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Winding Bobbins.

No. 55,332. Patented Jun. 5, 1866.

Fig. 2.

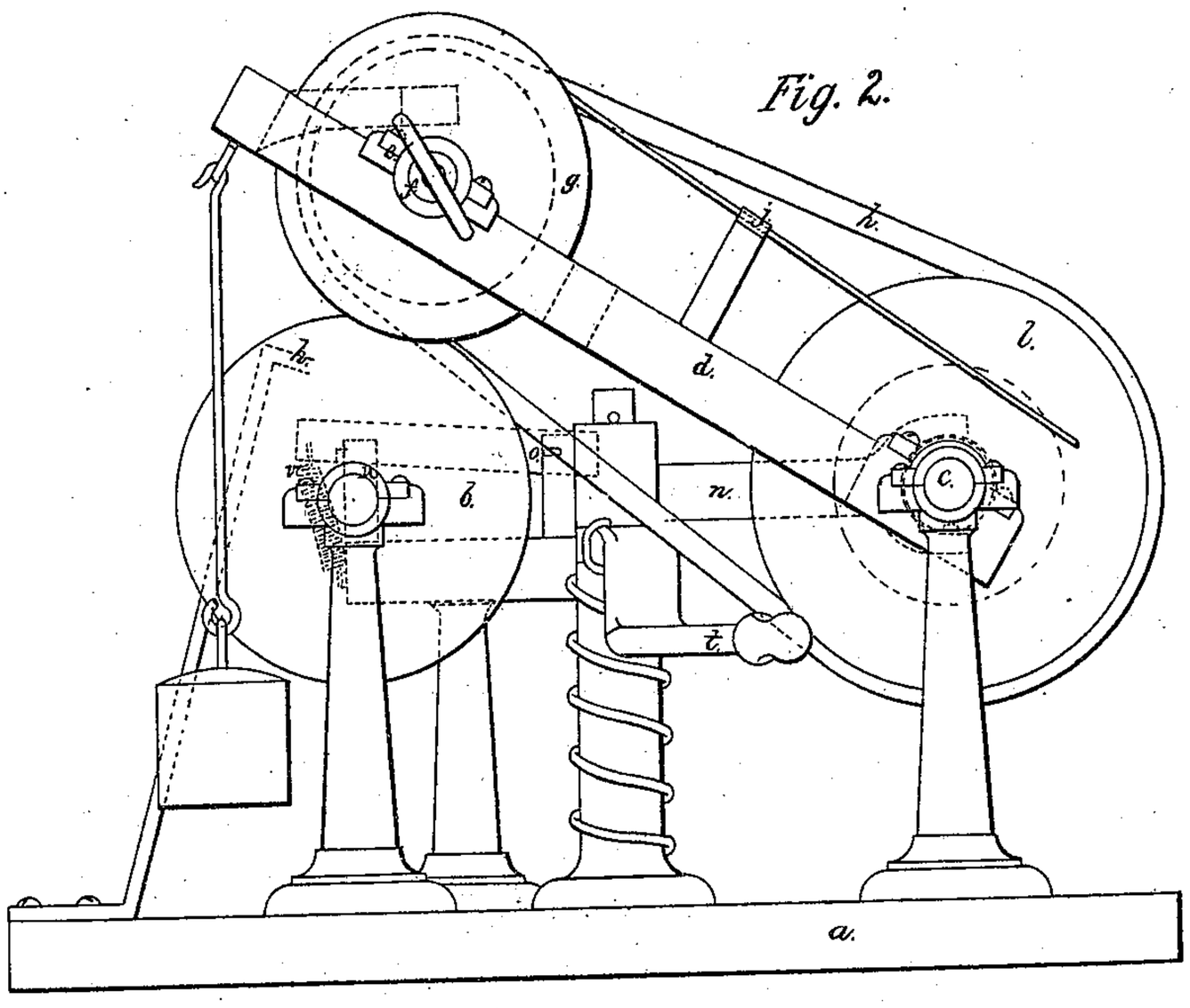
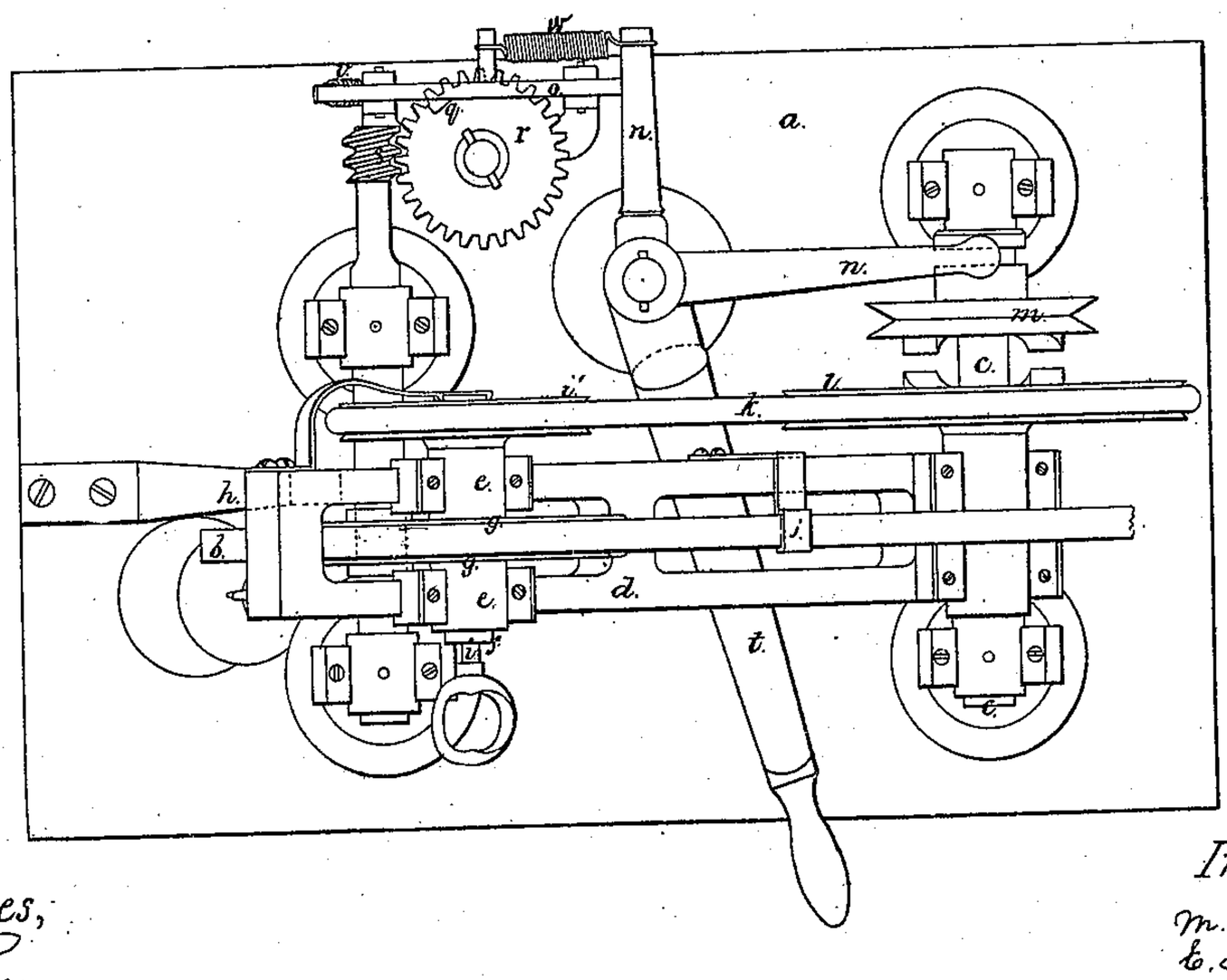


