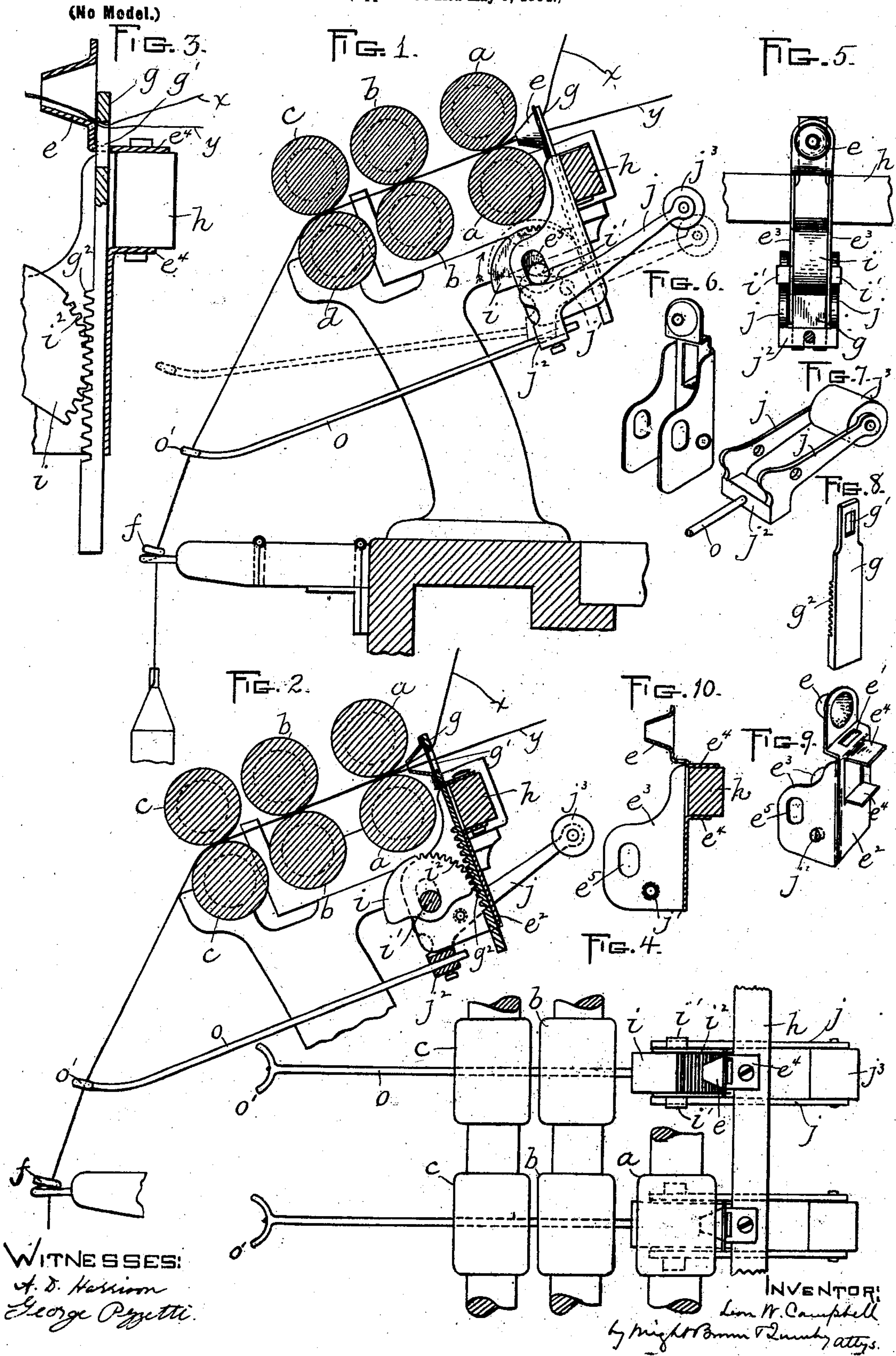


No. 690,694.

Patented Jan. 7, 1902.

L. W. CAMPBELL.
SPINNING OR TWISTING FRAME.

(Application filed May 9, 1901.)



UNITED STATES PATENT OFFICE.

LEON W. CAMPBELL, OF WOONSOCKET, RHODE ISLAND.

SPINNING OR TWISTING FRAME.

SPECIFICATION forming part of Letters Patent No. 690,694, dated January 7, 1902.

Application filed May 9, 1901. Serial No. 59,443. (No model.)

To all whom it may concern:

Be it known that I, LEON W. CAMPBELL, of Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Spinning or Twisting Frames, of which the following is a specification.

This invention relates to spinning or twisting frames in which provision is made for the second breakage, at the receiving side of the drawing-rolls, of a roving which has been previously broken at the delivering side of the rolls or between the rolls and the spindles.

The invention has for its object to provide means whereby the power which rotates the drawing-rolls shall be caused to act quickly to arrest and break any roving at a point in close proximity to the receiving side of the drawing-rolls when said roving has been broken at the delivering side.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents a sectional view of a portion of a spinning or twisting frame, showing an embodiment of my invention in side elevation. Fig. 2 represents a view similar to Fig. 1, showing the said embodiment in section. Fig. 3 represents an enlargement of a portion of Fig. 2, showing the roving clamped to effect its second breakage at the receiving side of the rolls. Fig. 4 represents a top view of two sets of drawing-rolls, the rear rolls of one set being broken away. Figs. 5, 6, 7, 8, 9, and 10 represent views of details hereinafter referred to.

