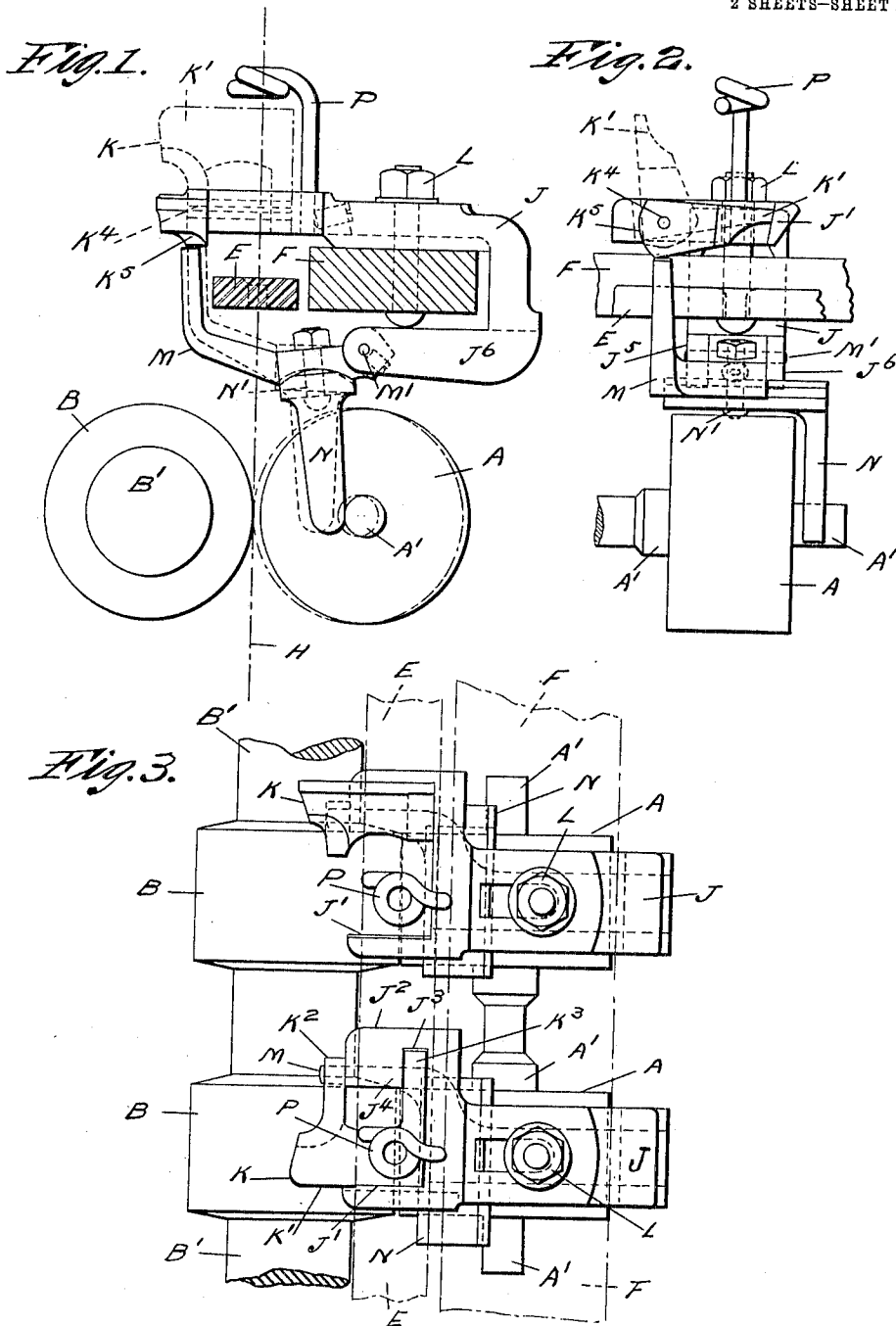


J. BOYD.
ROVE STOPPING MECHANISM.
APPLICATION FILED AUG. 6, 1912.

1,080,522.

Patented Dec. 2, 1913.

