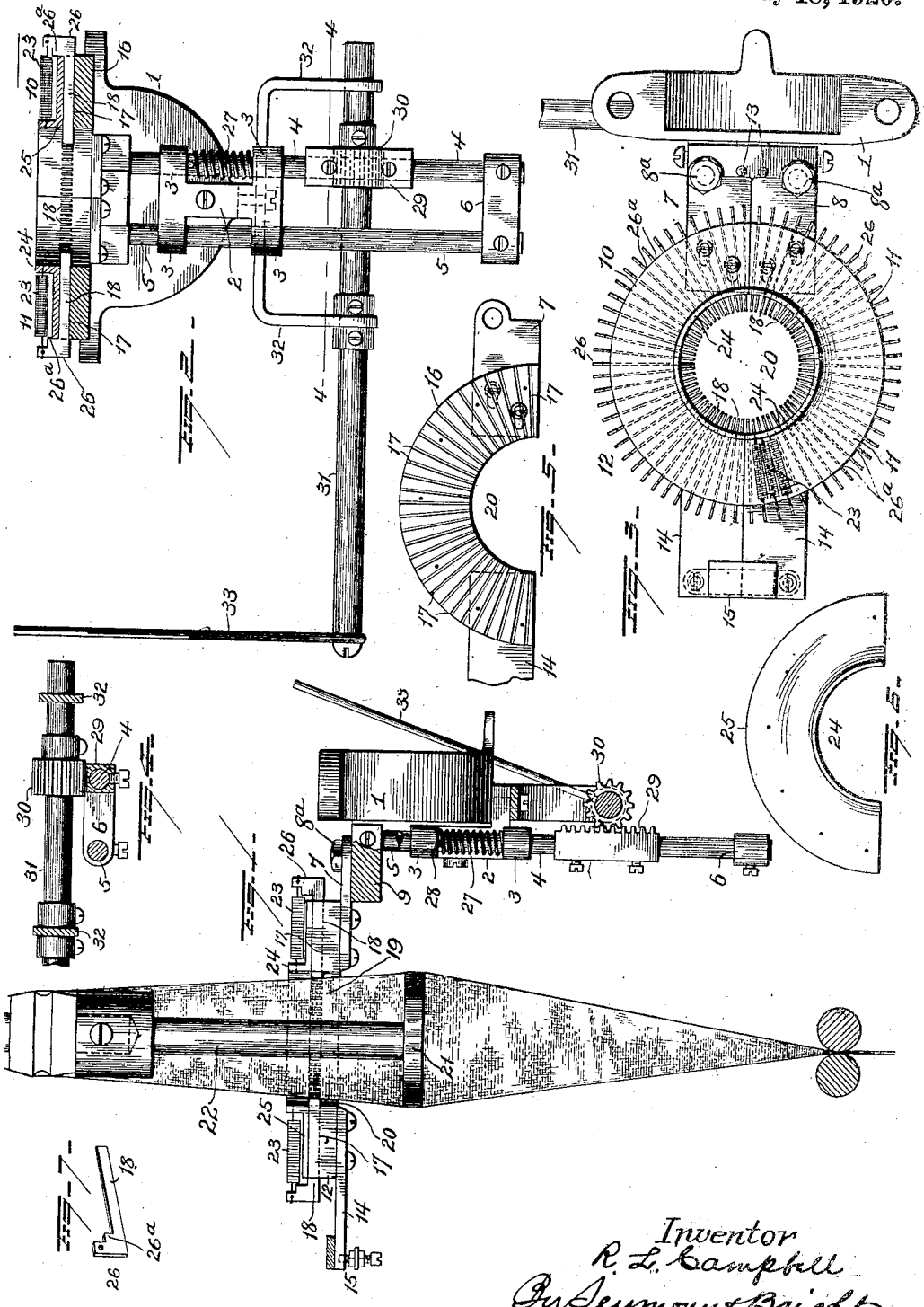
R. L. CAMPBELL.

STOP MECHANISM.

APPLICATION FILED MAY 5, 1919.

1,340,152.

Patented May 18, 1920.



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STOP MECHANISM.

