

W. F. ROLSTON.
STRAIGHT KNITTING MACHINE.
APPLICATION FILED NOV. 4, 1908.

1,016,232.

Patented Jan. 30, 1912.

4 SHEETS—SHEET 1.

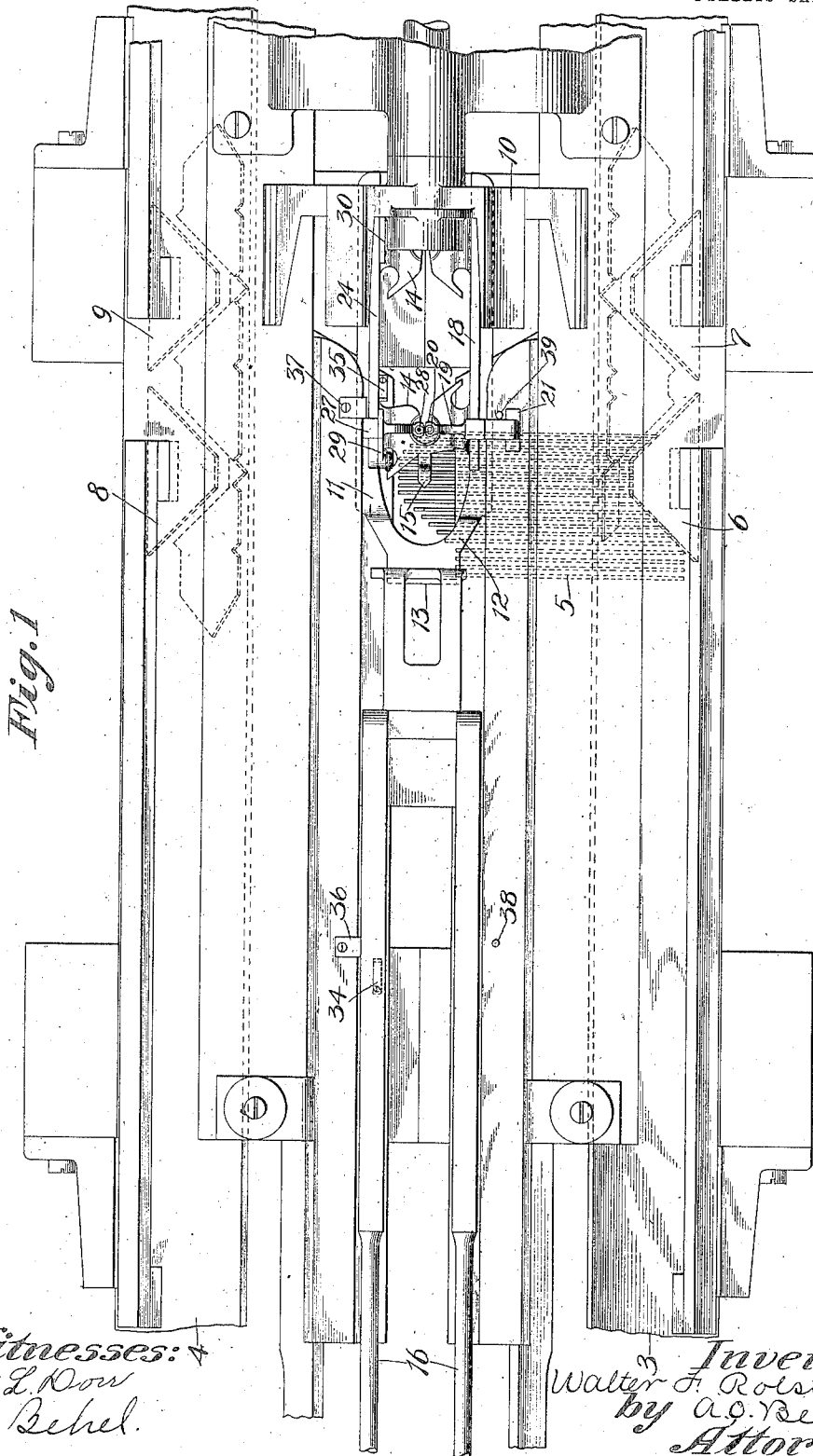


Fig. 1

