(No Model.)

J. NEALE.

NIPPER OR TENSION DEVICE FOR SPINNING MACHINES.

No. 566,007. Patented Aug. 18, 1896.

FIG:1.

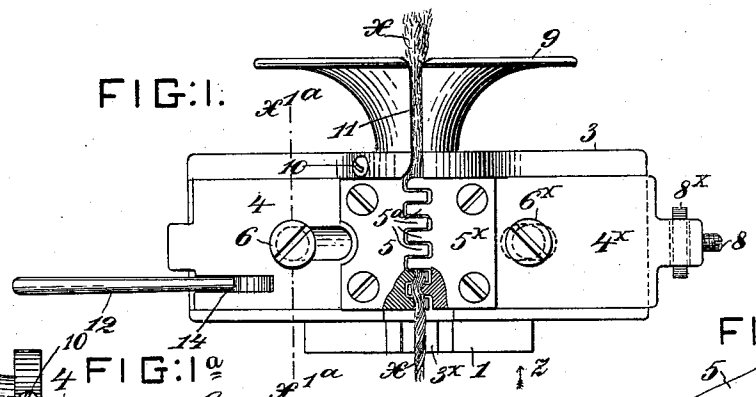


FIG:1a.

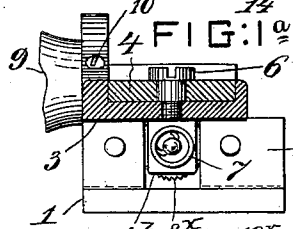


FIG:1b.

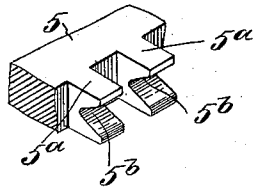


FIG:2.

FIG:4.

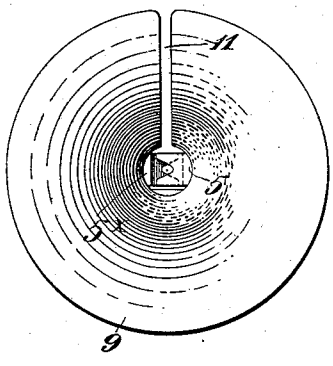


FIG:3.

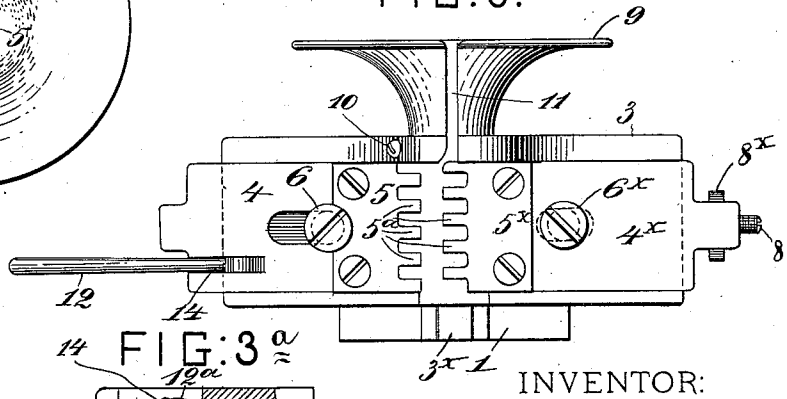
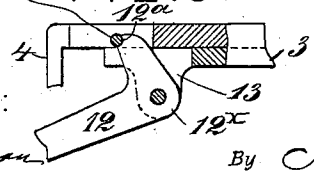


FIG:3a.



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NIPPER OR TENSION DEVICE FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 566,007, dated August 18, 1896.

Application filed December 7, 1895. Serial No. 571,404. (No model.)

To all whom it may concern:

Be it known that I, JAMES NEALE, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Nippers or Tension Devices for Spinning-Machines, of which the following is a specification.

