(No Model.) 2 Sheets—Sheet 1.

R. MORRISON.

MACHINERY FOR MEASURING SILK THREAD DURING THE PROCESS OF SPOOLING.

No. 297,706. Patented Apr. 29, 1884.

Fig. 2.

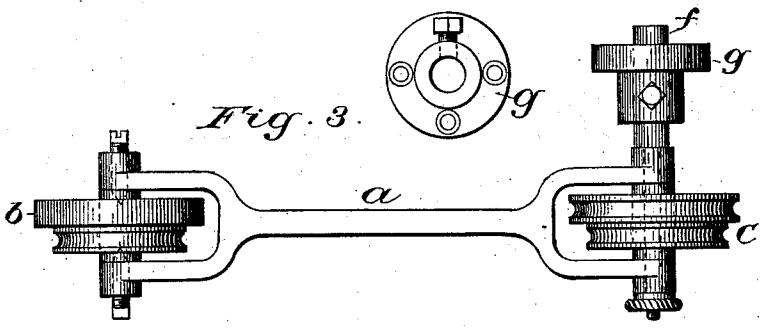


Fig. 3.

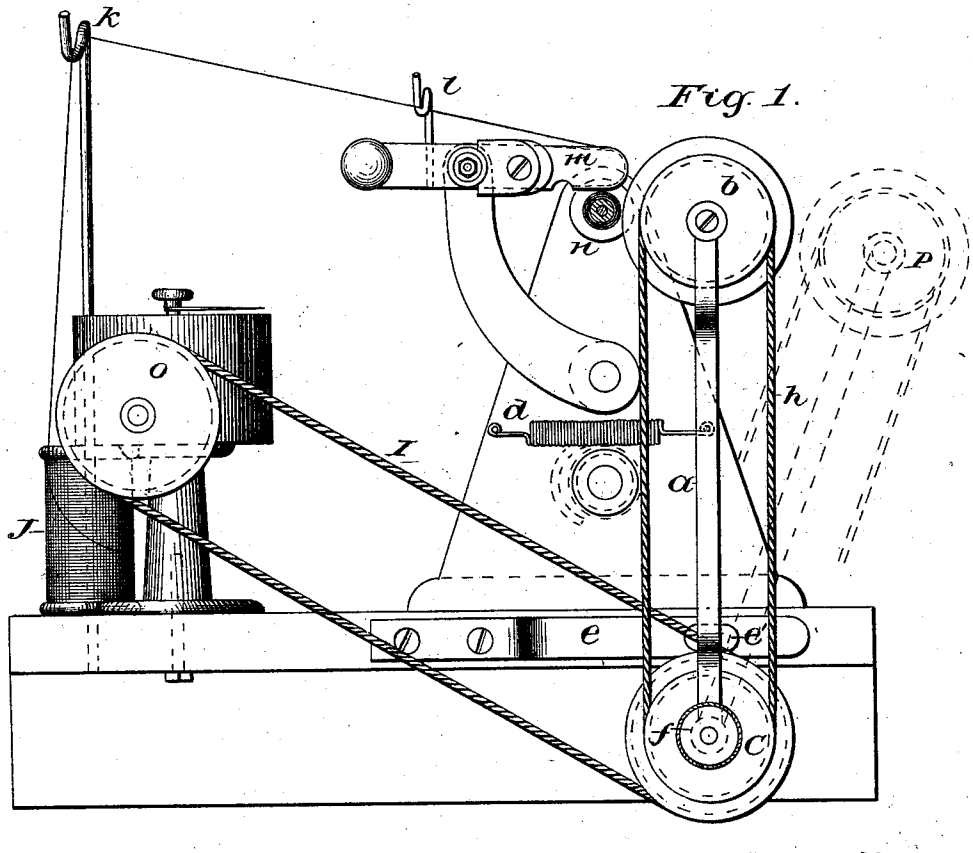


Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

R. MORRISON.

MACHINERY FOR MEASURING SILK THREAD DURING THE PROCESS OF SPOOLING.

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Fig. 4.