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Inventor:
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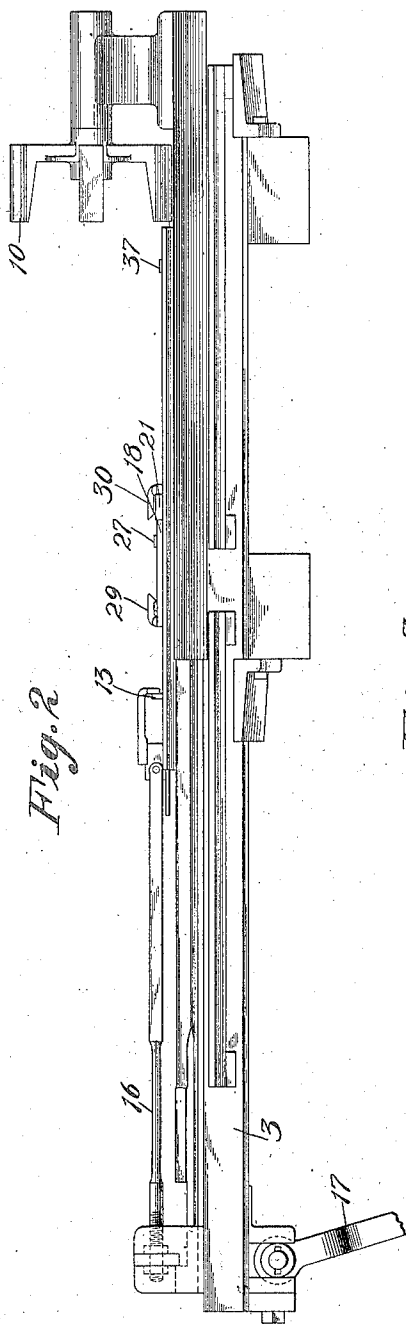
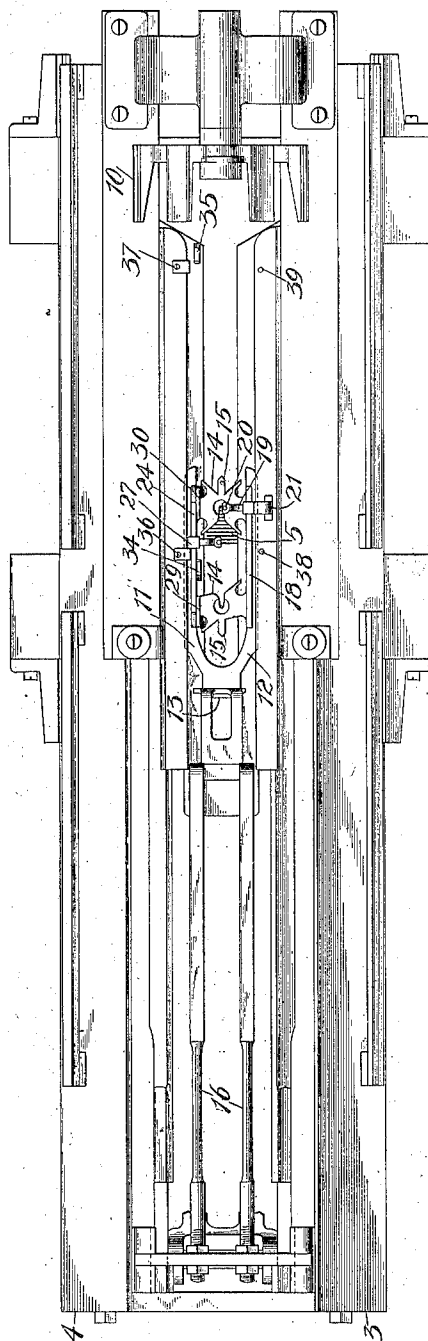


Fig. 2

Fig. 3



Witnesses:

