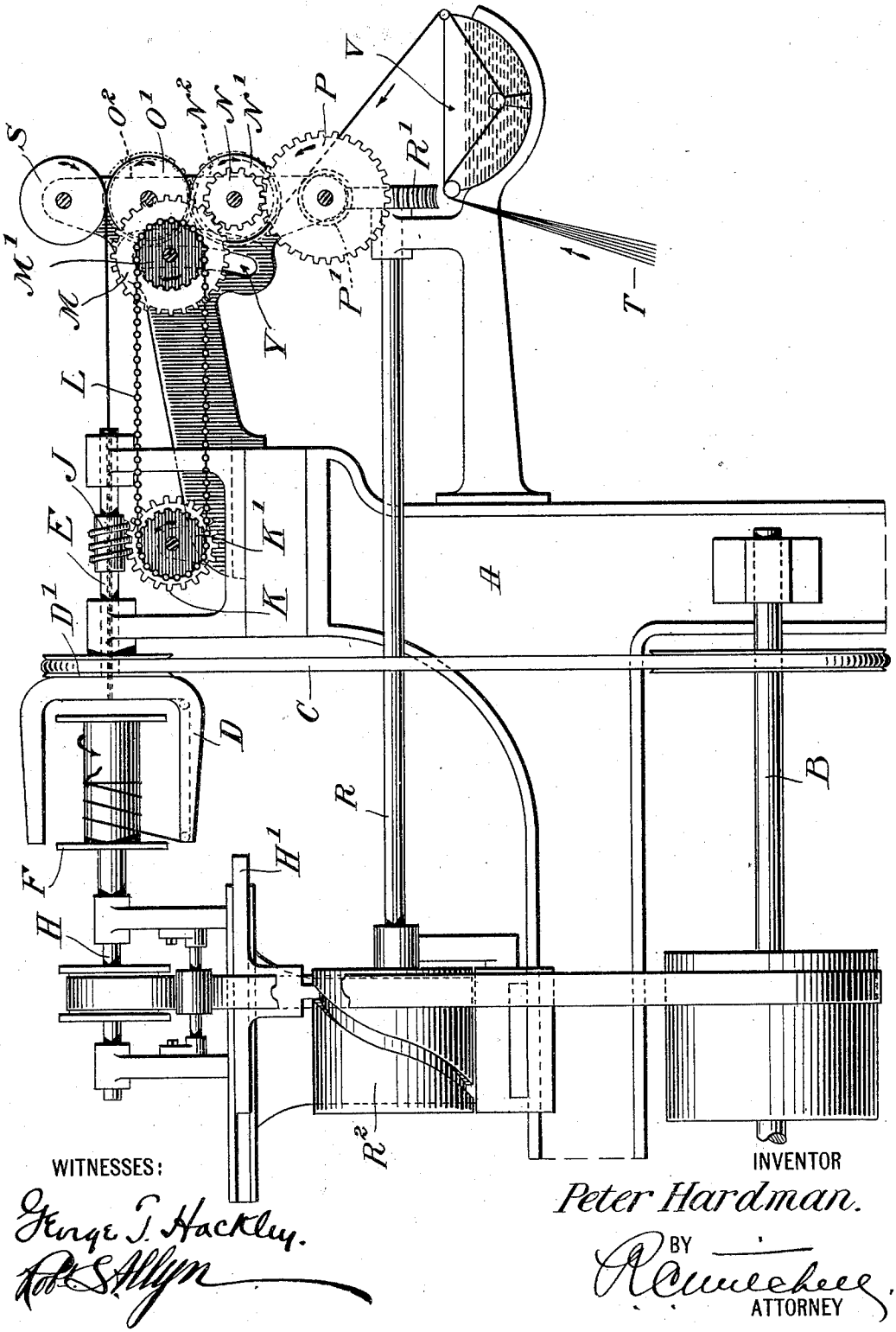
No. 686,292. Patented Nov. 12, 1901.

P. HARDMAN.

FEED MECHANISM FOR TWISTING MACHINES.

(Application filed Nov. 21, 1900.)

(No Model.)



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PETER HARDMAN, OF WILLIMANTIC, CONNECTICUT, ASSIGNOR TO THE AMERICAN THREAD COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

FEED MECHANISM FOR TWISTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 686,292, dated November 12, 1901.

Application filed November 21, 1900. Serial No. 37,212. (No model.)

To all whom it may concern:

Be it known that I, PETER HARDMAN, a citizen of the United States, residing at Willimantic, Connecticut, have invented certain new and useful Improvements in Feed Mechanism for Twisting-Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in twisting-machines, and particularly to feed mechanisms for such machines.

The object of my invention is to provide a machine which will make it possible to twist yarn, thread, cord, or the like evenly and to wind it smoothly.

