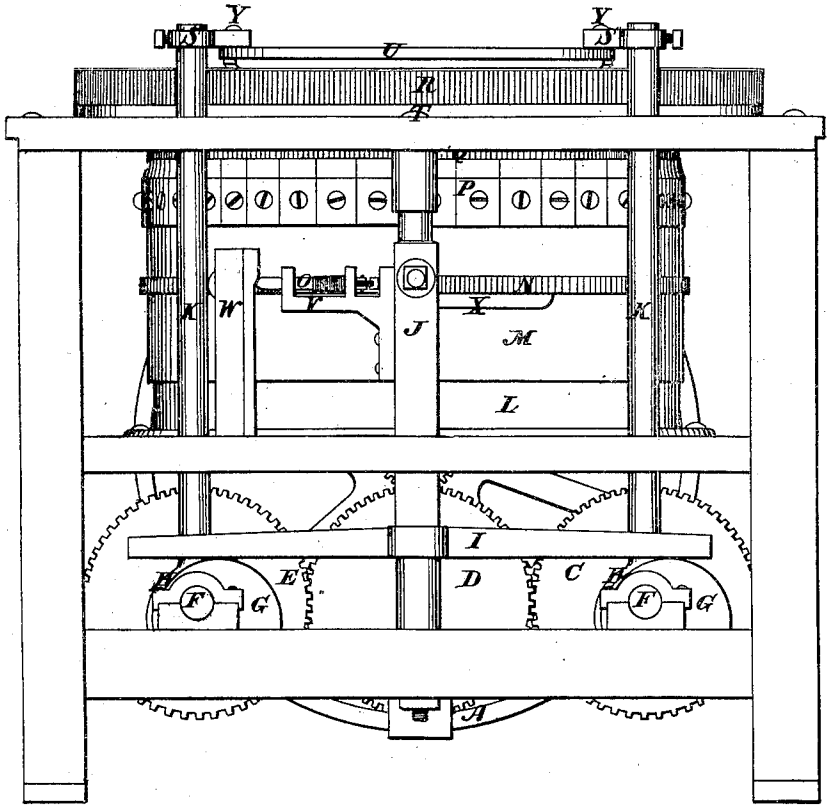
4 Sheets—Sheet 1.

# J. H. BARSANTEE.

## KNITTING MACHINE.

No. 8,262. Patented July 29, 1851.

*Fig. 1.*



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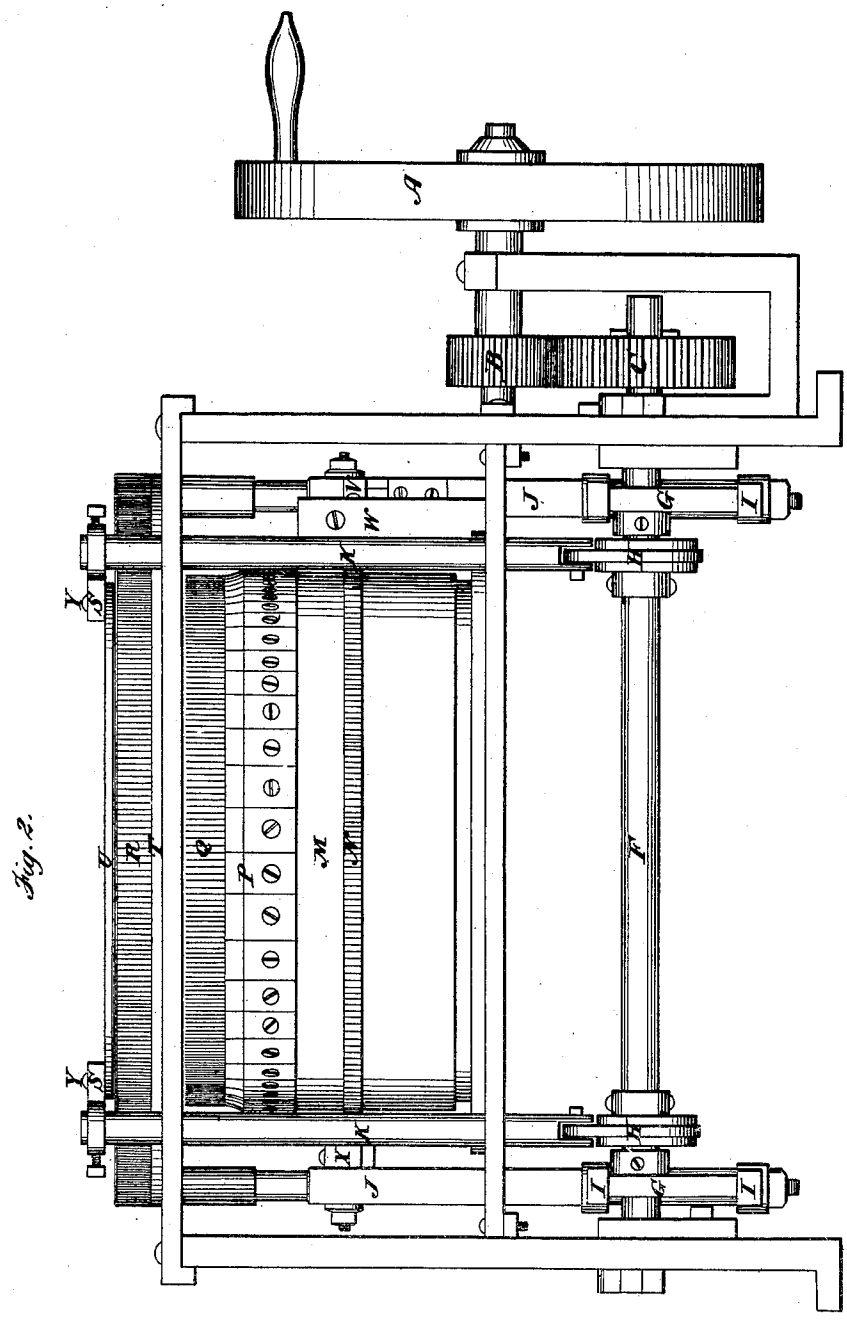


