

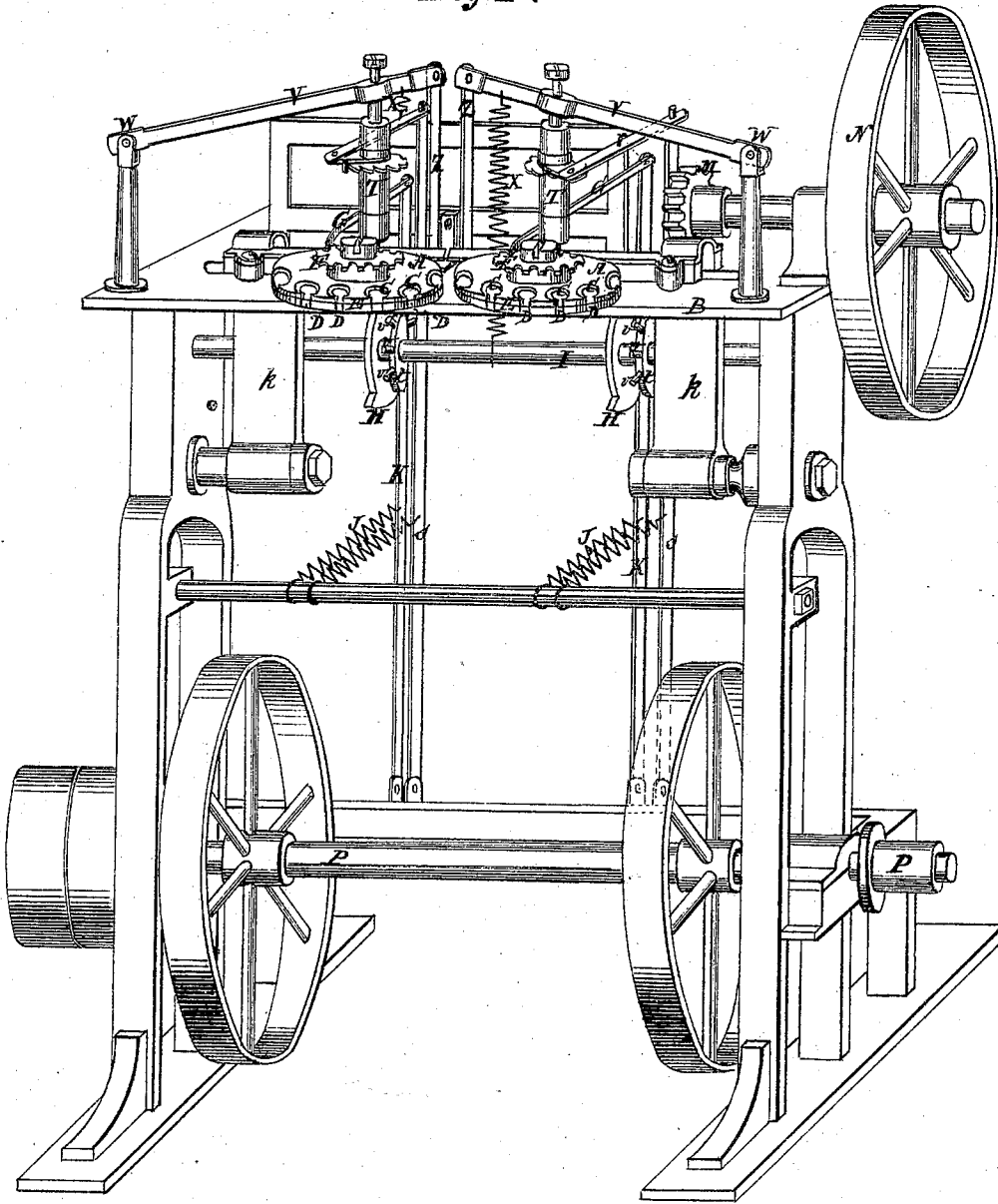
R. MARSHALL.

Improvement in Machines for Nicking Rib-Collars for Umbrellas.

No. 130,648.

Patented Aug. 20, 1872.

