(No Model.)

L. WIMMER.

YARN NIPPER FOR SPINNING MACHINES.

No. 463,589. Patented Nov. 17, 1891.

Fig. 1.

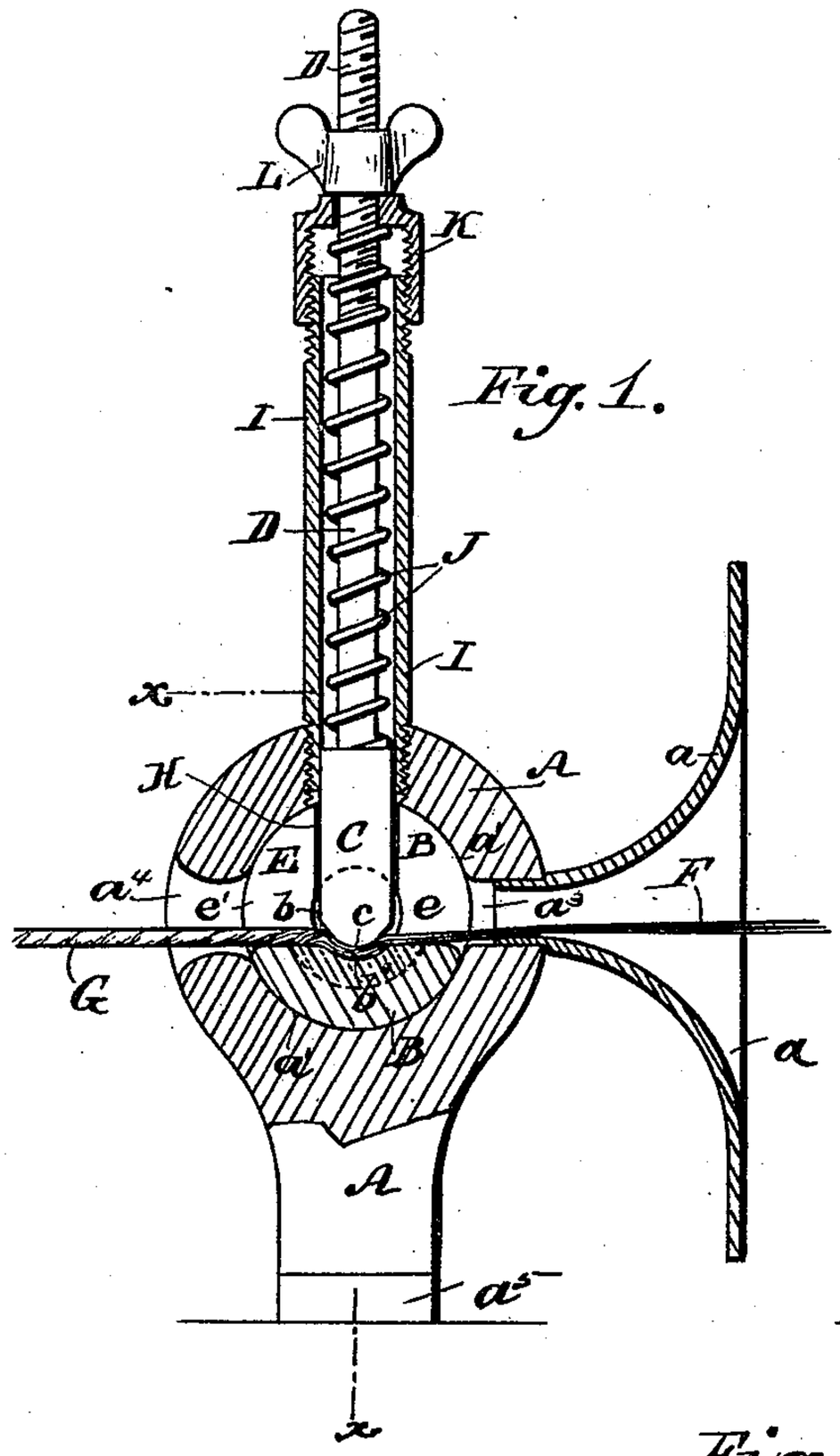


Fig. 2.

