(No Model.)

E. R. BRANSON.

NEEDLE CYLINDER FOR KNITTING MACHINES.

No. 454,163. Patented June 16, 1891.

FIG. 1.

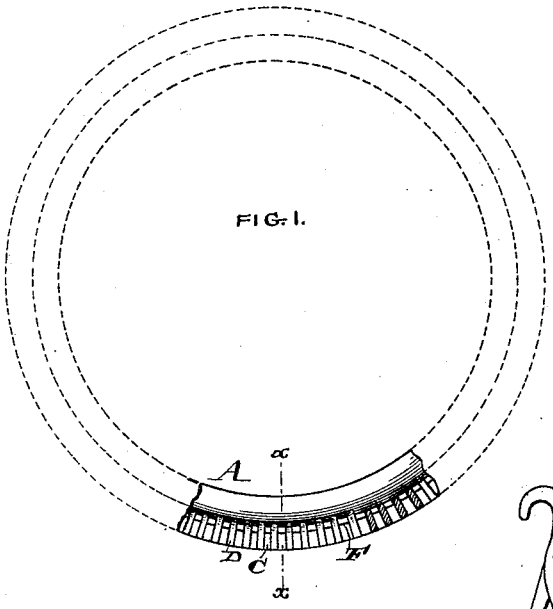


FIG. 2.

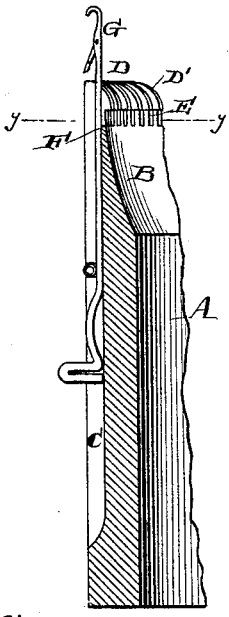


FIG. 5

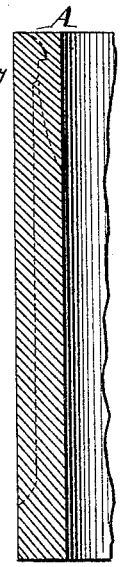


FIG. 4.

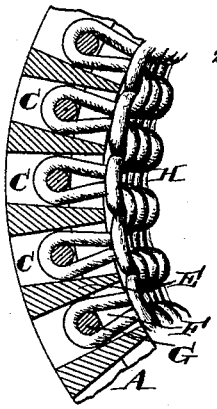
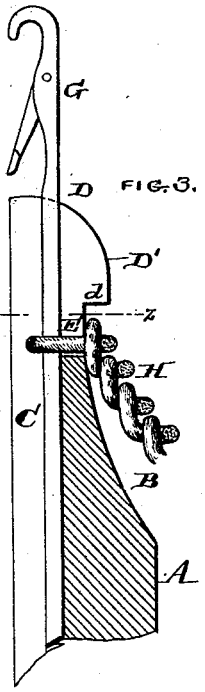


FIG. 3.



Witnesses:
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Francis T. Chambers

UNITED STATES PATENT OFFICE.

EDWIN R. BRANSON, OF PHILADELPHIA, PENNSYLVANIA.

NEEDLE-CYLINDER FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 454,163, dated June 16, 1891.

Application filed July 31, 1890. Serial No. 360,450. (No model.)

To all whom it may concern:

Be it known that I, EDWIN R. BRANSON, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Needle-Cylinders for Knitting-Machines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates particularly to the construction and operation of what are known as "sinker-hooks." These hooks, as heretofore constructed, have been, I believe, arranged to prevent the work or knitted fabric from being pushed up too far by the rising needles.

The object of my invention is to so construct these hooks and combine them with the needle-cylinder that they will take the place of the weight or its equivalent now generally used to pull the fabric down and insure the needles from coming up in the same loop, which they drop in their downward motion when making a stitch.

Reference being now had to the drawings, Figure 1 is a plan view of part of a needle-cylinder having my improvement, four of the sinker-hooks being cut off through their shanks on the line *y y* of Fig. 2 and the rest shown in full. Fig. 2 is a vertical section on the line *x x* of Fig. 1, showing the needle in place and the groove or slot cut open. Fig. 3 is an enlarged vertical section showing the loop on the needle and the work depending from it. Fig. 4 is a horizontal section on the line *z z* of Fig. 3. Fig. 5 is a similar view of the needle-cylinder before the needle-grooves and sinker-hooks are cut out.

A is the needle-cylinder, which is tapered slightly outward at B, as is usual.

C are the needle slots or grooves.

D D are the sinker-hooks, the inner edges of which D′ are curved, so as to enable the needles to pull the thread down over them and under their projecting edges or hooks *d*.

E is the shank of the hook.

F is the top edge of the needle-cylinder proper.

G is the needle, and H the work or fabric.

It will be noticed on the drawings that the shanks E of my hooks extend inward from the slots C, and consequently in rear of or behind the needles working in said slots, the top of the cylinder A being a flat rim F. This construction I have found to be of great importance, inasmuch as the inner edges of shanks E, being so far back of the needles, hold the work H away from them, as is shown in Fig. 4, and by their pressure on the loops pull them back from the needles as soon as they are free from them, thus performing the work usually requiring a weight or tension device, and, moreover, the face of the work done on this machine is much smoother and more regular in appearance than has generally been the case with the work made on other machines with which I am familiar. The exact distance to which the shanks E should extend back of the needle-slots and needles will vary slightly under different conditions. I have found that a distance of one-sixteenth of an inch would give excellent results in a cylinder of three and a half inches diameter and adapted to contain one hundred and eight needles and think it will be found nearly correct in all cases.

It is very important that my improved hooks should be perfectly uniform and regular and that they should be strong and firm—qualities not easy to attain where the hooks are soldered on the top of the cylinder, as has heretofore generally been the case. I therefore preferably make my hooks integral with the cylinder by the following very simple process, to wit: I turn the inner upper surface of the cylinder-blank (see Fig. 5) until it has the outline of the curve B and of the shank E, hook *d*, and back D′ of the sinker-hooks. The slots C are cut, as usual, and the slots continued across the edge F of the cylinder, thus cutting out the hooks and insuring their correct alignment with the slots C. Of course the hooks may be cut out first and continued to form the slots C; but it is important that the outline of the hooks should be turned out before they are themselves cut from the upper edge of the cylinder A, as it would probably cause breakage to turn the hooks to shape after they were cut apart.

My invention is of course applicable to needle-beds which are not cylindrical in form, and I do not wish to be understood as limit-

ing my invention on the use of a cylindrical needle-bed, although my invention is particularly well adapted for use with such cylinders.

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

In combination with the needle-bed of a knitting-machine, sinker-hooks having shanks extending back of the needle-grooves toward the inside of the needle-bed and hooked ends extending farther inward, whereby the work is pulled away from the needles as well as prevented from rising.

EDWIN R. BRANSON.

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