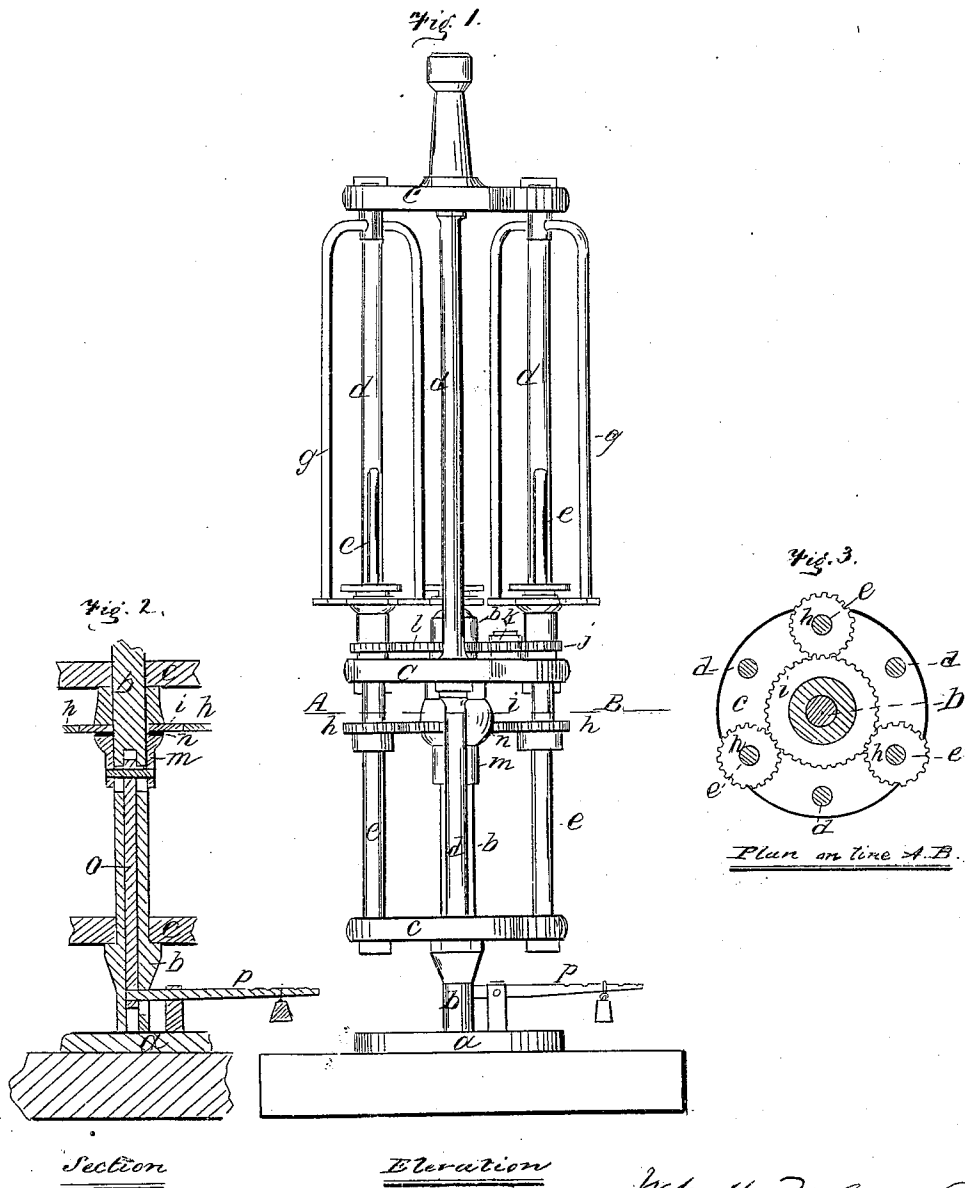


H. Pearce, Cord Machine.

No. 12,920.

Patented May. 22. 1855.



Witnessed by Henry Pearce
Edward H. King
James Pearce

UNITED STATES PATENT OFFICE.

HENRY PEARCE, OF CINCINNATI, OHIO.

IMPROVEMENT IN CORDAGE MACHINERY.

Specification forming part of Letters Patent No. 12,920, dated May 22, 1855.

To all whom it may concern:

Be it known that I, HENRY PEARCE, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Machinery for Making Cord; and I do hereby declare the following to be a full, clear, and exact description of the said improvements, reference being had to the annexed drawings, reference being of this specification, in which—

Figure 1 is an elevation of the twisting-frame. Fig. 2 is a vertical section through the lower part of Fig. 1, showing the means employed to bring a pressure operating as a "break" upon the bobbin-spindles. Fig. 3 is a plan on the line A B, showing the means of connection of the three bobbin-spindles by which they are made perfectly simultaneous in their rotation. Fig. 4 is a side view of the winding-frame on which the three bobbins are simultaneously filled with yarn. Fig. 5 is a front elevation of the said winding-frame.

