

(No Model.)

2 Sheets—Sheet 1.

L. WIMMER.

YARN NIPPER FOR SPINNING MACHINES.

No. 423,013.

Patented Mar. 11, 1890.

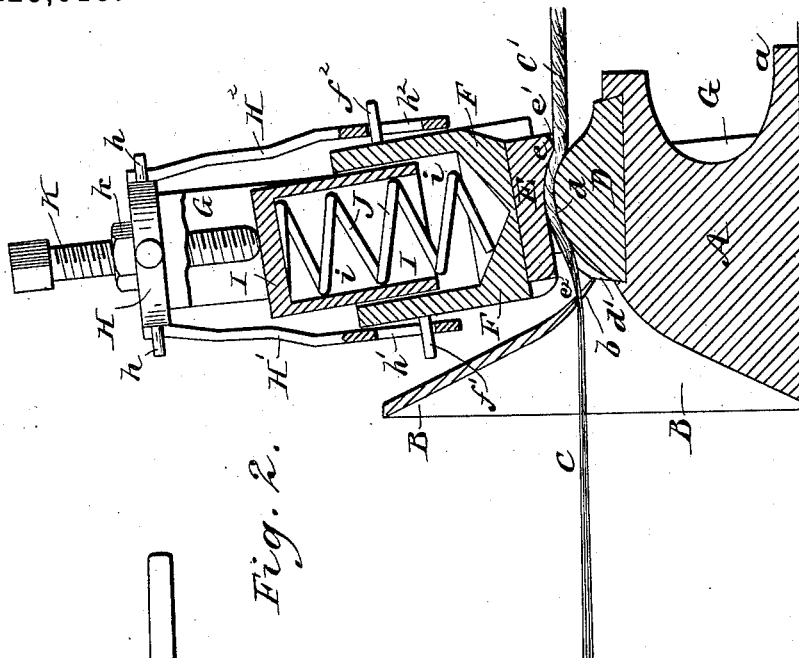


Fig. 2.

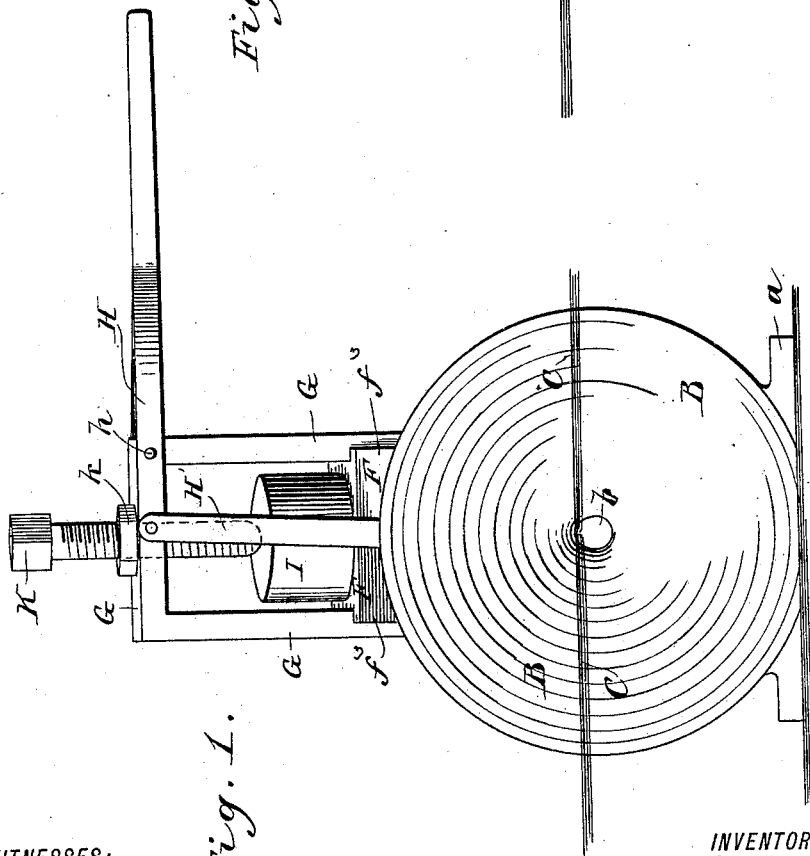


Fig. 1.

