

APPLICATION FILED AUG. 20, 1906. RENEWED AUG. 22, 1910.

Patented Dec. 26, 1911.

2 SHEETS-SHEET 1.

Fig. 1 is a perspective view of the device. It features a circular base with a radial scale. A sliding component is mounted on the base, with a spring (512) and a locking mechanism (510) that includes a pin (511) and a lever (500).

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1843

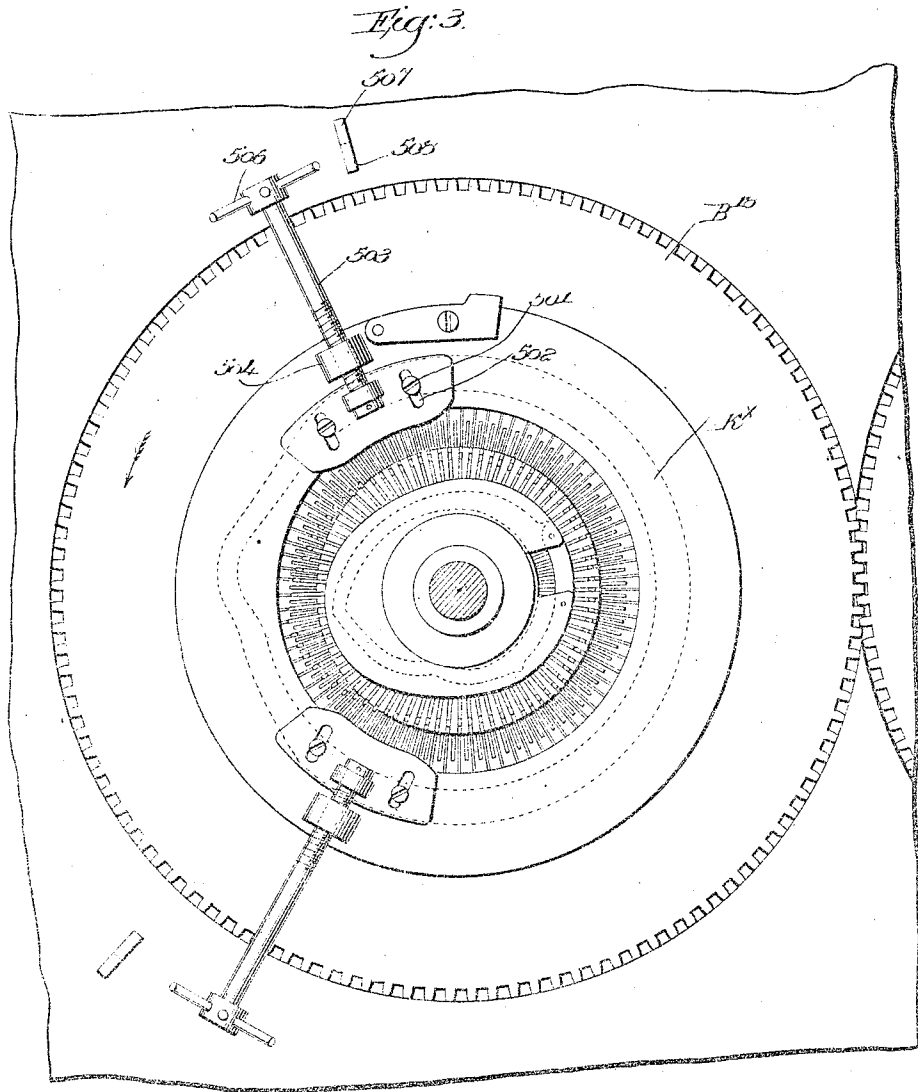
J. G. PROSSER.
KNITTING MACHINE.

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2 SHEETS-SHEET 2.

1,013,058.



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UNITED STATES PATENT OFFICE.

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KNITTING-MACHINE.

1,013,058.

Specification of Letters Patent.

Patented Dec. 26, 1911.