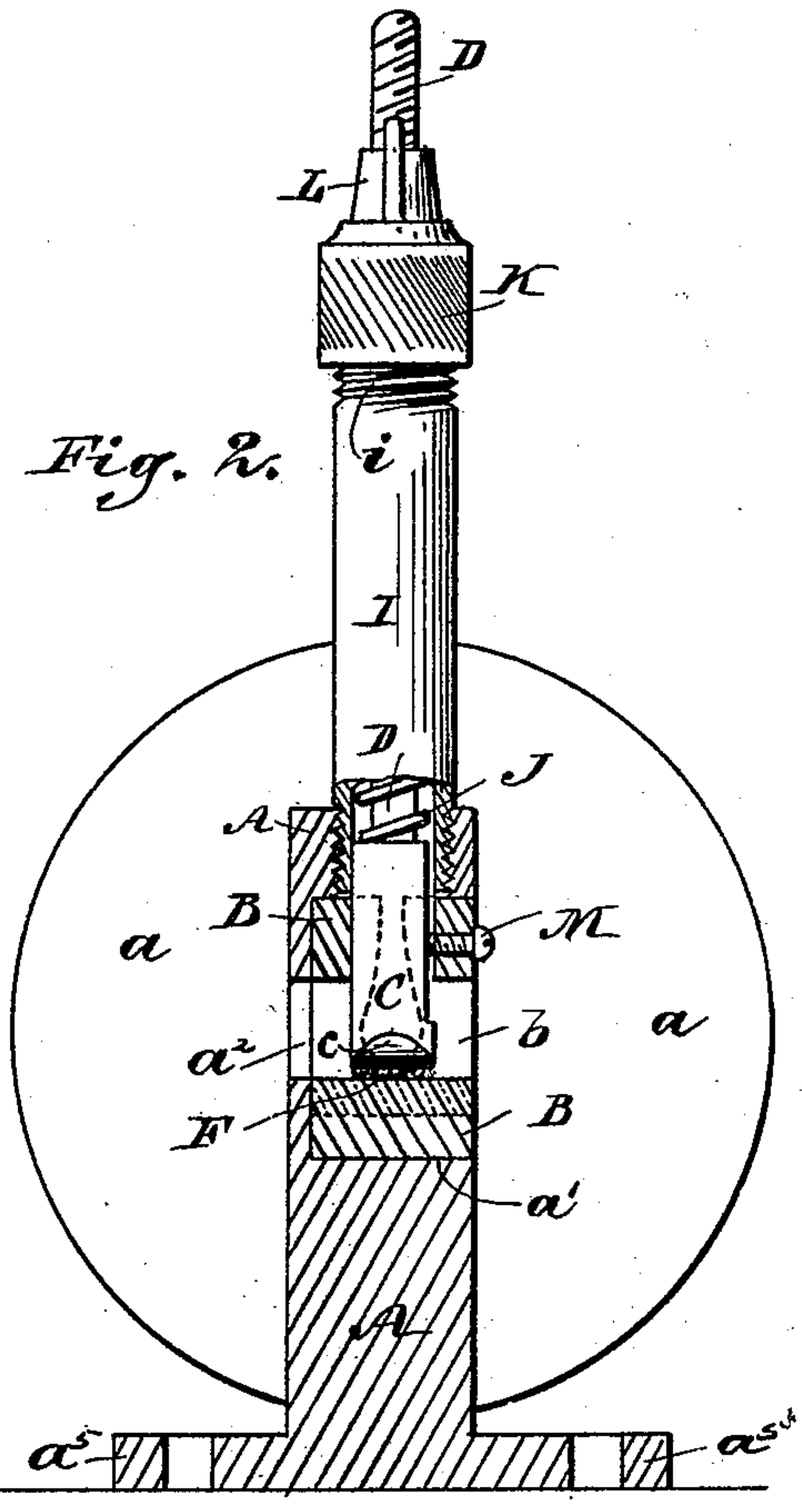


Fig. 4.

