

1,038,044.

B. WESSELL.
KNITTING MACHINE.
APPLICATION FILED JAN. 13, 1912.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.

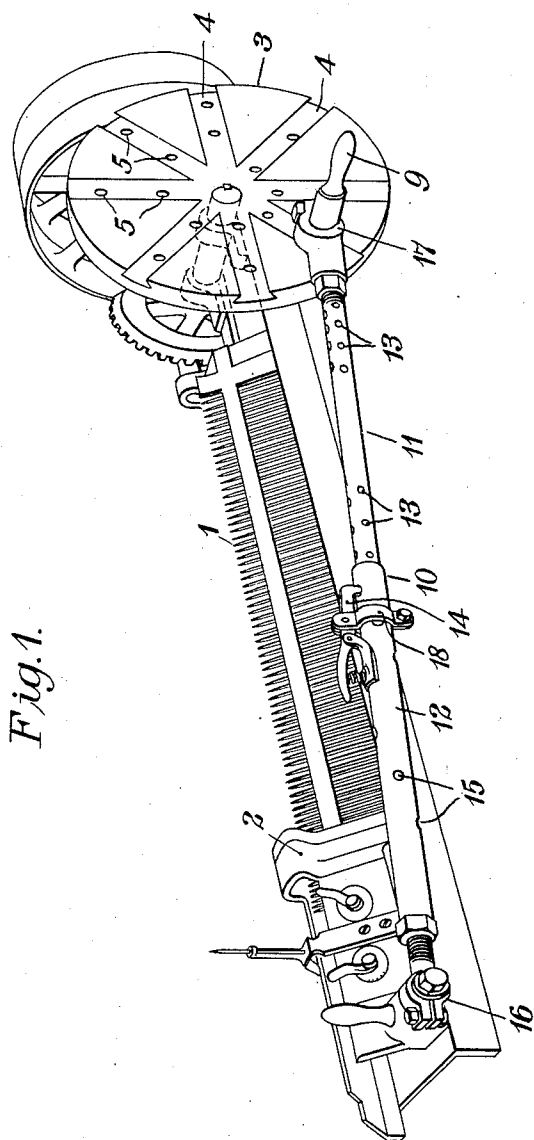


Fig. 1.

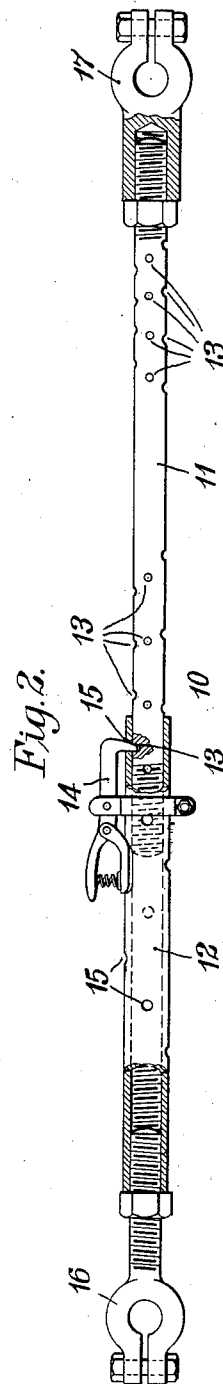


Fig. 2.

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Fig. 3.

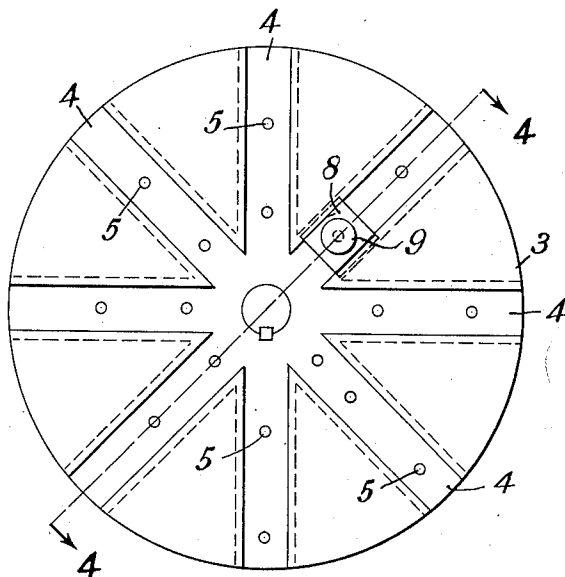
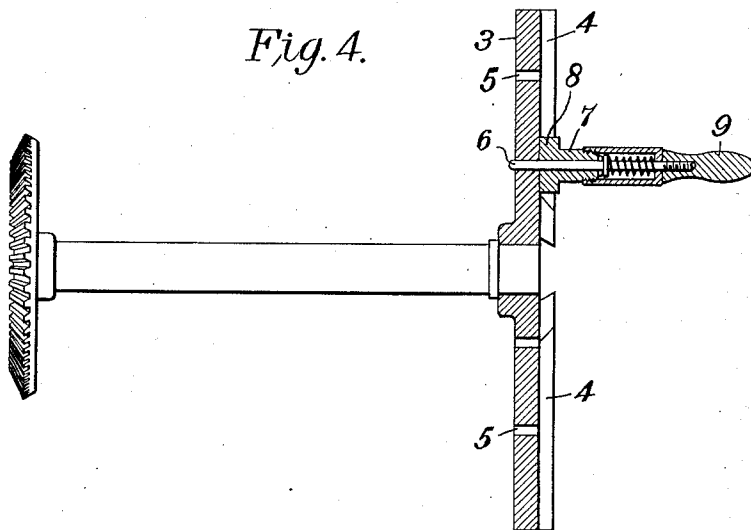


