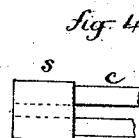
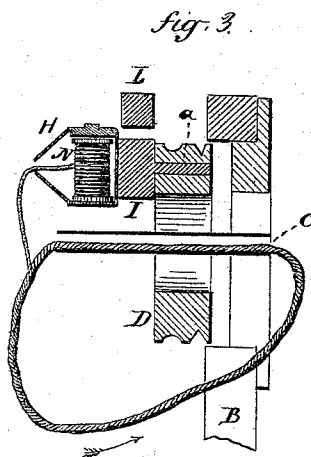
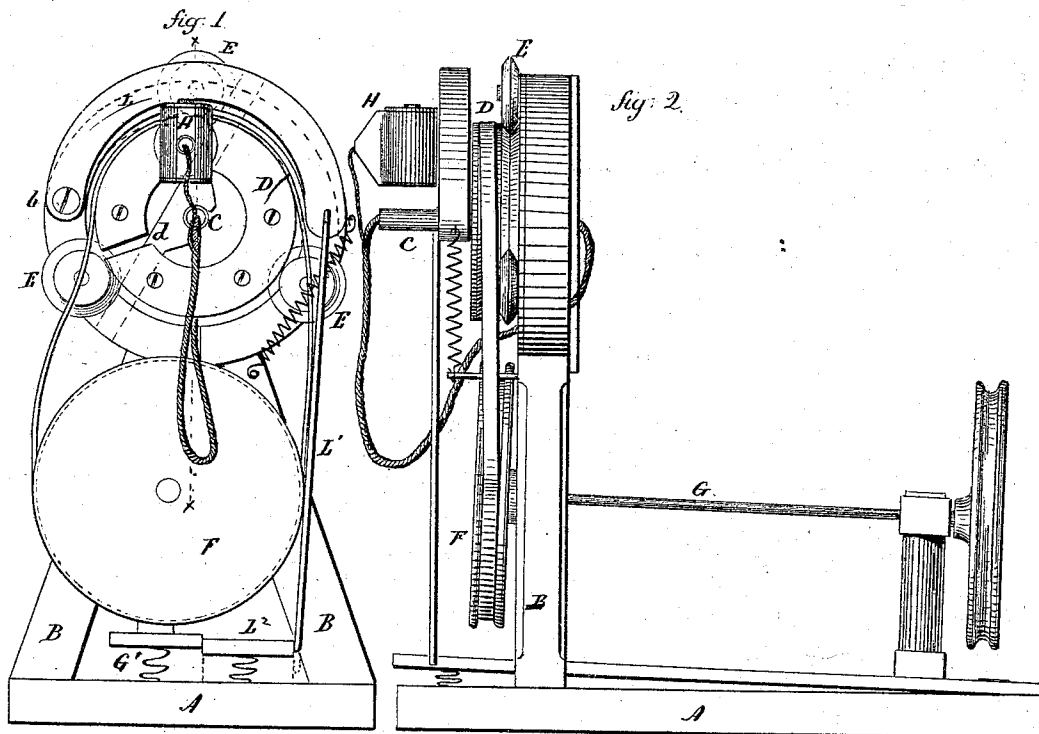


T. PIPER.
Machines for Making Endless Bands.
 No. 147,974. Patented Feb. 24, 1874.



Witnesses.
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UNITED STATES PATENT OFFICE.

TRUMAN PIPER, OF BIRMINGHAM, CONNECTICUT, ASSIGNOR TO THE HOWE MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING ENDLESS BANDS.

Specification forming part of Letters Patent No. **147,974**, dated February 24, 1874; application filed April 30, 1873.

To all whom it may concern:

Be it known that I, TRUMAN PIPER, of Birmingham, in the county of New Haven and State of Connecticut, have invented a new Improvement in Machine for Making Endless Bands; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view; Fig. 2, a side view; and, in Fig. 3, a vertical central section on line *x x*.