Fig. 2.

4 Sheets—Sheet 3.

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## KNITTING MACHINE.

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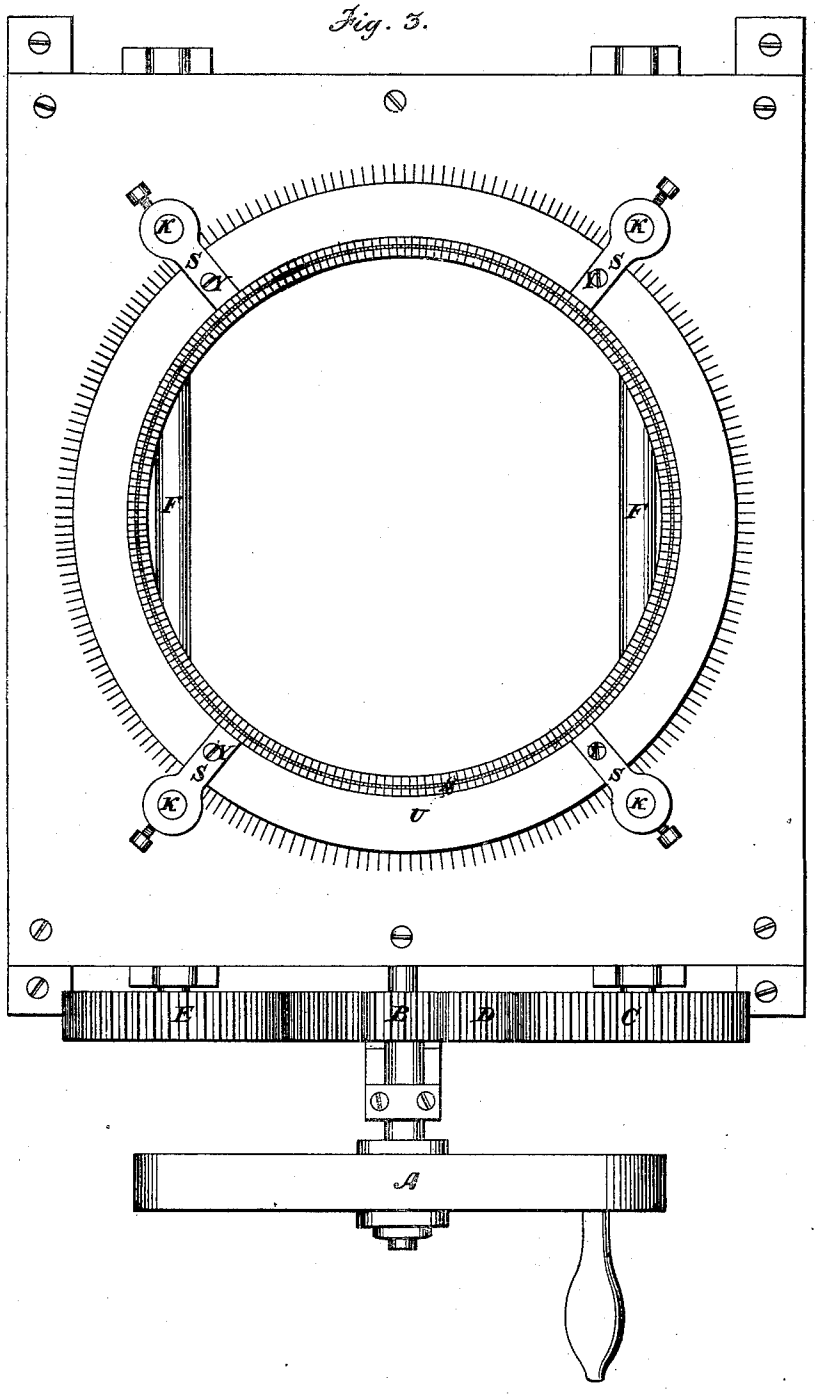
*Fig. 3.*



