(No Model.) 3 Sheets—Sheet 1.

H. EDDISHAW.

BURRING AND NAPPING ATTACHMENT FOR KNITTING MACHINES.

No. 469,128. Patented Feb. 16, 1892.

FIG. 2.

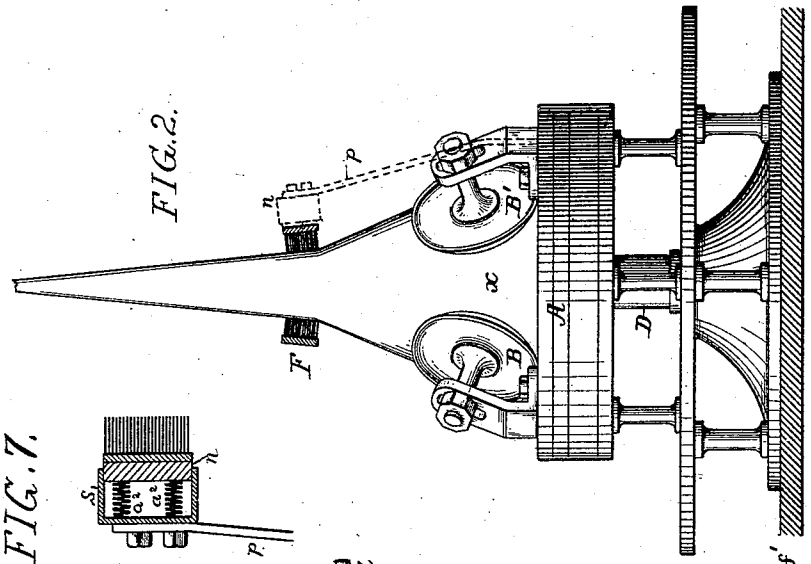
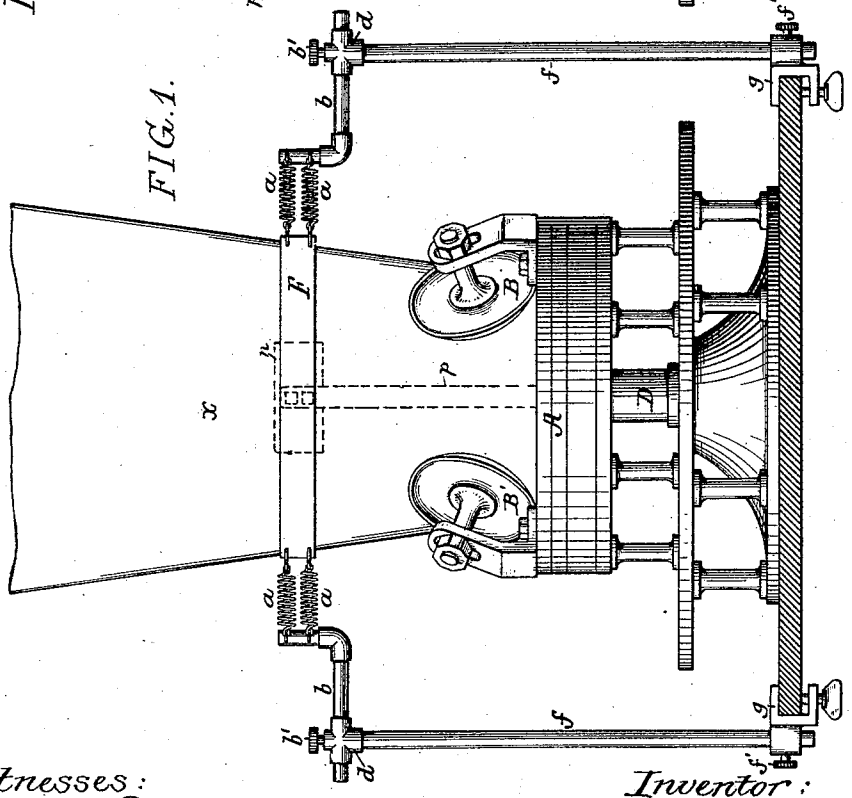


FIG. 7.

