

H. GREENWAY.

Improvement in Machines for Making Covered Rope or Cable.

No. 129,816.

Patented July 23, 1872.

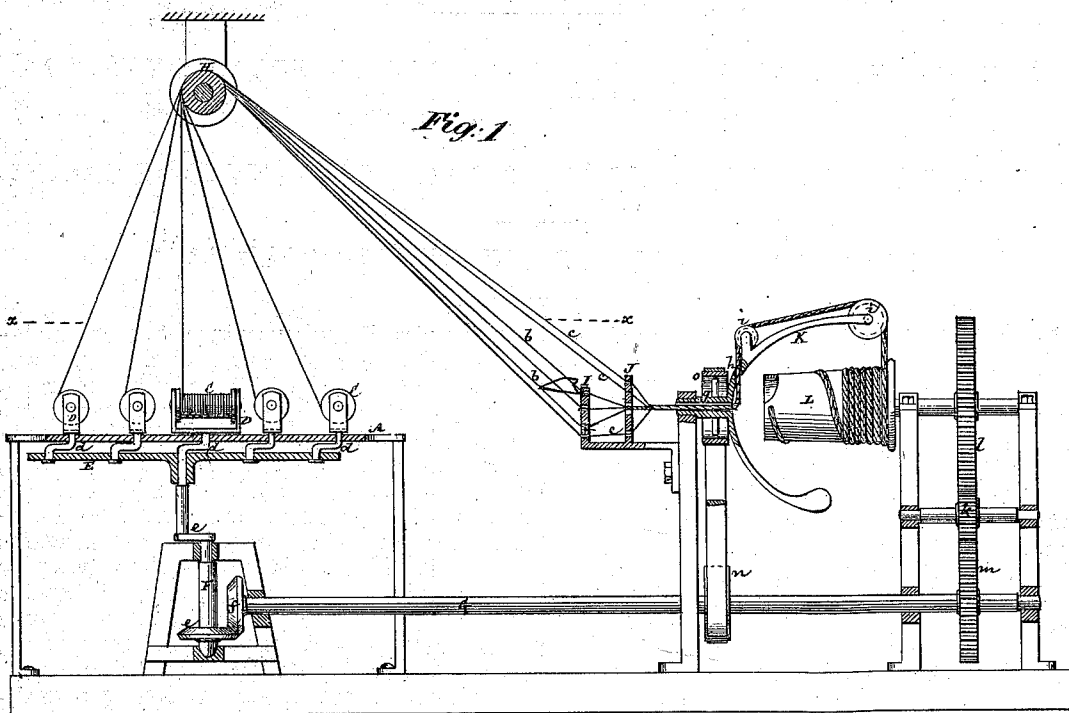


Fig. 2.

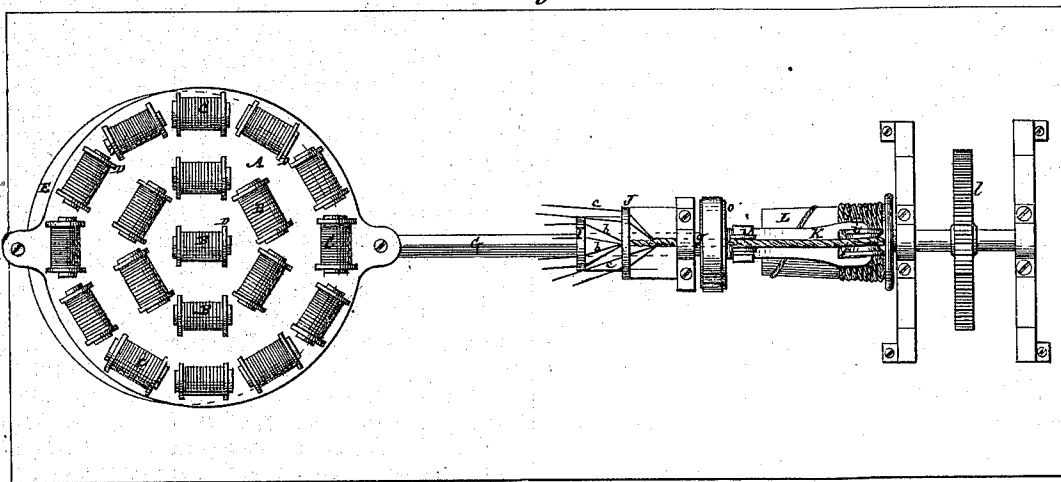


Fig. 3

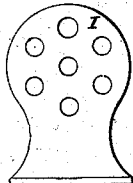
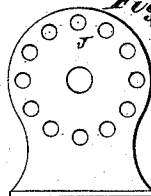


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR MAKING COVERED ROPES OR CABLES.

Specification forming part of Letters Patent No. 129,816, dated July 23, 1872.

