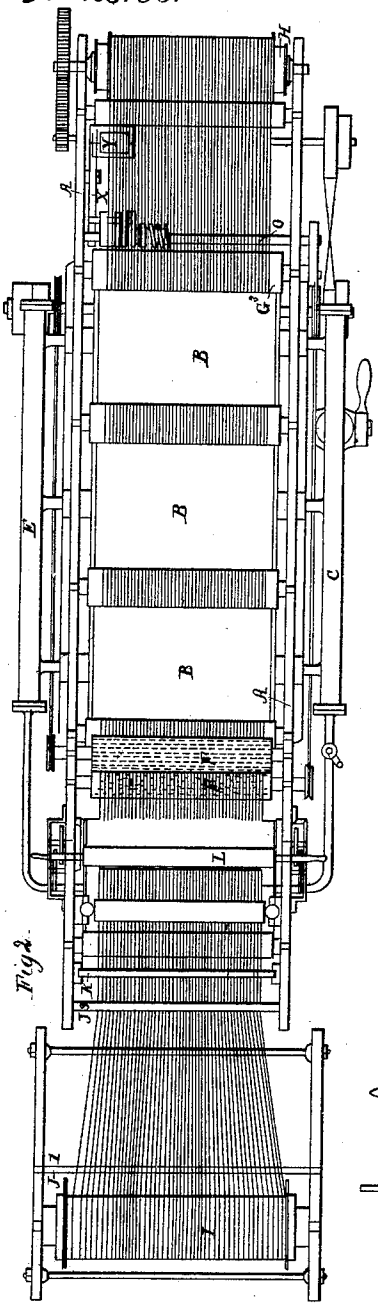


Fig. 2.

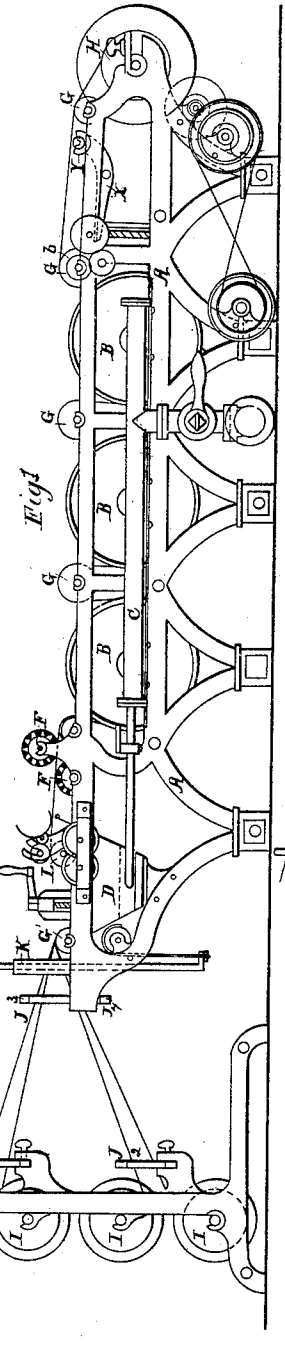


Fig. 1.

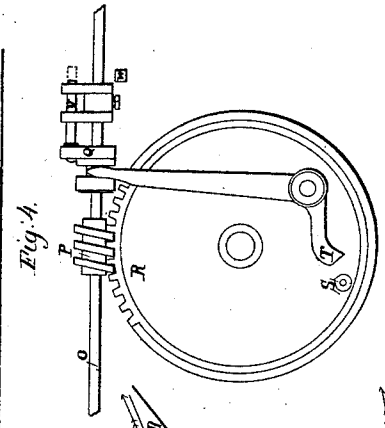


Fig. 4.

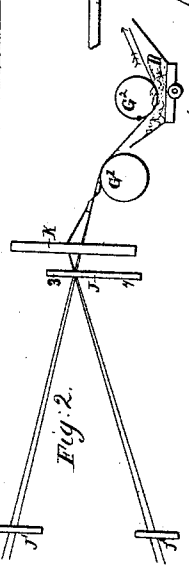


Fig. 2.