Fig. 4.



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UNITED STATES PATENT OFFICE.

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KNITTING-MACHINE.

1,038,044.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed January 13, 1912. Serial No. 671,046.

To all whom it may concern:

Be it known that I, BERT WESSELL, a citizen of the United States; residing in the city of Johnstown, county of Fulton, and State of New York, have invented or discovered certain new and useful Improvements in Knitting-Machines, of which the following is a clear and complete disclosure.

My invention relates to knitting machines known as flat machines, of the kind comprising a series of needles arranged on a needle bed and adapted to be operated by cams on a carriage reciprocated over the needles along the needle bed.

In knitting many garments with machines of this kind, it is desirable to adjust the machines so as to give the carriage a certain stroke or travel while forming the body portion of a garment and a shorter stroke while forming divided portions of the garment, such as the fingers and thumbs of gloves, the arms and necks of sweaters and shirts, and the legs of drawers. It is also desirable to vary the stroke of the carriage for different sizes of garments. Not only is it desirable to vary the length of travel of the carriage but it is desirable to confine the travel to different portions of the bed when knitting extensions on garments of different kinds and of varying sizes. Furthermore, in operating a machine of this kind, it is usually not necessary to use all of the needles at one time, and in order to insure the needles wearing uniformly, it is necessary from time to time to adjust the travel of the carriage so that different needles will be operated and the wear uniformly distributed. It will thus be seen that in order to obtain the best results with a machine of this kind, means must be provided whereby the operator can easily and quickly make the numerous adjustments necessary to obtain the desired carriage movements, and the object of my invention is to provide such means. I accomplish this object by providing a new and improved adjustable connecting rod and an improved crank having a variable throw for operating the connecting rod, and by combining these with each other in a machine in the manner hereinafter described.

In the drawing accompanying and forming a part of this specification I have illustrated one embodiment of my improved connecting rod and crank and have shown these in combination with each other and with so

much of the mechanism of a flat knitting machine as is necessary to illustrate the application, use and advantages of my improvements.

In this drawing Figure 1 is a perspective view of the needle bed, carriage and driving mechanism of a flat knitting machine, with my improved connecting rod and crank mounted thereon. The crank is in the form of a wheel and is hereinafter referred to as a crank-wheel. Fig. 2 is a detail view, partly in section, of the connecting rod shown in Fig. 1. Fig. 3 is a detail face view of the crank-wheel shown in Fig. 1. Fig. 4 is a sectional view taken on the line 3-3 of Fig. 2.

For the purpose of illustration and explanation I have shown the machine arranged to knit gloves of eight different sizes with four finger extensions knit thereon.

Referring in detail to the mechanism shown in these figures, numeral 1 designates the needle bed of a flat knitting machine, and a carriage 2 is arranged to be moved back and forth over the needle bed for the purpose of operating the needles thereon.

In applying my improvements the needle bed and carriage may be of any approved make and type. For purposes of illustration I have shown in outline a needle bed and carriage such as are generally known as the Lamb type.

The numeral 3 designates the crank-wheel which has eight grooves 4 formed on its face. Each of these grooves contains a plurality of holes or sockets 5 adapted to receive the spring-pressed pin 6 mounted in the crank pin 7. This crank pin is mounted on a base or block 8 arranged to slide back and forth in the slots 4, and a handle 9 is provided for withdrawing and inserting the pin 6 and locating the crank pin over the desired socket where it is held by the pin 6. The grooves 4 are each intended for use in forming a glove of a certain predetermined size, and the sockets 5 in each groove are so spaced as to give the desired strokes for use in forming the various parts of the glove of such predetermined size. Usually only two sockets in each groove will be required, an outer one for use in forming the body portion of the glove and an inner one for forming the finger extensions. If it is desired to make the fingers of varying sizes other sockets may be provided. With a

crank-wheel constructed in this manner the operator can easily adjust the machine so as to give the stroke required to knit the different parts of the garment.

