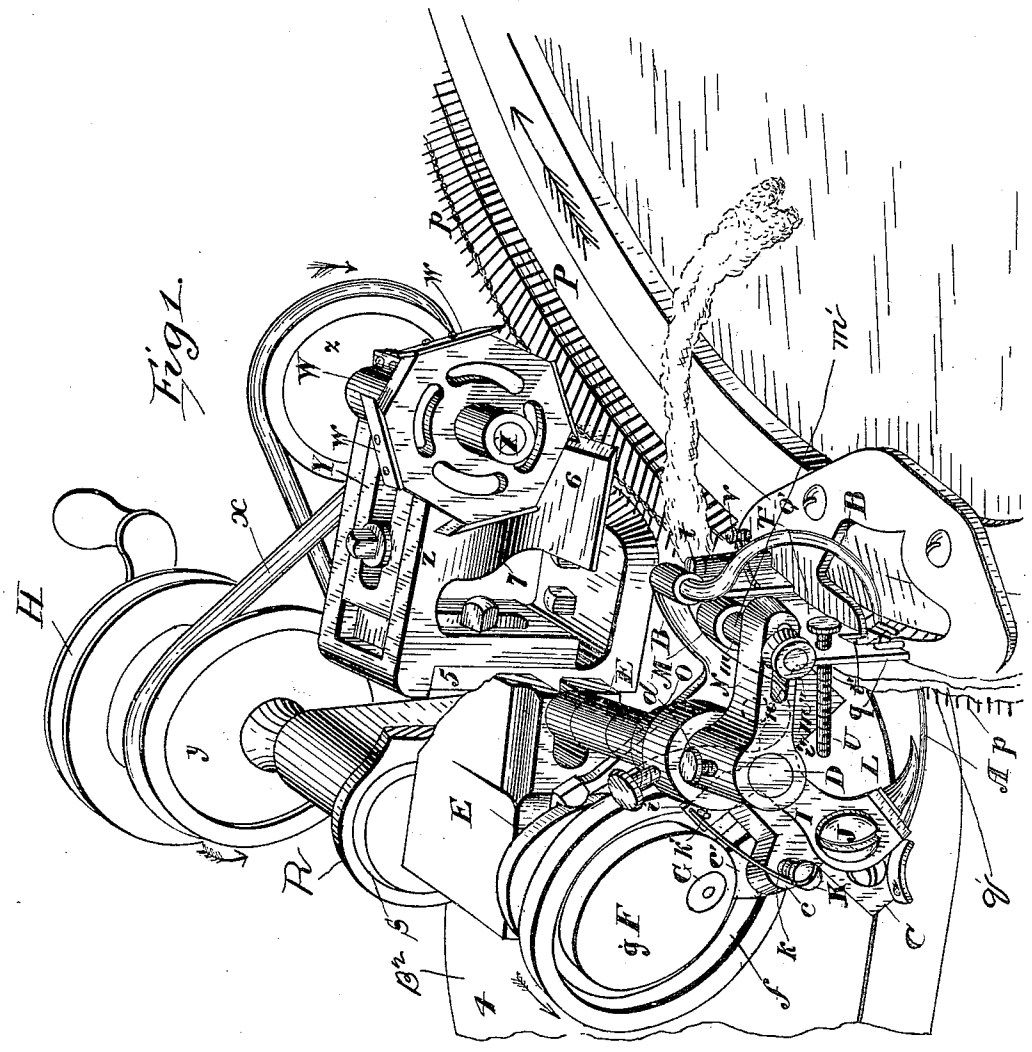
(No Model.) 2 Sheets—Sheet 1.

D. MAUS.

MACHINE FOR SEWING LOOPED FABRICS.

No. 511,856. Patented Jan. 2, 1894.

Fig. 1.



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2 Sheets—Sheet 2.