2 SHEETS-SHEET 1.



Witnesses:
Charles F. Abbe
L. H. Grot

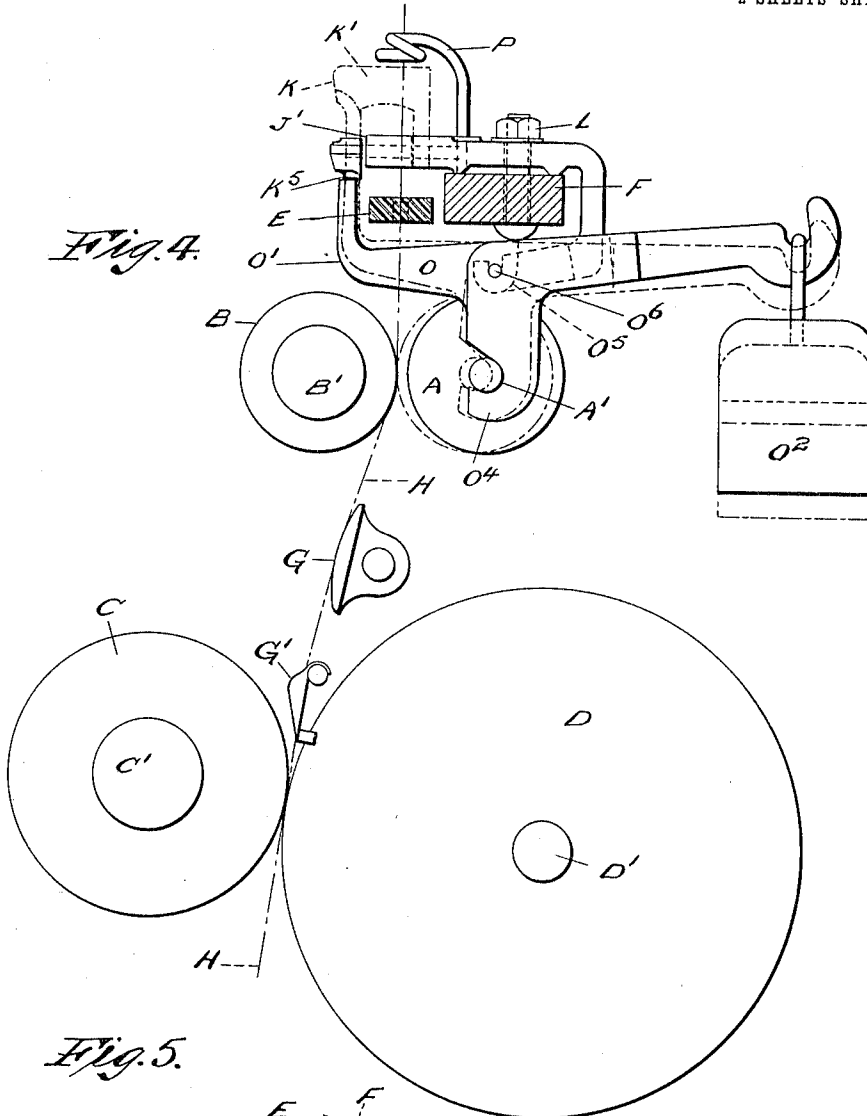
Inventor
JOHN BOYD
By his Attorneys
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UNITED STATES PATENT OFFICE.

JOHN BOYD, OF BOTHWELL, SCOTLAND.

ROVE-STOPPING MECHANISM.

1,080,522.

Specification of Letters Patent.

Patented Dec. 2, 1913.

Application filed August 6, 1912. Serial No. 713,614.

To all whom it may concern:

Be it known that I, JOHN BOYD, a subject of the King of Great Britain and Ireland, and residing in Bothwell, county of Lanark, Scotland, have invented certain new and useful Improvements in Rove-Stopping Mechanism, of which the following is a specification.

This invention relates to spinning, twisting or similar frames for fibrous materials, for example to spinning frames of the kind in which two slip rollers, carried by one spindle, and supported and controlled in the usual manner, for delivering or retaining rove fiber or yarn, are used for two adjacent spinning or twisting or like spindles, or to spinning frames in which each slip roller is carried on its own spindle and is independently supported and controlled by its own weighted lever or its equivalent.

