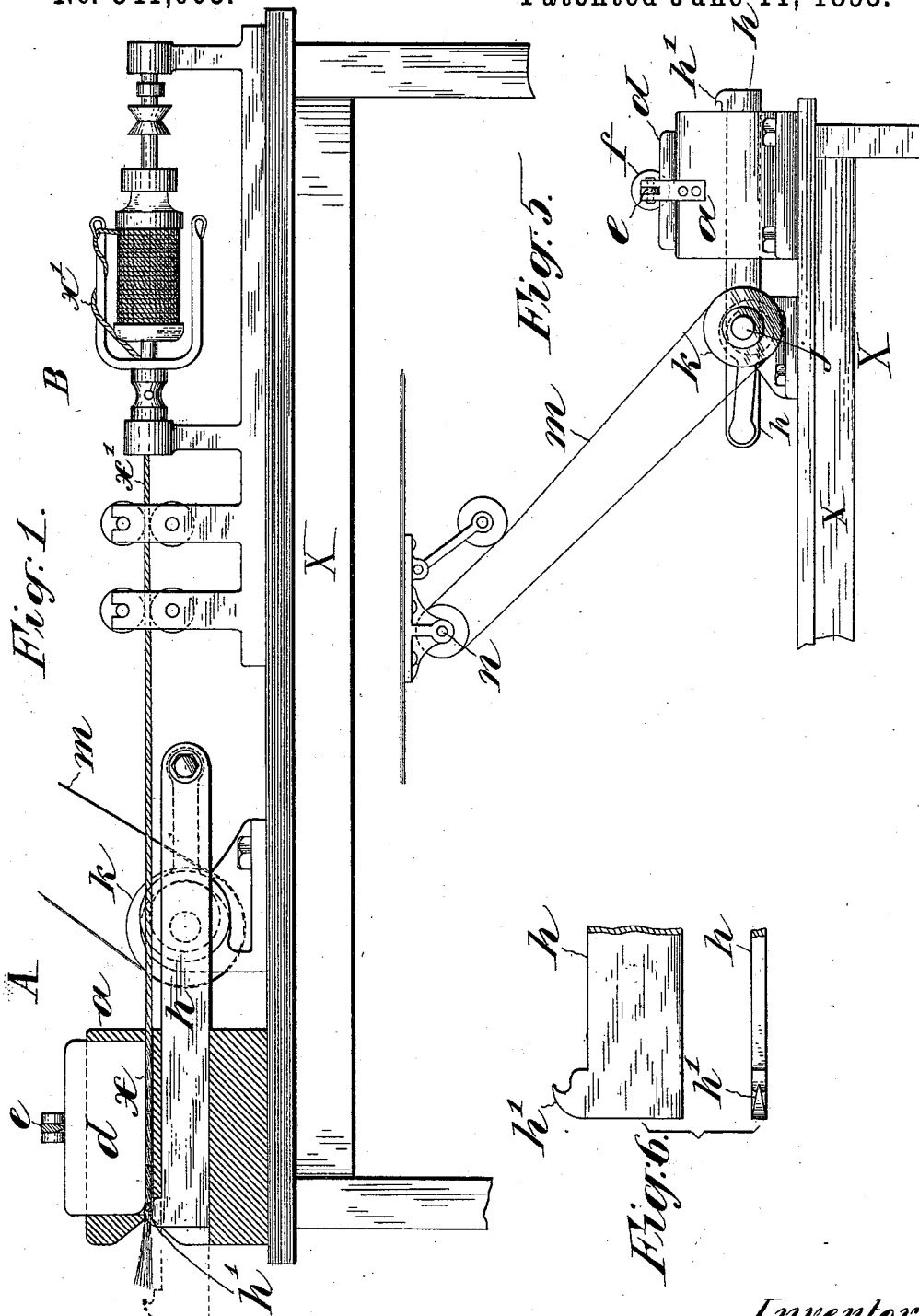


J. NEALE.

SLIVER FORMING AND SPINNING MECHANISM.

No. 541,003.

Patented June 11, 1895.



Witnesses:
J. W. Whiman
Peter A. Ross.

Inventor:
James Neale
by Henry Cornwell
his attorney

(No Model.)

2 Sheets—Sheet 2.

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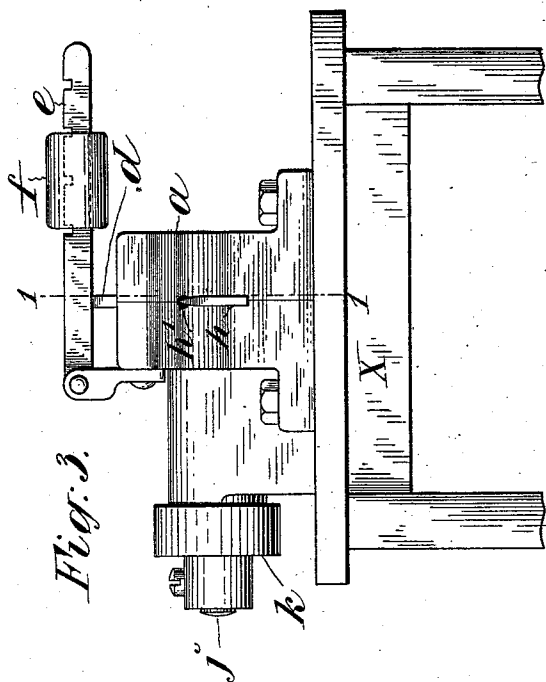


Fig. 3.