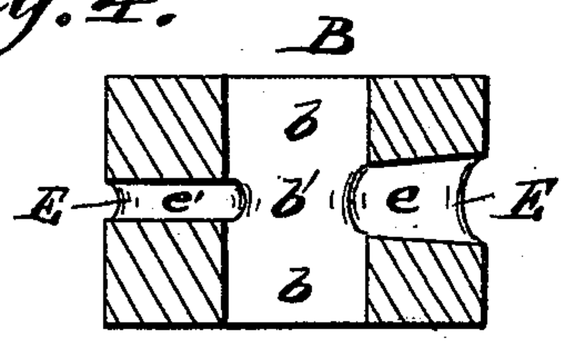


Fig. 5.

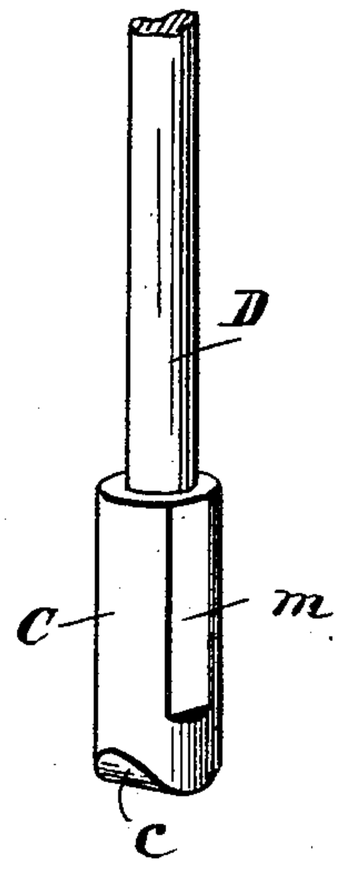
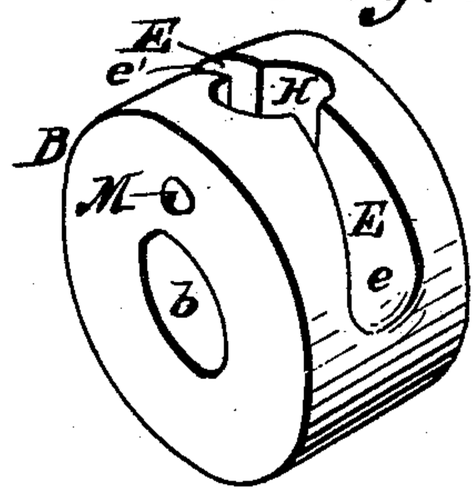


Fig. 3.



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LOUIS WIMMER, OF ELIZABETHPORT, NEW JERSEY.

YARN-NIPPER FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 463,589, dated November 17, 1891.

Application filed September 13, 1890. Serial No. 364,811. (No model.)

To all whom it may concern:

Be it known that I, LOUIS WIMMER, of Elizabethport, in the county of Union and State of New Jersey, have invented a new and Improved Yarn-Nipper for Spinning-Machines, of which the following is a full, clear, and exact description.

My invention relates to a nipper or nipper-head for yarn or twine spinning, and has for its object to provide a simple, inexpensive, efficient, and durable device of this character from which knots or obstructions of the fiber may be easily removed without dismembering the parts and which will produce tightly-twisted smoothly-finished yarns or twines of any desired size or gage and with economy of time and labor.

The invention will first be described, and then will be particularly pointed out in the claims hereinafter set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a central vertical sectional side view of my improved yarn-nipper. Fig. 2 is a rear view thereof in vertical section on the line $x\,x$ in Fig. 1. Fig. 3 is a front perspective view of the bed-die. Fig. 4 is a central sectional plan view of said die, and Fig. 5 is a perspective view of the yielding die which works with the bed-die.