One object of the invention is to provide an improved rove-gripping device hereinafter described, which shall be assisted in its action by the pull of the rove itself and serve to lay fast hold of, and stop the further delivery of the rove passing between each slip roller and its delivery roller and thereafter between each drawing roller and its pressing roller, so as to prevent waste, while the rove or yarn passing between the other rollers may continue to be delivered and spun or twisted.

A further object is to provide, when two slip rollers are carried on one spindle, improved mechanism of the kind employed in conjunction with each rove holding device to tilt one of the slip rollers clear of its retaining roller, and also, when each slip roller is carried on its own spindle, to provide improved mechanism to move such slip roller away from its retaining roller, so as in both cases to prevent the rove pressing between said rollers from being too much rubbed and thereby injured and also to cause the rove to be broken or drawn asunder at the rove conductor close to the nip of the drawing and pressing rollers.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a side elevation, Fig. 2 a front view and Fig. 3 a plan view of as much of a jute, hemp or flax dry spinning frame as is necessary to show the application of one embodiment of the improved construction of rove- or yarn-gripping device and the necessary mechanism connected therewith,

for the purpose of tilting one of two slip rollers carried on one spindle away from its delivery roller. Figs. 4 and 5 are a side view and a plan view of parts of a similar spinning frame, all made to a smaller scale, so as to show more details of the frame and showing a similar construction of the improved rove-holding device and the necessary mechanism connected therewith for the purpose of moving one slip pressing roller carried on its own spindle away from its delivery roller.

I will now proceed to describe one form of the invention as applied to an existing spinning frame.

As usual, the spinning frame here referred to as shown in Fig. 4, is equipped with slip rollers A, carried on a spindle A¹, delivery or retaining rollers B, carried on a common shaft B¹, drawing rollers C carried on a common shaft C¹, and pressing rollers D, carried on a common spindle D¹, a guide bar E, a stay bar F, in the case of Figs. 1, 2 and 3 serving to support the ends of the spindles A¹, of the slip rollers A, a breast plate G, and a rove conductor G¹, located above and close to the nip of the drawing and pressing rollers C and D, for the purpose of guiding the rove H. (The frame is also as usual equipped with pressing rollers and weights for the slip rollers A, and the pressing rollers D, not shown in the drawings, though, as shown in Figs. 4 and 5 each slip roller, if mounted on its own spindle is carried independently by its own weighted lever.)

In one advantageous construction of the improved rove-gripping device illustrated in Figs. 1, 2 and 3 each rove holder consists of two parts, first an adjustable bracket J having a stationary rove-gripping part J¹, and, second, a trigger-like lever K, pivoted on said bracket and formed with a movable rove-gripping part K¹. Above each slip roller and retaining roller A and B on the top of the stay bar F, the bracket J, is secured by a set screw or bolt L, or the like. The bracket J overhangs the guide bar E and, as best shown in Fig. 3, has on one side its forwardly projecting rove-gripping part J¹, its inside face being suitably beveled for that purpose, leaving an open space in the front of the bracket J (to facilitate the passing of the rove H, through the guide bar E, by the operator). On the opposite side it has another forwardly projecting part J² which has an opening J³, formed between

the face of the bracket J and an internal lateral projection J⁴, on the same. In the opening J³ and outside of the lateral projection J⁴, two limbs K², and K³ of the movable trigger-like rove-holding lever K, are centered on a pivot spindle K⁴. The outer limb K², of the pivoted lever K is provided with a cam part K⁵, whereby the operating catch lever may perform its other function hereinafter referred to.

In one construction of mechanism designed to obtain the further object above referred to also illustrated in Figs. 1, 2, and 3, in spinning frames of the kind in which two slip rollers A, are carried on one spindle, the bracket J, is carried around the back of and under the stay bar F and in an opening formed between two forwardly projecting parts J⁵, and J⁶ of the same a lever M, weighted if necessary, at its rear end and fulcrumed on a pivot spindle M¹ is carried under and upward in front of the guide bar E, in a position to be acted on by the cam part K⁵ of the pivoted lever or part K.