W. L. Nott.
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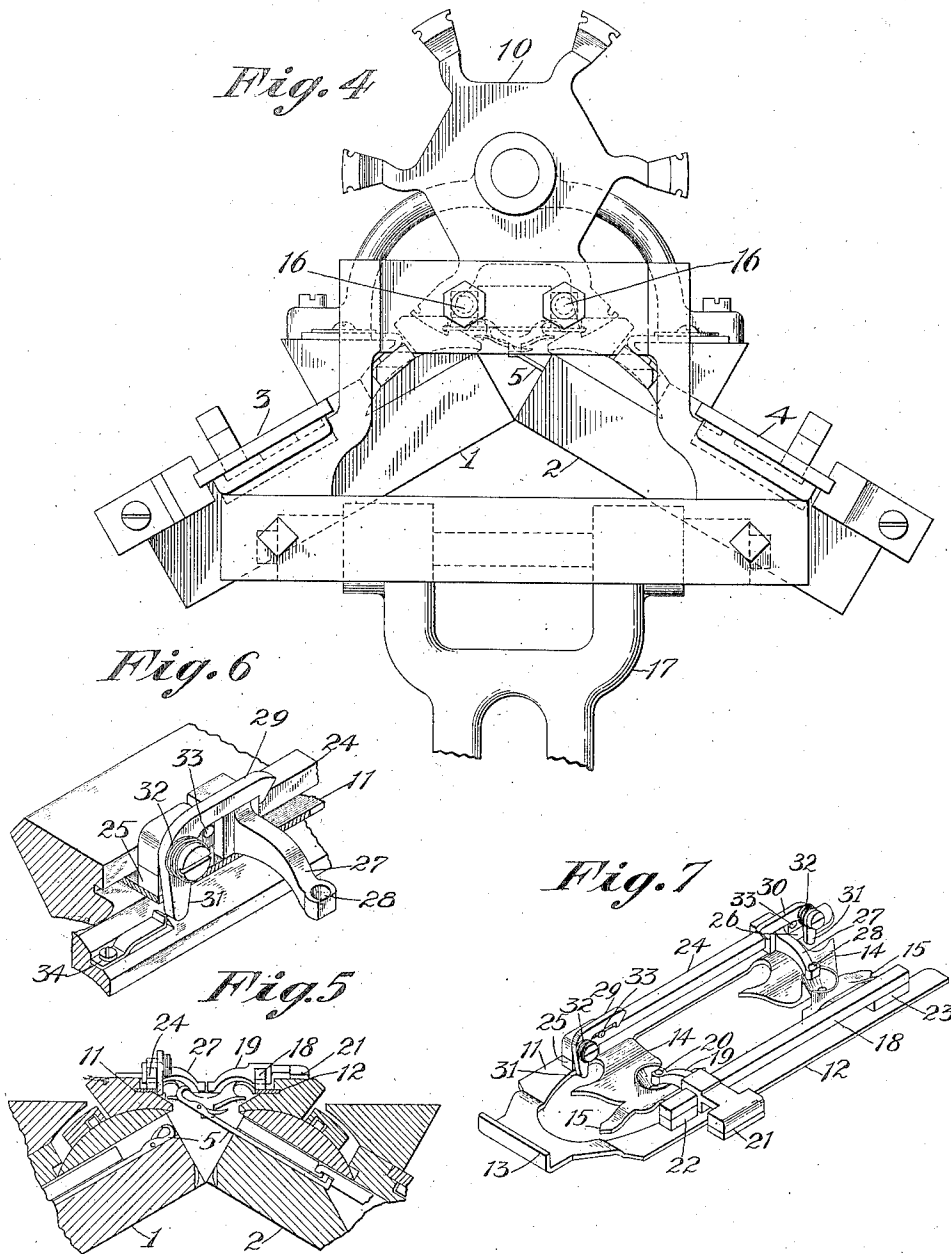
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4 SHEETS—SHEET 3.



Witnesses:

