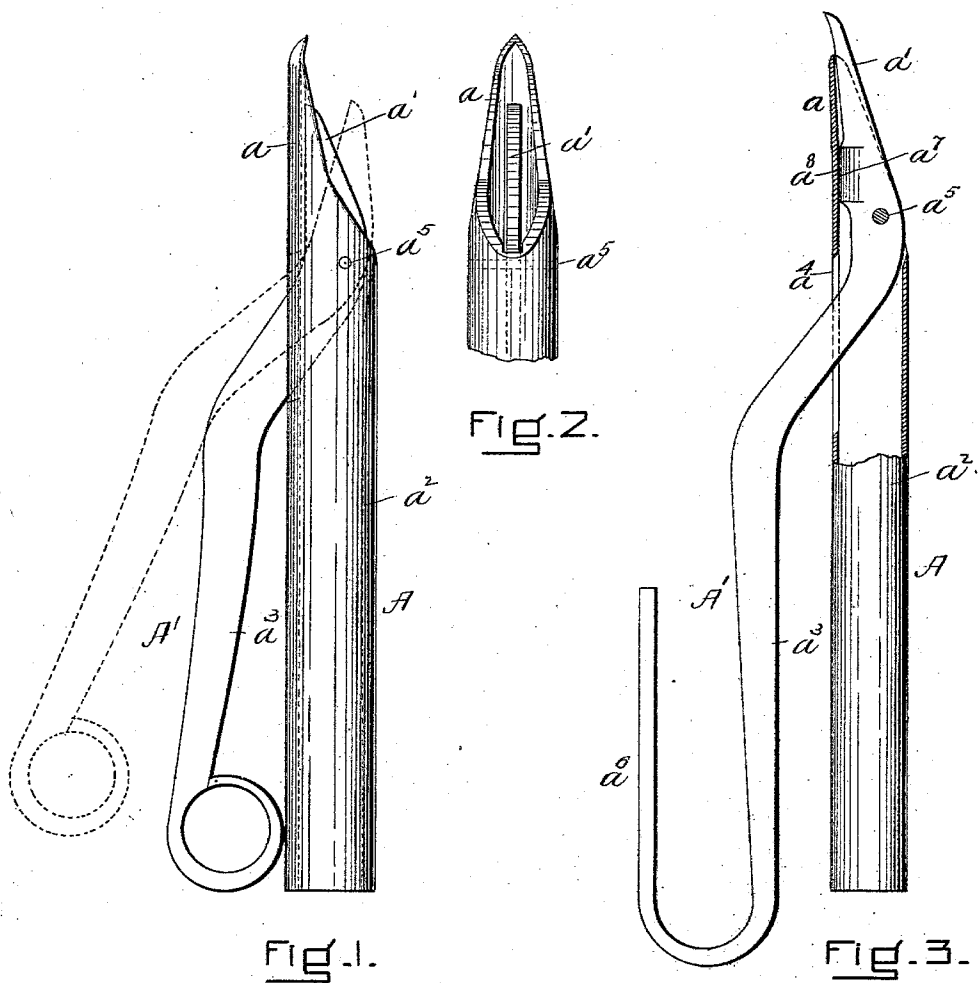


R. W. HUNTON.
KNOTTER.

APPLICATION FILED APR. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES =

J. M. Dolan.
Paul Sippertstein

INVENTOR =

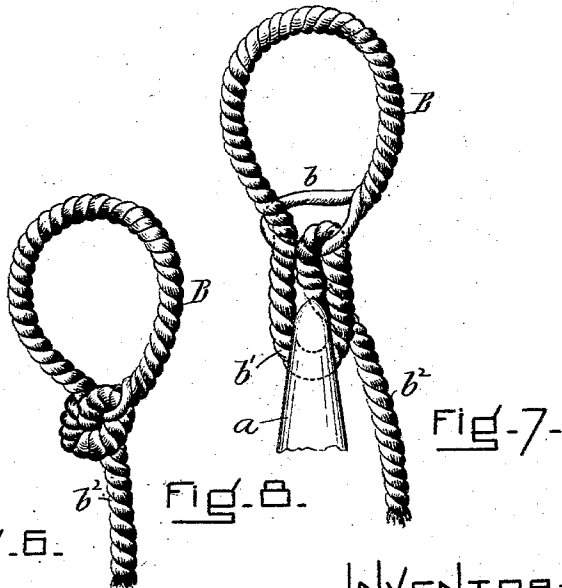
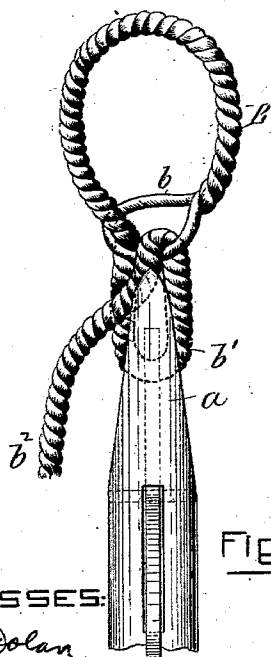
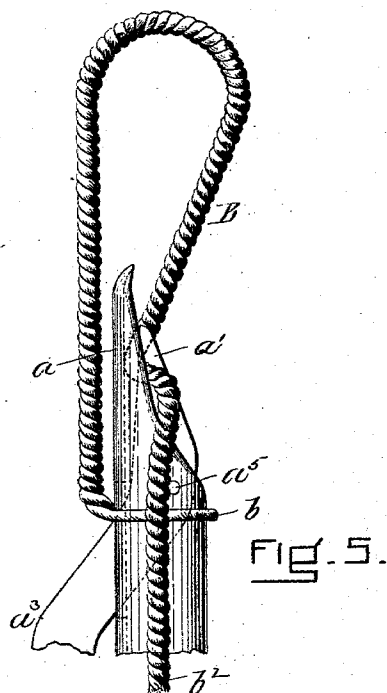
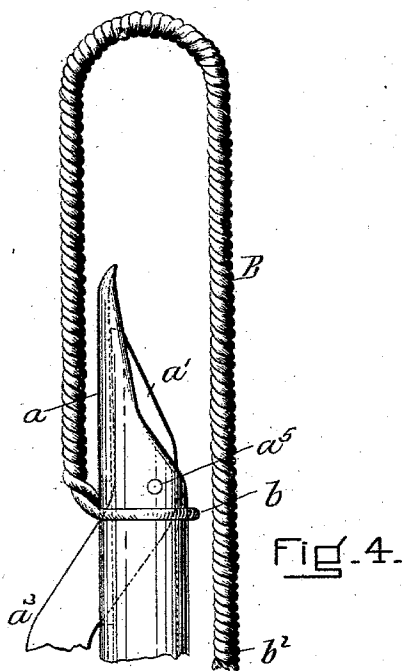
Robert W. Hunton
by his atty
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2 SHEETS—SHEET 2.



WITNESSES:

John Dolan

Saul Sippertin

INVENTOR:

Robert W. Hunton

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UNITED STATES PATENT OFFICE.

ROBERT W. HUNTON, OF NEWTON, MASSACHUSETTS.

KNOTTER.

SPECIFICATION forming part of Letters Patent No. 745,623, dated December 1, 1903.

Application filed April 23, 1903. Serial No. 153,958. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. HUNTON, of Newton Upper Falls, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Knotters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to a knotter or knot-tying tool especially designed for tying "spindle-bands," so called, which are used in spinning machines for communicating to the spindle the motion of their driving drum or pulley. These bands are made with a loop at one end, into which another part or end of the band is knotted, and which knot is customarily tied against the whirl of the spindle, around which the band is passed after being passed around the driving-drum. This knotting or tying of the band around the whirl of the spindle has always been done by hand, and instead of being done uniformly and with precision it usually has been done, owing to the unskilfulness or indifference of employees, in an inexact and neglectful manner, with little regard to the certainty of the knot or the proper tension of the band, and in a manner oftentimes that would leave the knot to project on the inside of the band to contact with the whirl of the spindle or the drum as it traveled around them, and resulting, of course, in an unevenness of motion, if not actual displacement of the band.

By my invention I have devised a means by which the personal equation of the employee is for the most part eliminated, and the knot can be tied quickly, with certainty, and with almost mechanical regularity and precision, and in a manner by which a proper tension of the band is secured, and so that the knot comes on the outside of the band, leaving a continuous even surface to bear in the running against the whirl of the spindle and its driving-drum. The means comprises a knot-tying tool of the character specified, the formation and capability of which can best be seen and understood by reference to the drawings, wherein—

Figure 1 shows my improved knot-tying tool in elevation. Fig. 2 shows a detail of

the tool's structure to which reference will hereinafter be made. Fig. 3 shows in elevation a modification thereof. Figs. 4 to 7, inclusive, show in elevation various stages of operation when the tool is applied to the tying of a knot, as will hereinafter be referred to in detail. Fig. 8 shows in elevation a completed knot which my knotter is especially adapted and designed to tie.

