No. 622,542. Patented Apr. 4, 1899.

G. W. RUTH.

KNITTING MACHINE.

(Application filed Aug. 8, 1898.)

(No Model.)

Fig 1

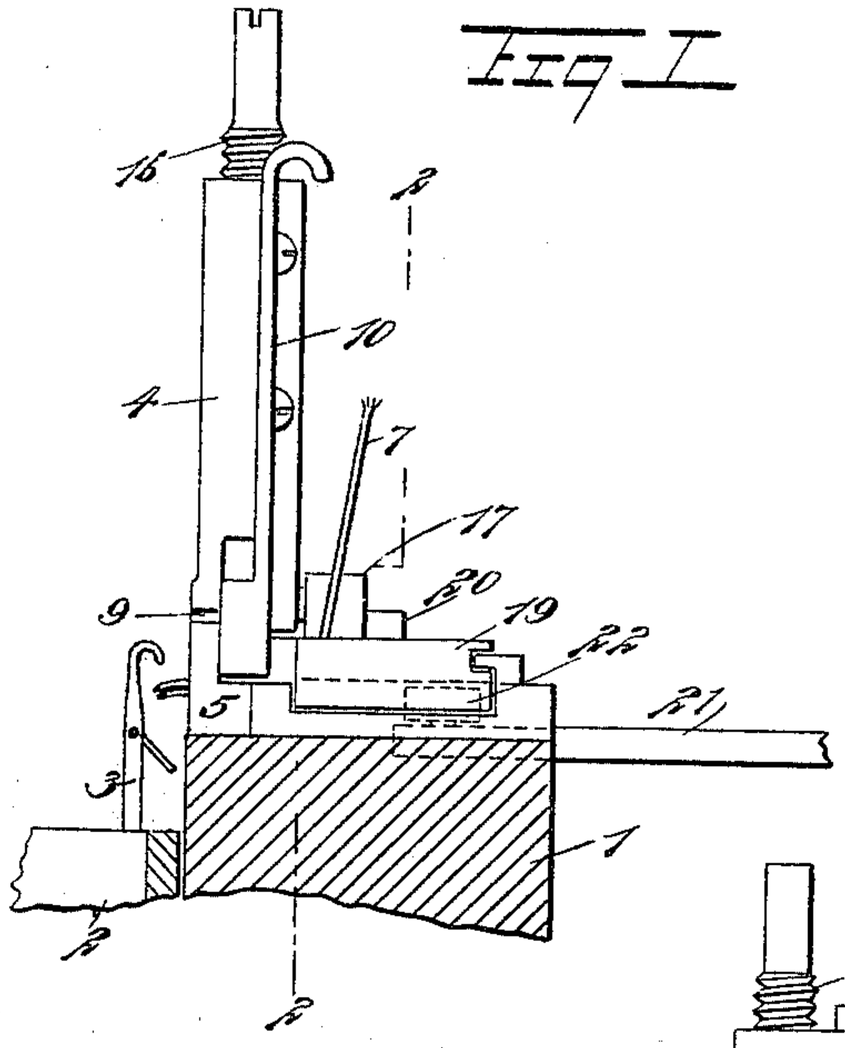

Fig 2

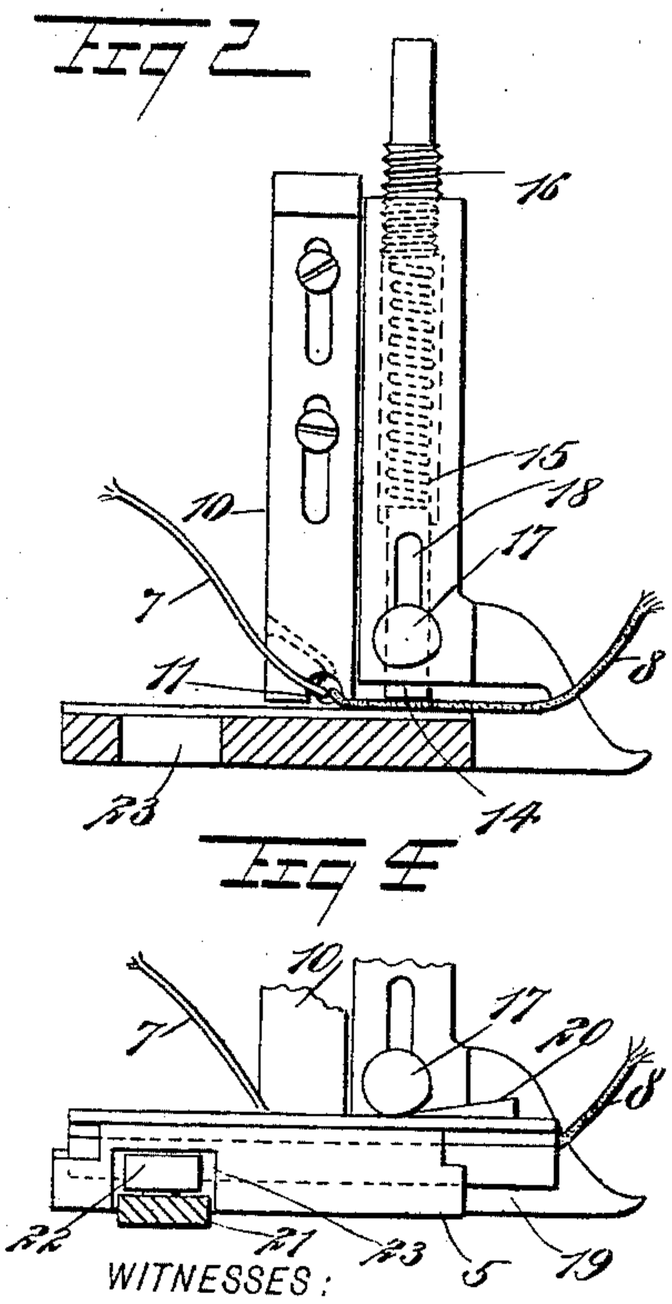

Fig 3