FIG. 1.



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(No Model.) 3 Sheets—Sheet 2.

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FIG. 3.

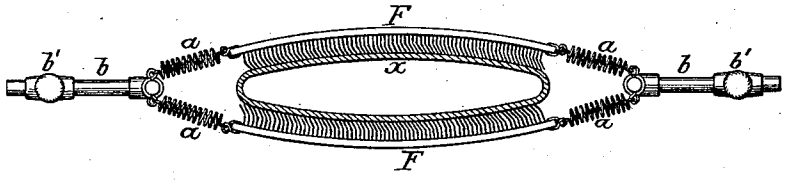

FIG. 4.

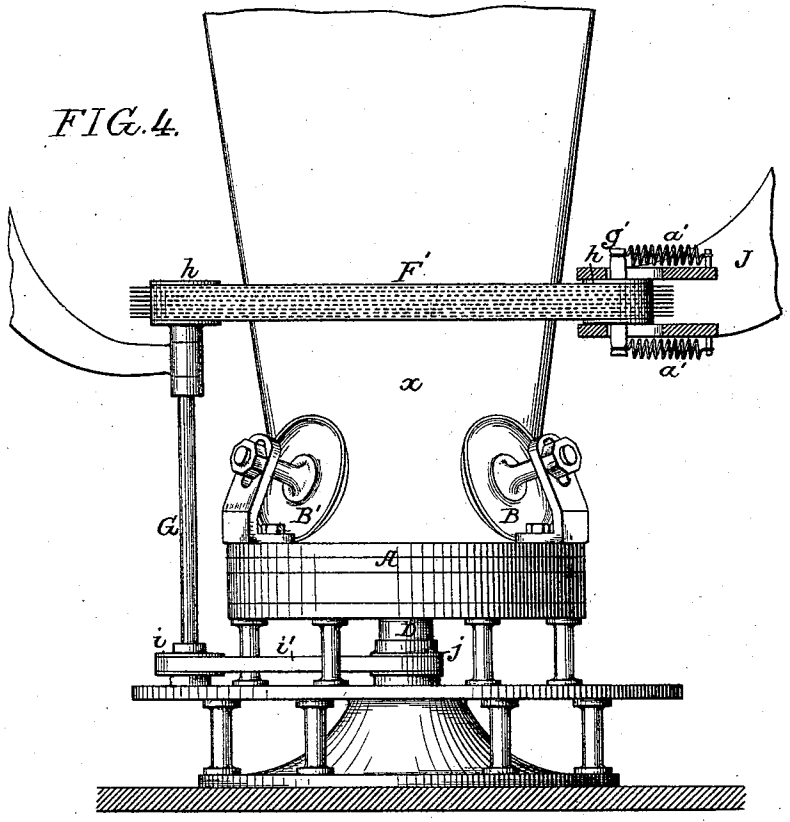

FIG. 5.

