

G. S. MARVILLE.
 SPLICING FEED DEVICE FOR KNITTING MACHINES.
 APPLICATION FILED JUNE 29, 1908.

947,925.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.

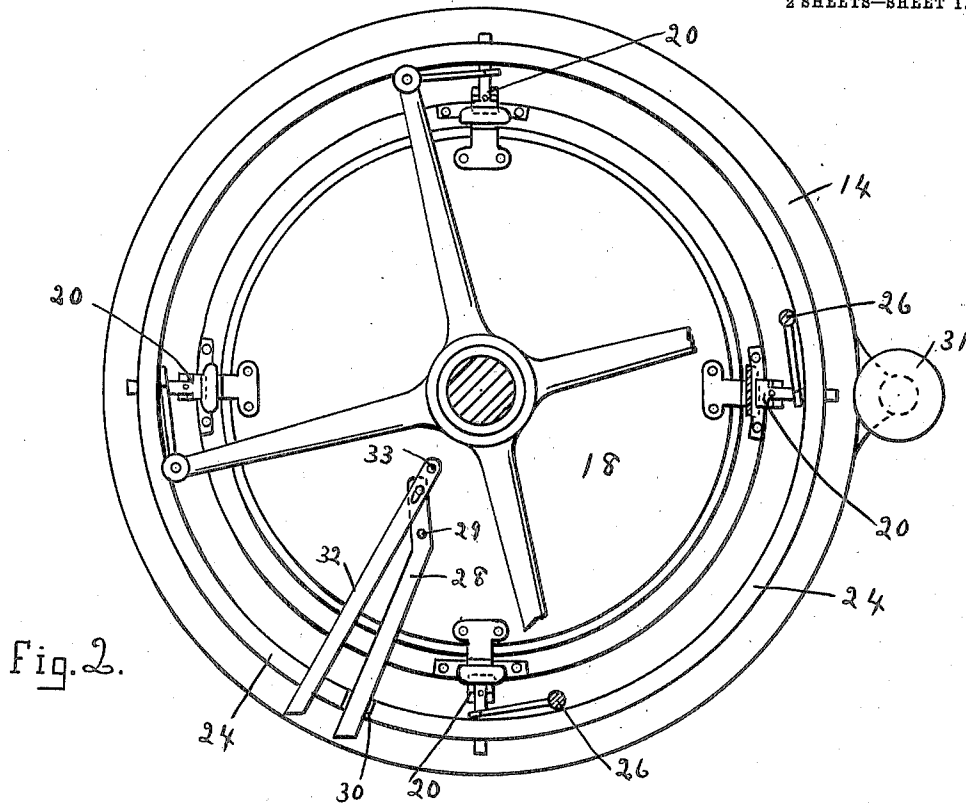
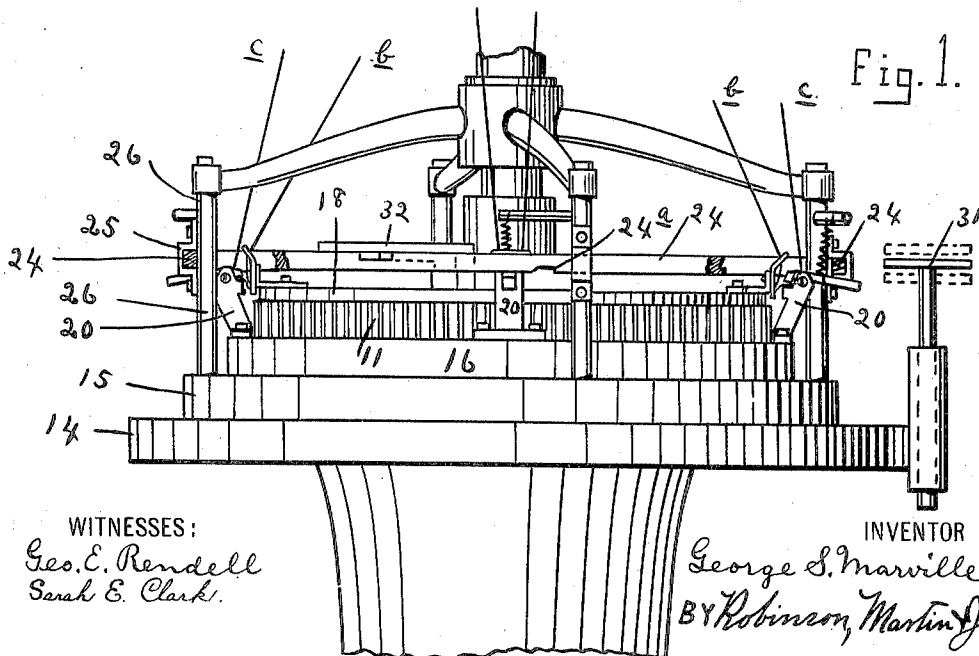