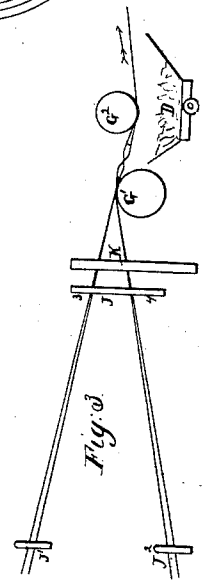


Fig. 3

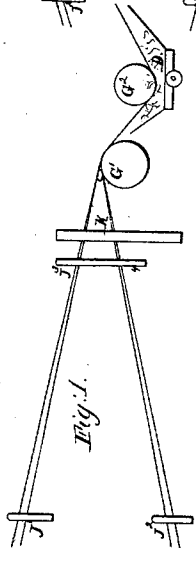


Fig. 1.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WM. BRADLEY, OF MANCHESTER, VIRGINIA.

DRESSING AND SIZING WARPS.

Specification of Letters Patent No. 20,190, dated May 11, 1858.

To all whom it may concern:

Be it known that I, WILLIAM BRADLEY, of Manchester, in the county of Chesterfield and State of Virginia, have invented a new and useful Improvement in the Mode of Dressing and Sizing Warps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, Plate 1, is a longitudinal elevation, and Fig. 2, Plate 1, is a plan of the machine. Figs. 1, 2, and 3, is an enlarged view of the manner of taking the lease or cross shed. Fig. 4, Plate 2, is an enlarged view of a part of the self-marking apparatus.

The same letters of reference denote the same parts in all the figures.

The nature of my improvements consists more especially in the arrangement of the slays and harness at the end of the dressing machine, whereby the lease or cross shed can be taken in every alternate thread precisely as it is required in the weaving, dispensing with the mode of taking the lease by beers or in ribbons, and allowing the unsized warp to pass through the size in an unbroken sheet with each thread separate and distinct. These improvements will be clearly seen from the following description of the construction and operation of the machine.

A, A, A, Fig. 1, Plate 1, is the main frame of the machine made of iron; B, B, B, are the drying cylinder; C, the supply pipe for supplying the cylinders with steam; D, the size box, with a false bottom for the steam to pass under, keeping the size always in a hot state; E, condense water pipe for conveying away the water from the drying cylinders as fast as the steam is condensed in them by the wet warps.

F, F, are two circular brushes; these brushes are driven at a pretty fast speed for the purpose of opening out and shaking loose the sized yarn, preventing it from adhering together, and at the same time brushing off the motes and laying the fibers of the yarn all one way before it passes on to the first drying cylinder.

G, G, G, are the tension and guide rollers.

G^1, is the first or meeting guide roller where the two halves of the warp meet, and form a whole before they pass through the size.

G^2 is a roller in the size trough, so arranged that it can be raised and lowered for allowing the cross sticks (which are inserted between the warp when the loom beam is full, and the lease is to be taken) to pass under said roller without coming in contact with the size.

G^3, is the measuring roller; H, loom beam being fitted with the dressed warp.

I, I, I, I, are the section beams.

J, 1 and 2, are the first set of slays, (which I call the section slays) which must always be of the same width as the section beams without regard to the width of the warp.

J, 3 and 4, are the second set of slays, which I call the warp slays; these slays must invariably be of the exact width that the warp is required to be finished.

K, is the harness for taking the lease or cross shed; L, soap stone and lead rollers covered with woolen cloth, as usual.

Such is the construction.

The operation of the machine is as follows: The section beams I, I, I, I, having been previously filled with yarn, at the winding or warping frame, the threads from the two top beams are passed through the section slay J^1, one thread to each split, said slay being as aforesaid of the exact width of the section beam and having as many splits as there are threads on a section; this is for the purpose of easily finding the proper place when any thread may break down, or when a thread is lost in the previous process of winding; the yarn after passing through the section slay is contracted in width and passed through the warp slay which is of the exact width that the warp is required to be—one thread to each spit; this forms one half of the warp; the two lower section beams are passed through the section slay J^2, and through the warp slay J^4, and they form the other half of the warp. The top half of the warp is then passed between the threads which form the eyes of the harness or heddle, and allowing the said harness to be raised up without affecting them; the lower half of the warp is then passed through the eyes of the harness or heddle, one thread to each eye, so that when the harness is raised up it will take the half of the warp so passed through the eyes, above the other half which is not affected by the harness allowing the cross sticks to be inserted for taking the lease. The two halves of the warp after passing through the harness are brought to-

gether on the first guide roller (G′) and then passed through the hot size in one broad unbroken sheet, and on through the squeezing rollers (L), then between the revolving brushes, and so on to and around the drying cylinders, up to the measuring roller G^3, over which it passes, then over the front guide roller on to the loom beam in front of the machine.

