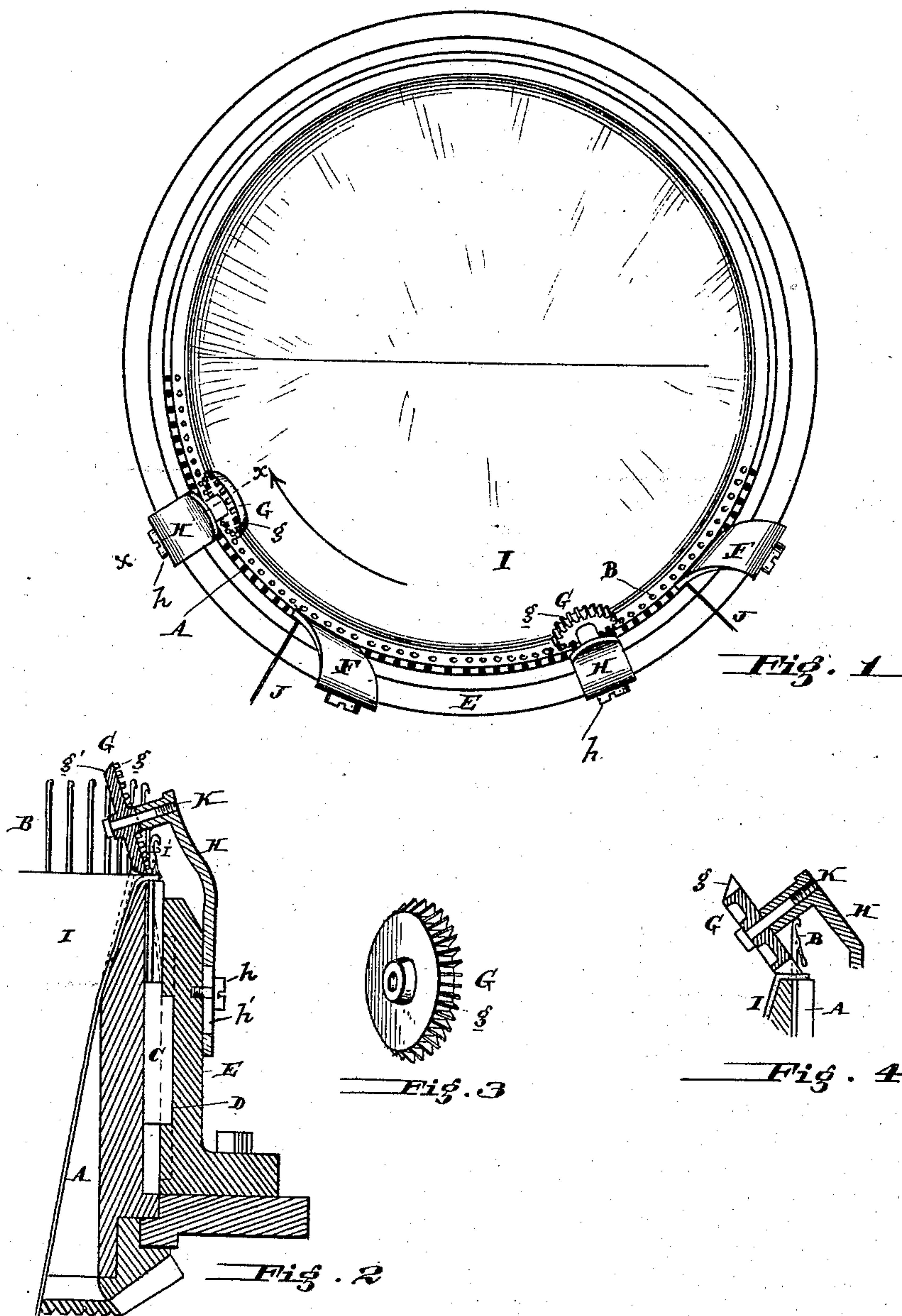


(No Model.)

J. H. OSBORNE.
KNITTING MACHINE.

No. 316,563.

Patented Apr. 28, 1885.



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UNITED STATES PATENT OFFICE.

JOHN H. OSBORNE, OF PHILADELPHIA, PENNSYLVANIA.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 316,563, dated April 23, 1885.

Application filed April 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. OSBORNE, of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Knitting-Machines, of which the following is a specification.

My invention has reference to knitting-machines; and it consists in certain improvements therein, as fully set forth in the following specification, shown in the accompanying drawings, and pointed out in the claims.

The object of my invention is to prevent the knitted fabric riding up or being drawn up by the needles as they ascend after having formed a fresh loop, and also prevent the dragging effect of the usual holding-down wheels upon the knitted fabric.