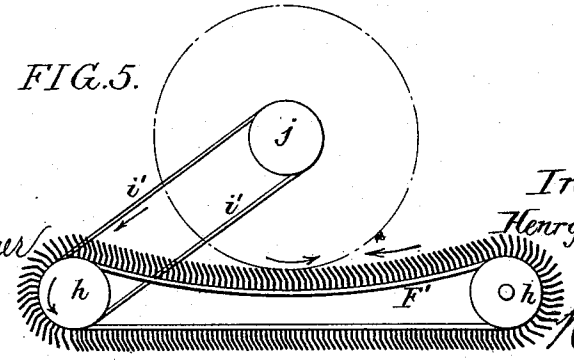

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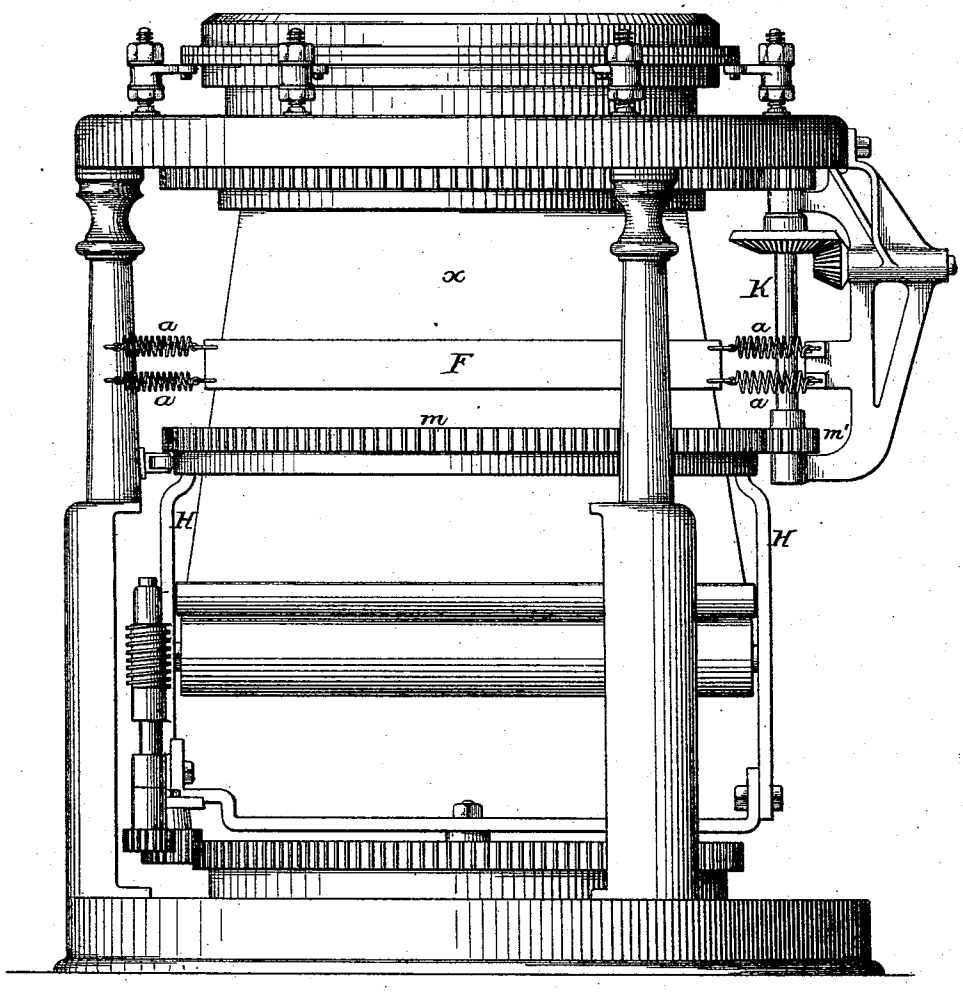
FIG. 6.



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UNITED STATES PATENT OFFICE.

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BURRING AND NAPPING ATTACHMENT FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 469,128, dated February 16, 1892.

Application filed January 20, 1891. Serial No. 378,452. (No model.)

To all whom it may concern:

Be it known that I, HENRY EDDISHAW, a citizen of the United States, and a resident of Ilion, Herkimer county, New York, have invented certain Improvements in Burring and Napping Attachments for Knitting-Machines, of which the following is a specification.

The object of my invention is to provide an ordinary circular-knitting machine with an attachment whereby the knitted fabric as it is produced will have its surface gigged or napped and the burrs and other foreign matter removed; and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of sufficient of a knitting-machine to illustrate my invention. Fig. 2 is an end view of the same. Fig. 3 is a diagram in sectional plan of my improved attachment. Figs. 4 and 5 are views illustrating a special form of attachment. Fig. 6 is a side view illustrating the application of my invention to a different form of knitting-machine, and Fig. 7 is a view illustrating a modification.

In Figs. 1 and 2, A represents the outer annular frame of an ordinary circular-knitting machine using spring-bearded needles, B B′ representing two of the knitting-wheels of said machine and D the rotating shaft or spindle carrying the needle-cylinder, the web *x* as it is produced rising from the machine and passing to suitable take-up mechanism above the same.