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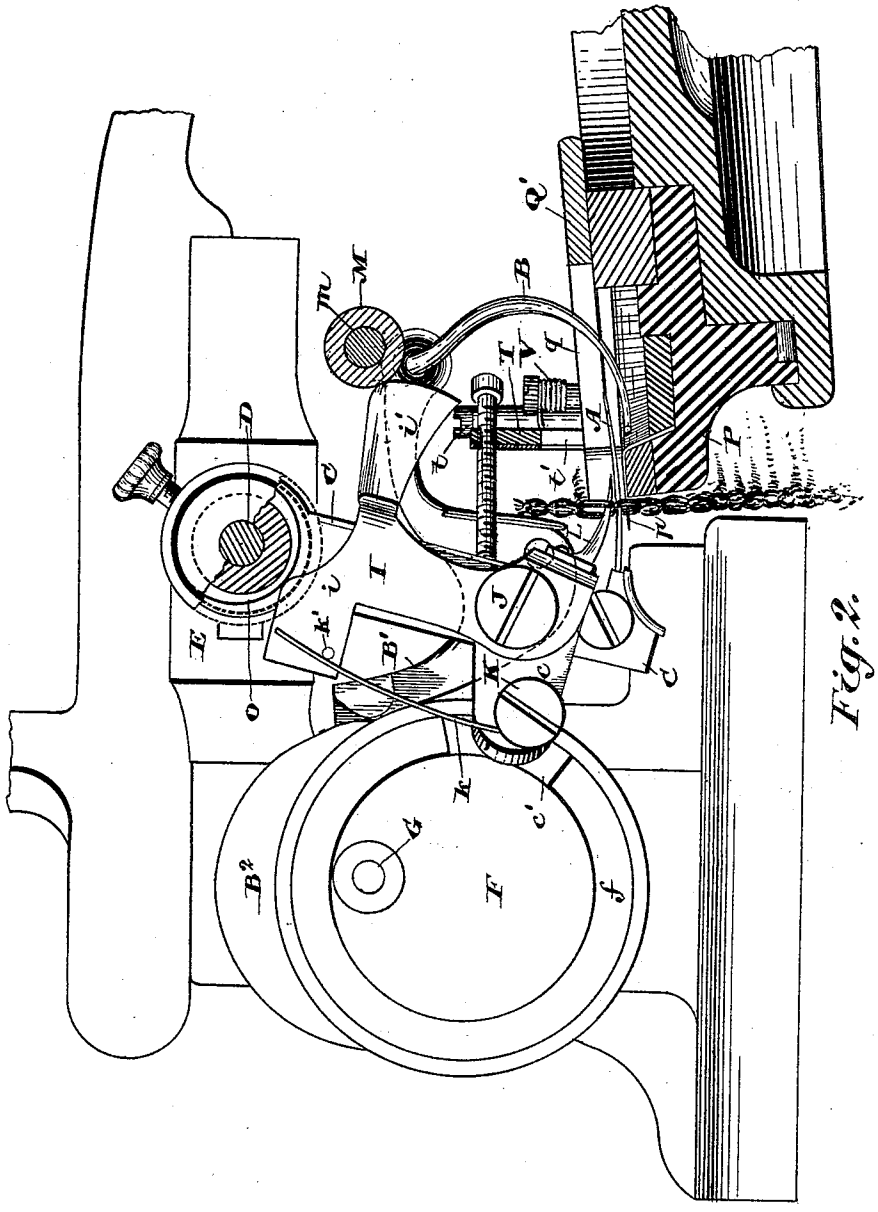

Fig. 2.

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UNITED STATES PATENT OFFICE.

DANIEL MAUS, OF TORONTO, CANADA.

MACHINE FOR SEWING LOOPED FABRICS.

SPECIFICATION forming part of Letters Patent No. 511,856, dated January 2, 1894.

Application filed December 27, 1892. Serial No. 456,348. (No model.)

To all whom it may concern:

Be it known that I, DANIEL MAUS, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Looping-Machines, of which the following is a specification.

My invention relates to improvements in looping machines and the object of the invention is to provide a means whereby the ends of the plain portions and ribbed portions of a knitted garment may, when being sewed together, be cut and trimmed above the lines of loops being sewed so as to present a finished appearance at the point of junction when the garment is completed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1, is a perspective view of a looping machine the supporting arm of the looping wheel being broken away and also portion of the dog arm for rotating the looping ring. Fig. 2, is an elevation showing the needle, knife mechanism and means for operating the same, and portion of the looping ring and wheel in section.

In the drawings like letters and numerals of reference indicate corresponding parts in each figure.

A, is the needle, and, B, is the looper which together form the stitch. The needle is secured in the lower end of the arm, C, which is loosely journaled on the arbor, D, adjustably supported in the bracket, E. The arm, C, has a rearward projection, *c*, on which is pivoted the block, *c'*, which moves within the cam groove, *f*, of the eccentric cam wheel, F', secured on the end of the driving spindle G.