In making knitted fabric of single or double thread yarn and with light tension thereon there is little or no tendency of the fabric to ride upon the needles; but when using yarns of three or more threads and increased tension this objectionable feature always takes place, and tends to unthread the needles by drawing the loops over the tops of the lower needles during their ascent.

By the use of my improved device I am enabled to knit very heavy and closely woven fabrics, as I am enabled not only to make the yarn of four or more threads, but can use a greatly-increased tension thereon without in any wise dragging or pulling the fabric, as the holding-down wheels which I employ prevent the rising needles pulling the fabric up, and as these holding-down wheels are positively rotated and their edges moved with the same velocity as the fabric they allow the fabric to pass under them without the least dragging effect, no matter what tendency there may be to force the said fabric up against the said wheels by the rising needles.

In the drawings, Figure 1 is a plan view of a circular-knitting machine proper and a portion of its adjunct, the needle-cylinder being represented as only partially equipped with needles, and as having two forms of my holding-down wheels applied thereto. Fig. 2 is a cross-section of part of same on line *x* of Fig. 1. Fig. 3 is a perspective view of one form of holding-down wheel; and Fig. 4

shows the same in sectional elevation and in position on the machine, a part of which is shown in section.

A is the usual needle-head, and B is the latch-needle, which are provided with the customary needle-jacks, C, which work in cam-grooves D in the cylinder E in the usual manner to raise or depress the said needles, as required.

The yarn J may be fed to the needles at one or more points, the drawings showing two.

F are the yarn-guides to feed the yarn to the needles B as they are drawn down to form a new loop. After forming the loop they rise again with freshly-formed loops around them, and if the said yarn be thick or the tension be great the loops bind onto the needle above the latch and cause the fabric I to ride up, as indicated in dotted lines at I of Fig. 2. To prevent this, I place a wheel G, provided with teeth *g* to mesh with the needles, the said wheel being in such a position that it shall press down upon the fabric I close to the rear of the needles as they rise, and thereby hold the yarn down. These wheels G may be made smooth, notched, or knife-edged on their peripheries, which come in contact with the fabric, but in any case are provided with teeth of some kind which mesh with the needles of the machine, and are rotated positively thereby at the same velocity as the fabric moves under them, thereby preventing the necessity of the fabric rotating them, as has heretofore been the case. By this construction there is no pulling, catching, nor dragging upon the fabric by said holding-down wheels. The wheel may be supported loosely upon a pin, K, carried by a support, H, in turn secured to the frame or cylinder E by a set-screw, *h*, and made adjustable by a slot, *h'*. The best form of wheel is shown in Figs. 3 and 4, in which the periphery is beveled from its front or face inwardly, and having notches formed in said beveled periphery, so as to form the teeth *g*, and when the said wheel is supported at an angle the points of the teeth *g* pass between the needles and insure its rotation, and the beveled part presses down on the fabric.

If desired, the teeth may project from the back of the wheel G, and a beveled edge, *g'*,

be provided to press down upon the fabric, as shown in Fig. 2 and lower left-hand part of Fig. 1.

I am aware of the use of the ordinary clearing-wheels in bearded-needle machines—for instance, shown in Parr's Patent No. 262,467, of 1882—and do not claim any such construction.

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

1. The needle-head, needles, and yarn-guides, in combination with one or more holding-down wheels supported close to the needles and arranged to press down upon the knitted fabric and prevent it riding upon said needles, the said holding-down wheel being arranged obliquely and furnished with teeth to engage with the needles, substantially as and for the purpose specified.

2. The combination of needle-head A, needles B, means to reciprocate said needles, yarn-guides F, supports H, and holding-down wheels G, consisting of a disk having teeth g, which project between the needles and mesh therewith, said wheels being arranged close to the rear of the ascending needles, substantially as and for the purpose specified.

3. A rotating needle-head, in combination

with needles, means to reciprocate said needles, a yarn-guide, a stationary holding-down wheel provided with teeth to mesh with said needles, supported close to the ascending needles, and arranged to press down upon the knitted fabric and prevent it riding upon said needles, and means to adjust said wheel, substantially as and for the purpose specified.

4. A holding-down wheel for knitting-machines, which consists of a disk having its periphery beveled from its face inwardly and having notches or teeth formed in said periphery, substantially as and for the purpose specified.

5. The combination, with a rotating needle-head and its needles, means to reciprocate said needles, of a yarn-guide and a stationary toothed wheel supported close to said needles at the point where they ascend, the teeth of which pass between the ascending needles, being rotated by them, and arranged to prevent the fabric riding up off the said needles, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN H. OSBORNE.

Witnesses:

R. M. HUNTER,

WM. S. MCWADE.