Fig. 2.



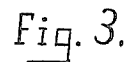
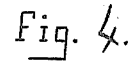
WITNESSES:
 Geo. E. Rendell
 Sarah E. Clark.

INVENTOR
 George S. Marville
 BY Robinson, Martin Jones

ATTORNEYS

947,925.

2 SHEETS--SHEET 2.



INVENTOR

BY Robinson Martin Jones

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE S. MARVILLE, OF RIEGELSVILLE, PENNSYLVANIA, ASSIGNOR TO AUGUSTA KNITTING COMPANY, OF UTICA, NEW YORK.

SPLICING-FEED DEVICE FOR KNITTING-MACHINES.

947,925.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed June 29, 1908. Serial No. 440,783.

To all whom it may concern:

Be it known that I, GEORGE S. MARVILLE, of Riegelsville, in the county of Bucks and State of Pennsylvania, have invented certain new and useful Improvements in Splicing-Feed Devices for Knitting-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form part of this specification.

The object of my invention is to provide an improved, simple and efficient means for periodically feeding one or more extra or alternate yarns or threads to a knitting machine and discontinuing the feed thereof.

Figure 1 shows a side elevation of a portion of a well known form of circular latch needle knitting machine equipped with my improvements. Fig. 2 shows a top or plan view of the same. Fig. 3 is an enlarged sectional detail showing more particularly mechanism of my improvements. Fig. 4 is an enlarged diagram showing the mode of operation.

Referring to the drawings, 10 indicates the cylinder supporting the vertical latch needles 11, and 12 is the dial supporting the horizontal latch needles 13. In the form of machine shown, the cylinder 10 and dial 12 are held against rotation, the cylinder being supported on a base or frame ring 14. Surrounding the cylinder 10 and mounted on the base ring 14 are rotatable post rings 15 and cam rings 16 secured together for rotation. The cylinder needle cams 17 are secured on the inside of the ring 16, while the dial needles are operated by cams on the underside of rotatable plate 18 in the usual manner. The cam plate 18 carries a number of yarn guides 19 located around the periphery of the dial and being one for each "feed". These yarn guides 19 are provided with an opening or eye, arranged in close proximity to the upper ends of the cylinder needles when in their upper positions at each feed, the position of the eye with reference to the cylinder needles at each feed being indicated in dotted lines at *a* in Fig. 4.

In the construction as shown the guide eye is adapted to provide a passage for what may be termed a regular thread or yarn *b*

and an extra (or alternate) thread or yarn *c*. The latter yarn passes through a gripping device in the nature of a pair of pinchers, consisting of a base member 20 supported on the revoluble ring 16 and a lever member 21 pivoted thereto at 22. The lower gripping face 20^a of this gripping device is preferably arranged somewhat above the plane of the yarn eye *a*, as shown particularly in Fig. 3. For closing the grip or operating the movable lever member 21 thereof to closed position, there is provided a spring 23. For opening the grip or rather the several grips arranged around the circle of the machine, there is provided a shiftable ring 24 mounted in bearings or keepers 25 supported on the posts 26 and having notches or recesses as 24^a with an inclined end serving as a cam to ride down the outwardly projecting end of the grip member 21. For shifting the position of the ring 24, it is provided with a lever 28 pivoted at 29 to the cam plate 18, and adjacent to its projecting swinging end coupled to the ring 24 at 30. The projecting end of the lever 30 is adapted to strike and be operated by the tripper 31, consisting of a rotary disk mounted on a vertically movable spindle in the usual manner on this class of machines, and the movements of which tripper are controlled by a chain with projections in the usual manner.