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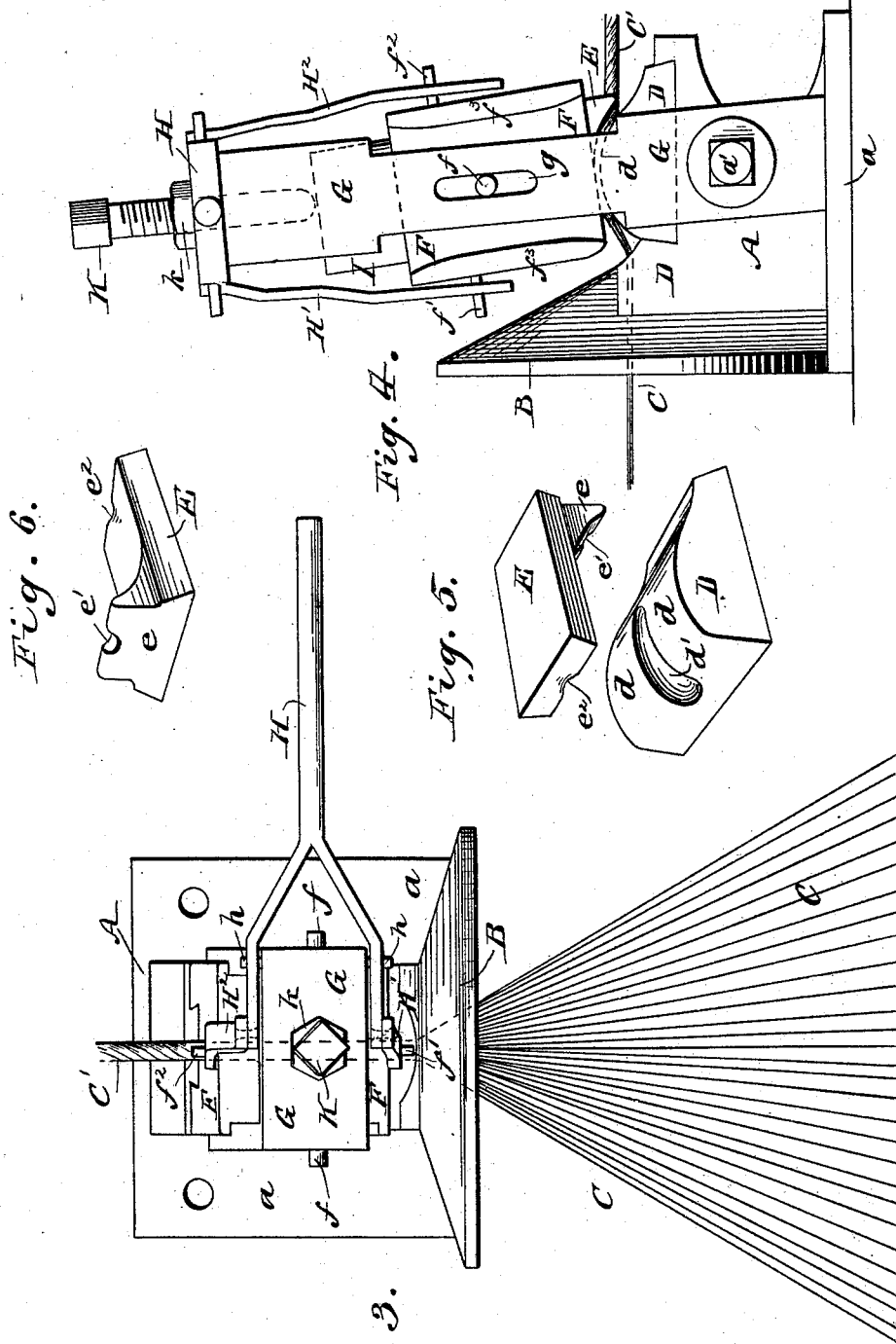
ATTORNEYS

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WITNESSES:
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Fig. 3.

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UNITED STATES PATENT OFFICE.

LOUIS WIMMER, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO HIMSELF AND
ELIAS D. SMITH, OF SAME PLACE.

YARN-NIPPER FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 423,013, dated March 11, 1890.

Application filed June 18, 1889. Serial No. 314,698. (No model.)

To all whom it may concern:

Be it known that I, LOUIS WIMMER, of Elizabeth, 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 nippers used in the manufacture of yarns or cordage, and has for its object to provide a simple, inexpensive, and efficient nipper, which, in connection with a suitable fiber or sliver feeder and a twisting device of any approved character, will produce a compactly and smoothly twisted yarn or cord with economy of time and labor.

The invention consists in certain novel features of construction and combinations of parts of the yarn-nipper, all as hereinafter described and claimed.

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 front elevation of my improved yarn-nipper and the sliver entering it. Fig. 2 is a vertical sectional side view of the nipper, the sliver, and the spun yarn. Fig. 3 is a plan view of the nipper, sliver, and yarn. Fig. 4 is a side elevation thereof. Fig. 5 shows the bed and upper dies of the nipper removed therefrom and in juxtaposition, and Fig. 6 is a bottom perspective view of the upper movable die.