1,340,152. Specification of Letters Patent. **Patented May 18, 1920.**

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To all whom it may concern:

Be it known that I, ROY L. CAMPBELL, a citizen of the United States, and a resident of Altonpark, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Stop Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in stop mechanism and more particularly to such as is adaptable for use with knitting machines employed in the manufacture of tubular fabric, such as hose.

An object of my invention is to provide simple and efficient means for causing the prompt stopping of a knitting machine upon the appearance of a hole in the knitted fabric, however small the hole may be and in whatever portion of the circular contour of the fabric the hole may occur.

With this and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings; Figure 1 is a sectional view illustrating an embodiment of my invention with the tubular fabric in place; Fig. 2 is a sectional view taken at right angles to Fig. 1, with the fabric and spreader removed; Fig. 3 is a plan view; Fig. 4 is a section on the line 4—4 of Fig. 2; Figs. 5, 6 and 7 are detail views.

1 represents a bracket to be secured to a part of the frame of a knitting machine and constitutes the supporting means for the devices embodied in my improved stop mechanism.

A guide bracket 2 is secured to the supporting bracket 1 and is made with perforated lugs 3 through which the rods 4—5 of a vertically movable frame 6 have free movement. Two horizontally disposed arms 7, 8 are hinged by means of pins 8^a to the head 9 of the vertically movable frame 6 and to these arms, the semi-circular members 10—11 of a horizontal circular or annular frame 12, are adjustably secured,—stop pins 13 being provided on the head 9 to be engaged by said arms to insure the accurate alining of the two members of said circular frame. The two circular frame members may be provided also with arms 14—14, normally connected by a latch 15. The horizontally disposed frame 12, being made in sections hinged together, it may be opened or closed to permit removal or insertion of the tubular fabric.

Each semi-circular member of the circular frame comprises a base plate 16 having a plurality of radial grooves 17 located closely together, for the accommodation of a corresponding number of radially movable finders 18 each of which latter projects inwardly beyond the inner curved edge of the plate so that when the two members of the circular frame are assembled, a circular or annular series of finders located close to each other will be provided to engage the knitted tube 19 passing through the opening 20 of the circular frame throughout the circumference or circular contour of said tube and in such close proximity to each other that if a hole, however small, occurs in any portion of the knitted tube, one of the finders may enter such hole.

The knitted tube coming from the knitting machine and passing through the opening 20 formed by the circular frame, will be expanded, (by means of a spreader 21 at the lower end of a shaft 22 secured to the knitting machine), so as to cause it to engage the circular series of finders. Said finders are pressed inwardly against the knitted tube by means of springs 23. These springs are attached at one end to flanges 24 at the inner edges of plates 25 secured to the plates 16 of the circular frame and forming parts of said circular frame, said plates 25 covering the slots in which the finders are mounted, and the other or outer ends of said springs are secured to lugs 26 which project upwardly from the outer ends of the finders 18. The lugs 26 are formed with shoulders 26^a which engage the plates 25 and limit the inward movement of the finders.

The vertically movable frame 6 and the devices above described mounted thereon, are sustained in normal position by a spring 27 encircling one of the rods of said vertically movable frame and bearing at one end against a pin 28 projecting from said rod and at the other end against one of the lugs 3 of the guide bracket 2. A rack bar 29 is secured to the rod 4 of the vertically movable frame 6 and meshes with a pinion 30

secured to a shaft 31. This shaft is mounted in a bracket 32 secured to the supporting bracket 1. A shifting arm or member 33 is secured to the shaft 31 and adapted by its movement when the shaft 31 is turned, to operate any suitable clutch gear or belt shifting devices for stopping the operation of the knitting machine.

If during the knitting of the tube, a hole occurs in the latter from any cause, one of the many finders 18 will be projected, by the action of its spring, through such hole and as the knitted tube continues to move downwardly, the circular frame will, by connection of the finder with the knitted tube, be caused to move downwardly, thereby causing the frame 6 to descend against the resistance of the spring 27 and cause rotation of the shaft 27 through the medium of the rack-and-pinion connection of the latter with the frame 6, and movement of the arm 33 due to the rotary movement of the shaft 27 will operate through the medium of any suitable means to shift a clutch gear or belt shifting devices (not shown) to stop the operation of the knitting machine.