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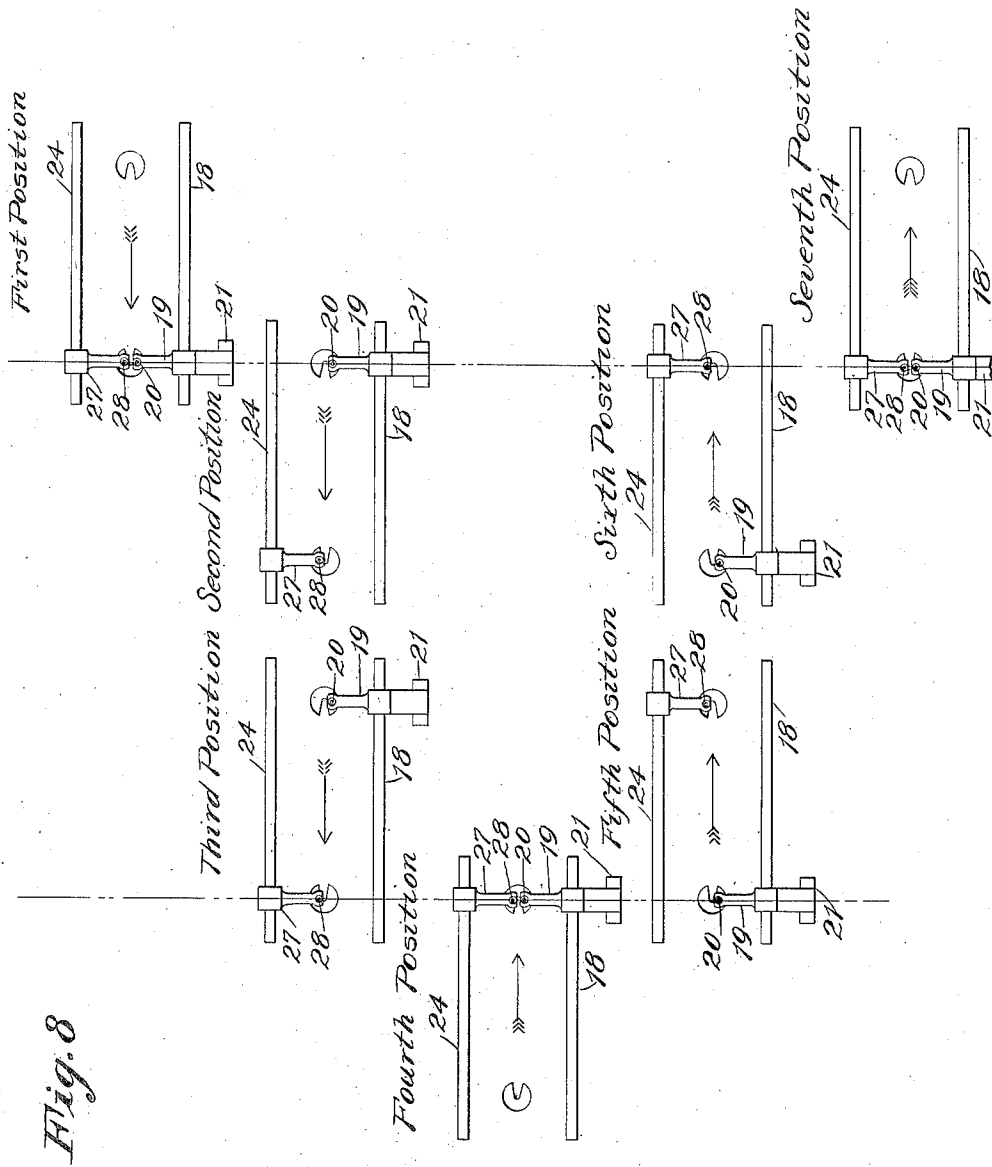


Fig. 8

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UNITED STATES PATENT OFFICE.

WALTER F. ROLSTON, OF ROCKFORD, ILLINOIS, ASSIGNOR TO BURSON MANUFACTURING COMPANY, OF ROCKFORD, ILLINOIS, A CORPORATION OF ILLINOIS.

STRAIGHT-KNITTING MACHINE.

1,016,232.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed November 4, 1908. Serial No. 461,082.

To all whom it may concern:

Be it known that I, WALTER F. ROLSTON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Straight-Knitting Machines, of which the following is a specification.

The object of this invention is to provide a multiple yarn guide for straight knitting machines in order that two yarns may be knit during the single movement of a cam slide.

In the accompanying drawings, Figure 1 is a plan view of a straight knitting machine to which my improvements have been applied, and in which the yarn guides are at one end of their movement. Fig. 2 is a side elevation. Fig. 3 is a plan view in which the yarn guides are near the other end of their movement. Fig. 4 is an end elevation. Fig. 5 is a vertical section of the upper portion of the needle beds showing my improvements in connection therewith. Fig. 6 is an isometrical representation of one of the latches for retaining one of the yarn guides. Fig. 7 is an isometrical view of the yarn carriers and yarn guides. Fig. 8 is a diagrammatical view of the movements of the yarn guides during a complete movement back and forth over the needle beds.

