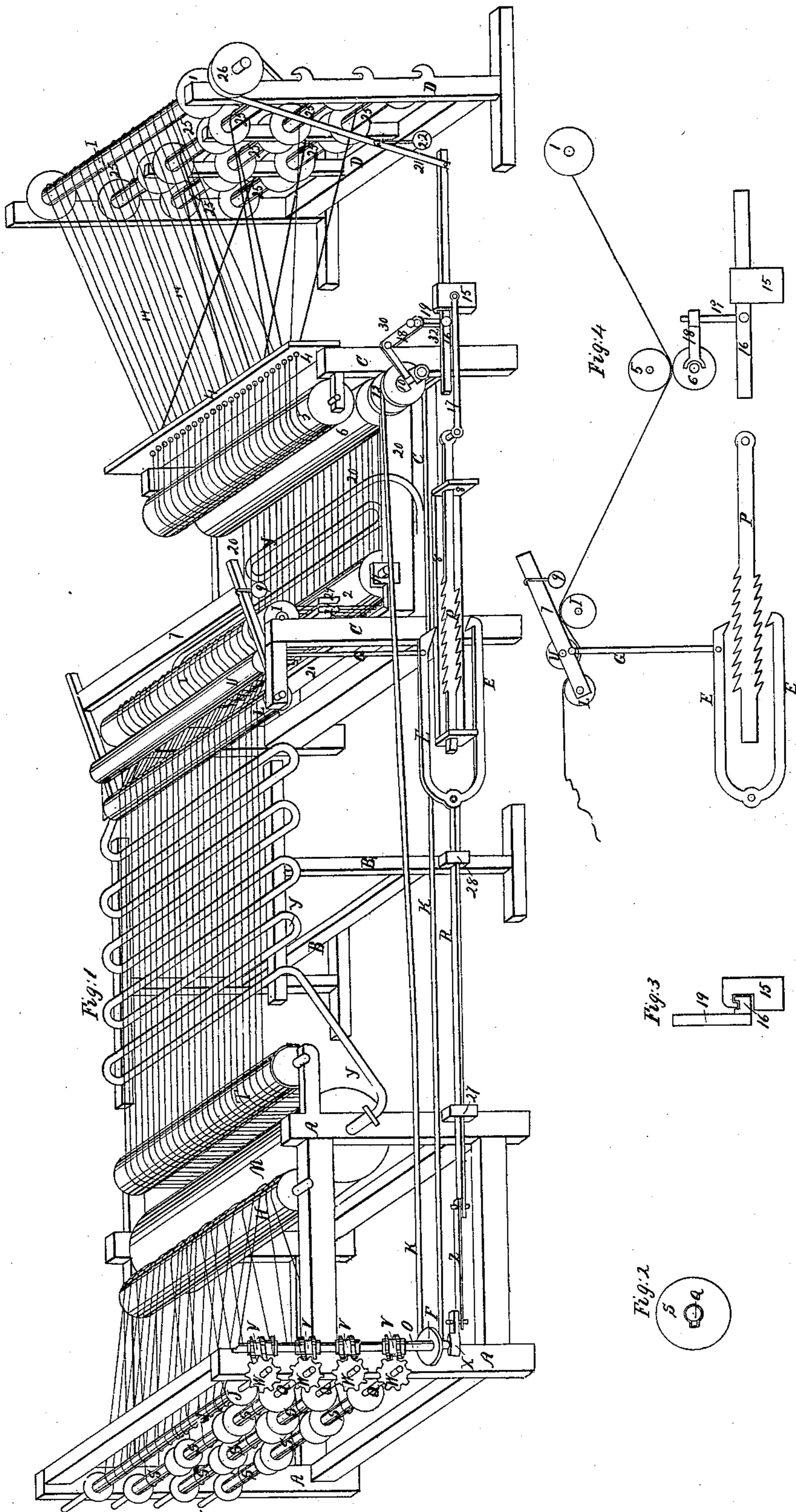


*J. A. Elder & E. Wood.*  
*Yarn-Dressing Mach.*

*N<sup>o</sup> 13,350.*

*Patented Jul. 31, 1855.*



# UNITED STATES PATENT OFFICE.

JOHN A. ELDER, OF WESTBROOK, AND EPHRAIM WOOD, OF WINTHROP, MAINE.

## MACHINERY FOR SIZING AND DRESSING WARPS.

Specification of Letters Patent No. 13,350, dated July 31, 1855.

*To all whom it may concern:*

Be it known that we, JOHN A. ELDER and EPHRAIM WOOD, the former of Westbrook, in the county of Cumberland, in the State of Maine, the latter of Winthrop, in the county of Kennebec and State aforesaid, have invented certain Improvements on Dressers for Dressing Yarn-Warps and Twine or Cord; and we hereby declare that the following is a full description thereof, reference being had to the drawings herewith presented, which drawings constitute a part of said description.

Figure I, is a perspective view of the dresser. Fig. II, is an end view of the spool or beam S and shaft Q. Fig. III end view of the lever 16 and weight 15. Fig. IV end view of the rolls 5 and 6, section beam 1, and levers.

The same letters and figures refer to the same parts in all the figures.

The principal features of our invention consist in the self regulation of the friction on the section beams and size rolls by the strain or tension of the yarn or twine to be dressed, and in the manner of making and running the spools or beams.