In order to provide for gigging or napping the surface of the knitted fabric as the latter rises from the machine and also to effect the cleaning of the fabric by the removal of burrs, knots, and other foreign matters, I employ a pair of strips or bands F, provided with teeth similar to those of card-clothing strips, which teeth have forwardly-projecting points for acting upon the web of fabric as the latter turns and rises between the strips F F. Said strips are connected at each end to springs *a*, which are hung to arms *b*, adjustable laterally in heads *d* at the upper ends of standards *f*, carried by clamps *g*, which are secured to the table or bed on which the knitting-machine is mounted, the arms *b* being adjustable laterally in the heads *d* and secured in position for adjustment by set-screws *b′*, so as to vary the tension of the springs *a* and permit of the use of strips F of different lengths. The web *x*, rising from a circular machine, gradually changes its shape, so that it is flat when acted upon by the take-up mechanism, and the strips F are under such tension that the teeth of the same will act with a proper degree of force upon the web without interfering with the turning of the same with the cylinder of the machine, the strips yielding to accommodate themselves to the shape of the tube as it turns. By this means the cleaning and gigging or napping of the fabric is effected without necessitating the employment of special machinery for the purpose, and the gigging action is, moreover, in a direction transversely to the length of the web, which is preferable to a gigging action in which the teeth move longitudinally, or in the direction of the length of the web, as in special gigging-machines. The standards *f* are adjustable vertically in the clamps *b*, being secured in position after adjustment by set-screws *f′*, so that the strips F may be adjusted to a position more or less remote from the head of the machine, as circumstances may suggest.

One of the toothed springs F may, if desired, be dispensed with in some cases, and in other cases it may be preferable to impart movement to the toothed strip in a direction the reverse of the horizontal movement of the knitted web. A simple method of accomplishing this object is shown in Figs. 4 and 5, in which the toothed strip is represented in the form of a belt F′, passing around grooved pulleys *h*, one of which is carried by the upper end of a shaft G, mounted in suitable bearings in the fixed frame of the machine and having a pulley *i*, driven by a belt *i′* from a pulley *j* on the rotating shaft or spindle D of the cylinder. The other pulley *h* turns on a short shaft *g′*, which is guided in a slotted bearing J and is acted upon by springs *a′*, so as to impart the desired tension to the belt and permit the necessary yielding of the same in the operation of the machine.

In Fig. 6 I have illustrated the application of my invention to a common type of machine in which latch-needles are employed and in which the fabric is delivered downward from the cylinder instead of being delivered upward, as in the machine shown in Figs. 1 and 2, the only change in the construction of the

machine rendered necessary by the application of my invention thereto being the driving of the take-up frame H by special gearing m m' from the vertical counter-shaft K instead of the usual plan of hanging said frame to the cylinder of the machine.

In some cases a fixed strip having teeth may be used, as shown, for instance, by dotted lines in Figs. 1 and 2, the strip in this case being mounted upon a block n, which is carried by the upper end of an arm p, secured at its lower end to the push-back or other fixed part of the machine, or in other cases the arm may have a box s, in which are springs a^2, serving as a backing for the blocks n, as in Fig. 7.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination of a knitting-machine with a strip provided with gigging-teeth having forwardly bent or projecting points, said strip being mounted upon an elastic support and so located in respect to the machine that its teeth will act upon the web of the fabric as the latter is delivered, substantially as specified.

2. The combination of a circular-knitting machine with a strip provided with gigging-teeth having forwardly bent or projecting points, said strip being mounted transversely to the longitudinal movement of the knitted web and so as to act upon said web as it is delivered, and means for moving the strip, so as to cause the teeth to traverse in contact with the web of fabric in a direction the reverse of the direction of rotation of said web, substantially as specified.

3. The combination of a knitting-machine with a strip provided with gigging-teeth having forwardly bent or projecting points, said strip being so mounted in respect to the machine as to act upon the web of fabric as it is delivered, supporting devices for the strip, and springs serving to impart tension to the strip in the direction of its length, substantially as specified.

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

HENRY EDDISHAW.

Witnesses:
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