(No Model.)

A. McQUARRIE.

ROPE SERVING MACHINE.

No. 306,506. Patented Oct. 14, 1884.

Fig. 1.

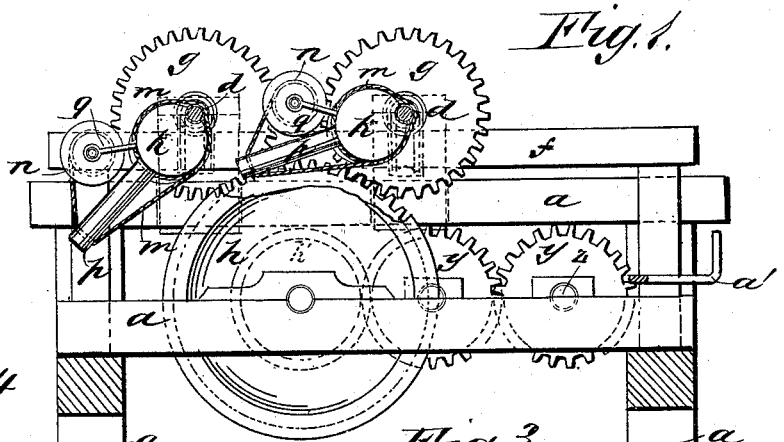


Fig. 4

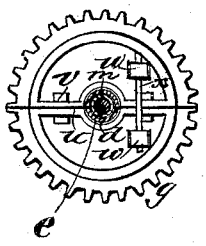


Fig. 3.

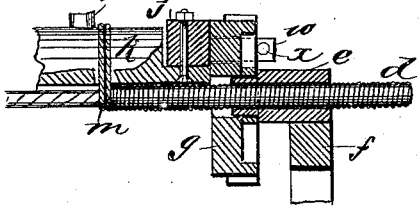
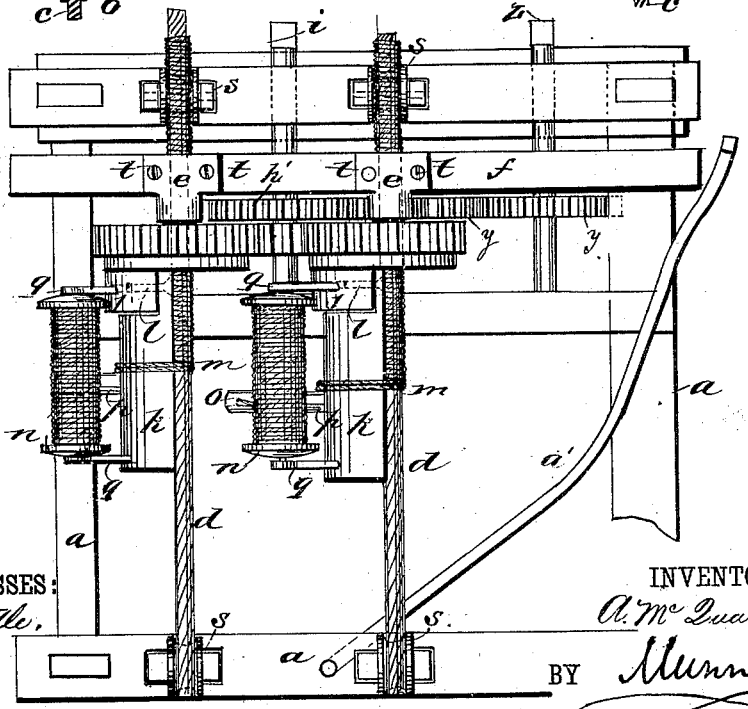


Fig. 2.



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UNITED STATES PATENT OFFICE.

ARCHIBALD McQUARRIE, OF ARISAIG, NOVA SCOTIA, CANADA.

ROPE-SERVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 306,506, dated October 14, 1884.

Application filed September 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD McQUARRIE, of Arisaig, in the county of Antigonish, Nova Scotia, Canada, have invented a new and Improved Rope-Serving Machine, of which the following is a full, clear, and exact description.

My invention relates to rope-serving machines; and it consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my improved rope-serving machine. Fig. 2 is a plan view thereof. Fig. 3 is a section of one of the guides and tension devices, and Fig. 4 is a detail representing a tension device and reel-carrier divided in two parts and bolted together to facilitate the rigging of the machine to the ropes.