The bed plate or block A of the nipper has formed on or attached to its front a trumpet-mouth B, through which the sliver C passes from any suitable carding or gill-pin mechanism to and between the nipper bed-die D and its upper movable die E to any approved twister or flier and reel devices, (not necessary to show or describe,) and arranged behind the nipper, so as to twist the sliver into a yarn C' as it passes between the dies. The bed-plate A has a base-flange *a*, having holes to receive bolts for fastening the nipper to a suitable support or frame.

The die D is held in the bed A, preferably, by a transverse dovetailed joint, and the upper face of the die is convexed longitudinally at *d*, as shown most clearly in Figs. 2 and 4

of the drawings. The front portion of the convexed die-face is preferably provided with a longitudinal tapering groove or recess *d'*, which is rounded or concaved transversely and extends from the front of the die, where it is deepest, to the center or crown of the convexed face *d*, where it stops at the general face of the die, for the purposes hereinafter more fully described.

The die E, which will be more particularly described hereinafter, is held, preferably, by a longitudinally-ranging dovetailed joint to the bottom of an upper die-block F, which is fitted loosely between the opposite sides of a metal yoke or stirrup G, which preferably rests on the bed-flange *a*, and is fixed by bolts *a'* to the bed. The die-block F is preferably provided at opposite edges of each side with guard or guide ribs or flanges *f*³, four in all, which stand off some little distance from the edges of the yoke G to allow somewhat free swinging motion longitudinally of the nipper to the upper die-block and die. The die-block F is provided at each side with a pin *f*, which enters a vertical slot *g* in the adjacent side of the yoke G, and at its front and rear sides, respectively, the block F is provided with pins *f*², which enter slots *h'* *h*², respectively, in the lower ends of two links H' H², which at their upper ends are pivoted to the extremities of the forked end of a lever H, which is pivoted at *h* to an upper corner of the relatively stationary yoke G. The upper die-block F is hollowed out from the upper end, thereby providing in it a chamber *i*, which receives loosely an inverted cup I, in which and in the block-chamber *i* is placed a spring J, which normally expands.

In the top cross-bar of the yoke G is fitted a screw K, which may be turned down onto the cup I to any required extent to control to a nicety the pressure of the spring J upon the bottom of die-block F, and consequently control the pressure of the upper die E upon the sliver during the twisting of the yarn.

A jam-nut *k* on the screw K provides for locking the screw when proper adjustment of the spring is obtained.

Fig. 2 of the drawings shows that the pins *f'* *f*² of the upper die-block F normally

stand at the bottom and top, respectively, of the slots h' h^2 of the links H' H^2 . Consequently should the outer end or long arm of the lever H be depressed the lower end wall of the slot h' will first lift on the pin f' to raise the front side or portion of the die-block F and cause the die E to rock rearward on the lower or bed die D , and when the block F is rocked over rearward sufficiently to allow its other pin f^2 to strike the bottom of the link-slot h^2 both links will then draw on the two pins to lift the die-block to carry the die E upward entirely clear of the bed-die D . As the block and die F E are thus raised the block moves between the sides of the yoke G , and is guided also by the block-pins f , moving in the slots g of the yoke. This rearward rocking motion of the die-block and die F E is important, as it operates relatively with the peculiar form of the die to produce a superior smooth-finished yarn, as hereinafter more fully explained.

Figs. 2, 4, 5, and 6 of the drawings show the peculiar form of the upper die E , which has a rear pendent lip or projection e , which is concaved underneath, so as to conform generally to the adjacent convexed face portion of the bed-die D , and has a central notch e' , preferably made round or semicircular, and through which the yarn fibers are drawn. The front edge of the die E at its face is shown with a slight notch or depression e^2 , which is preferred, but is not essential to the successful operation of the dies.

As the sliver is drawn through the throat b of the trumpet-mouth B by the pull of the twister and reel devices behind the nipper, the sliver first enters the bed-die groove d' , which by its rearward taper gradually compresses the fibers, which are compactly twisted between the two dies D E and within the notch or groove e' of the lip e of the upper die, the die immediately in front of the lip e holding the twisted or partly-twisted sliver in a curve by making it conform to the convex face of the bed-die and assuring a most compactly and smoothly twisted yarn. If the sliver should by reason of foreign substances or inequalities or coarse ends of the fiber choke more or less at and between the front ends of the dies D E , it is only necessary for the attendant to press down the outer end of the lever H and lift the front end of the upper die E more or less, to allow the inequality of the fiber or sliver to pass through the dies while under pressure between them and without breaking the yarn. It is at this time that the front face notch or depression e^2 of the upper die E is of some service to prevent catching of the choked sliver at the front of said die, to an extent which would cause the pull of the twister and reel devices to break the yarn. It is manifest as the front end of the die E is first lifted by the lever H and link H' to relieve the dies, as above mentioned, that the rear end lip or projection e of the upper die E will rock downward and rearward over the con-

vex rear portion of the bed-die D , while the notch e' of the lip e straddles the yarn and continues pressing it to the bed-die, and this will be the action until the pin f^2 is engaged by the lower end wall of the slot h^2 of the link H^2 to lift the die-lip e from the yarn, should such an extent of upward movement of the die E be necessary to allow the obstruction to pass clear through the dies without breaking the sliver or yarn. It will thus be seen that this arrangement of the upper die-block and die F E e , to rock rearward prior to being lifted entirely clear of the sliver or yarn and the bed-die, is most important, as the pressure is not suddenly taken from the sliver and yarn, as if the whole face of one die were caused to recede from the face of the other die by the operation of the lever, and the compact twisting of the sliver into a smooth and perfectly-round yarn is effected close to any bunch or obstruction in the sliver which passes through or between the dies.

