

G. M. ARRAGG.
 DEVICE FOR HANDLING BROKEN ENDS.
 APPLICATION FILED OCT. 31, 1911.

1,039,349.

Patented Sept. 24, 1912.

2 SHEETS—SHEET 1.

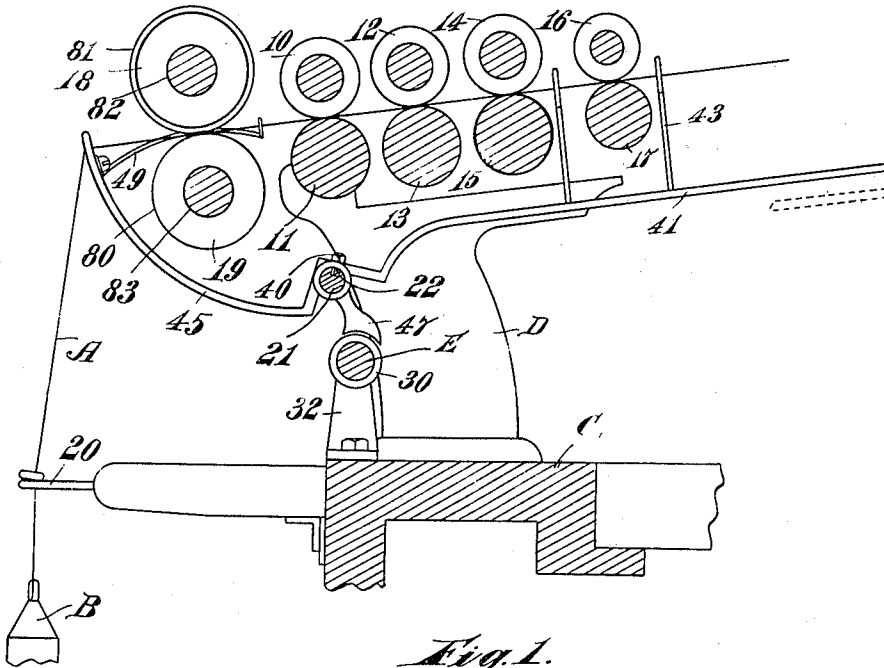


Fig. 1.

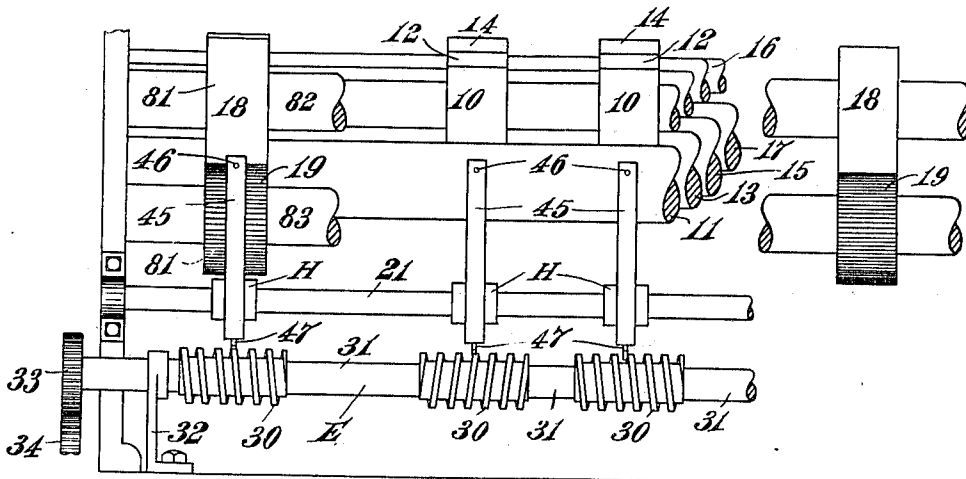


Fig. 2.

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2 SHEETS—SHEET 2.