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To all whom it may concern:

Be it known that I, JOSEPH G. PROSSER, a subject of the King of Great Britain, and a resident of Chicago, county of Cook, and State of Illinois, have invented an Improvement in Knitting-Machines, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to a knitting machine having embodied in it mechanism for securing the proper casting off of the fabric from the needles in action at all times whatever may be the character of the work being performed upon the machine, or whatever change may be made from one to another kind of work, and in particular to the securing of this result by means of adjusting or varying the travel or throw of the web holders.

Heretofore the casting off of the fabric from the needles in action has been secured by some kind of take-up mechanism, by which weight is in some way placed upon the knitted fabric to secure the tension requisite for the casting off from the needles. An illustration of this character of mechanism may be found in the patent to Huse and Huse re-issued, No. 12,917, dated Feb. 9, 1909.

The present invention secures the proper casting off of the fabric from the needles in action at all times by providing for adjustment or variation in the travel or throw of the web holders, secured automatically by connections with the pattern mechanism of the machine. The result to some extent may also be secured by an automatic variation under the control of a spring.

The nature of the invention will more fully appear from the accompanying description and will be more particularly pointed out in the appended claims.

The drawings represent only so much of the knitting machine as is necessary to an understanding of the invention. The entire machine in which the invention is embodied is of the same type and general structure as that described and illustrated in the aforesaid application of Huse and Huse, to which reference is hereby made.

In the drawings, Figure 1 represents a central cross-sectional elevation of a por-

tion of the cylinder, dial and connected parts of the knitting machine; Fig. 2 is a partial plan view of the needle cylinder and adjacent parts showing one form of the invention in its broader aspect; Fig. 3 is a plan view with parts removed of the needle cylinder and adjacent parts showing the preferred form of the invention.

The vertical needle cylinder C, with its series of cylinder needles, the cam cylinder B¹⁸ with the cam C² for operating them, the dial needle bed A¹⁶ with the dial needles and the dial cam plate B² for operating them, need no extended description. By means of these two sets of needles and the suitable pattern mechanism for controlling their operations, ribbed, plain circular and reciprocating work may be made upon the machine at the times and to the extent desired in a manner well understood by those familiar with the art, and as fully described and illustrated in the aforesaid Huse and Huse patent.

The web holders K are mounted to reciprocate in the usual manner between the cylinder needles and rest upon the web holder ring k⁶. The web holder cam k⁷ is provided with the operating groove k^x, by means of which under ordinary circumstances the web holders are given their backward and forward movement, due to the nib k⁵ cooperating with the walls of the groove.

The shape of the web holders is best seen by reference to the drawing, the effective end being made up of a point k³⁰ and a barb k³¹. The web holders have the function of devices over which the thread is measured off by the cylinder needles, as is frequent in the case of such devices, but the function of the web holders with which this invention is concerned is that of devices for producing stress or tension upon the fabric as the needles rise to secure the casting off of the loops from the needles in action.

When web holders have a fixed throw or a fixed range of movement or travel it is impossible to secure the proper casting off of the fabric at all times when there are variations in the character of the knitting or of the work being done, because the web holders are necessarily limited as to the length of their travel or the limiting of their forward movement by the require-

ments of that character of work having the smallest and most inelastic loop. Hence, to secure the proper casting off of the fabric from the needles in action at all times and under all conditions of the work it is necessary to make further provisions. This has been done in the present invention by providing for the automatic adjustment or variation of the travel or throw, or the limit of the forward movement of the web holders, and as the preferred means for securing this the following mechanism has been illustrated. An auxiliary radially sliding cam plate 500 is mounted on the web holder cam k' and guided in any suitable way, as by means of pins 501, passing through grooves 502 in the said auxiliary cam plate. This cam plate is located to correspond with that part of the web holder cam groove k'' where the web holders are moved forwardly to depress the fabric and cast off the loops, or in the position shown in the upper part of Fig. 3. It will be seen that if this cam plate be adjusted back and forth the forward limit of movement of the web holders will be adjusted or varied, and consequently the throw or travel of the web holders will be adjusted or varied. To secure this adjustment a screw-threaded bar 503 is shown mounted in its threaded portion in a projection 504 on the web holder cam, and journaled at its forward end in a projection 505 from the auxiliary cam plate. It will thus be seen that by turning the screw-threaded bar 503 the auxiliary cam plate will be adjusted backward or forward as desired. To secure this adjustment automatically the screw-threaded bar 503 is provided with radially-arranged pins 506 at its rearward end, and a vertically movable pin 507, provided with claws 508 between which the pins 506 may revolve freely, passes up through the bed-plate A' and is operated by projections and depressions upon the pattern surface Y.