Specification describing certain new and useful Improvements in Machines for Making Covered Rope or Cable, the invention of HENRY GREENWAY, of East Newark, in the county of Essex and State of New Jersey.

This invention relates to machines for twisting wire and other materials into what may be termed heavy rope, and which is composed of a central or core rope formed of a given number of strands twisted together around the core or first combination of strands, the whole constituting a complete rope, which may either be used separately or as an initial rope or strand in a rope of still heavier dimensions. It will suffice here to describe the invention as applied to the manufacture of wire-rope composed in all of nineteen strands, although the number of strands may be varied. The invention generally consists in a combination or arrangement of parts whereby the twisting of the strands into rope as the same come from the spools through the dies is effected without the rotation of the spools and dies about a common axis by means of a revolving crank or arm outside of the dies, and which both twists and lays the rope upon a revolving drum or take-off that turns on its long axis only. In this way or by these means one machine answers the purpose of the two usually employed for twisting the core, or first set and subsequent covering of strands, and rope may be made much faster than when the spools and main body of the machine revolve about a common axis by reason of the weight of the wire carried by the spools, presenting a serious impediment to a very rapid motion under such circumstances.

In the accompanying drawing, which forms part of this specification, Figure 1 represents a mainly central vertical section of the machine in direction of its length; Fig. 2, a plan or horizontal section at the line *xx* thereof; and Figs. 3 and 4, face views, on a larger scale, of the dies used in the machine.

Similar letters of reference indicate corresponding parts throughout the several figures of the drawing.

A represents a stationary frame or table, on which the spools are arranged. These spools, which carry the wire to be formed into rope, consist of two sets or series—namely, an inner

set or series, B, and an outer set or series, C—the inner set B of spools carrying the wires *b*, which are used to form the core or first rope, and the outer set C of spools carrying the wires *c*, used to form the covering or finishing rope. The inner spools B are seven in number, and the outer spools C twelve. All of said spools, besides revolving about their longitudinal axes, rotate about their transverse axes to take the twist out of the wires. To accomplish this the carriers D of the spools are supported by cranked pins or trunnions *d* arranged to project through and turn within the table A, and, connected with an eccentrically-revolving disk, E, set in motion by a crank, *e*, of a vertical spindle, F, which is operated by bevel-gear *e f*, or otherwise, from a main horizontal driving-shaft, G. But the spools have no rotation about a common axis. The wires *b c* pass from the spools up over a guide-roller, H, and from thence, preferably under a lower guide-roller, not here shown, to the dies I J, which are stationary. These dies are arranged one in advance of or behind the other, and are suitably perforated for the passage of the wires through them. The one die, I, serves for the wires *b* from the inner series of spools B to pass through and to be twisted into the first or core rope as they emerge from a central hole in the other or second die J, which receives through it, around or outside of the central hole referred to, the wires *c* from the outer series of spools C, to form the finishing-rope by the twisting of said wires *c* around the core-rope between the die J and a revolving central eye or shaft, *g*, of a cranked arm, K, that both effects the twisting of the strands and lays the rope upon a drum or take-off, L. To produce this the rope is cranked by passing through an eye, *h*, in the arm K over one or more pulleys, *i*, thereon, and from thence to and around the take-off L, to the inner end of which it is temporarily fastened. The cranked arm K rotates around the drum or take-off L, laying the rope on the latter, commencing at its outer end, and, as the laying is continued, gradually working the laid rope up toward the inner end of the drum, which is speeded to run in the same direction as the cranked arm K, but at a lower rate than it. This drum L simply revolves upon or around its longitud-

inal axis, and not upon its transverse axis, also, as in other machines, to produce twist. The shaft G is geared with the drum L by a pinion and wheels, *k l m*, and the cranked arm K connected with said shaft by belt and pulleys *n o*, to obtain for the several operating parts their respective and proper relative motions. Such mode of gearing or connecting the operating devices may, however, be changed at pleasure, and by varying the speed of the take-off L relatively to the twisting-arm K the number of twists to the foot in the rope may be changed as desired.

Although not here so shown in the drawing, it is preferred to arrange the several parts so that the axis of the take-off or drum L and dies I J will lie in the same plane as the axis of the guide-roller H. This may be done by elevating the drum and dies to the level of the roller.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination of the inner and outer

sets or series of spools B C arranged to rotate around their longitudinal and transverse axes, but not around a common center, with the stationary dies I J and a twisting device beyond or outside of the latter, substantially as specified.

2. The revolving cranked twisting and laying arm K, in combination with the drum or take-off L, arranged to revolve about its longitudinal axis only, and the stationary dies I J, for operation in relation with each other and passage of the rope as twisted to the drum essentially as shown and described.

3. The combination of the inner and outer sets or series of spools B C, arranged for operation as described, the stationary dies I J, the revolving cranked arm K, and the take-off or drum L, essentially as herein set forth.

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Witnesses:

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