In order to localize the travel of the carriage, the connecting rod 10 is made of two telescoping parts 11 and 12. The part 12 is tubular and slides over the rod 11 which has eight groups of sockets 13 formed on its surface. Four of these groups are at one end of the rod and four at the other. A latch 14, slidably mounted on the member 12, is arranged to pass through one of the holes 15 in the wall of the member 12 and into any one of the sockets 13, thereby holding the connecting rod at any adjusted length. The sockets 13 are arranged in groups corresponding to the sockets in the crank-wheel, there being four sockets in each group, each for use in knitting a finger on a glove of a certain size.

In order to evenly distribute the wear along the needle bed, the connecting rod may be lengthened or shortened by raising the latch 14 and sliding it along the member 12 until it registers with an opening 15 corresponding to the length of connecting rod desired. The latch 14 is pivoted on the band 18 which is free to slide endwise or be rotated when the latch is raised out of the opening 15.

Any small adjustment of length of the connecting rod may be had by screwing in or out the lugs 16 and 17 at the ends of the connecting rod.

The operation of the mechanism above described, when used for knitting gloves, is as follows: The crank end of the connecting rod is moved and secured in position over the outer socket 5 of the group corresponding to the size of the glove to be knitted. After this adjustment is had the machine is operated until the body portion of the glove has been formed. Any small variation in the size of the body portion may be had by varying the tension of the thread, or by disengaging and lowering certain of the needles, or in any other of the customary ways for effecting this object. Next, the operator disengages the crank end of the connecting rod and slides it along the same groove to an inner socket 5. This socket is so placed as to give the necessary travel to the carriage required for knitting a finger. The operator then raises the latch 14 and locates it in the first socket of the group corresponding to the size of glove being formed. The first finger is then knit, and when it is finished the operator stops the machine, moves the latch into the second socket of the same group and operates the machine until the second finger has been formed. This operation is continued until all the fingers have been completed. If some of the fingers are desired smaller in size than others, they may

be so made by using sockets 5 adapted to give a smaller travel to the carriage. If it is desired to change the size of the gloves being knitted this may be done by moving the pin 6 into a slot 4 corresponding to the size desired and by shifting the latch into operative relation with one of the sockets of the group corresponding to the same size.

The gloves may be knit separately; that is, after one glove has been formed it may be removed and another glove commenced, though preferably the machine is operated so as to carry out the method of knitting described in my pending application Serial No. 667,270, which method briefly described consists in knitting an elongated strip formed alternately of body portions and divided limb or finger extensions, and then in cutting the elongated member into individual garments.

In the connecting rod shown, four of the socket groups on the member 11 are at one end and four at the other end, so that in using those at the outer end it is necessary to reverse the position of this member. In practising my invention, however, all of these groups may be located at one end of the rod.

It will be observed that the sockets 5 on the crank 3, by reason of their arrangement in groups serve not only as means for securing the connecting rod in position, but indicate to the operator the point where the connecting rod is to be attached in order to knit the various parts of the article of the desired size. Likewise, the sockets 13 in the member 11, by reason of their arrangement in groups indicate to the operator the spacing and adjustment required for forming the desired limb members or divided extensions at the right position on the main body portion. The sockets of the separate groups are preferably arranged in a line as shown, and so as to be used in sequence. By reason of this arrangement the operator can quickly secure the desired adjustment by moving the pin 6 and latch 14 from socket to socket.

While for the purpose of illustration and explanation I have chosen an arrangement intended for knitting gloves, my improvements are equally applicable to arrangements for knitting shirts, sweaters, drawers, and any other articles now made on machines of this type. In order to use my improvements to knit drawers, for example, it would only be necessary to provide a crank having sockets 5 thereon, preferably in groups located so as to give the desired throw for knitting the body and limb members, and to provide a connecting rod with sockets 13 grouped and spaced to correctly localize the carriage travel for forming the limb members on the different sizes of garments. It is obvious that the same crank or

crank-wheel and connecting rod can be used for knitting any number of different garments so long as there is space for the required groups of sockets or points of attachment.

Where a machine is used for knitting a large variety of garments and it is not possible to place all of the desired socket groups on one crank or one rod, extra cranks and rods may be provided, and used interchangeably.

While I have described only one embodiment of my invention, I am aware that this may be varied by those skilled in the art without departing from the scope of my claim.

What I claim is:

In a machine of the kind described, the combination of a crank having a variable throw, a plurality of points indicated thereon for determining the length of the throw,

said points being arranged in groups, each group comprising a point corresponding to a throw suitable for use in forming the body portion of a garment of a predetermined size and one or more points indicating a throw suitable for forming extensions thereon, all in combination with an adjustable connecting rod having a plurality of points of adjustment indicated thereon for determining the length of the rod, said points being arranged in groups, each group comprising a point corresponding to the length required for the body portion of the garment of said predetermined size, and one or more points indicating a length suitable for use in forming extensions thereon, substantially as described.

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Witnesses:

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