2 Sheets--Sheet 1.

O. TWOMBLY.

Knitting-Machines.

No. 141,836. Patented August 12, 1873.

Fig. 1.

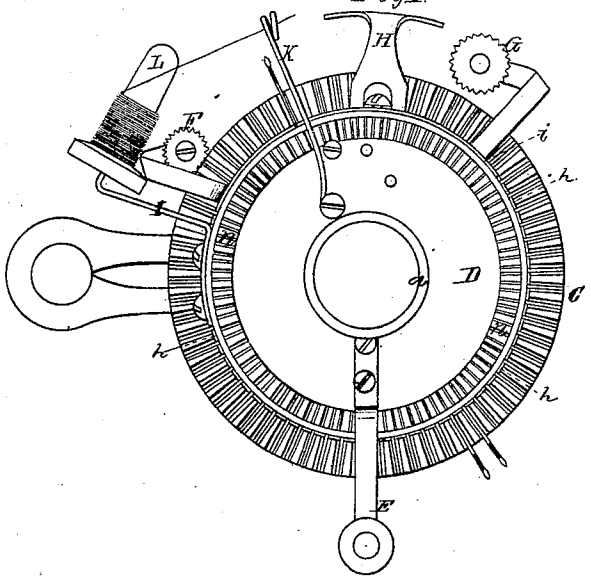
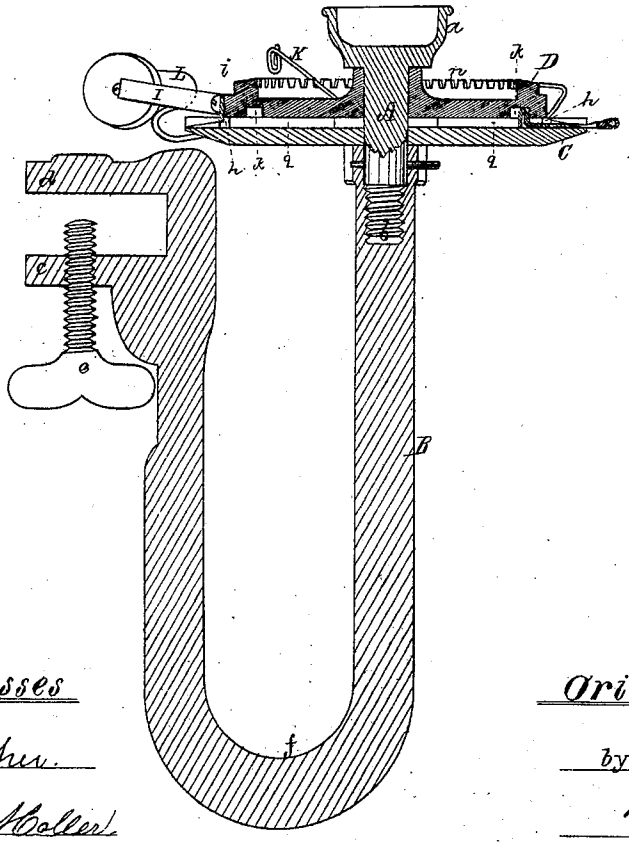


Fig. 3.



Witnesses

S. W. Pipur.

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by his attorney.

R. H. Eddy

2 Sheets--Sheet 2.

O. TWOMBLY.

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No. 141,836. Patented August 12, 1873.

Fig. 2.

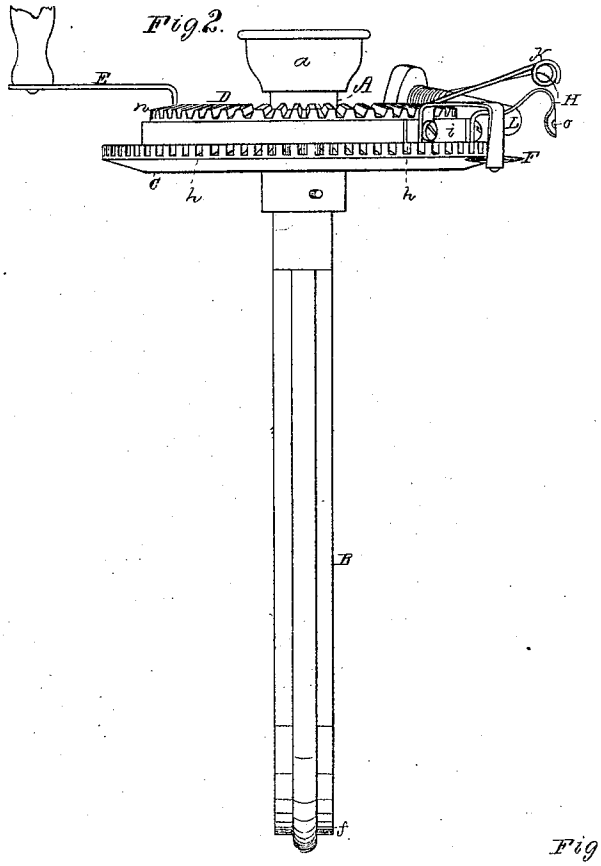


Fig. 4.