My improved yarn-nipper or nipper-head has few parts; and, generally speaking, it consists of a suitable head or standard A, provided with a bell-mouthed feeder a, and two dies held in the head and comprising a bed-die B, which is also a sliver and yarn-guide, and an opposing spring-pressed plunger-die C, which preferably has a stem D, on which the spring is fitted. The die C yields to accommodate the sliver, as hereinafter explained.

The bed-die B preferably has a cylindrical form and is fitted into a corresponding hole or recess a' made in the head A, and preferably from one side of it. In its other side the head has a hole or opening a^2, which aligns with and may be larger than the central transverse aperture or opening b of the bed-die. The head also has a front-edge opening or hole a^3, into which the inner end or nipple of the detachable trumpet-mouth a is fitted and through which the sliver passes to and between acting faces of the dies. The head also has a rear-edge opening or hole a^4 diametrically opposite the opening a^3, and from which the twisted yarn emerges to the flier, which draws it between the dies in a well-known manner. The head also has a base-flange a^5, apertured to receive screws or bolts, by which the whole nipper device is sustained in operative position.

The die B, which I term the "bed-die," is made cylindrical only to facilitate its manufacture and the fitting of it within the head A of the nipper, which may thus be done by ordinary boring, turning, and grinding operations. This die B is peculiarly formed with an upper longitudinal groove E, which crosses its central transverse opening b, but does not extend quite to the lower side or wall of said opening, which thus presents at the bottom of the groove E a medial concaved surface b', between which and the opposing convexed end or face c of the yielding die C the sliver is twisted, it being understood that the sliver enters between these two working-faces $b'\,c$ of the dies B C at the front laterally-broadened portion e of the bed-die groove E and that the twisted yarn emerges from the rear narrower portion e' of said groove, the latter being intentionally broadened at e at the front to accommodate the thin untwisted and comparatively broad body of sliver F, which enters the bell-mouth throat and head-opening a^3 above mentioned, while the twisted yarn G, produced by the action of the dies in connection with the drawing-flier, has room to escape through the narrower rear portion e' of the bed-die groove, which forms a smoother and polisher for the passing yarn.

The plunger or upper yielding die C is fitted to slide in a radial hole or bore H, which, as well as the die itself, is made round to promote greater facility of manufacture and fitting of the parts. The stem D of the die C passes through a tubular post or standard I, which is preferably screw-threaded into the top aperture of the head A, and accommodates within it a spring J, which is on the die-stem D and expands between the die-head and a thimble nut or collar K, which is fitted adjustably upon a screw-thread i at the up-

per or outer end of the post I. By adjusting this thimble-nut on the post the tension of the spring J may be increased or diminished at will to regulate the pressure of the upper die C on the sliver to produce a finer or coarser yarn or one more tightly or loosely twisted, as occasion may require. A nut L, fitted upon a screw-thread at the outer end of the die-stem D, forms a preferred and most convenient detent to limit the inward movement of the upper die C by contact with the adjusting nut or device K, so as always to maintain the normal average clearance between the working faces b' c of the bed and plunger dies to prevent excessive clamping action or pressure of the dies on the sliver, however the adjusting-nut device K may be set to regulate the tension or resistance of the spring J, which spring allows the upper die to yield or move backward as an increased thickness or body of sliver, caused by inequalities or knotty portions of it, passes between the dies. When the yielding upper die is made with a round-head portion, it may be held against turning in the post I and in the hole H of the bed-die B by a screw or pin M, which at its inner end bears against a flattened side face m of the yielding die, or in any other approved manner to assure the proper presentation of the convexed face c of the upper die to the concaved face b' of the bed-die. As the sliver F passes between the die-faces b' c, it is twisted into a smooth yarn G of any required closeness or fineness, depending on the adjustment of the yielding die, and any inequalities or bulky portions in the sliver will pass so quickly between the dies and they take such a very close or short nip on the sliver and yarn that it will be quite impossible for long, loose, or untwisted parts to be produced in the yarn at either or both sides of the inequality in or knotty part of the sliver. Furthermore, the action of the front portions of the die-faces in pressing the body of sliver quite flat between them, while allowing it to be twisted at or between their rear portions, promotes a most perfect overlaying of the sliver-fibers one upon the other as they are twisted, and thereby assures the smoothest possible yarn that can be produced from any particular kind or grade of fibers employed.