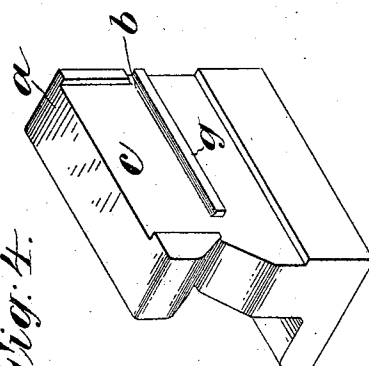


Fig. 4.

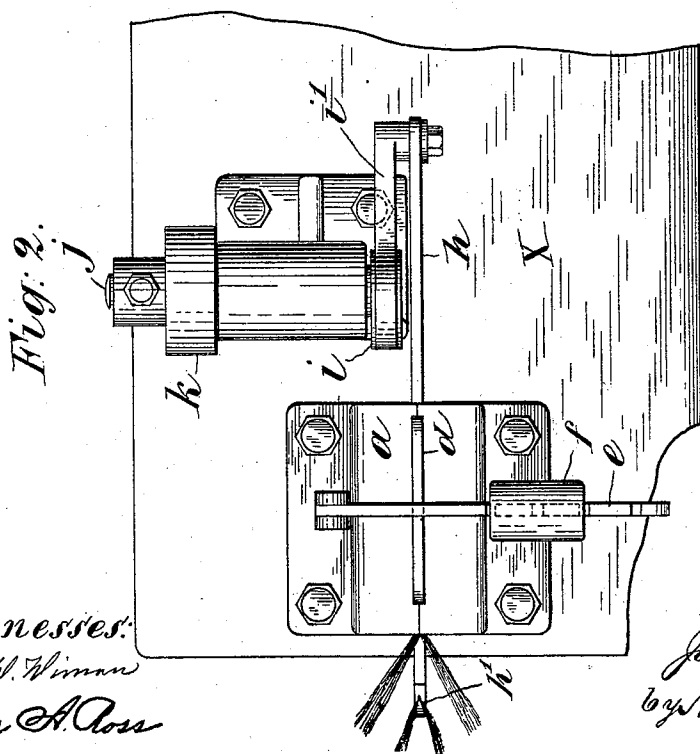


Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES NEALE, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO W.
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SLIVER FORMING AND SPINNING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 541,003, dated June 11, 1895.

Application filed March 28, 1894. Renewed May 16, 1895. Serial No. 549,591. (No model.)

To all whom it may concern:

Be it known that I, JAMES NEALE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sliver Forming and Spinning Mechanisms, of which the following is a specification.

My invention relates to means for laying or feeding the fiber, in forming the sliver to be spun into yarn destined to be employed in cordage.

According to the old method of feeding the fiber to the spinning machine or device, the operator wrapped about his waist a mass of the combed fiber, as hemp, manila, &c., and after engaging the bight of a portion of the fiber with the rotating hook of the twisting machine he walked backward, feeding the bights of portions of the fiber, as he proceeded into the twisting sliver. This necessitated much physical labor and skill in order to produce good, uniform yarns of considerable length. Later, methods were adopted for feeding the fiber in an entirely different manner, and automatically, to the sliver, but with this method my present invention has nothing to do. It relates to the method wherein the bight of the fiber is fed into the sliver and yarn.

The invention consists, essentially, in the employment of a reciprocating hook on which the operator hooks the bight of a portion of fiber, this hook carrying the portion into the sliver which is being drawn through a guide by the drawing and spinning apparatus, usually called a jenny.

In the accompanying drawings I have shown an embodiment of my invention.

Figure 1 is a side elevation of the apparatus, the sliver-forming and fiber-feeding portion thereof, wherein the invention lies, being in longitudinal vertical section in the plane indicated by line 1 1 in Fig. 3. Fig. 2 is a plan of the sliver-forming portion of the apparatus, and Fig. 3 is an end view of the same. Fig. 4 is a perspective view of one section of the sliver-guide. Fig. 5 is a side view of the sliver-forming portion of the apparatus on a smaller scale than the principal figures, showing how it may be driven from a

counter-shaft. This view shows that side seen at the left in Fig. 3. Fig. 6 represents in side elevation and plan the reciprocating hook-bar and hook detached and on a larger scale than the principal views.

X represents a table, bench, or frame of any kind for supporting the sliver-forming and twisting mechanism.

A represents, as a whole, the sliver-forming mechanism, and B, the jenny, or twisting mechanism. This latter is a known and common device of which there are many modified forms, I having shown such a device in Fig. 1 merely to enable the operation of the whole apparatus to be the better understood.