When it is desired to stop the delivery of the rove the pivoted lever K is turned downward on its pivot by the finger or thumb of the operator till the rove H is caught between the movable and stationary rove-catching parts J¹ and K¹, the gripping power of which catches is very much increased by the pull of the rove H passing through its drawing and pressing rollers C and D so that the more strongly the rove is pulled the more tightly it is gripped till it is pulled asunder. Simultaneously the cam part K⁵ of the pivoted lever K when turned on its pivot acts on the upturned end of the lever M causing the latter to swing on its fulcrum M¹. This causes the downwardly projecting adjustable arm of the lever M to press back one end of the slip roller spindle A¹ so that while the slip roller at one end of this spindle may continue working, the other slip roller, as shown in the drawings, is tilted clear of its retaining roller B and thus prevents the rove H from being too much rubbed and injured. Furthermore, the rove H is thus broken close to the nip of the drawing and pressing rollers C and D. It will be readily understood that by making the downwardly projecting arm N independent of the upper portion of the lever M and securing the parts together by the bolt N¹, it is possible to reverse the position of the arm so that it acts upon the spindle A¹ on either side of the roller A.

In another construction of mechanism designed to attain the same object above referred to for the purpose of stopping the feed of the rove H, illustrated in Figs. 4 and 5 applicable to spinning frames of the kind in which each slip roller is carried on its own spindle a similar rove-gripping device is used, consisting of a rail-bracket J and a

pivoted lever K with its cam part K⁵. In this case, when the lever K is turned on its center to lay hold of the rove H its cam part K⁵, acts on a forwardly projecting arm O¹, of a suitably formed lever weighted at its inner end by a weight O², so as to press the slip roller A, sufficiently against the retaining roller B. The weighted lever O, is made to carry preferably in two notches O³ and O⁴ the two end gudgeons A¹, of the slip roller A. The weighted lever O may be fulcrumed in any suitable manner; for example, as shown in Figs. 4 and 5 it may be fulcrumed on a pivot spindle O⁵, carried preferably in two notches O⁶, formed on the top of the backward and under projections of the stay bar bracket J.

In both constructions of the improved rove stop motion mechanism as shown in Figs. 1 and 4 all the moving parts thereof are shown in full lines in the position they occupy when the rove stop motion mechanism has acted and in broken lines in the position the same moving parts occupy, when the rove is being drawn and spun or twisted, in which case the rove H, passes through (if necessary) a curled wire guide P, secured to the stationary catch-bracket between the rove-catching parts, through a hole in the guide-bar E, between the slip and retaining rollers A and B, over the breast plate G, through the rove-conductor G¹ and thence between the drawing and pressing rollers C and D to be spun or twisted.

Each rove-gripping device shown in Figs. 1 to 5 might itself be used without its mechanism for moving the slip roller A away from its retaining roller B, so as to stop the further delivery of the rove through the latter, but this would be injurious to the rove and to the rollers through which it passes and would not cause the rove to be broken away as required close to the nip of the drawing and pressing rollers.

While the arrangement shown, comprising fixed and movable catch elements is simpler and thus preferred, modified catch constructions will readily suggest themselves.

It will be understood that the first embodiment of apparatus above described for tilting one slip roller away from its retaining roller in cases when two such rollers are carried on one spindle is readily attached to many types of existing spinning frames. The modification in which each slip roller is carried and controlled independently by its own weighted lever, though possessing other advantages, is not so easily applied to existing spinning frames, and may be preferred in some cases for new spinning frames.

Having now particularly described and ascertained the nature of my said invention

and in what manner the same is to be performed I declare that which I claim is:—

1. In textile apparatus of the character described, a slip roller and cooperating delivery roller, a separating device for opening said rollers, a pivoted rove clamp and a cam on said rove clamp for operating said roller separating device.

2. In textile apparatus of the character described, a slip roller and cooperating delivery roller, a pivoted lever bearing against one of said rollers, a pivoted rove clamp, a cam on the latter and means operated by said cam for actuating said lever to open said rollers.

3. In textile apparatus of the character described, a slip roller and cooperating delivery roller, a longitudinal stay bar, a bracket mounted thereon, a roller separating device pivoted on said bracket, a rove clamp also pivoted on said bracket, a cam on said clamp and means operated by said cam for rocking said pivoted separating device to open the rollers.