H, is a grooved driving pulley situated at the opposite end of the spindle, G.

I, is a rocking lever pivoted on the arm, C, on the screw pin, J.

K, is a pin screwed into the rear end, *c*, of the arm C, and having a spring, *k*, secured on it, the free end of which is normally caused to press upon the stop pin, *k'*, on the upper end, *i*, of the lever, I. The lower forward end of the lever I, has secured to it the knife, L, while the upper end, *i'*, extends forwardly as shown.

M, is a roller located on one end of the stud, *m*, which extends through the slot, *n*, on the end of the arm, N. The stud, *m*, has a shoulder, *m'*, formed at one side of the arm, N, and has screwed on the end projecting through the slot, the thumb nut, *m''*, which holds the stud in any desired position in the slot. The arm is secured on the end of the arbor, D, by the set screw, *d*. It will thus be seen that the position of the roller, M, may be adjusted vertically by loosening the set screw, *d*, and turning the arm to any desired position and then tightening the set screw, *d*, or it may be adjusted laterally by loosening the thumb nut, *m''*.

The thread, extends through the point of the needle, A, and the needle, A, and looper, B, coact in the manner known in the art as to looping machines and on this account I shall merely briefly describe the means whereby the needle, A, and looper, B, derive their movement.

The needle, A, as before described is secured in the end of the arm, C, and derives its forward and backward throw from the cam wheel, F, into the groove of which the pivoted block, on the rear extension of the arm which holds the needle, fits.

The looper, B, is secured in the end of the rocking arm, B', which is pivoted upon a shaft 8 extending from a projection of the main frame of the machine above the base plate which is actuated by a cam, B^2, secured in the rear of the arm, C, on the spindle, G.

The upper rear end, *i*, of the lever, I, comes in contact with the stationary cam *o* secured on the arbor, D. This cam which is in the form of an eccentric can be rotated upon the arbor D by loosening the set screw which secures it in place, and it will thus be seen that the position to which the cam is adjusted regulates the height of the knife, L, above the needle, A. In the drawings the cam is shown with its shorter radius abutting the top, *i*, of the rocking lever, I. The greater the radius of the cam abutting the top rear end of the lever the greater will be the height of the knife from the needle, A. It will thus be seen that the cam, *o*, will serve to adjust the height of the knife from the needle so as to operate for fine or coarse work.

p, are the points which project from outside the periphery of the revolving ring, P, which derives movement through suitable connec-

tions from the eccentric, S, on the driving spindle, G. Upon the points, *p*, are placed the separate loops of both the ribbed and plain portion of the knitting, the rough edges of each extending above the points as shown. Each loop or stitch of both pieces of goods hangs upon its corresponding point. It will of course be understood that the knitted work has to be placed upon the points by hand.

Q', is a plate secured on the stationary portion of the looping wheel and having an opening, *q*, made in it which opening continues through the plate, above the points, opposite to the needle. Within this opening the needle, A, and looper, B, form the stitch which connects the ribbed and plain work together.

T, is a fabric guard pivoted at, *t*, on the plate, Q'. The fabric guard, T, has a notch *t'*, made in its central portion immediately above the open end of the opening, *q*, and has its outward throw limited by the stop pin, *q'*, on plate Q'.

U, is a set screw extending through the fabric guard and designed to come in contact with the front of the arm, C. The fabric guard T, is intended to keep the upper ends of the ribbed and plain webs of the material away from the needle and looper, when the stitch is being made, and to keep these ends forward when the knife is cutting through the row of loops above the row which the needle is stitching.

V, is a spiral spring the free ends of which press against the fabric guard, T, so as to normally force it outwardly toward the points.

On the side of the machine opposite to the parts just described is located the trimming wheel, W, which is made preferably octagonal and is provided with a series of knives, *w*. The trimming wheel, W, is secured on one end of the arbor, X, which is journaled in bearings on the end of the slotted arm, Y, secured in the top of the bracket, Z. The bracket Z, has its vertical member slotted so that it may be adjusted vertically upon the bracket, 5, secured to the bed plate, 4.