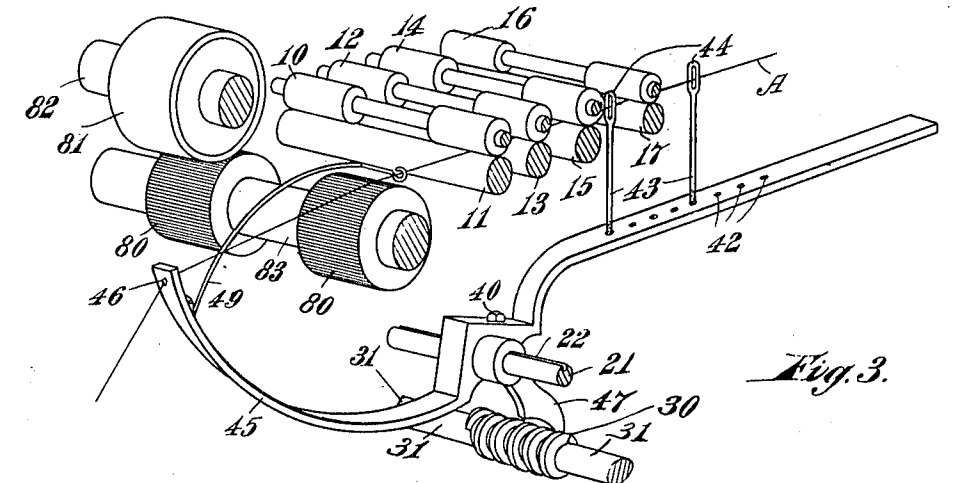


Fig. 3.

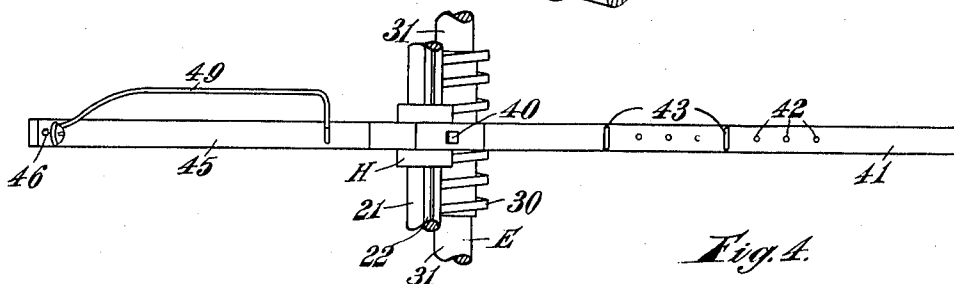


Fig. 4.

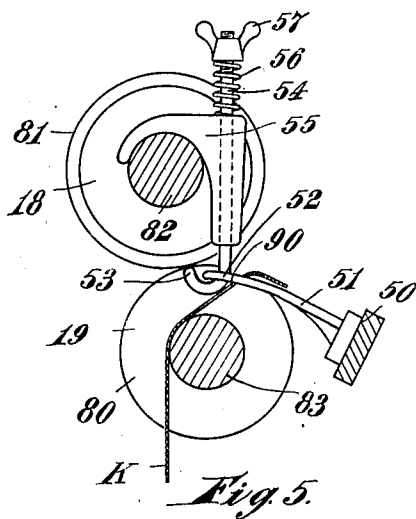


Fig. 5.

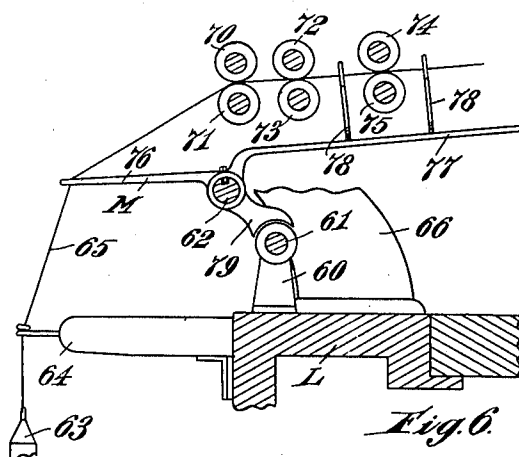


Fig. 6.

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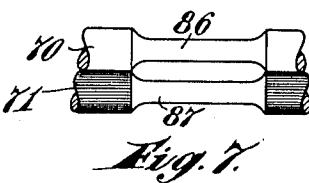


Fig. 7.

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GEORGE M. ARRAGG, OF LAWRENCE, MASSACHUSETTS.

DEVICE FOR HANDLING BROKEN ENDS.

1,039,349.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed October 31, 1911. Serial No. 657,859.

To all whom it may concern:

Be it known that I, GEORGE M. ARRAGG, a citizen of the Empire of Turkey, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Devices for Handling Broken Ends, of which the following is a specification.

This invention relates to spinning frames, slubbers, intermediates, fly frames, drawing boxes and similar devices for manufacturing yarn or roving.