Fig. 1.



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Fig. 2.

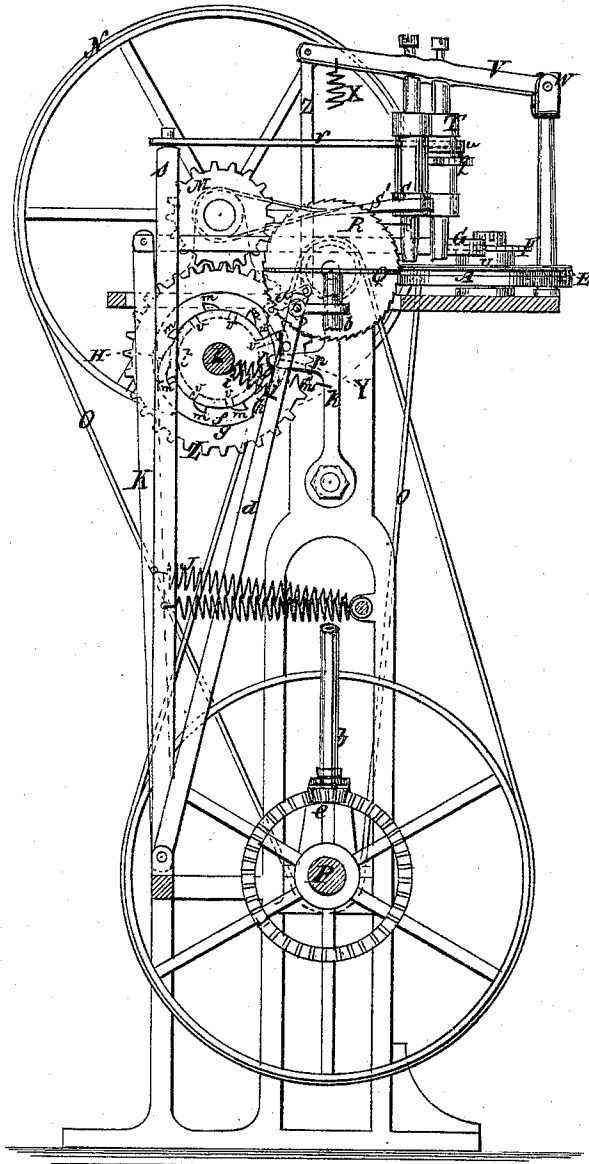


Fig. 3.

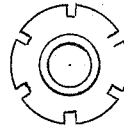


Fig. 4.



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IMPROVEMENT IN MACHINES FOR NICKING RIB-COLLARS FOR UMBRELLAS.

Specification forming part of Letters Patent No. 130,648, dated August 20, 1872.

Specification describing a new and Improved Machine for Milling and Nicking Umbrella Rib-Collars, invented by ROBERT MARSHALL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania.

My invention consists of a feeding and holding disk, which receives and carries the collars to the milling-tool for cutting the groove, and then to a nicking-saw for cutting the nicks; a mandrel for rotating the collar against the milling-cutter by a continuous rotary motion, another mandrel for shifting the collar in front of the nicking-saw, and spacing and holding it for nicking, and automatically-operating gear, all combined and arranged as hereinafter described, whereby, the blanks, which are delivered by hand or otherwise to the aforesaid disk, at intervals, as it is intermittently revolved, will be automatically milled or grooved, nicked, and discharged.

Figure 1 is a perspective view of a double machine, except the grooving or milling apparatus; which is only represented in Fig. 2; and Fig. 2 is a transverse section of the complete machine. Fig. 3 is a plan view of the umbrella rib-collar, showing the nicks; and Fig. 4 is a face view, showing the grooves.

Similar letters of reference indicate corresponding parts.