4 Sheets—Sheet 4.

# J. H. BARSANTEE.

## KNITTING MACHINE.

No. 8,262. Patented July 29, 1851.

*Fig. 4.*

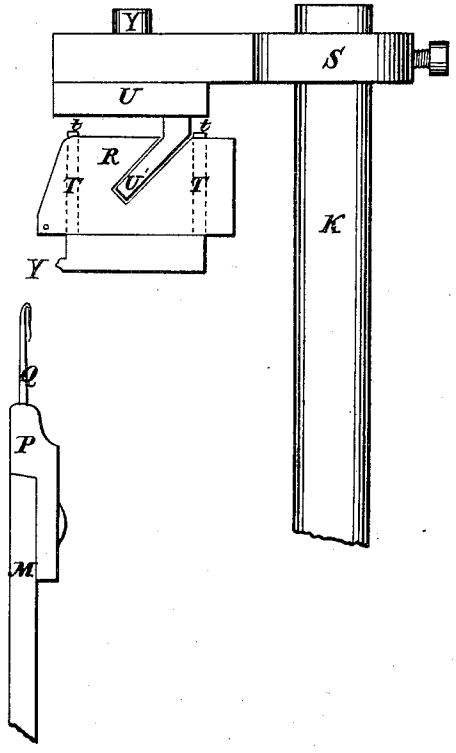
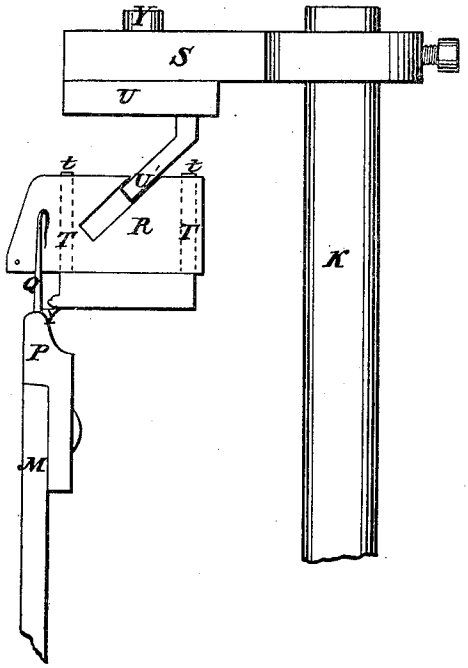



*Fig. 5.*



# UNITED STATES PATENT OFFICE.

JOHN H. BARSANTEE, OF PORTSMOUTH, NEW HAMPSHIRE.

## KNITTING-MACHINE.

Specification of Letters Patent No. 8,262, dated July 29, 1851.

*To all whom it may concern:*

Be it known that I, JOHN HENRY BARSANTEE, of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented certain Improvements in Knitting-Machines, and the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings of which—

Figure 1, is an end elevation. Fig. 2, a side elevation. Fig. 3, a top plan, and Figs. 4 and 5, sections of the needles, yarn carriers, &c., in different positions.

I am aware that rotary knitting machines have been constructed, having needles which rise and fall simultaneously, and having their points closed or depressed by a fixed ring and also using a separate thread for each needle; but such machines as hitherto made have only been capable of producing coarse and loose work.

The object of my improvements is to produce a machine which will knit a cylindrical piece of cloth of any desired length, of a fine quality, and as close as can be done by handwork; at the same time working with great rapidity and exactness, a whole circle of stitches being completed at each stroke.

The principal part of my inprovements consist in the movable yarn carriers which are made separate and independent, one for each needle, and having a sliding motion given to them in and out, they perform the part of the "jacks" in ordinary stocking looms.