The knitting machine shown in the drawings in the main is of the straight variety comprising the needle beds 1 and 2 supporting the cam slides 3 and 4 respectively. Needles 5 are supported to move in the needle beds in the usual manner. The cam slides 3 and 4 each support two cams 6 and 7, and 8 and 9 respectively. The yarn changer 10 is of a well known construction. I have not deemed it necessary to show the mechanism for imparting movement to the cam slides or yarn changer as such is well understood in this class of machines.

A yarn carrier comprises the side bars 11 and 12 connected by the upturned end bar 13, and two cross bars 14 supporting latch openers 15 of the usual construction. These side bars are adapted to slide in ways formed in the upper portion of the needle beds over the needles. This yarn carrier is reciprocated by its upturned end 13 having a connection with the reciprocating bars 16 which are moved by the swinging link 17. To the side bar 12 is secured a guide bar 18

square in cross section, and this guide bar supports a yarn guide 19 having an eye 20 at one end and its other end provided with a friction shoe 21 resting in contact with the upper surface of the needle bed 4 above the needles. Beneath the ends of the guide bar 18 are located stops 22 and 23.

To the side bar 11 is secured a guide bar 24 supported upon the end stops 25 and 26. This guide bar supports a yarn guide 27 having an eye 28 in one end. This yarn guide is adapted to slide on the guide bar. To the ends of the guide bar 24 are pivoted catches 29 and 30 respectively, each having a depending section 31. A coiled spring 32 serves to hold the catches yieldingly against the stops 33. To the bed 2 above the needles are secured two spring catches 34 and 35 which are located in the travel of the depending sections 31 of the catches 29 and 30, and to the bed 2 are secured two stops 36 and 37 which are located in the path of the movement of the yarn guide 27.

In knitting, the yarn carrier is reciprocated between the needle beds 1 and 2 and immediately after the projection of the needles.

At Fig. 1, the yarn guides 19 and 27 are in their starting position, and being in line across the machine, and at Fig. 8 is shown a diagrammatical view of the yarn guides in their different positions in making a complete movement back and forth over the needle beds.

The first movement of the yarn carrier will be to carry the yarn guide 27 with it until it reaches the second position Fig. 8, at which time the stop 23 will engage the yarn guide 19 when the further movement of the yarn carrier will carry both yarn guides into the positions shown in third position Fig. 8, when the depending end 31 of the pivoted catch 29 will contact with the spring catch 34 and release the catch from its engagement with the yarn guide 27, when the further movement of the yarn carrier will carry the yarn guide 27 in contact with the stop 36 when it will remain at rest. This movement of the yarn carrier will carry the yarn guide 19 with it until it reaches a position opposite the yarn guide 27 and contact with the pin 38, when it will appear as shown in the fourth position Fig. 8. When the yarn guides are in the fourth position Fig. 8, the pivoted catch 30 will have en-

gaged the yarn guide 27 thereby forming a connection between this yarn guide and the yarn carrier. When the yarn carrier is ready for its return movement, the first portion of which will carry the yarn guide 27 into the fifth position Fig. 8, when the stop 22 will contact with the yarn guide 19. This yarn guide 19 has been held from movement with the yarn carrier by its end 21 contacting with the needle bed 1. The yarn carrier will carry both yarn guides into the sixth position Fig. 8, when the depending end of the pivoted catch 30 will contact with the spring latch 35 and release the catch from its connection with the yarn guide 27, at the same time the yarn guide 27 will contact with the stop 37 and remain at rest until the yarn carrier has brought the yarn guide 19 opposite it when it will contact with the pin 39. The pivoted catch 29 will engage the yarn guide 27 and the yarn guide will be in the seventh position Fig. 8, which corresponds to the first or starting position. These movements are repeated at each complete movement back and forth between the needle beds.

In starting, the yarn carried by the yarn guide 27 will travel ahead of the yarn carried by the yarn guide 19. The cams 6 and 9 move the needles for the yarn carried by the yarn guide 27 and the cams 7 and 8 move the needles for the yarn carried by the yarn guide 19.