It is intended to replace the usual stop motion which is adapted to stop the entire frame when a single end breaks. Its purpose is to quickly remove the roving when it breaks, from the draft of the drawing and carrier rolls. If the roving breaks before entering the receiving side of the rolls, the end between the rolls is carried forward until exhausted while the balance of the roving simply stops until it is again pieced. On the other hand, if a break occurs between the receiving end of the rolls and the twisting mechanism, the rolls continue to deliver the roving which not being taken care of, becomes tangled up in the machinery, soiled and otherwise damaged thereby becoming useless for yarn. By my invention, when such a break occurs in any particular strand of roving, the tension on the roving in the front is relieved as soon as the broken part leaves the delivery rolls, and by suitable mechanism, the remainder of that strand of roving is carried sidewise off from the bite of the carrier and drawing rolls until it is clear of their draft when it immediately stops.

In the accompanying drawings, Figure 1 is a sectional side view of my device applied to a drawing box. Fig. 2 is a front view showing part of my device and part of the rolls. Fig. 3 is a front fragmentary perspective view. Fig. 4 shows from the top a section of the rocking member and attachments together with the worm. Fig. 5 is a detail in side section showing a protector plate. Fig. 6 is a sectional side view of my device applied to a cotton spinning frame. Fig. 7 is a front detail view of the carrier rolls of a cotton spinning frame.

The rolls 10, 11, 12, 13, 14, 15 are carrier rolls of any well known construction. The rolls 16 and 17 are the back drawing and receiving rolls.

18 and 19 are the front drawing and de-

livery rolls. Between these rolls passes the roving A in a well known manner. From delivery rolls 18 and 19, it passes through the delivery arm of the rocking member and thence in the usual manner through a guide 20 to bobbin B upon which it is wound by any of the usual methods.

C is the frame of the machine and D is the supporting bracket for the rolls.

Extending entirely across the machine in a line parallel with the axes of the rolls is a pivot shaft or bar 21 in which is a key way 22, and adjoining this shaft or bar extends a worm shaft E. Shaft E comprises threaded sections 30 and plain sections 31. It is supported by brackets 32 and is kept in continual rotation by means of a gear 33 which engages any of the gears or moving parts of the machine such as 34.

My rocking member comprises a hub H which is carried by pivot shaft or rod 21 so that it could revolve freely thereon except for the key way 22 into which enters loosely a set screw 40. These parts are so adjusted in size that hub H has a movement on 21 limited by the play between set screw 40 and key way 22. The rocking member is transversely slidable on pivot shaft 21. Extending back from hub H is a receiving arm 41 in which are holes 42 which may be plain or threaded to receive the ends of guide pins 43. These guide pins are of such size as to extend upward into the path of roving A and have eyes 44 through which the roving A passes. It is evident that the location of these pins can be readily changed by inserting them in different holes 42. I prefer however, to locate one directly behind receiving rolls 16 and 17 and one directly in front thereof. Opposite arm 41 extending from hub H is a delivery arm 45 near the end of which is an eye 46 through which roving A passes after leaving the delivery rolls. This arm 45 extends upward in such a manner that the roving A is diverted upward from its normal course and thereby arm 45 is depressed by the drag of the roving and therefore holds up receiving arm 41 while the machine is in motion and any roving is passing.

It is evident that if a break occurs in front of rolls 16 and 17, as soon as the broken end emerges from between rolls 18 and 19, arm 45 is relieved and, as I make arm 41 heavier than arm 45, it is immediately depressed as shown by the dotted lines in Fig. 1. Eyes

46 are of such size as to allow free movement of arm 41. Carried also by hub H is a blade 47 which extends downward in close proximity to the threaded portion 30 of worm E. The end of blade 47 may be curved to conform to the threads of 30 but in any case it is so adjusted that it will clear those threads when arm 45 is depressed by the pull of the roving, but will engage them as soon as that pull is relieved allowing arm 41 to be depressed.

As shown in Fig 3 the bottom rolls 11, 13, 15 and 17 are cylindrical while the top rolls 10, 12, 14 and 16 are spaced having body portions which engage with the lower rolls and necked portions which do not come in contact with the lower rolls. It is between the body portions of the upper rolls and the lower rolls that the roving is drawn. The delivery rolls 18 and 19 are both formed with body portions respectively 80 and 81 and necked portions 82 and 83. The plain portions 31 of the worm correspond in position with the necks 82 and 83 of rolls 18 and 19 and the screw portions with their bodies 80 and 82.