The same letters of reference indicate similar parts or features, as the case may be, wherever they occur.

Referring to the drawings, a portion of the spinning-frame is shown which differs in no respect in its essential features from those ordinarily employed. Three sets of drawing-rolls are used, as is ordinarily the case, (indicated at *a a*, *b b*, and *c d*.) The top rolls are mounted in the usual manner in operative relation to the lower rolls, the top rolls *c* being preferably covered with leather or other suitable yielding material, while the roll *d* is made of steel and is or may be fluted in the usual way. The strands *x* and *y* of

the roving come from reels and pass through a threaded guide or trumpet *e* to the rolls. From the rolls the roving extends to the pig-tail or thread-eye *f*.

My invention according to its illustrated embodiment comprises a plurality of roving-clamps, one for each roving, said clamps being adjacent to the receiving side of the rolls *a a* and each provided with means operable by the rotation of one of the drawing-rolls to close the clamp upon the roving, said clamp-closing means being maintained in an inoperative position by a normal thread or one which passes unbroken from the rolls *c d* to the guide *f* at the delivering side of the rolls and made operative by the breakage of said thread to close the clamp upon the thread upon the receiving side of the rolls and cause the second breakage of the roving. The said clamp in this case comprises a fixed and a movable member, the fixed member being the thread-guide or trumpet *e*, while the movable member is a slide *g*, which is movable in suitable guides, hereinafter referred to, and has a slot *g'* in its upper portion, the upper end of which constitutes the jaw or acting portion of the movable clamp and coöperates with the under side of the trumpet or fixed clamping member *e* to grasp the thread, as indicated in Fig. 3, when the slide *g* is depressed. The guides for the slide *g* are preferably a slot *e'*, formed in an offset portion of a sheet metal holder *e²*, which supports the fixed member *e*, and ears or wings *e³*, formed on said holder, the slide passing through the slot *e'*, while its edges bear against the ears *e³*. The holder *e²* is affixed to the machine by means of ears *e⁴*, which bear upon a fixed bar *h*, adjacent to the receiving side of the drawing-rolls, and are suitably affixed to said bar.

i represents a clamp-closing device, which as here shown is a segmental roll provided with trunnions *i'*, which project into slots in the ears *e³*, said slots and trunnions permitting the segment *i* to not only move toward and from the lower roll *a*, but also to rotate, the trunnions being the axis of rotation. The segment *i* is provided on a portion of its periphery with pinion-teeth *i²*, meshing with rack-teeth *g²*, formed on the slide *g*.

j j represent two arms or parts of a lever, which are connected by a cross-bar *j²*, form-

ing a part of the lever, said parts $j j$ being fulcrumed upon studs or bosses j' , formed on the ears e^3 , the lever thus constructed having a shorter arm, of which the cross-bar j^2 forms a part, and a longer arm, to which is attached a weight j^3 .

o represents a wire arm or finger attached to the cross-bar j^2 and having a threaded guide o' on its outer end, which is arranged to engage the portion of the roving between the rolls $c d$ and the thread-guide f .

The trunnions i' of the clamp-closing device or segment i rest upon the shorter arm of the lever $j j$, and the arrangement of the parts described is such that when the roving which engages the guide o' is normal or unbroken the clamp-closing device i , lever j , and finger o are in the positions shown in full lines in Fig. 1, the device i being out of contact with the roll a and the movable clamping member g being raised out of engagement with the roving as it passes through the fixed clamping member or trumpet e . Should the roving break between the rolls $c d$ and thread-eye f , the weight j^3 raises the shorter arm of the lever $j j$ and forces the device i into contact with the lower roll a , whereupon the rotation of said roll will cause the device i to rotate in the direction indicated by the arrow in Fig. 1, so that its teeth, engaging the rack-teeth of the slide g , will depress the latter to the position shown in Fig. 3, causing the clamping and the second breakage of the broken roving, so that the delivering of that particular roving to the rolls is arrested until the necessary repairs have been made, the delivering of the other or normal rovings being unaffected. When the broken roving has been pieced and is again normal, the parts are again held thereby in the dotted-line position shown in Fig. 1.

It will be seen that the power that rotates the drawing-rolls is utilized to effect the second breakage of the thread, so that the result desired is more certain of attainment and is more quickly attained than would be the case

if the gravitating action of a weight alone were relied upon to effect such second breakage.

I do not limit myself to the details of construction here shown, as the same may be variously modified without departing from the spirit of my invention.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. In a spinning or twisting machine, the combination with the drawing-rolls of a roving-clamp having a fixed member and a movable member, a rotary clamp-closing device geared to said movable member, means for holding said clamp-closing device yieldingly in engagement with one of the drawing-rolls, and a detent controlled by a normal thread at the delivering side of the rolls to hold said closing device out of engagement with said roll.

2. In a spinning or twisting machine, the combination with the drawing-rolls, of a roving-clamp having a fixed member and a movable member, a rotary clamp-closing segment geared to the said movable member and having trunnions journaled in elongated bearings which permit the segment to move toward and from one of the drawing-rolls, a pivoted lever having a longer weighted arm and a shorter segment-supporting arm, the said lever normally holding the segment in engagement with said roll, and a finger attached to said lever and arranged to be held by a normal thread, at the delivering side of the rolls in position to hold the lever in its inoperative position.

In testimony whereof I have affixed my signature in presence of two witnesses.

LEON W. CAMPBELL.

Witnesses:

MALCOLM CAMPBELL,
C. F. BROWN.