In the drawings the knotting-tool is represented as made of two parts or members A A', which members bear such pivoted relation to each other as to form the opposing jaws $a a'$ and the lever-handles $a^2 a^3$, respectively. A proper pivotal connection is obtained by the member A' being formed to extend through a slot a^4 , cut longitudinally through the member A, with a pin a^5 forming the pivotal point of fulcrumage. Both members are best formed substantially as shown, and especially so in order to obtain a proper jointure of the opposing jaws $a a'$. The jaws are made relatively long and slender, the jaw a' being made especially thin, and they combine when closed to form a nose or beak of almost cone-shaped conformation, with one or the other of said jaws being extended to form the point thereof, in Fig. 1 the jaw a of the member A having such extension, while in Fig. 3 in modified structure the jaw a' of the member A' is so extended. The jaw a is made substantially as shown, somewhat rounding, narrowing toward its end, and with a longitudinally-grooved interior in which the jaw a' partially lies when shut and whereby both jaws combined present substantially a rounding or cone-shaped conformation, like as before referred to. The lever-handles $a^2 a^3$ may have any suitable shape whereby the tool may best be manipulated.

In Fig. 3 I have shown the handle a^3 of the member A' as provided with a hook a^6 , by which the tool may be attached to the garment of the wearer so as to be readily accessible. In Fig. 3 I have utilized the scissor-like action of the jaws $a a'$ by forming a cutting-blade a^7 in the back of the jaw a' near its point of fulcrumage, which is made to engage when the jaw is closed with the jaw a at the point a^8 . This particular for-

mation of the cutter and even its use is entirely arbitrary. It forms, however, a convenient instrument in combination with the other parts, as will hereinafter appear.

5 The operation of knotting the spindle-band (designated B) and the capabilities of the knotting-tool just described are as follows: Assuming the band to have been passed around the drum and in position to be tied
10 against the whirl of the spindle, the nose or band of the knotter is first carried through the loop *b*, formed in the end of the band, (see Fig. 4,) and sufficiently to enable the opposing jaws beyond the loop to grasp a portion
15 of the free end *b*² of the band, (see Fig. 5,) the tool then being held firmly against the edge of the whirl and the jaws grasping such section of the free end of the band as is most convenient, and it is especially to
20 be noted at this point the facility with which this initial feature of the operation is performed, both with respect to the spreading and holding of the loop end of the band and the capability of the device to grasp
25 and hold the band at its free end, as it were, and even when the band is drawn with some considerable tension. After the jaws have grasped a portion of the free end *b*² this portion of the cord is drawn through the loop
30 *b*, when the loop *b*' is formed, (see Fig. 6,) with the jaws of the knotter, of course, still holding the end thereof. The knotter is then turned and a portion of the free end of the band is then laid over the second loop *b*', (see
35 Fig. 6,) beneath the nose of the knotter in position to be forced through the loop by the nose, so that it may be taken hold of and drawn through by hand, the knotter still holding the end of the loop. (See Fig. 6.)
40 After being drawn through the loop *b*', (see Fig. 7,) the free end *b*² of the band is then drawn taut by hand, shortening the said loop, and the knotter traveling with it is moved up to the edge of the whirl, its jaw still holding
45 onto the loop. The knot is now substantially formed. Still holding the free end of the band taut the knotter is let go its hold upon the loop *b*' and the knot is fully formed, (see Fig. 8,) and with the release of the knotter
50 the tension of the band around the whirl and the drum is still further increased by the further tightening of the knot, this being effected by the knot slipping up to draw tighter when the knotter is released, which over-

comes any tendency to loosening or reduction of tension at this time, this lessening at any rate being reduced to a minimum owing to the slenderness of the knotting-jaws. The loose end of the band is then cut off close to the knot, which may be done to good advantage by such cutter as that formed between the back end of the jaws *a a'*, as before described.

By means of such an instrument and in the manner I have described the ends of the spindle-band can be knotted quickly, with certainty, and with almost mechanical regularity and precision, and in a manner by which a proper tension of the band is secured, and so that the knot always comes on the outside of the band, (see Fig. 8,) leaving a continuous even surface to bear in the running against the whirl and drum.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a device of the character specified, members pivotally combined and forming lever-handles and slender narrowing jaws actuated thereby, one of which jaws is extended beyond the other to form a pointed nose or beak, substantially as and for the purposes set forth.

2. In a device of the character specified, members pivotally combined, and forming lever-handles, and slender narrowing jaws actuated thereby, one of which jaws extends beyond the other, substantially as described.

3. In a device of the character specified, members pivotally combined and forming lever-handles, slender narrowing jaws actuated thereby, one of which jaws is formed rounding with a longitudinally-grooved interior into which the other of said jaws is adapted to lie when the jaws are closed, and one of which jaws is extended beyond the other to form a pointed nose or beak.

4. In a device of the character specified, members pivotally combined and forming lever-handles, and slender narrowing jaws actuated thereby, one of which jaws is extended to form a beak and a cutter formed on said jaws, substantially as described.

ROBT. W. HUNTON.

In presence of—

CHAS. MILLS,
EDWIN H. ALEXANDER.