6, is a plate secured to the bottom of the hanger, 7, forming part of the bracket, Z. The plate, 6, projects over the points, *p*, as shown and is designed to coact with the knives, *w*, on the trimming wheel so as to remove from the tops of the loops stitched together the tag ends or superfluous wool and thus perfectly finish the junction of the ribbed web with the plain web work.

z, is a grooved pulley secured on the opposite end of the arbor, X, and, *y*, is a grooved pulley secured on the driving spindle, G. The pulleys *y*, and, *z*, are connected together by the crossed belt, *x*. The driving spindle, G, revolves in the direction indicated by arrow and consequently the trimming wheel, W, is caused to rotate in the opposite direction through the crossed belt, *x*, connecting the pulleys, *y*, and, *z*.

The parts shown in Fig. 2, are full size with the exception of a section of the loops, which it will be readily seen is greatly exaggerated so as to exhibit clearly the relative position of the knife and needle as they pass through the loops to accomplish the sewing or stitching of the double row of loops and the cutting or severing of the double row of loops immediately above.

Having now described the principal parts involved in my invention I shall briefly describe the operation of the severing knife as it acts in conjunction with the needle.

When the cam wheel revolves in the direction indicated by arrow it will be seen when the block, *c'*, arrives at the portion of the cam farthest from the center, G, that the arm, C, will be thrown forward so as to bring the needle, A, through the loops resting upon the points *p*, and the opening in the plate, Q', beneath the notch, *t'*. The knife, L, on the lower forward end of the rocking lever also necessarily passes through the opening in the plate, Q', but is so arranged that it passes through the rows of loops immediately above the row through which the needle passes, and severs the loop at each side. In order to more thoroughly insure the severing of the sides of the loop the anti-friction roller, M, is provided which rotates on the stud, *m*. As the knife comes forward, the forward upper end *i'*, of the lever, I, comes in contact with the roller and in so doing tilts the lever back on its pivot, J, thereby raising the knife and tearing or severing the sides of this particular loop. During the period that the needle is being brought in and out by its arm and cam operating the same, the stitch is completed, but as before stated, I do not claim anything in the manner of making the stitch and therefore I do not describe it. It is sufficient to say that the knife, L, acts to sever the two loops of the double row of loops at each inward throw, the needle at the same time in conjunction with the looper stitching the two rows of loops immediately below. The looping ring revolves in the direction indicated by arrow and the severed upper ends fall out of the way as shown in Fig. 1, where they may be cut off or held away from the loops now sewed together so that the trimming wheel, W, may as the loops on the points, *p*, pass the stationary knife, 6, cut or trim off any tag ends or superfluous wool or material which may have been imperfectly severed by the knife, L.

Although I have shown the knife, L, situated immediately above the needle, A, and coacting with the same it will of course be understood that the knife and its mechanism might be placed at some other convenient point in the periphery of the looping wheel opposite the points and in such a position as to sever the row of loops above those on the points, *p*, and yet accomplish the end which I have in view. I, however, preferably locate the knife as shown as I thereby utilize the cam and arm by which the needle is operated.

From this description it will be seen that I have provided a very simple and efficient

means whereby the rough upper end of the ribbed and plain web or body of a garment above the row of stitching may be severed and then trimmed so as to present a finished appearance at the point of junction of the ribbed and plain portion of the web of knitting.

What I claim as my invention is—

1. In combination with the looping wheel and arm C, a T shaped rocking lever pivotally connected near its lower end with said arm, a knife projecting laterally from the lower extremity of the lever below its pivot, a spring bearing against the rear arm of the T lever, an adjustable regulating cam for contacting with said rear arm and an adjustable stud carrying an anti-friction roller arranged in the path of the forward arm of said lever and means for reciprocating the arm C, substantially as described.

2. In combination with the looping wheel having a series of points, a looper and an arm C having a needle secured to its lower end, a rocking lever having a knife secured on its lower end above the needle, a plate secured to the stationary portion of the looping wheel having an opening above the points, and a guard located above the open end of said opening and actuated by the arm C, substantially as described.

3. The combination with the looping wheel having a series of points and the sewing and loop cutting mechanism co-operating therewith, of a stationary knife plate, and a trimming wheel carrying a series of knives coacting with said stationary knife plate to trim the sewed fabrics, and means for operating said trimming wheel consisting of a pulley on the shaft of the trimming wheel, a pulley on the main shaft of the sewing mechanism, and a cross belt connecting said pulleys, substantially as described.

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Witnesses:
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H. G. S. YOUNG.