This invention relates to the construction of a machine for making endless bands or ropes such as are required in various kinds of machines, and for other purposes, and which are usually made by uniting two ends of a round cord, the object of the invention being to make an endless twisted band; and it consists in a device carrying the thread or cord to be laid, and which revolves around a central tube, and combined with means for imparting to the thread being revolved an independent rotary motion, which shall put into the cord the necessary twist to cause it to lie in its proper position in the cord being made, as more fully hereinafter described.

A is the bed of the machine, with suitable supports B for the mechanism. At a convenient point, a tube, C, is arranged, which forms the center, around which the operative parts revolve. D is a head arranged upon anti-friction rolls E, more or less in number, or otherwise supported, so as to be revolved freely around the said tube as a center of motion. As here represented, this rotary motion is imparted from a pulley, F, arranged upon the driving-shaft G; and, that the power may be applied or disconnected at any time, this pulley F is arranged upon a treadle, G', so as to be depressed, and beneath the treadle a suitable spring is arranged to raise the pulley F and treadle when free. From this pulley a band runs around the head D, so that when the pulley is depressed it will draw the belt

taut, and, revolving, will cause a corresponding revolution of the head D. This head D carries a case, H, which is attached to a pulley, I, hung to the head D by a pivot or stud, *a*, so as to allow of the revolution of the case H independent of the revolution of the head D, the axis of the revolution of the case being the pivot *a* of the pulley. The revolution to the case is given by means of a yoke, L, one end hung to the frame, as at *b*, extending over in the path of the pulley I, the other end attached by a rod, L¹, to the treadle L², so that, by depressing the treadle L², the yoke L will be drawn down, as denoted in broken lines, Fig. 2, to bring its inner surface upon the pulley I, and so that, as the head D revolves, the pulley I, bearing against the inner surface of the yoke L, will be caused to revolve, turning with it the case H. A spring is provided beneath the treadle L² to hold the yoke L up from the pulley when not required for use. Within the case H a spool, N, or the ball of cord, thread, or whatever it is desired to work into the band, is placed.

To make a band, the material is drawn from the spool N, passed around and through the tube C, its end united to the cord at the required distance from the end, that the band when completed will be the length required, thus forming an endless loop running through the tube C. Then the operator, taking the strand at the junction, holds it to prevent its twisting and presses his foot upon the treadle G', which causes the revolution of the head D to carry the spool around the tube, laying the strand around itself at each revolution, the operator guiding the lay of the cord as it revolves. The two strands—that is, the original loop and the winding strand—will be gradually twisted together, the operator drawing it through the tube as it becomes twisted. In order to give to the cord the necessary kink, that it may naturally lay the twist, the operator presses his foot upon the treadle L² to draw down the yoke L, and this will revolve the spool, each revolution putting twist into the strands running from the spool. Some kinds of cord will require more twist than others, and in applying

this twist the operator must use his judgment. Continuing the operation, the twisting of the two continues until the place of beginning is reached, which will have formed a band of two strands. If a band of three or more strands is required, then continue the operation around as many times as required, and when the band is completed cut the strands at that point and secure the end, and the band is complete.

In order to remove the band when completed, the tube C is made with a slot the entire length of one side, with a sleeve, S, as seen in Fig. 4, to close the said slot, and when this sleeve is removed the band may be taken from the tube through the slot. Through the head D a slot, *d*, as seen in Fig. 1, is formed, which allows the band to be removed from the head.

I find the material best adapted for the making of endless bands by this process to be the strands of cords which have been twisted. To procure these, I take a cord of the required diameter and separate the strands, using a single strand in the formation of a band.

I claim as my invention—

1. In combination with the open or slotted

tube C, through which the band passes in the process of construction, the open or slotted head D, carrying the material from which the band is formed, and revolving around the said tube C, substantially as specified.

2. In combination with the open or slotted tube C and head D, the case H, arranged upon the said head, and means, substantially such as described, to impart to the said case a revolution upon its own axis, and independent of that of the head.

3. In combination with the tube C, head D, and case H, the treadle G' and the driving-pulley F, operating, as described, so as to cause or arrest the revolution of the head D.

4. In combination with the tube C, revolving head D, and case H, the yoke L and treadle L², for the purpose of imparting the requisite rotation to the said case H, substantially as described.

TRUMAN PIPER.

Witnesses:

JOHN E. EARLE,
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