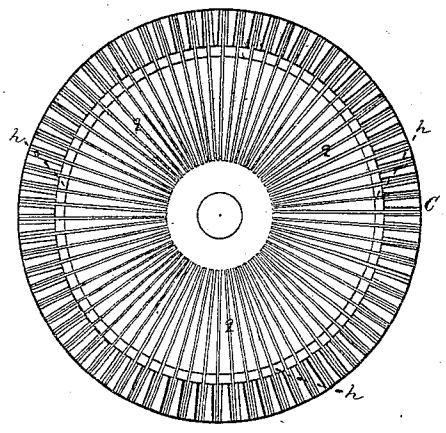
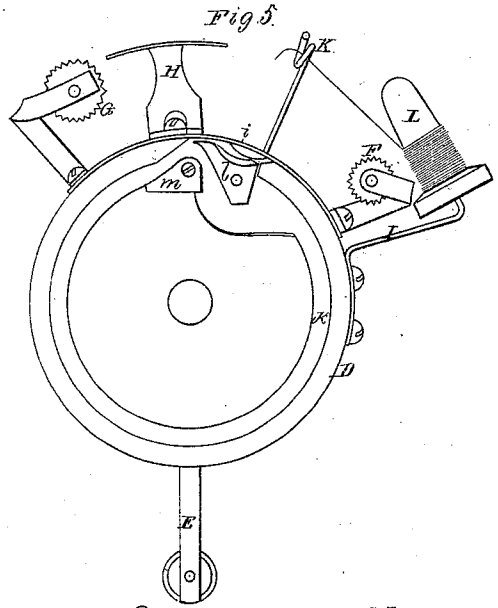


Fig. 5.



Witnesses.

S. N. Piper.

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UNITED STATES PATENT OFFICE.

ORISON TWOMBLY, OF ASHLAND, NEW HAMPSHIRE.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. **141,836**, dated August 12, 1873; application filed May 16, 1873.

To all whom it may concern:

Be it known that I, ORISON TWOMBLY, of Ashland, of the county of Grafton and State of New Hampshire, have invented an Improved Rotary Knitting-Machine; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, and Fig. 3 a transverse section, of said machine; Fig. 4, a top view of the stationary needle-wheel, exhibiting its radial and circular grooves; and Fig. 5, an under-side view of the rotary cam-wheel and its needle-supporting flange, to be hereinafter described.

The machine, as constructed, is very simple, and is designed for the production of a tube of what is termed "plain"-work knitting.

In the drawings, A denotes a short vertical shaft, surmounted by a cap, *a*, and provided at its lower end with a male screw, *b*, to screw into one end of a V-shaped supporter, B, furnished at its other end with jaws *c d* and a clamp-screw, *e*, arranged as represented, and bent at its middle, as seen at *f*. This mode of constructing the supporter admits of its being clamped to a table or bench, and of the work or knit tube readily passing from the machine as the knitting progresses. It is also advantageous in other respects. A disk or wheel, C, arranged concentrically upon and fixed to the shaft A, so as to be stationary therewith, has its upper surface provided with a series of radial grooves, *g*, and also a circular groove, *h*, all being arranged as shown. The radial grooves are to carry and support a series of hooked needles, one of which is shown in Fig. 3. Over the wheel C, and applied to the shaft A so as to be capable of being freely revolved thereon, is the cam-wheel D, which is furnished with a circular or arcal flange, *i*, which projects down from the cam-wheel into the groove *h* of the needle-wheel, and bears upon the needle-shanks, serving to prevent the needles from being tipped upward while being retracted. In the lower face of the cam-wheel there is a cam-groove, *k*, suitably formed, for imparting to each of the needles, at proper times, its necessary forward and back movements and period of rest, in order that it may perform its office of making the stitches. The parts marked *l* and *m* are separate from the cam-wheel, and fixed thereto by screws, that of the part *l* going through a slot in the wheel, such as will admit of the part *l* being moved and adjusted for varying the degree of advance movement of the needle. The cam-wheel D is furnished with a crank, E, for revolving it by manual power; or it may have a range, *n*, of gear-teeth, by which it may be operated automatically by a pinion. Besides the circular or arcal flange, the said cam-wheel D is furnished with two spur-wheels, F G, a yarn-guide, H, a bobbin-carrier, I, and a tension-wire, K, all combined and arranged with it, and constructed as represented.

The yarn from the bobbin L supported on the carrier I is to be led through the eye of the tension-wire K, and, after being wound one or more times about the wire, is to pass through the eye *o* of the guide H, and thence to the needles. The spur-wheels F G revolve freely on stationary pivots, and serve to support the work while the needles may be advancing through the loops. The periphery of the needle-wheel serves to support the work while the needles are being drawn back out the loops.

I claim in the said machine as follows—that is to say:

The shaft A, radially and circularly grooved needle-wheel C, cam-wheel D, flange *i*, and the spur-wheels F G, yarn-guide H, bobbin-carrier I, and tension-wire K, all arranged, combined, constructed, and operating, in connection with a series of knitting-needles, substantially as described.

ORISON TWOMBLY.

Witnesses:
R. H. EDDY,
S. N. PIPER.