The frame A supports the steam cylinder M, loom beam or yarn beam J, and shafts Q, Q. The rolls H and T, are supported by their axles in the frame A. The worms or screws V, are fastened on the shaft O, which is supported by boxes made fast to the frame A. The worms or screws are geared into the cogwheels W, W, the cogwheels are fast to the shafts Q, Q, on which is a series of spools or beams S S. The spools or beams are connected to the shaft Q, by groove and feather or key. The loom beam J has a cogwheel W, secured on one end of its axle, the worms or screws V, V, drive the cogwheels W, the cog wheel turns the loom beam or yarn beam J, and shafts Q, Q, the shafts carry the series of spools or beams S, the pulley F is fast to the shaft O. To one end of this shaft is fastened a crank or arm X. The rod Z, is jointed to the arm X, and extends along and is jointed to the rod R. The rod R extends through the guides 27 and 28 and is jointed to the hook or catch E. The catch is made in a bow as shown in Fig. I and Fig. IV. Both ends of this catch are adapted to fit into the ratchet teeth on the rod P. The bow or catch E is adjusted so as to pass clear of the points of the teeth on the rod P

when the tension of the yarn is right. The rod P is supported in the guide 8 which is fast on the frame c. One end of the rod or connector 17, is jointed to the ratchet rod P and the other end is jointed to the weight 15 which is supported on the lever 16 as shown in Fig. III. To one end of lever 16 is fastened the friction strap 21 which extends upward and over the friction pulley 26 of yarn beam 1 and thence down to the frame D where it is made fast. The spools 25 and yarn beam 1, are supported by their axles in the frame D. The box or trough 20 holds the size of color for sizing or coloring the yarns. The frame 7 carrying the roll u, and jointed to the frame c, has its fulcrum opposite the center of the roll L so that the roll u, is free to rise or fall, resting on the yarns as they pass from the roll I to the roll L. The vertical rod G, is jointed by one end to the frame 7 and jointed by its other end to the catch E, the weight 9 is supported on frame 7 to give the required strain to the yarn when passing from the section beam through the machine to the loom beam. The roll 2 is supported by its axles in the bearings 11. They are to be made fast to the box or trough 20, in such manner that they may be moved to or from the size roll 6 carrying with them the roll 2 for the purpose of regulating the distance the twine or cord should pass through the sizing to be saturated.

The rocked lever 18 is jointed to the frame c, at a stud 30. There is a cut or hole in one end of the lever 18 to receive the arm 19 of the lever 16 and the other end of the lever 18 is fitted into a groove or slot in the hub of the friction pulley 10. This pulley 10 turns on the axle of the roll 6 on which a flange or collar 12 is fastened and faced with leather or other suitable substance to make friction. The pulley F carries the band K and with it the friction pulley 10. This pulley should turn fast enough to drive the size roll 6 so that the yarn would be slack between the size roll and loom beam J. The roll 2 and size roll 6 are placed apart in order to saturate the twine. The lever 16 has an arm 19 fastened to it extending upward through the lever 18. The lever 16 is jointed to the frame c by a stud and works on its joint 32. The weight 22 is attached to the friction strap 21. This weight should only be heavy enough to keep the beam 1 from turning too fast when the weight 15 is

balanced on the joint 32 of the lever 16, thus keeping the yarn from kinking up between the beam and neck reed 4. When the yarn to be dressed has the right strain on it the hook or catch E is kept out of the teeth of the ratchet rod by the tension of the yarn thus leaving weight 15 unmoved as the catch makes its movement, with the arm X rod z and R. When the yarn is strained or too taut it will raise the roll *w* and its frame 7 and its rod G and catch E and when the yarn is too slack the roll *u* will sink down carrying with it the frame 7 rod G and catch E, so the weight 15 will be moved outward on the lever giving increased friction.

If the section beam 1 is full of yarn and the weight *g*, placed on the frame 7 to give the required strain to the yarn 14 and the dresser at work, as the yarn unwinds from the beam 1, and is wound up on the beam J, the weight 15 is moved to the left or from the friction strap 21, by the catch E rod P and rod 17, thus keeping uniform tension upon the yarn, as it is unwound from the beam 1; when the weight is balanced over the joint 32 of the lever 16, the yarn should not have as much strain on it, the hook or catch E will work in the ratchet rod P and move the weight 15 to the left, the arm 19 and lever 18 by the weight 15 carrying with them the friction pulley 10. The farther the weight 15 is moved to the left the harder it presses the friction pulley against the collar or flange 12, thus helping to drive the roll 6. The rolls I *u* and L may be put in any suitable place between the roll 6 and loom beam J. They should be placed as near the loom beam as can be. When yarn warps are to be dressed from section beams the beams are placed in the frame D in the usual way, if four in number there should be four neck reeds and four sets of rolls *u*, L and I, also a set of hooks E, ratchet rods P and weights for each, so that each shed (or section) of warp is kept at one uniform

tension by the weights 15 being moved automatically.

It should be observed that the whole self-regulating power or influence originates in the functions of the roll *u*, it being sustained in its position by the tightness of the yarn and being free to act through the organization above described to increase or diminish the friction as occasion may require.

As this invention is applicable to all common machines for dressing yarn warps, twine, and cords it will not be necessary here to describe minutely all the parts and appurtenances which are common and well known.

We are aware that other modes of construction and other forms and positions of the several parts might be adapted to produce the same results from the same acting principles; for instance springs may be used instead of weights and screws may be used instead of ratchets and catches for increasing the power on friction straps. We do not claim these devices as such, or any of them.

What we claim as our invention and desire to secure by Letters Patent is—

The regulation of the speed of the yarn beams and rollers of the dressing frame by the tension of the warp in the manner substantially as described, namely by the combination of the vibrating roller *u* with the rollers L, and I, rod G and the hook E or the equivalent thereof, and these in combination with the ratchet P, levers 16 and 18, friction pulley 10, and weight 15, or their equivalents when arranged substantially in the manner described.

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