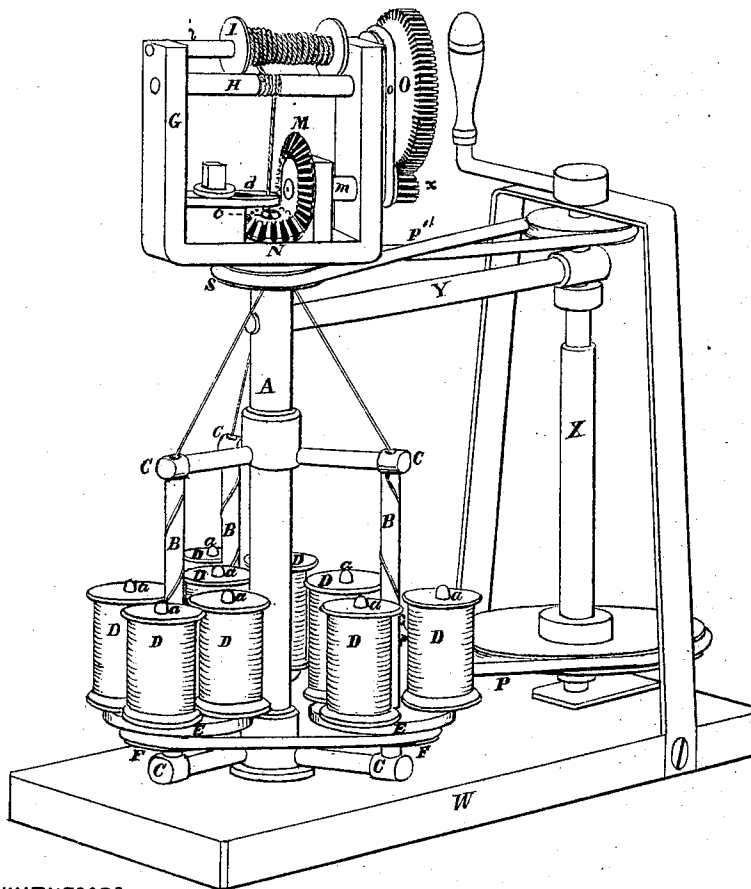


E. OTIS.

Machines for Making Cord.

No. 145,747.

Patented Dec. 23, 1873.



WITNESSES

Roger M. Sherman
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INVENTOR

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UNITED STATES PATENT OFFICE.

EDMOND OTIS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO JOHN PECKHAM, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING CORD.

Specification forming part of Letters Patent No. **145,747**, dated December 23, 1873; application filed September 16, 1873.

To all whom it may concern:

Be it known that I, EDMOND OTIS, of New Haven, in the county of New Haven and State of Connecticut, have invented a Cordage-Machine, of which the following is a specification:

The object of my invention is to make a cordage-machine which may be driven at a high rate of speed, and make cord rapidly.

My invention is illustrated in detail in the accompanying drawing.

Similar letters of reference point out like parts of the machine.

W represents the bench or table to which the upright fixed shaft A is fastened. A is a fixed column or shaft, about which the strand-spindles B B B with their bobbins are arranged, and which supports the laying-frame G and the take-up mechanism. B B B are the strand-spindles, which may be increased in number at pleasure, to which the circular disks E E are attached, and carry the several bobbins indicated by the letters D. These bobbins are held in place on the disk by the several studs indicated by the letter *a*, and turn freely on the same. F F are pulleys attached to the spindle and disk, and the belt P running over them gives motion to the same. The upper parts of the spindles B B B are made hollow down to a point below the arms C C C, and an opening leading into the interior of the hollow part of each is made through the side of the spindle. There are two sets of arms firmly secured to the fixed shaft A, and reaching out from the same and holding the ends of the spindles B B B, in which the spindles freely turn. Each set of arms is denoted by the letters C C C. G is the laying-frame, which makes the lay or twist in the cord, and is mounted and is free to turn on the upper part of the fixed shaft A, and derives its motion from the pulley S, fastened to its lower edge, over which the belt P' runs. Every revolution of this frame makes one lay or twist in the cord. The lay-block is a small piece of iron inserted in the upper end of the shaft A, and is denoted by the letter *c*. There are three grooves cut in the surface of this block in which the strands move, and the

twist of the lay is prevented from running into the strands by the block. Below the lay-block *c* the shaft A is hollow down to a point below the pulley S, and three openings leading into the interior of the shaft A are made through the side of the same to admit the strands of the cord. The condenser is indicated by the letter *d*, and serves to make the cord smooth and give it a good appearance. H and I are parts of the take-up mechanism, and are arranged in the top part of the frame G, and serve to take up the finished cord. All the parts of the device forming the take-up mechanism are the shafts H and I (the latter carrying a spool,) the spur-gear wheel O, the pinion *x*, the short shaft *m*, the bevel-gear wheels M and N, and the belt *o* running on two small pulleys on the shafts *i* and *m*. The bevel-gear wheel N is fast on the shaft A. This take-up device derives its motion from the revolving frame G.

On setting the machine in operation the thread from each of the three bobbins about each spindle passes through an eye on the spindle, one of which only is shown, at *p*, and once around the spindle and into the opening to the hollow part of the spindle, between the top end of which and the lay-block the twist of the strand is made, and above the lay-block the lay is made and the cord finished. Both the spindles and the laying-frame revolve in the same direction, and the revolutions of the spindles are five or more to one of the laying-frame. The shaft X, with the two pulleys on the same on which run the two belts P P', constitute the driving mechanism.

A crank and handle are shown for driving the machine by hand.

Y is a brace steadying both the machine and driving mechanism.

I claim as my invention—

The stationary shaft A, combined with and supporting both the strand-bobbins D and the rotating laying-frame G and take-up devices, as shown and described.

EDMOND OTIS.

Witnesses:

GEORGE TERRY,
WILLIAM F. HOPSON.