The sliver-forming portion of the apparatus consists of a few essential parts which may be combined and operated in various ways. I have shown a satisfactory construction which I will now describe.

A block, *a*, has formed in it a bore or passage, *b*, (Fig. 4) which forms a guide for the sliver, *x*. This guide is aligned with the axis of the jenny B, which twists the sliver and forms the yarn, *x'*. In the block *a*, above the guide *b*, is formed a slot, *c*, (Fig. 4) to receive a pressure-plate, *d*, the lower edge of which rests on the sliver, and on the crown of this plate rests a lever, *e*, which is fulcrumed on the block *a*, and has an adjustable weight, *f*. This device forms a tension device for the yarn. Mounted in a guide-slot, *g*, (Fig. 4) below the guide *b*, is a reciprocating hook-bar, *h*, on the end of which is formed a hook, *h'*. Reciprocatory motion may be imparted to the hook-bar *h*, by any suitable mechanism. As here shown the bar is coupled to the yoke, *i'*, of an eccentric, *i*, fixed on a shaft, *j*, driven through the medium of a pulley, *k*, and belt, *m*, from a counter-shaft, *n*, as seen in Fig. 5.

The operation may be conducted as follows: The operator, with the fiber at hand, or wound about his body, stands at the end of the apparatus seen at the left in Fig. 1; that is, where the hook *h'* is situated. The operation of spinning the yarn being practically continuous, there will be a sliver in the guide *b*, with the fibers thereof protruding and separated by or parted by the hook *h'*, as indicated in full lines in Fig. 1. The apparatus is set in motion and the hook-bar moves in

and out, while the drawing and twisting mechanism draws the sliver through the sliver-guide. At each protrusion of the hook-bar the operator places the bight of a small portion of the fiber over the hook h' , and on its return movement the hook carries this fiber into the axis of the sliver at the mouth of the guide. When the hook again moves out to the position seen in dotted lines in Fig. 1, it leaves the portion of fiber already carried in, which becomes at once consolidated with the sliver. Although only a part of the apparatus is illustrated in the plan view, Fig. 2, I have shown therein the position of the increment of fiber on the hook and the fiber of the sliver as the latter is drawn from the mass about the body of the operator. To avoid obscuring the mechanism in this figure I have not shown the yarn issuing from the guide at the right in the figure. The jenny B, may be driven from the same counter-shaft that drives the hook-bar, but the mode of driving is not material to my invention. It is only necessary that the hook-bar shall move with sufficient rapidity to supply the proper amount of fiber to the sliver being formed.

For convenience of construction I make the block a , in two halves or sections, one of which is shown detached in Fig. 4. This sectional construction, however, is not essential to my invention.

I have shown the reciprocating hook h' , as carried by a bar sliding longitudinally in a guide-slot in the block a , but as it is only essential that it shall move or vibrate to and fro from the mouth or entrance of the sliver-guide to a point out far enough for the operator to place the bight of the increment of fiber over it, it will not be necessary to employ for the purpose the particular hook-vibrating mechanism herein shown.

I have shown a hook h' , as a vibrating fiber-carrier, but any equivalent device for seizing the increment of fiber and carrying it into the sliver will serve. A hook is a simple and efficient device in the machine as here shown.

To avoid misunderstanding, I would say that what I denominate the sliver is that portion of the measured fiber here shown as in the sliver-guide, and which is prepared for twisting into yarn.

Having thus described my invention, I claim—

1. In a sliver-forming and spinning mechanism, the mechanism for forming the sliver, comprising a sliver-guide, a tension device for the sliver in the guide, means for drawing the sliver longitudinally through the guide as formed by increments of fiber added thereto, a reciprocating hook having its path aligned with the sliver-guide and terminating in the mouth of said guide, and mechanism for imparting a reciprocating movement to said hook, substantially as set forth.

2. In a sliver-forming and spinning mechanism, the combination with a drawing and spinning mechanism, of a sliver-guide, a tension device for the sliver in the guide, a reciprocating fiber-feeding hook arranged adjacent to the mouth of said guide, the path of said hook being substantially aligned with said guide, and mechanism for imparting the reciprocating movement to said hook, as set forth.

3. In a sliver-forming and spinning mechanism, the combination with a drawing and spinning mechanism of a sliver-guide, a tension device for the sliver, a hook-bar h , mounted in a guide parallel with the sliver-guide and provided with fiber-feeding hook h' , situated adjacent to the mouth of the sliver-guide, and mechanism for imparting a reciprocating movement to the said hook-bar, as set forth.

4. A sliver-forming mechanism comprising a tubular sliver-guide, a vibrating fiber-feeder, the path of which is aligned with said guide and terminates in the mouth of the same, means for imparting vibrations to said feeder and means for drawing the sliver through its guide in proportion as increment of fiber is added thereto, whereby a continuous sliver is formed, as set forth.

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

JAMES NEALE.

Witnesses:

HENRY CONNETT,
JAS. KING DUFFY.