I make a small frame, *a*, of any approved construction, with supporting-wheels *b* in the legs adapted to run on any suitable rails, *c*, for moving the machine along the ropes *d*, that are arranged in guides *e* on the top beam, *f*, which guides run along the ropes. On each guide a toothed wheel, *g*, is mounted for a bearing, said wheels being geared with a master-wheel, *h*, to which a crank is to be applied at *i* for turning the wheels. These wheels *g* each carry a boss or lug, *j*, extending a short distance from the side parallel with the rope to which the tension device *k*, which I shall call a "mallet," is pivoted at *l* to bear on the rope, said device consisting of a cylindrical block of wood or other substance of considerably-larger diameter than the rope, and having a groove along the side next to the rope, in which the rope is made to bear by the yarn *m*, which in passing from the yarn-spools *n* is carried around the mallet and the rope a couple of turns, first passing through a guide-eye, *o*, of an arm, *p*, projecting from the mallet *k*. The spools are pivoted in arms *q*, projecting from the mallet and from the lug *j*, to which the mallet is pivoted, so that the yarn-spools and the mallets are carried around the ropes to serve the yarn thereon. The frame has grooved carrying-rollers *s* at each end, that run under the ropes to raise and cause them to run freely through the guides *e*. These guides are made in two parts, of which the upper parts or caps are secured by screws or bolts *t* for taking off the caps to adjust the ropes in the guides, and the wheels *g* are also divided and connected by flanges *u* and bolts *v*, to facilitate the adjusting of the ropes in them. The lugs *j* are connected to these carrying-wheels by two tenons, *w*, and a key, *x*, the mortises for the tenons being made in the two parts of the wheels, respectively, so that they assist in holding the wheels together.

To enable the attendant to turn the winding or serving wheels *g* by a hand-crank while walking by the side of the machine, and also to enable the crank to be applied so as not to be interfered with by the ropes, the train of wheels *y* is geared with the wheel *h'* on the shaft of the master-wheel for applying the crank to the shaft *z*. The machine will naturally feed along by the pressure of the coils laid on the ropes against the yarn being laid on; but it will need to be pushed to some extent by the attendant, and, as it is desirable to apply the force at the middle of the front end, or thereabout, I have arranged the push-rod *a'* to connect thereat, and extend back to the position of the operator when turning the crank, to enable him to push the machine with the left hand, while turning the crank by the right hand.

The machine may of course be constructed with a single winding device to serve but one rope, if preferred; but it is better to fit it with two to double its capacity, and for greater capacity it may have three or even more of the same for very large capacity; but it is probably best adapted for being worked by one man with two of the winding devices.

The mallet or tension devices *k* are pivoted to the lugs *j*, secured to the carrying-wheels *g*, so that in case the wheels vibrate or wabble on their pivots or bearings the mallets will yield on their pivots to the ropes, and these will not draw or strain them out of line, as if said mallets were rigidly attached to the

wheels. The pivot-joints should be a little slack sidewise, also, to allow a universal movement to some extent for the best results.

In case the driving-crank is used on the shaft *i*, the wheel-train *y* may be dispensed with, which will lessen the cost of the machine, and make it somewhat simpler.

In case it may be preferred in practice to connect the tenons *w* of the lugs *j* by an apertured plate placed on the ends of said tenons projecting through the wheels for more permanently connecting the two parts of the wheels together, I intend to arrange them in that way, and I may substitute screw-nuts for the key to secure the parts, the tenons being fitted to receive the nuts.

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

1. The combination, with a supporting-frame, the gear-wheel *g*, having a central aperture, and provided with the lug *j*, and means for operating the said wheel, of the grooved mallet *k*, pivoted to said lug, and provided with the arm *p*, having a guide-aperture, *o*, and the arms *q*, adapted to carry a spool between them, substantially as herein shown and described.

2. The combination, with the frame *a*, the wheels *b*, and the grooved rollers *s* at each end of the said frame, of the guide *e*, the gear-wheel *g*, the pivoted mallet *k*, the arms *q*, adapted to carry a spool between them, and means for operating the gear-wheel, substantially as herein shown and described.

3. The combination, with the frame *a*, the wheels *b*, and mechanism for winding the yarn on the rope mounted on said frame, of the push-rod *a'*, substantially as herein shown and described.

4. The combination, with the gear-wheels *g*, made in two parts, and provided with mortises, of the lugs *j*, provided with tenons *w*, fitting the mortises of the said wheel, and the key *x*, substantially as and for the purpose set forth.

ARCHIBALD McQUARRIE.

Witnesses:
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