A represents a feeding and holding disk, mounted on a vertical axis upon a table or bench, B, and having a series of pockets or cavities, C, in the upper side near the periphery with a notch, D, through the periphery to each, also having a deep groove or nick, E, in the periphery for the milling-tool, and also having a ratchet-wheel, F, with as many teeth as there are pockets, by which said disk—having the blank collars to be grooved and nicked, which are delivered to the pockets as they stop at a certain point in the intermittent rotation of the disk—is turned one movement by the pawl G, after the finishing of one collar, to bring another up to the tools to be acted on, the said pawl being worked by a tappet, H, on the cam-shaft I, acting upon the bar K, pivoted to the frame at its lower end, and having the said pawl pivoted to it at its upper end. The pawl and bar K are thrown back by a spring, J, and the cam-shaft is turned by the wheels M, pulley N, and belt O, by which it is geared with the main driving-shaft P, so as

to have a slow motion, and to give one movement to the disk A at each revolution of itself. The disk stops each time with one of its pockets in front of the grooving or milling-saw Q, and another before the nicking-saw R, at which time a mandrel, S, having a continuous rotary motion, comes down into the hole of the one in front of the grooving-saw, and is forced into the collar so as to hold and revolve it slowly, at the same time the said grooving-saw comes up against the periphery of the collar and mills the groove in the face of it for the wire, by which the umbrella-ribs are bound to it, at the same time that the mandrel S comes down into the collar in front of the milling-saw; and the mandrel T comes down into the collar before the nicking-saw R, and is forced into it in like manner, so as to hold and turn it; but this mandrel has an intermittent motion, and moves the collar while the saw is drawn back the distance from one nick to another; then, while it is at rest, the nicking-saw comes up and cuts the nick in the periphery, by which the umbrella-rib is inserted at the end, so that its eye for the binding-wire that runs in the groove cut by the saw Q comes into said groove, so that said binding-wire goes through it. These mandrels which come down into the collars are sufficiently tapering to be forced into the collars, so as to hold them, by friction, sufficiently to turn them, as required, and when they go up again, as they do when the grooving and nicking of the collar is completed, the said collars are shipped off by shippers U, consisting of two curved plates, under which the collars pass in coming to the positions for these mandrels to work. The said mandrels are connected to the lever V, pivoted to a stand at W, and they are to be arranged in suitable guides and supports, (not shown,) to keep them in position. Said lever is forced down to engage the mandrels with the collars by a spring, X, and it is lifted by a cam, Y, Fig. 2, on shaft I and rod Z. Said cam Y has one tappet, and lifts the mandrels just before the cam H moves the disk A. The mandrel S is driven slowly by the belt S' from the shaft of the wheel M, or it may be by any other means. The grooving or milling saw is mounted on the top of a shaft, b, which is mounted at the other end in the oscillating frame d, and at the lower end gears with the driving-shaft P by the

wheels *e*. This saw is moved up to its work by cam *f*, which has a long concentric face, *g*, with a depression, *h*, at one side. The face *g* holds the saw up to its work until a complete revolution of the collar has been made by the mandrel *S*; then the depression *h* coming opposite the point *j'*, of frame *d*, bearing on the cam, allows a spring, *i*, to pull it back just as the disk *A* is turned. The nicking-saw *R*, whose arbor is mounted in the vibrating frame *k*, is moved up to the work by the cam *l*, which has as many tappets *m* as there are nicks in the collars, and it is pulled away by spring *n* each time the saw is pulled away after a tappet, *m*, has passed beyond a projection, *p*, of the saw-frame *k*, the collar is revolved to the front for the next nick by means of the ratchet-wheel *q* on mandrel *T*, pawl *u*, lever *s'*, and the tappet-wheel *t*, which has as many tappets *z* as there are tappets of wheel *l*, and said tap-

pets are adjusted to come into action on lever *s* immediately after the tappets *m* escape from the saw-frame. These tappet-wheels *l* and *t* have one long notch, *w*, which allows the saw to remain back and the mandrel at rest while the disk *A* is being moved by the tappet *H*, at which time the notch *h* of cam *f* allows the milling-saw *Q* to remain back also.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The intermittently-moving feed-disk *A C*, the continuously-moving mandrel *S*, and the shifting mandrel *T*, combined with the grooving-tool *Q* and the nicking-saw *R*, as and for the purpose described.

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Witnesses:

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