By this construction, two courses of knitting are accomplished by a single complete movement of the cam slides, thereby doubling the output of the machine.

I claim as my invention.

1. In a knitting machine, the combination with a support, of a reciprocatory actuating device thereon, a yarn guide mounted on and carried by the actuating device, said actuating device being capable of movement with respect to the yarn guide, devices movable with the actuating device for securing the yarn guide to different portions of said actuating device, and means for automatically releasing the guide from the actuating device on each reciprocatory stroke of said actuating device.

2. In a knitting machine, the combination with a reciprocatory actuating device, of a bar mounted on the device longitudinally thereof, a reciprocatory yarn guide slidably mounted on the bar, a pair of oppositely disposed spring-pressed latches mounted on the actuating device and having hook portions that detachably engage over the guide to respectively move the same with the actuating device in opposite directions, and means for automatically and alternately operating the latches to release the yarn guide.

3. In a knitting machine, the combination with a reciprocatory actuating device, of a supporting bar mounted thereon longitudi-

nally of its line of movement, a yarn guide slidable on the supporting bar, latches carried by the actuating device and detachably engaging the yarn guide when at the ends of the bar to secure the same against its sliding movement thereon, and trips disposed in the paths of movement of the latches for actuating the same to release the yarn guide.

4. In a knitting machine, the combination with a stationary support, of a reciprocatory actuating device mounted thereon, a supporting bar mounted on the actuating device, and disposed longitudinally of its line of movement, said bar being secured at its ends to the device, a yarn guide having a box slidably mounted on the bar, latches pivotally mounted on the ends of the bars and having hooks that engage the yarn guide, said latches having downturned ends, and yielding stops mounted on the support and disposed in the path of movement of the downturned ends of the latches.

5. In a knitting machine, the combination with an actuating device movable in opposite directions, of a supporting bar carried thereby, a yarn guide slidable on the supporting bar, stops carried by the actuating device and alternately engaging the yarn guide to move it with the actuating device in opposite directions, and means that engages the yarn guide to hold it stationary when disengaged from the stops.

6. In a knitting machine, the combination with a stationary support, of a reciprocatory actuating device mounted on the support and having a supporting bar thereon disposed longitudinally of its line of movement, a yarn guide slidable on the bar, stops movable with the actuating device and alternately engaging the yarn guide to move the same, and a friction brake carried by the yarn guide and engaging the support for temporarily holding the guide against movement until engaged by the stops.

7. In a knitting machine, the combination with a stationary support, of a reciprocatory actuating device mounted on the support, a bar disposed longitudinally upon the support, stop blocks connecting the ends of the bar to the actuating device, and supporting the former on the latter, a yarn guide slidable on the bar and alternately engaged by the stop blocks upon the reciprocation of the actuating device, and a friction brake carried by the yarn guide and engaging the support for holding said guide against movement when disengaged from the stop.

8. In a knitting machine, the combination with a reciprocatory actuating device, of spaced parallel bars mounted on opposite sides of the same, a yarn guide slidably mounted on each bar and each yarn guide being capable of movement past the other,

latches mounted on the actuating device at the ends of one bar and detachably engaging one of the yarn guides, means for alternately and automatically operating the latches to release the yarn guide, and stops mounted on the actuating device at the ends of the other bar and alternately engaging the other yarn guide.

9. In a knitting machine, the combination with a reciprocatory actuating device, of a pair of yarn guides slidably mounted thereon, latches carried by the end portions of the actuating device, the foremost latch being automatically engaged with one of the yarn guides, and stops carried by the end portions of the actuating device, the rear stop always engaging the other yarn guide to move the same in rear of the first-mentioned device.

10. In a knitting machine, the combination with a reciprocatory actuating device having a pair of substantially parallel lon-

gitudinally disposed slide bars, of a pair of yarn guides slidably mounted on the bars and being capable of movement past each other, latches located at the ends of one of the bars and detachably engaging the guide thereon to alternately hold the same at the foremost end of the bar, trips disposed in the paths of movement of the latches for actuating the same to release said guides, stops located at the ends of the other bar for alternately engaging the other yarn guide to move the same, and a friction brake to hold said latter yarn guide against movement until engaged by the stops.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER F. ROLSTON.

Witnesses:

A. O. BEHEL,
E. D. E. N. BEHEL.