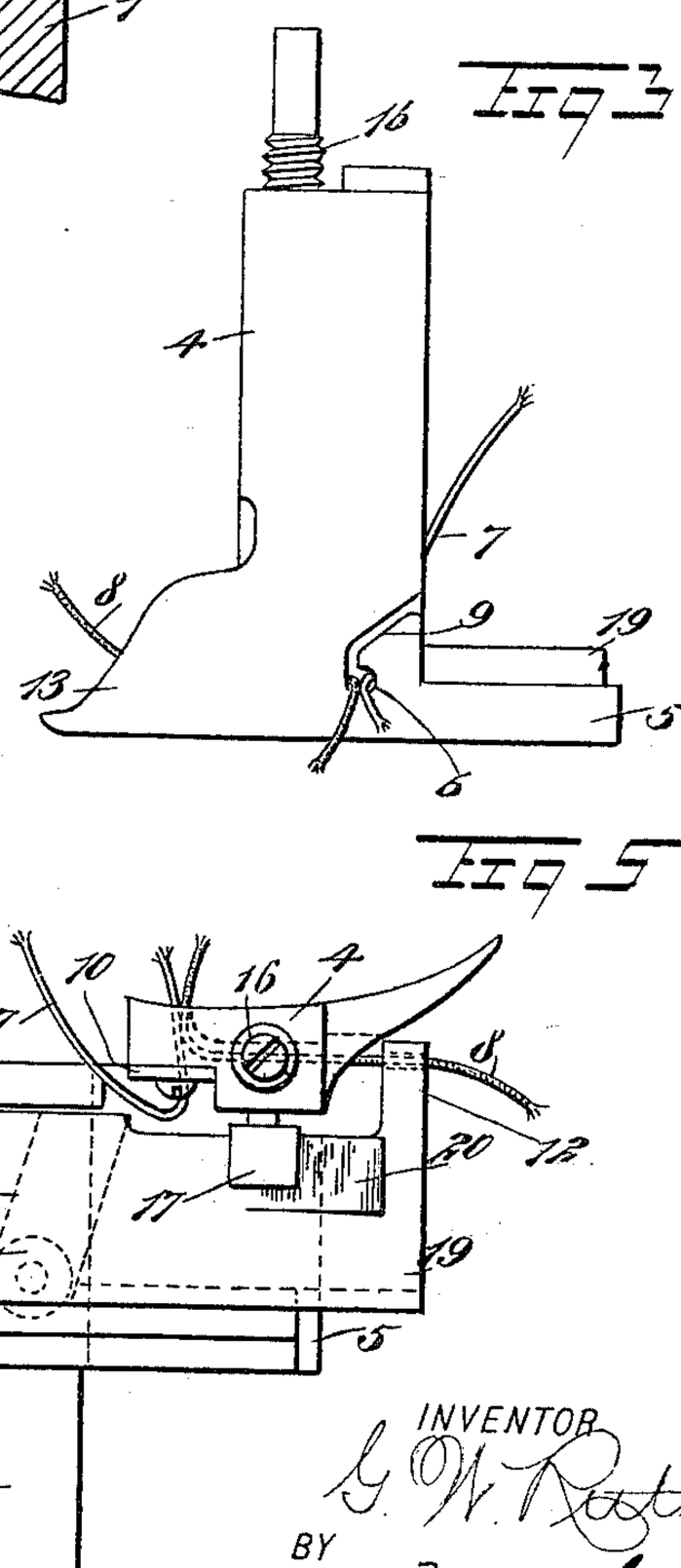

Fig 4

Fig 5

WITNESSES:

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GEORGE W. RUTH, OF NORRISTOWN, PENNSYLVANIA.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,542, dated April 4, 1899.