It is evident that when a break occurs, blade 47 drops and thus engages a section of threads 30 on worm E and is forced thereby sidewise carrying with it hub H and arms 41 and 45 which carry with them sidewise the guide pins and with them the roving A until all are clear of the bodies of the rolls 18 and 19 and opposite their necks and the necks of rolls 10, 12, 14 and 16. Having reached the end of the threaded portion 30, the rocking member stops and no more roving is delivered until the ends are pieced up in the usual manner. After the ends are pieced, arm 45 is depressed and the rocking member is slid back between the bodies of the rolls to its usual position where the roving is subjected to the bite and to the carrying action of the rolls.

I may use if desired to supplement the pins 43, a wire guide 49 which extends from near the end of delivery arm 45 backward between the necks of delivery rolls 18 and 19 to a point behind the bodies of rolls 18, 19 and in front of rolls 10, 11. This wire guide 49 assists guide pins 43 in removing every trace of the roving A from between the delivery rolls. It prevents an end being carried along by the rolls 18 and 19 which might be possible even although near the back rolls the roving ran under the necks of the top rolls. It is evident that any other form of guide may be used in place of wire guide 49 and it is also evident that any form of guide may be used in place of guide pins 43.

Fig. 5 is a section between the delivery rolls 18 and 19, showing the tension devices which allow the upper roll to give in case a bunch passes. Attached to a rail 50 is an

arm 51 which terminates in a loop 52 which engages a hook 53 at the lower end of the tension rod 54 which passes through a hooked member 55 which extends over the neck 82 of roll 18. At the upper end of rod 54 is a tension spring 56 and a thumb nut 57 whereby the tension on roll 18 may be increased or decreased at will and whereby the roll will give whenever necessary. To prevent the broken end from being wound upon the neck of roll 19, I find it convenient to use a guard plate K of the form shown in Fig. 5. Guard plate K has a hole 90 through which passes arm 51 and it is so shaped that it extends over the neck of roll 19. Thereby the loose end of roving is kept out of contact with the revolving surface of the neck of roll 19 and cannot be wound thereon.

In Fig. 6 I show a slightly modified form of my device as applied to a cotton spinning frame. In Fig. 6, L is the frame of the machine, 60 is the bracket which supports worm shaft 61. 62 is the pivot shaft having a key way and which supports rocking member M. 63 is the bobbin, 64 the usual form of guide, 65 is the roving and 66 is the bracket which supports the carrier rolls 70, 71, 72, 73, 74, 75. The delivery arm 76 is straight instead of curved while the receiving arm 77 and guide pins 78 together with the blade 79 are substantially the same as in the device as applied to a drawing box. In a cotton spinning frame each roll 70 and 71 has a neck 86 or 87 as shown in Fig. 7.

It is evident that my device may be used in any machine in which yarn or roving passes between one or more pairs of drawing or carrier rolls of which one or more rolls of each pair has a neck.

What I claim as my invention and desire to cover by Letters Patent, is:

1. A device for handling broken ends which comprises a horizontal pivot shaft, a member adapted to rock in a vertical plane carried thereby and slidable transversely thereon having a receiving arm which carries guide pins for the roving and a delivery arm which carries a guide wire for the roving and has an eye through which the roving passes and a blade, combined with a worm in operative relation with said blade, and means for revolving the worm.

2. In a drawing box having two or more pairs of drawing rolls of which one member of each pair is formed with a neck, the combination of a pivot shaft parallel with the axes of said rolls, and a rocking device carried by and slidable transversely on the pivot shaft and having a receiving arm which carries guide pins for the roving and a delivery arm through an eye in which the roving passes and a blade, combined with a worm in operative relation with said blade and having screw sections between plain sec-

tions which correspond in position with the necks on the rolls, and means for revolving the worm.

3. In a drawing box having two or more
5 pairs of drawing rolls of which one member of each pair is formed with a neck, the combination of a pivot shaft parallel with the axes of said rolls, and a rocking device carried by and slidable transversely on said
10 pivot shaft and having a receiving arm which carries guide pins for the roving and a delivery arm through an eye in which the roving passes and a blade, combined with a

worm in operative relation with said blade and having screw sections between plain sections which correspond in position with the necks on the rolls, means for revolving the worm, and means for limiting the rocking motion of the rocking member.

In testimony whereof I hereto affix my
signature in presence of two witnesses.

GEORGE M. ARRAGG.

Witnesses:

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HARRY R. LAWRENCE.