My invention consists in the application of devices to twisting-machines which will make the feed positive in regard to the amount of work done and which will so regulate the movement of the bobbin that the finished product will be wound upon the bobbin with regularity.

The drawing is a vertical projection of a machine embodying my invention.

A is the standard or frame of a twisting-machine.

B is the driving-shaft which communicates power to the driving-belt C, and thus rotates the flier D through the medium of the pulley D'. The flier D is mounted on a hollow shaft E, having bearings in the frame of the machine.

F is the bobbin upon which the product is to be wound, and H is the shaft on which this bobbin is carried.

Upon the hollow shaft E is fixed a worm J, which operates a worm-wheel K, having suitable bearings and location with respect thereto.

L is a chain transmitting motion (from the gear K', carried by the worm-wheel K) to the gear M, (carried by the sprocket-wheel M'.) This gear M drives a gear N, which is mounted upon a shaft carrying a gear N^2. The gear N is in mesh with the gear P and the gear N^2 with a gear O^2. Upon the shaft of the gear P is a worm P', operating a worm-wheel R' on the shaft R. This shaft also carries a cylindrical cam R^2, which operates so as to transmit a reciprocating motion to the frame H', supporting the bobbin-shaft.

N' and O' are driving wheels or rolls carried by the gears N and O^2 and adapted to act as feed-rolls or driving-surfaces for the strands T.

S is a roll adapted to bear against the strands as they pass from the wheel O'.

V is a tank in which is a liquid for the purpose of moistening the strands in order that the operation may be the more satisfactorily performed.

The directions of rotation of the wheels, gears, and shafts when in motion are indicated by the arrows on the drawing, so that the machine operates as follows: The strands T are led through the moistening-tank by suitable guide devices to the surface of the wheel or pulley N' at the left, thence clockwise around the circumference or a part thereof to the wheel or pulley O', and then around to the right of this for a part or more of its circumference counter-clockwise till it is led out from between the wheels O and S. From here the strands in their individual relation are led to the chamber in the hollow shaft E, thence, having now been twisted, out through suitable guiding devices in the arms of the flier, and from the flier to the bobbin. As the machine rotates, then, the gearing, as indicated, revolves in such a manner as to feed positively the strands through the twisting-chamber to the bobbin irrespective of any slip which may occur between the driving-belt C and the flier-pulley D'. It is evident, therefore, that the number of twists per unit of length will be practically uniform throughout the operation of the machine, since the length of finished product depends upon the number of revolutions of the flier, (or in case the bobbin is allowed to revolve upon the differences in revolution of the bobbin and flier,) and the number of twists depends upon the number of revolutions of the flier, while the feed of the strands bears a definite relation to the speed of the flier. The shaft R being given a definite rate of speed as regards the speed of the flier will by means of the cam R^2, as shown, cause the bobbin-

frame H' to reciprocate, so that for a given length of product twisted the bobbin will be fed back and forth throughout a given distance, thus giving to the spool or cop a regular angle of wind.

The bearings for the wheels S and O may be, of course, arranged so that these wheels may be easily removed in order to facilitate the adjustment of the strands. It may be convenient to set the bearing for the gear M in a slot, as shown at Y, in order that the gears M and N may be readily thrown out of mesh. I do not wish, however, to confine myself to the especial details of mechanical construction as shown, since it is quite evident that equivalents might be substituted without departing from the spirit or scope of the invention.

What I claim is—

1. In a twisting-machine, a flier and means for feeding strands to said flier positively with respect to the speed thereof, a system of gears from said flier to said means, one of said gears being adjustable in position so that said feeding means may be disengaged.

2. In a twisting-machine, a flier, means positively driven with respect thereto for feeding strands to the said flier, a bobbin, and means positively driven with respect to said flier causing the bobbin to reciprocate.

3. In a twisting-machine, a flier, means positively connected therewith consisting of rolls adapted to feed strands to said flier, a bobbin, and means positively connected with said flier for reciprocating said bobbin.

4. In a twisting-machine, a flier, a plurality of rolls adapted to positively control the rate of feed of strands to said flier, a bobbin and means for reciprocating said bobbin at a rate proportional to the revolutions of said flier.

5. In a twisting-machine, a flier, means positively connected therewith consisting of rolls adapted to control the feed of strands to said flier and a cam adapted to give a reciprocatory motion to a bobbin positively with respect to the speed of said flier.

6. In a twisting-machine, a flier, means positively connected therewith consisting of rolls adapted to control the feed of strands to said flier, a bobbin and means driven positively with respect to said flier for reciprocating said bobbin.

Signed at Willimantic, Connecticut, this 19th day of November, 1900.

PETER HARDMAN.

Witnesses:
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