In addition to the lever 28 there is also provided a lever 32 pivoted to the cam disk 18 at 33, and coupled to the rear extension of the lever 28 and projecting in a plane close to the plane of the lever 28. The tripper 31 is adapted to be shifted in three positions, as shown in Fig. 1. In one position it will strike the lever 28 and shift the ring 24 in one direction, in another position it will strike the lever 32 and shift the ring 24 in the opposite direction, and still in the third position it will fail to strike either the levers 28 or 32.

It is obvious that when the ring 24 is shifted to allow the grip member 21 to enter the notch 24^a, that the grip will be closed by the spring 23 and the thread or yarn *c* tightly gripped. When this is done with the machine in operation, the yarn *c* will be broken adjacent to a point where the needles begin to operate on the yarn and the end *c* will be left and held trailing in the needles. When the gripping device is opened, the yarn *c* will begin to feed promptly and cer-

tainly on account of the friction of the trailing end in the needles and the friction with the regular yarn *b* in case one is running in at the same guide or feed. By providing
 5 the gripping device in close proximity to the needles, the withdrawal of the broken or trailing end from its trailing position in the needles, on account of relaxing the strain on the yarn at the time it is broken, is ob-
 10 viated.

In the operation of the invention the yarn will be broken, as the cam cylinder revolves, at the point at which the yarn engages the needles, owing to the fact that at such point
 15 there will be a doubled portion or bight in the yarn at the last needle engaging the same when the breaking strain arrives; so that the yarns will be broken at the needles in such a manner as to leave, in each case of a
 20 broken yarn, a trailing end which will facilitate the taking up of the yarn by the needles when the yarn grip is released.

With the device herein shown and described, a number of threads at various feeds
 25 around the periphery of the machine may be simultaneously discontinued or simultaneously introduced into the regular knitting without trouble from defects in the fabric at the points where the threads are either
 30 discontinued or again started. Additional feeds not provided with means for introducing and discontinuing an extra or alternate thread over and above those shown in the drawings, may be provided around the
 35 periphery of the dial if required.

What I claim as new and desire to secure by Letters Patent is:

1. In a knitting machine, the combination with the knitting needles and a yarn guide
 40 to deliver the yarn thereto, of a gripping de-

vice through which the yarn passes and which is arranged closely adjacent to the knitting needles, said yarn gripping device comprising an outwardly extending grip-
 45 ping lever, a shiftable ring engaging said lever and provided with a cam surface, a rotatable plate, two levers pivotally mounted on said plate and having outwardly extend-
 50 ing operating arms, means whereby said levers are connected with said ring, and a relatively stationary operating device with which one or the other of said levers may be engaged as the said plate rotates, for the purpose of shifting said ring in one direc-
 55 tion or the other to cause the yarn to be gripped or released.

2. In a knitting machine, the combination with the knitting needles and a plurality of yarn guides for delivering the yarn thereto, of a plurality of yarn gripping devices ar-
 60 ranged closely adjacent to said needles and having outwardly extending operating arms, a shiftable ring having a plurality of cams for engaging said arms, a rotatable plate, two levers pivotally mounted on said plate
 65 and having outwardly extending operating arms, means whereby said levers are connected with said ring, and a relatively stationary contact device with which one or the other of said levers may be engaged as
 70 the said plate rotates, for the purpose of shifting said ring in one direction or the other, to cause the yarns to be gripped or released.

In witness whereof, I have affixed my signature, in presence of two witnesses, this
 75 25th day of June 1908.

GEORGE S. MARVILLE.

Witnesses:

SARAH E. CLARK,
 EMMA S. HESSE.