Application filed August 8, 1898. Serial No. 688,015. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. RUTH, of Norristown, in the county of Montgomery and State of Pennsylvania, have invented a new and Improved Knitting-Machine, of which the following is a full, clear, and exact description.

This invention relates to striping and splicing attachments for circular-ribbed-knitting machines, whereby an extra thickness of the fabric is secured at any desired point—such, for instance, as half-way around the knee of a stocking or around the heel; and the object is to provide an attachment for this purpose in which the splicing-yarn will be broken or parted at the proper time, the break occurring near the hole through which the main yarn is fed, so that the end of the splicing-yarn may be readily taken up.

I will describe a knitting-machine attachment embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of an attachment embodying my invention and showing the same in connection with a portion of a knitting-machine. Fig. 2 is an outside elevation and a section on the line 2 2 of Fig. 1. Fig. 3 is an inside elevation. Fig. 4 is an elevation opposite to that of Fig. 3, and Fig. 5 is a plan view of the attachment.

Referring to the drawings, 1 designates a portion of a knitting-machine frame, and 2 a portion of the rotary part carrying the needles 3. Mounted on the frame portion 1 is a yarn-bracket consisting of an upright 4 and a base 5. Near its lower end the upright 4 has an opening 6 for the passage of the main yarn 7 and also for the passage of the splicing-yarn 8. To facilitate the threading of the needles should the yarn 7 be accidentally broken, I extend a slot 9 from the hole 6 outward through the upright. This slot 9 is normally closed by a plate 10, mounted to slide vertically on the upright. The plate 10 is provided with slots through which screws pass into the upright, and at its lower end the slide-plate has a notch 11 for the passage of the yarn, and this notch 11 is normally in line with the hole 6.

The splicing-yarn 8 passes under a clamping device, here shown as a plunger 14, mounted to move vertically in an opening in the upright. This plunger 14 is held yieldingly downward by means of a spring 15, and the tension of this spring 15 may be regulated by a screw-plug 16 engaging in a tapped opening in the upright and bearing upon the upper end of the spring. Extended outward from the plunger 14 is a lug 17, the shank portion of which is designed to move in a slot 18, formed in the upright. Mounted to slide on the base of the bracket is a cam-plate 19, having an inclined surface or cam 20 on its upper side designed to engage with the lug 17 to move the plunger upward. This plate slides in suitable ways in the base-plate, and as a means for moving said plate I employ a bar 21, operated from a portion of the knitting-machine and having a roller 22 engaging against the inclined walls of a slot 23, formed in the under side of the plate 19. The plate 19 has an offset 12, provided with an eye through which the yarn 8 passes.

In the operation of the machine when the part designed to be reinforced or thickened is reached the rod 21 will be moved inward to move the plate 19 in a direction to cause the cam or incline 20 to raise the plunger 14, and thus release the splicing-yarn 8, and this movement of the plate will feed the yarn through the hole 6 because of the yarn engaging friction-tight in the opening in the plate 19 or in friction engagement with the main yarn. The needles will then take up this splicing-yarn with the main yarn, and the knitting will continue until the end of the thickened or reinforced portion is reached, when the rod 21 will be drawn outward, causing the plate 19 to move in a direction to lower the plunger 14 onto the yarn 8, thus clamping it in position, and the rotary movement of the part 2, carrying the needle, will break the yarn adjacent to the opening 6, leaving an end projected, to be subsequently taken up, as above described. By placing the plunger close to the hole or opening 6, as shown, the yarn 8 will be caused to separate or break at the point described—that is, when the plunger is brought down the

yarn will be drawn around the edge of the hole 6 in such a manner that it forms a hitch, which causes the yarn to break nearest the surging point, which is where the needles are drawing the stitch.

When knitting striped goods, I employ two or three small plungers similar to the plunger 14, the number of course depending upon the number of different colors to be used, and there will be as many cammed surfaces on the slide 19 as there are plungers.

It will be noted that the device described is a combined yarn-guide, splicer, and striping attachment.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An attachment for a circular-knitting machine, comprising an upright adapted to be attached to the cam-cylinder of the machine, the said upright having an opening near its lower end for the passage of main and splicing yarns, a plunger movable vertically in the upright, a spring for actuating the plunger downward, means for adjusting the tension of said spring, a cam-plate movable horizontally in guides on the base of the upright and having an eye to receive the splicing-yarn, an inclined cam on the plate for engaging a projection from the plunger, and means for oscillating the cam-plate, substantially as specified.

2. An attachment for a circular-knitting machine, comprising an upright adapted to be attached to the cam-cylinder of the machine, and having an opening in its lower portion for the passage of main and splicing yarns, a spring-pressed plunger movable in said arm, a horizontally-movable cam-plate having an eye for the passage of yarn, a cam on said plate for engaging a projection from the plunger, and a lever, operated by the machine, for operating the cam-plate in both directions, substantially as specified.

GEORGE W. RUTH.

Witnesses:
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E. C. LOOSE.