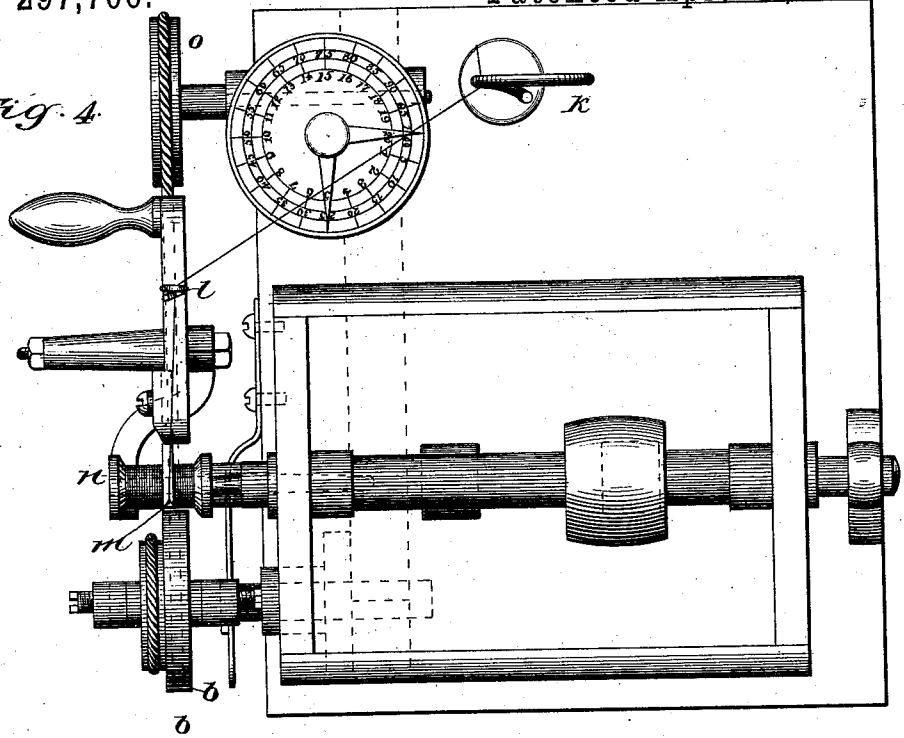
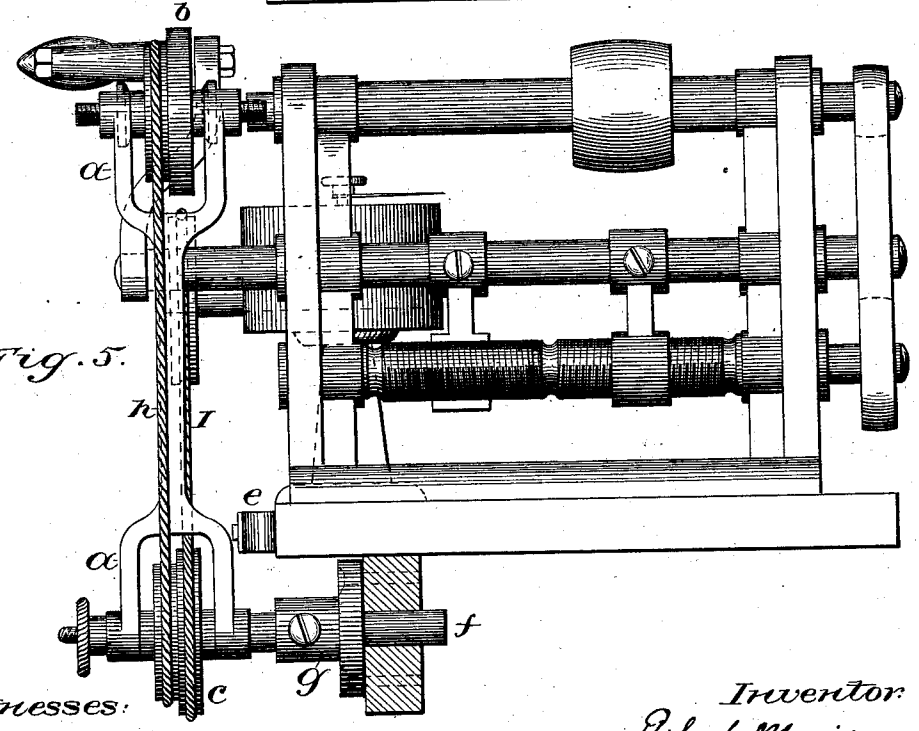


Fig. 5.