The frame of the machine consists of two platforms, with a large circular opening in the center of each, and supported on upright posts. Upon the lower platform is a hollow cylinder (L) on which moves another cylinder (M) to which the needles are attached as follows: the needles (Q) see Figs. 4 and 5, are fixed in blocks of pewter (P) which are cast on their stems, 5 or 6 being thus connected together in one block, for convenience in repairing. The blocks are then attached to the cylinder (M) by screws, together forming a circle of needles. The needles are similar in form to those used in ordinary knitting machines. A vertical motion is imparted to the cylinder (M) which carries the needles by means of two sliding bars (J) which receive a vertical motion from four eccentrics (G) that work between horizontal bars (I) attached to the lower ends of the bars (J). On the cylinder (M) is an annular flange (N) by which it is supported from the bars (J) by the pieces (X) which partially embrace the cylinder, under the flange (N), and allow a rotary motion. A rotary motion is given to the cylinder (M) the distance of one needle at each stroke of the machine, by means of the flange (N) the edge of which is serrated like a ratchet wheel. In these teeth a pawl (O) works supported by the piece (V) attached to the bar (J), upon the upward motion of which, the tail of the pawl, is pressed inward by an inclined projection on the stationary piece (W), and the other end of the pawl being pressed by a spring into the teeth of the flange (N), and thereby the latter is forced around one tooth, together with the cylinder (M) and the needles. Thus an up and down motion, and also a rotary motion of one needle's width, is given at each stroke of the machine. The eccentrics are placed on two shafts (F) which are driven by the spur gearing (C, D, E, and B) and the driving pulley (A).

Above the needle cylinder (M) on the upper platform are the yarn carriers (R) arranged in a circle, there being one for each needle. The yarn carriers (R) are small flat pieces of thin sheet metal, with their upper and lower edges parallel and the front edge sloped obliquely downward, and having a hole at the lower inside corner. They have also a slit, from near the middle of the upper edge projecting obliquely forward (see Figs. 4 and 5). The yarn carriers slide freely in and out in slits radiating from the center of the machine, cut in a ring (T) which is secured to the upper platform; and the carriers are kept in position by two thin rings (*t*) which are screwed to the ring (T) and cover the top of the slits. The middle part of the slit portion of the ring (T) is cut away, leaving only the inner and outer circles, which are sufficient to guide the yarn carriers. The yarn carriers (R) are simultaneously moved in and out by means of a ring (U) a conical projection from which (U′), lies in the oblique slits of the yarn carriers. A vertical movement is given to this ring by means of the four pieces (S) which connect it to four upright bars (K) which are moved up and down at the proper times, by four eccentrics (H) on

the shafts (F). Thus by raising the ring (U) the yarn carriers are caused to move simultaneously inward and in the contrary direction when the ring (U) descends.

The operation is as follows: the machine being supposed to have completed a portion of a piece of work, and being supplied with a warp of threads descending from above, a separate thread for each needle and yarn carrier, and the portion of work completed hanging down within the interior of the cylinder (L). Each thread passes from above through the hole in the lower corner of the yarn carrier (R) and from thence to the stitch last formed. Upon giving motion to the machine the needles rise, and during their upward motion, the whole of them move laterally by the revolution of the cylinder (M) one tooth of the ratchet, which causes each thread to be stretched across a needle. The yarn carriers are then advanced by the upward motion of the ring (U) and the needles at the same time descending, the yarn is caught under the beard and drawn downward. As the needles descend their points come in contact with the depressing ring (Y) formed on the inner side of the ring (T); and by it their points are pressed into the groove, and they are then drawn, together with the thread, through the loop last formed, thus making another loop and casting off the previous one. The needles then rise again leaving the last made loops on their stems; and as they rise they are again moved laterally, the yarn carriers having been withdrawn meanwhile by the descending of the ring (U); and thus by a repetition of these motions the operation is continued.

It will be readily seen that the last formed stitches are drawn up with a tightness proportionable to the tension of the yarns, and the force with which the thread is drawn across the needle by the yarn carriers. In machines with yarn carriers without the forward and backward motion which projects them between the needles, the thread can only be obliquely drawn across the needle, and there is great uncertainty in its being properly caught by it as it descends; and in such machines the needles could not be placed closely to each other, and consequently the work performed by them is coarse and open. In my machine the work can be performed with great rapidity as an entire circle of stitches is made at each stroke; and the motions being slight and gentle the machine may be worked with great velocity without injury to the parts. A modification of my improvements may be applied to the straight stocking loom as well as the circular.

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

1. The sliding independent yarn carriers, each governing an independent thread for each needle, substantially in the manner and for the purpose as described.

2. I claim, operating the yarn carriers simultaneously by means of the conical ring (U′) working in the inclined slit in the carriers, substantially as set forth.

JOHN HENRY BARSANTEE.

Witnesses:
J. C. Myer,
James Hopkins.