In operation it will be remembered that the cam cylinder B'' , carrying the web holder cam k' with the parts already described mounted thereupon is revolved upon the vertical axis of the machine, and when, therefore, it is desired to adjust the auxiliary cam plate 500 the pattern surface Y is arranged to bring one or the other of the claws 508 into line with the ends of the pins 506, and retain it there until the threaded bar 503 has been given sufficient turns in the proper direction to adjust the auxiliary cam plate to the desired extent in the desired direction, thus securing any desired degree of movement of the web holders.

In the case of reciprocating knitting, if it is desired to vary the throw or travel of the web holders it is obvious that it will be necessary to duplicate the auxiliary cam

plate 500 and its operating parts already described, and such a duplication is indicated in Fig. 3 of the drawings.

The results of the invention to some extent may also be secured by making the auxiliary cam plate 500 yieldingly adjustable, so that the web holders will at all times tend to move to their extreme forward position under the influence of a spring, and thus cast off the loops from the needles in action whatever be the condition of the work. Such a construction is indicated in Fig. 2, where a coiled spring 510 is mounted between the auxiliary cam plate 500 and the fixed abutment 511 a thumb screw 512 being shown for adjusting the tension of the spring.

The operation of the invention is readily apparent. Whenever the character of the work is varied the pattern surface is so arranged as to automatically adjust the auxiliary cam plate and thus vary the travel or throw of the web holders to the extent required to secure the proper casting off of the loops from the needles in action, and thus at all times and under all conditions the casting off of the fabric from the needles in action is secured without the use of any weights or other devices acting directly upon the knitted fabric, other than the web holders themselves.

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

1. In a knitting machine, two sets of needles and operating means therefor, pattern mechanism for controlling the operation of said needles to produce either ribbed, plain circular or reciprocating work, as desired, web holders acting during at least two of said kinds of work to cast off the work from the needles in action, and means for operating them, means for automatically adjusting the throw of the web holders, as desired, thus to secure at all times the proper casting off of the work from the needles in action.

2. In a knitting machine, two sets of needles and operating means therefor, pattern mechanism for controlling the operation of said needles to produce either ribbed, plain circular or reciprocating work, as desired, web holders acting during at least two of said kinds of work to cast off the work from the needles in action, and means for operating them, means for automatically adjusting the throw of the web holders according to the character of the work, thus to secure at all times the proper casting off of the work from the needles in action.

3. In a knitting machine, two sets of needles and operating means therefor, pattern mechanism for controlling the operation of said needles to produce either ribbed, plain circular or reciprocating work, as desired,

web holders acting during at least two of
said kinds of work to cast off the work from
the needles in action, and means for operat-
ing them, means for automatically adjust-
ing the forward limit of the throw of the
web holders.

4. In a knitting machine, two sets of needles and operating means therefor, pattern mechanism for controlling the operation of said needles to produce either ribbed, plain circular or reciprocating work, as desired, web holders acting during at least two of said kinds of work to cast off the work from

the needles in action, a web holder operating cam, auxiliary web holder cam, means for automatically adjusting the auxiliary cam to vary the forward limit of the throw of the web holders.

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

JOSEPH G. PROSSER.

Witnesses:

FRED. SHOOE,
FRANK H. FRENCH.