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UNITED STATES PATENT OFFICE.

ROBERT MORRISON, OF CANTON, MASSACHUSETTS.

MACHINERY FOR MEASURING SILK THREAD DURING THE PROCESS OF SPOOLING.

SPECIFICATION forming part of Letters Patent No. 297,706, dated April 29, 1884.

Application filed August 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MORRISON, a citizen of the United States, residing at Canton, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Machinery for Measuring Silk or other Thread During the Process of Spooling the Same, of which the following is a specification.

The accompanying drawings are to be referred to.

In said drawings similar letters refer to similar parts.

Figure 1 is a front elevation. Figs. 2 and 3 are detail views thereof; Fig. 5, a side elevation, and Fig. 4 a top view, of an ordinary spooling-machine, to which my device is attached.

The object of my invention is to furnish a means of measuring correctly thread of any material as the same is wound on the spool after the completion of the finishing process.

It consists of the forked arm *a* and elastic plain and grooved wheel *b*, grooved wheel *c*, tension-spring *d*, catch-spring *e*, adjustable arbor *f*, clamping-collar *g*, and bands *h* and *i*.

The operation of the machine is as follows: The thread passes from the large spool or bobbin J, Fig. 1, through the loops *k* and *l*, and over the guide *m* to the spool *n*. As the spool gradually fills with thread, the tension-spring *d* yields to the increasing pressure upon the elastic wheel *b*, applied to the surface of the thread on the spool *n*, and allows said wheel to revolve with the same circumference velocity as the spool *n*. The elastic wheel *b* is made of such size that its circumference measures yards or definite parts of yards. It revolves in the forked extremity of the arm *a*, Figs. 1 and 3, the other extremity of which arm is pivoted on the adjustable stud *f*, Fig. 3, which is set in the collar *g*, so that with the evenly-increasing pressure on the wheel *b* as the spool fills with thread said wheel and the arm *a* move to the right toward the point *p*, Fig. 1, the tension-spring *d* always retaining the elastic face of the wheel *b* in the same contact with the wound thread on the spool *n*. In the spooling-machine the spool *n* moves in a horizontal direction upon a spindle under the guide *m*. The band *h* conveys motion to the groove-wheel *c*, and band *i* transmits the motion to the indicator-wheel *o*, the wheels being so proportioned as to convey the exact measure of thread from wheel *b* to the indicator, which registers it upon an index-dial. When the spool *n* is filled and ready to be replaced by another, the arm *a* is moved by the operator to position *p*, Fig. 1, and there held in position by spring *e* and catch *e'*, Fig. 1, until the filled spool is replaced by an empty one, when the spring *e* is pushed back, releasing catch *e'*, and tension-spring *d* pulls the arm *a*, with the wheel *b*, back to its contact with the spool *n*, when the operation of filling is repeated.

To enable the arm *a* to be used in any position which the varying length of spools may require, the stud *f* is made to slide in the clamping-collar *g*, so as to be moved transversely, carrying the arm *a*, with the wheels *b* and *c*, into any required position.

I am aware that prior to my invention wheels rotated by their periphery have been used in combinations differing from mine as instruments of measurement, and the specific improvement in measuring thread effected by my machine lies in the fact that it conveys substantially the same degree of power from the spool to the indicator at each instant of the process, and so secures a correct register of measurement, which is effected by no other machine.

What I claim, and desire to secure by Letters Patent, is—

The combination of the pivoted arm *a*, the wheel *b*, having an elastic and a grooved face, the wheel *c*, the bands *h* and *i*, and the tension-spring *d*.

ROBERT MORRISON.

Witnesses:
N. W. DUNBAR,
WALTER AMES.