I wish it to be understood that the bed or relatively stationary die having a longitudinally-convexed face combined with an opposing die having a rear lip concaved on the side or face opposite the convexity of the other die and provided with a notch through which the yarn passes to smoothly round it on its way to the twister and reel device are important features of my invention, as also are such dies relatively arranged to cause the front end of the movable die to lift first from the sliver, as above described. I wish further to state that the convexed face of the relatively stationary die may or may not be provided with the rearwardly-tapering groove d' , but by providing said groove the results are improved, as the groove easily admits the sliver between the dies and imparts to it an approximately round form before it passes in a curve between the concavo-convex opposing faces of the dies and through the notch e' , which imparts to it a perfectly-round smooth finish.

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

1. In a yarn-nipper, one die made with a longitudinally-convexed face provided at its front portion with a rearwardly-extending groove, which tapers rearward and is rounded or concaved transversely, combined with an opposing die.

2. In a yarn-nipper, the combination, with a sliver-guide and a stationary die having a longitudinally-convexed face, of a yielding die having a rear concaved lip opposing the convexed face of the stationary die, and provided with a notch receiving the sliver or yarn, substantially as herein set forth.

3. In a yarn-nipper, the combination, with a sliver-guide and a stationary die having a longitudinally-convexed face provided at its front portion with a rearwardly-tapering groove, of a yielding die provided with a rear concaved lip opposing the convexed face of

the stationary die, substantially as herein set forth.

4. In a yarn-nipper, the combination, with a sliver-guide and a stationary die having a longitudinally-convexed face provided at its front portion with a rearwardly-tapering groove, of a yielding die provided with a rear concaved lip opposing the convexed face of the stationary die, and having a notch receiving the sliver or yarn, substantially as herein set forth.

5. In a yarn-nipper, the combination, with a sliver-guide and a stationary die having a longitudinally-convexed face provided at its front portion with a rearwardly-tapering groove, of an opposing yielding die provided with a rear concaved lip having a notch receiving the sliver or yarn, said yielding die also provided with a front notch opposite the groove of the bed-die, substantially as herein set forth.

6. In a yarn-nipper, the combination, with the bed and sliver-guide, of a yoke or support held to the bed, a die on the bed, having a convexed face d , a block fitted loosely in the yoke, a die having a rear concaved lip e and held to the block, a cup I and spring J in the block, and a screw K , fitted in the yoke and adapted to compress the spring, substantially as herein set forth.

7. In a yarn-nipper, the combination, with a sliver-guide and a stationary die having a longitudinally-convexed face, of a yielding die provided with a rear concaved lip opposing the convexed face of the stationary die, and lever and link mechanism, substantially as described, for shifting the yielding die, whereby the front end of said die will be first

40 moved from the bed-die to provide for clearance of the sliver without stopping the compressing action of the dies on the sliver and yarn, substantially as herein set forth.

8. In a yarn-nipper, the combination, with the bed, the sliver-guide, a die on the bed, having a longitudinally-convexed face, and a yoke or support held to the bed, of a yielding block fitted to the yoke or support, a die on said block, having a rear concaved lip opposing the concaved face of the bed-die, a lever and link connections, substantially as 45 described, between the lever and yielding die-block, whereby as the lever is operated the front end or part of the yielding die will be first moved away from the bed-die to provide for clearance of the sliver without stopping 55 the compressing action of the dies on the sliver and yarn, substantially as herein set forth.

9. In a yarn-nipper, the combination, with the bed and sliver-guide, of a yoke or support 60 held to the bed, a die on the bed, having a longitudinally-convexed face, a block fitted loosely in the yoke, a die held to the block, having a rear concaved lip opposing the convexed face of the bed-die, a compressing device for the yielding die, a lever H , fulcrumed on the yoke, pins $f' f^2$ in the yielding die-block, and links $H' H^2$, connecting the lever with the pins $f' f^2$, said links having slots $h' h^2$, at the lower and upper parts of 70 which the respective pins $f' f^2$ normally rest, substantially as and for the purposes set forth.

LOUIS WIMMER.

Witnesses:

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E. D. SMITH.