Various changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In stop mechanism, the combination with a shifting member, a frame movable in the direction of travel of a fabric from a knitting machine, yielding means retaining said frame in normal position, and means for imparting movement of said frame to said shifting member, of a plurality of finders carried by said movable frame and adapted to engage a knitted fabric, any one of said finders adapted to enter a hole which might occur in said fabric due to imperfect knitting thereof.

2. In stop mechanism, the combination with a frame having a central opening for the passage of a knitted tube and yieldable in the direction of travel of said tube, of a series of spring-pressed finders carried by said yieldable frame around said central opening, a shifting member, and devices between said yieldable frame and shifting member for transmitting movement of said frame to said shifting member.

3. In stop mechanism, the combination with a frame having an opening for the passage of a knitted tube and mounted to yield in the direction of travel of said tube, a shifting member, and devices connecting said shifting member and yieldable frame, of a plurality of spring-pressed finders carried by said yieldable frame around the opening therein and adapted to enter said opening and press against the knitted tube, any one of said finders adapted to enter a hole which might occur in said knitted tube and cause movement of said frame by the movement of said knitted tube in the direction of travel of said tube, to transmit motion to said shifting member for stopping the knitting operation.

4. In stop mechanism, the combination with a vertically movable frame, a shifting member, and gearing between said shifting member and vertically movable frame, of a horizontally-disposed frame carried by said vertically movable frame and having an opening for the passage of a knitted tube, and a plurality of spring-pressed finders carried by said horizontal frame and adapted to project into the opening therein and engage said knitted tube.

5. In a stop mechanism, the combination with a vertically movable frame, a shifting member, and gearing between said shifting member and said vertically movable frame, of a horizontal frame carried by said vertically movable frame and having an opening for a knitted tube, a plurality of finders carried by said horizontal frame and adapted to enter the opening therein and engage the knitted tube, and a spreader for expanding said knitted tube against said finders.

6. In stop mechanism, the combination with a shifting member, a frame having an opening therein for the passage of a knitted tube and mounted to yield in the direction of travel of said tube, and means for imparting yielding movement of said frame to said shifting member, of a plurality of spring-pressed finders carried by said frame and adapted to enter the opening therein and engage said knitted tube, means for forcing said knitted tube against said finders, and a spring operating to sustain said frame in normal position.

7. In stop mechanism, the combination with a spring-sustained member and an annular frame carried thereby and having an opening for a knitted tube, of an annular series of spring-pressed finders carried by said annular frame and projecting thereinto, a shifting member, and means for imparting movement from said spring-sustained member and annular frame to said shifting member.

8. In a stop mechanism, the combination with a spring-sustained member, and an annular frame carried thereby and having an opening for the passage of a knitted tube, of an annular series of spring-pressed finders carried by said annular frame and projecting thereinto, a shifting member, and gearing between said spring-sustained member and said shifting member.

9. In a stop mechanism, the combination with a vertically movable frame, a horizontal frame carried by said vertically movable frame and having an opening, a spring for sustaining said frames, a plurality of spring-pressed finders carried by said horizontal frame and projecting into the opening in the latter, a shaft, a shifting member carried thereby, a pinion on said shaft and a rack carried by said vertically movable frame and meshing with said pinion.

10. In stop mechanism, the combination with a movable frame, a shifting member, and means for transmitting motion from said movable frame to said shifting member, of an annular divided frame carried by the movable frame and comprising two cooperating members having hinge connection relative to each other and to said movable frame, the members of said divided frame coöperating to form an opening for the passage of a knitted tube, and spring pressed finders carried by the respective members of said divided frame and adapted to engage a knitted tube passing through the opening in said divided frame.

11. In stop mechanism, the combination of a shifting member, a movable frame having an opening for the passage of a knitted tube, said movable frame comprising a member having a plurality of radial slots, and a top plate over said slotted member and having a flange, finders mounted in said slots and adapted to engage a knitted tube passing through the opening in said frame, said finders having lugs having shoulders to engage said top plate, springs connecting the lugs at the outer ends of the finders with said flange, and means for transmitting movement of said movable frame to said shifting member.

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

ROY L. CAMPBELL.

Witnesses:
W. L. FROST,
G. C. FORRESTER.