4. In a textile apparatus of the character described, a series of slip rollers, cooperating delivery rollers, a longitudinal stay bar, a series of brackets adjustably mounted on the latter, one for each slip roller, a roller separating device on each bracket for moving the corresponding slip roller out of engagement with its cooperating delivery roller, a rove clamp pivoted on each bracket and a cam on each clamp for operating the roller separating device on the bracket, substantially as described.

5. In textile apparatus of the character described, a pair of slip rollers on a single spindle capable of angular displacement, cooperating delivery rollers, a longitudinal stay bar, a bracket adjustably mounted thereon for each slip roll, a roller separating device on each bracket for effecting the separation of its slip roller for the cooperating delivery roller without interrupting the operative engagement between the other slip roller and its delivery roller, a rove clamp pivoted on each bracket, and a cam on each clamp for operating the roller separating device on the bracket, substantially as described.

6. In a spinning, twisting or similar frame, for fibrous materials, a slip roller, a cooperating pressing roller, and a rove clamp comprising an abutment element and a finger actuated clamping-lever element adapted to cooperate with said abutment to clamp the rove between the same, said finger actuated portion having a downward movement into clamping position whereby the frictional drag of the rove serves to draw said clamp more firmly against its abutment, in combination with means for separating the slip and pressing rollers and an operative connection between said means and the finger actuated clamp element

whereby said separating means are actuated upon the movement of said clamp element into rove engaging position.

7. In a spinning, twisting or similar frame, for fibrous materials, a slip roller, a cooperating pressing roller, and a rove clamp comprising an abutment element and a finger-actuated clamping-lever element adapted to cooperate with said abutment to clamp the rove between the same, said finger-actuated portion having a downward movement into clamping position whereby the frictional drag of the rove serves to draw said clamp more firmly against its abutment, in combination with a lever engaging the axis of the pressing roller and an operative connection between said lever and the finger-actuated clamp element for moving the lever to shift said pressing roller out of contact with the slip roller on the movement of the clamp element into rove-engaging position.

8. In textile apparatus of the character described, a rove stop device comprising a bracket with beveled face forming an abutment, and a rove clamp pivoted on said bracket and having a face adapted to cooperate with the beveled face of the bracket, the center of gravity of said clamp lying between its pivot and the operative face of the clamp.

9. In textile apparatus of the character described, a rove stop device comprising a bracket with beveled face forming an abutment, and a rove clamp pivoted on said bracket and having a face adapted to cooperate with the beveled face of the bracket, the center of gravity of said clamp lying between its pivot and the operative face of the clamp, in combination with a longitudinal stay bar and means for adjustably mounting said bracket thereon.

10. In textile apparatus of the character described, a rove stop device comprising a rove clamp with cam face, a displaceable slip roller, a two arm lever engaging with one arm the spindle of the slip roller and with the other arm the cam face of the rove clamp, for the purpose described.

11. In textile apparatus of the character described, a longitudinal stay bar, a displaceable slip roller, a U-shaped bracket adjustably mounted on the longitudinal stay bar with part overlying and part underlying the stay bar, a rove clamp pivoted on the overlying part of the bracket and provided with a cammed part, and a lever fulcrumed on the lower part of the bracket and having a part engaging the spindle of the displaceable slip roller and a part lying in the path of the cam on the rove clamp when the latter is moved into stop position, for the purpose described.

12. In textile apparatus of the character described, a longitudinal stay bar, a dis-

placeable slip roller, a U-shaped bracket
adjustably mounted on the longitudinal stay
bar with part overlying and part underly-
ing the stay bar, a rove clamp pivoted on the
5 overlying part of the bracket and provided
with a cammed part, and a lever fulcrumed
on the lower part of the bracket and having
a notched part forming a bearing for the
slip roller and a part lying in the path of
10 the cam on the rove clamp when the latter is

moved into stop position, for the purpose
described.

In testimony whereof I have signed my
name to this specification, in the presence of
two subscribing witnesses.

JOHN BOYD.

Witnesses:

JAMES CUNNINGHAM,

JAMES RUSSELL ROBERTSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