I specially mention the construction of the bed-die with the transversely-ranging opening leading to the acting faces of the dies, said opening preferably extending clear through the die, as shown in the drawings. This transverse opening allows any knotty obstruction of or in the sliver to be readily removed either by picking them from the opening or by pushing them out of the opening by a pin or tool inserted from either side of the nipper-head. The nipper may thus be cleared of obstructions very easily and quickly without dismembering or removing any part of it, which greatly facilitates the operation of the device and considerably increases the output of yarn or twine.

If desired, the bed-die B may be made mainly of cast metal, and the acting face b' of it may be formed in a hardened-steel block inserted in the die, and as will be understood from the dotted lines in Figs. 1 and 2 of the drawings. Whether the upper or yielding die C, having the convexed acting end or face c, is made round or flat-sided it may be easily produced from steel and hardened when finished to assure its durability, and may quickly be redressed at any time required.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A yarn-nipper made with a bed-die provided with a groove or channel receiving the sliver and yarn, and a transverse clearance-opening leading to said groove, and a yielding die working with the bed-die and at the transverse opening thereof, substantially as described, whereby knots or obstructions in the fiber may be removed from between the dies at the transverse opening of the bed-die and without dismembering the nipper, as set forth.

2. A yarn-nipper made with a bed-die having a groove or channel receiving the yarn and provided with a medial concavity and a transverse opening, and a yielding die having a convexed face between which and the concavity of the bed-die the sliver passes at said transverse opening while being twisted, substantially as described.

3. A yarn-nipper made with a bed-die having a groove or channel receiving the sliver and yarn and provided with a medial concavity, said groove being wider at the front or sliver side and said die provided with a transverse opening, combined with a yielding die having a convexed face between which and the concavity of the bed-die the sliver passes at said transverse opening while being twisted, substantially as described.

4. In a yarn-nipper, the combination, with a head A, having a transverse opening or recess a' and front and rear openings a^3 a^4, of a cylindrical bed-die B, fitted in the opening a' and provided with a groove or channel receiving the sliver and yarn and a medial concavity b' at said groove, and a spring-pressed yielding die C, fitted in the die B and having a convexed face c, opposing its concavity b', substantially as described.

5. In a yarn-nipper, the combination, with a head A, having a transverse opening or recess a' and front and rear openings a^3 a^4, of a cylindrical bed-die B, fitted in the opening a' and provided with a transverse opening b, a groove or channel E, receiving the sliver and yarn and made wider at e at the front, said bed-die having a medial concavity b' at said groove, and a spring-pressed yielding die C, fitted in the die B and having a convexed face c, opposing the concavity b' of the bed-die, substantially as described.

6. In a yarn-nipper, the combination, with a head A, having a transverse opening or re-

cess a' and front and rear openings a^3 a^4, of a cylindrical bed-die B, fitted in the opening a' and provided with a transverse opening b, a groove or channel E, receiving the sliver and yarn and providing a medial concavity b', a tubular stem I on the head A, and a yielding die C, fitted in the tube I and die B and having a convexed face c, opposing the concavity b of the bed-die, a spring J on the stem D of the die C, a nut K, adjustable on the tube I and adapted to regulate the tension of the spring, and a nut-detent L on the die-stem D, all arranged for operation substantially as described.

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Witnesses:
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WILLIAM LYONS.