The object of my improvements is one in point of result—viz., the production of a fair, uniform, and strong cord.

The improvements consist of devices for securing a perfectly equable speed and uniformity of motion among the several bobbins when paying off the strands in the regulation of the rotation of the bobbins, so as to give any required degree of tightness to the strands, according to the desired constitution of the cord.

I will commence by describing the twisting-frame, which is represented at Fig. 1, and consists of a base *a*, with a vertical stationary shaft *b* firmly attached. This forms the support and axle for the revolution of a frame *c c c d d d*, consisting of disks *c* and rods *d*. Within this frame are placed, first, the spindles *e*, upon which the bobbins *f* are mounted; secondly, the fliers *g*, each of which, revolving around its respective bobbin, twists the strand before it reaches its fellows to form the rope. The revolutions of the fliers and the rotation of the bobbins are entirely independent. The former revolve by pinions *j*, driven through the intervention of secondary pinions *k* by the spur-wheel *l*, which is fast onto the standard *b*. The revolutions of the pinions around the spur-wheel drives the fliers in a contrary direction to that of the frame *c c c d d d*. The

bobbins rotate by the tension of the strands as they wind off, and the several bobbins are regulated to a uniform speed by pinions *h*, Fig. 3, one upon each bobbin-spindle *e*, which pinions all mesh into the spur-wheel *i*, running loose on the stationary standard *b*.

Fig. 2 shows by a sectional view the device for giving the required tightness to strands as they are unwound from the bobbin. It consists of a collar *m* and washer *n* underneath the loose spur-wheel *i*, and acting as a break or "rubber" to the said wheel by pressure from below transmitted by the plunger *o*, passing up within the stem or column *b* from the weighted lever *p*. This central portion of the plunger within the stem enables the checking action to be regulated with the greatest nicety while the machine is in motion, which is essential to its right adjustment, it being necessary in order to insure efficient action and good work that the tension of the strands should be closely watched not only after the first application of a new set of strands, but in different conditions of depletion and repletion of the bobbin, and this, as before stated, can be well effected only by adjustment in connection with careful observation of the action. It is also necessary that the checking movement should be so applied as not to interfere with the twisting action of the strands, which requires to be allowed free scope after leaving the bobbin. The check, therefore, should, as in the present case, act indirectly on the strand by means of the bobbin.

In place of the lever and shifting weight, as represented, a spring-bar provided with an adjusting-screw may be employed.

Figs. 4 and 5 show the winding-frame on which the three bobbing are simultaneously charged with yarn, which is laid onto each of them in equal quantities of equal tightness and similar distribution on the bobbin. Whatever inequalities of position or tension may occur are to be found equally on the three bobbins, so that under no circumstances shall one give off its thread with more freedom than another, and thus avoid taking its fair one-third share of the duty of the completed cord. It is evident that if one strand pays off from its bobbin more readily than the other it is looser and longer and does not

take a strain brought upon the rope so soon as the others. Further than that it injures the symmetrical appearance of the cord.

In Figs. 4 and 5 is shown a frame *s s*, supporting, among other things, the bobbin-mandrel *t*, on which the bobbins are placed and keyed while being filled. They are rotated by a handle *u*, and the filling or yarn comes to them passed over a pair of rollers *v w*, which have received it from the distributor consisting of a bar *x*, which vibrates longitudinally and horizontally in front of the rollers and having three openings or eyelet-holes *y*, which collect the threads as they come from the creel. By the passage of this bar to and fro it distributes the yarn simultaneously upon each of the three bobbins.

My experience convinces me that a sightly rope of uniform strength can only be made by making each part of equal tension and twist, so as to take its fair part of the strain,

and this I accomplish by these improvements, which may be summarily noticed in the order of the preceding matter, as, first, a device for insuring a uniform rate in the unwinding of the yarn from the bobbins; second, a device for bringing a suitable check unto the rotation of the bobbins to secure the required tightness of the strands as they pass to their point of junction.

What I claim as new and of my invention is—

The arrangement of a friction or rubbing collar operated by a plunger (passing upward within the supporting-stem *b*) and the weighted lever, as described, or equivalent devices for regulating the degree of facility of rotation of the bobbin-spindles.

HENRY PEARCE.

Witnesses:

EDWARD H. KNIGHT,
JAMES PEARCE.