My invention relates to the class of devices commonly called "nippers" and employed for holding and applying tension to the sliver while it is being drawn out and twisted into yarn; and the object of my improvement is in part to facilitate the insertion of the rough sliver into the nipper, in part to improve the jaws of the nipper whereby the sliver is the better compacted and shaped at the twisting-point, so that the fibers will be properly laid in the yarn, thus preventing the twisted yarn from kinking and twisting on itself, a defect due to the flattening of the sliver in the nipper and to an unequal and improper adjustment of the fibers. Yarns so laid and twisted as not to kink and twist on themselves are called "balanced" yarns, and my nipper or tension-clamp is especially designed for producing such balanced yarns.

Other features of the invention reside in the mechanical construction, and these will be hereinafter indicated and described.

The accompanying drawings illustrate an embodiment of my invention.

Figure 1 is a plan showing the nipper with the jaws closed on the sliver. Fig. 1^a is a cross-section on line x'^a in Fig. 1. Fig. 1^b is a fragmentary view of one of the jaws of the nipper, showing the form of the teeth thereon. Fig. 2 is an elevation as seen from the point indicated by the arrow z in Fig. 1. Fig. 3 is a plan similar to Fig. 1, but showing the jaws of the nipper open. Fig. 3^a is a fragmentary view illustrating the operation of the lever in opening and holding open the jaws of the nipper. Fig. 4 is a face view of the flaring mouthpiece at the point where the sliver is fed to the jaws.

1 is the base-piece or chair of the device, the foot-flanges of which are provided with bolt or screw holes 2 to receive screws for securing the nipper firmly down to the surface on which it is mounted. 3 is a bed-plate provided at its under side with a tongue $3^\times$, which fits into a recess between the upright members of the base-piece 1, in which it is rigidly secured by screws. The bed-plate 3 is grooved longitudinally to receive carrier-plates 4 and $4^\times$, on which are secured the jaws 5 and $5^\times$, which clamp on the sliver x. The plate 4 is adapted to slide to a limited extent along the guide-groove in the bed-plate 3, and it is kept down in place by a screw 6, which engages a slot therein. The plate $4^\times$ is held in place by a similar screw $6^\times$. The jaw $5^\times$ is, or may be, stationary, and the jaw 5 is held up to the jaw $5^\times$ by a spring 7. This spring is coupled at one end to a pendent hook 4^a on the plate 4, and at the other end to a tension-screw 8, mounted in two pendent lugs 4^b on the plate $4^\times$. The screw has on it a milled nut $8^\times$, embraced between the lugs 4^b. By turning this nut the tension of the spring 7 may be varied as desired.

The jaws 5 and $5^\times$ have, as seen in plan, interlocking teeth 5^a, and these teeth are notched, as indicated at 5^b in Fig. 1^b, to receive and embrace the sliver and impart to it a rounded form. In Fig. 1 the upper parts of three of the teeth are broken away in order to show how the sliver is clamped. The formation of the jaws with interlocking teeth provides a good tension with a moderate spring-pressure, insures the clamping of the sliver properly at all points in the width of the jaw, and allows the jaws to wholly embrace the sliver and give to it the proper cylindrical form without the possibility of its fibers escaping from the clamp. In Figs. 2 and 4 the manner in which the teeth so interlock as to inclose the fibers is clearly shown.

The bell-shaped mouthpiece 9 is fixed to the side of the bed-plate 3, being let into the same and secured by a screw 10, or in any other convenient manner. The function of this mouth or mouthpiece is to gather the stray radiating fibers of the sliver. I do not claim this mouthpiece broadly, as something similar to it is used in the ordinary nippers; but in order to facilitate the placing of the sliver in the nipper I cut or form in the mouthpiece and in the base-plate at the point where the mouthpiece is attached thereto a slit 11, whereat the sliver may be inserted sidewise or with a lateral movement when the jaws are open, as in Fig. 3. This permits the

sliver to be inserted in a moment, while the usual mode of insertion, by threading the bristling and loose sliver through the mouthpiece, requires considerable time and patience.