When the loom beam is full and the alarm bell attached to the marking apparatus having rung, the lease is taken in the following manner. The machine is stopped and a small stick is inserted between the upper and the lower half of the warp, just after it has passed through the harness; this is shown in Fig. 1, Plate 2. The harness or heddle is next raised up carrying with it the lower half of the warp (which passes through the eyes of the harness) until it is in the position shown in Fig. 2, Plate 2, when another stick is inserted in the warp; the ends of the sticks are tied together to prevent them getting out of position, and the machine is started on; the harness is now brought down to its original position the roller (G^2) in the size trough having been raised up to allow the sticks to pass through the size trough without taking up any size with them; this is shown in Fig. 3, Plate 2. After the sticks have passed the size, the roller G^2 is brought down again, immersing the warp into the hot size. The sticks in passing through the machine will raise up the top squeezing roller (L) sufficient to allow them to pass, without any attention whatever, and they pass along with the warp until they come to the loom beam in front, when the warp is cut off a short distance beyond the sticks, and the warp is completed, ready to go to the loom, the cross sticks being retained in the warp in the loom until the whole is woven out.

The operation of the self-marking apparatus is as follows: The warp by passing over the measuring roller (G^3) causes it to revolve, and on the end of the said measuring roller is a gear wheel, which communicates motion to the shaft (O) lying parallel to the measuring roller and sufficiently out of the way of the passing warp; on this shaft (O) is a worm P, and also a sliding clutch box Q. The worm gears into a worm wheel (R) which has a pin (S) projecting from one side which pin comes in contact with the short end of a bell crank lever at one portion of each revolution of the worm wheel. When the pin so comes in contact with the end of the lever, it causes the long end of the lever to move the clutch box on the shaft, and pushes a pin (U) forward sufficient to depress the marking lever (W) on the opposite end of which is the ink box, and marking roller bringing them in contact with the passing warp, and making a mark thereon. The pin in the worm wheel which works the end of the bell crank lever is so arranged that it shall perform its office during the time that the worm shaft (O) makes one revolution only so that the sliding clutch shall be back to its position again, drawing the pin (U) back out of the way of the end of the marking lever; thus the worm shaft continuously revolves without operating the marking lever, until the pin in the worm wheel comes around again to the end of the bell crank lever, and by means of the gearing on the end of the measuring roller, and the worm shaft (O), any desired number of yards can be made to pass while the worm wheel (R) which operates the marking lever makes one revolution and consequently one mark.

By contracting the yarn between the section slays and the warp slays, to the width required for the loom beams, I entirely dispense with the use of ravels, combs, or guides of any kind after the yarn leaves the harness (K) and by running the circular brushes at a pretty brisk speed they separate the warp threads, lay the fibers of the cotton straight and smooth, giving to the warp a silky appearance enabling it to pass freely through the loom harness and reeds without chafing.

I am aware that drying cylinders have been used heretofore in dressing frames. Therefore I make no claim to them, neither do I claim as new the circular brushes.

I am also well aware that reeds and harness have been used heretofore on dressing machines, consequently I make no claim to them as such, but

What I do claim as new and useful and desire to secure by Letters Patent is—

The combination of the section slays or reeds together with the warp slays or reeds and the harness for taking the lease or cross shed before the warp is sized in every alternate thread or threads, so as to allow the lease rods to pass with the warp to the yarn beam and thus dispense with the use of combs, ravels or guides, after the warp has passed through the size, substantially as herein described.

WM. BRADLEY.

Witnesses:
JESSE T. HUTCHESON,
WM. H. POWERS.