The jaws of the nipper are opened by drawing back the jaw 5, as seen in Fig. 3, which opens the way for laying the sliver in the clamp. The jaw 5 is drawn back by a cam-lever 12, which is fulcrumed on a lug 13 on the bed-plate. In Fig. 2 the bed-plate and slide are broken away to show the engagement of the head $12^{\times}$ of the lever with a slot in the bed-plate. When the lever is depressed, the head thereof strikes a pin 14, which bridges the slot behind it and draws back the plate 4. When the plate has been drawn back far enough, the cam-like head of the lever passes under the pin 14 and up to a shoulder 12^{a} on the head. This serves to stop or lock the parts and hold the plate 4 until the lever 12 is again thrown up.

As before stated, the plate $4^{\times}$ may be fixed to the bed-plate 3; but in order that the two jaws of the clamp may move a little to and fro, to accommodate themselves to the twisted sliver or yarn, I prefer to slot the plate $4^{\times}$ slightly at the point where the screw $6^{\times}$ passes through it. This permits a little free movement of the clamp without opening the jaws, as the plates 4 and $4^{\times}$ are coupled together only by the spring 7.

My device is intended mainly to be employed in twisting coarse fibers, such as sisal, manila, &c., into harvesting-twine, rope-yarns, &c., but it may be employed with other fibers.

It will be understood that the pin 14, which is engaged by the head of the cam-lever 12, is merely a point for the head to take against in opening the tension-clamp. Any shoulder formed on the sliding plate 4 will serve the purpose.

Having thus described my invention, I claim—

1. A nipper or tension device for spinning-machines, comprising a tension-clamp, and a bell-shaped mouthpiece, said mouthpiece having in it a lateral opening or slit whereby the sliver may be inserted quickly by a lateral movement, substantially as set forth.

2. In a nipper or tension device for the purpose described, the combination with the bed-plate 3, and the tension-clamp mounted thereon, of the bell-shaped mouthpiece 9, mounted on the side of the bed-plate adjacent to the clamp, said mouthpiece and the portion of the bed-plate between it and the clamp having in them a slit, 11, whereby the sliver may be quickly inserted in the mouthpiece and clamp by a lateral movement, as set forth.

3. The combination with the bed-plate provided with guides for the tension-clamp and with the mouthpiece, of the two movable jaws of the said clamp provided with interlocking teeth and a spring connecting the jaws of the clamp and serving to draw them into engagement by elastic force, substantially as set forth.

4. The combination with the bed-plate provided with guides for the tension-clamp, of the two carrier-plates 4, $4^{\times}$, both mounted movably in said guides, the toothed jaws mounted on the respective carrier-plates, and the spring 7, connecting said carrier-plates below the bed-plate, substantially as set forth.

5. The combination with the base-piece 1, and the bed-plate 3 secured therein and provided with a mouthpiece, of the carrier-plates 4 and $4^{\times}$, mounted in the bed-plate, the jaws 5 and $5^{\times}$, fixed to the respective carrier-plates, the spring 7, connecting the two carrier-plates below the bed-plate, and means for separating said jaws to open the clamp, as set forth.

6. In a nipper, the combination with the bed-plate, the carrier-plates mounted thereon, the jaws supported by the respective plates, and the spring connecting said carrier-plates, of the lever 12, mounted on the bed-plate and provided with a head $12^{\times}$ engaging a slot and a pin 14 in the carrier-plate, said head having a shoulder 12^{a}, adapted to engage the said pin when the jaws are separated, substantially as set forth.

7. A nipper or tension device for spinning-machines, having a tension-clamp comprising two movable carrier-plates 4 and $4^{\times}$, jaws carried by said plates, and a spring connecting said plates, whereby the clamp is permitted to move as a whole without releasing its hold on the sliver, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES NEALE.

Witnesses:
PETER A. ROSS,
HENRY CONNETT.