Fig. 1.



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Sheet 2, 2 Sheets.

Merriam & Norton.

Winding Bobbins.

No. 55,332. Patented Jun. 5, 1866.

Fig. 3.

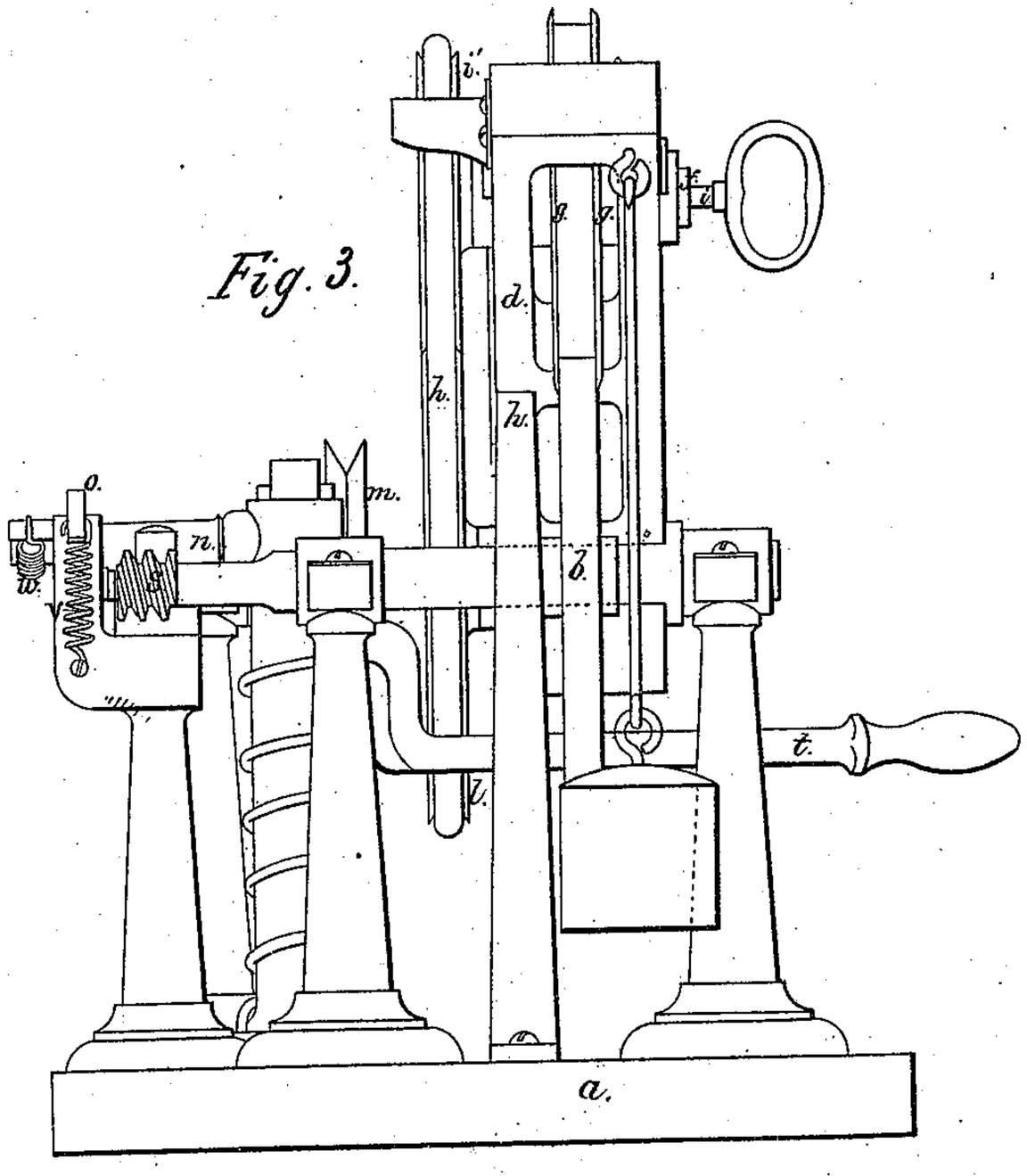


Fig. 4.

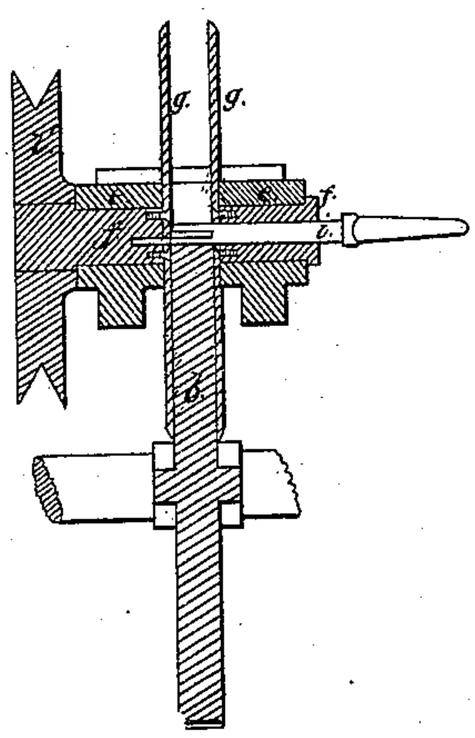


Fig. 5.

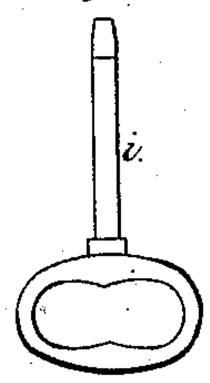
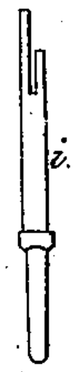


Fig. 6.



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UNITED STATES PATENT OFFICE.

M. H. MERRIAM AND E. L. NORTON, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR WINDING SHOE-BINDING TAPE, &c.

Specification forming part of Letters Patent No. **55,332**, dated June 5, 1866.

To all whom it may concern:

Be it known that we, M. H. MERRIAM and E. L. NORTON, both of Charlestown, in the county of Middlesex and State of Massachusetts, have invented an Improved Machine for Winding or Measuring Shoe-Binding Tape or Ribbon, &c.; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

In the series of operations by which we convert skins of leather into shoe-binding ribbon and bring such ribbon into merchantable shape the final operation consists in winding and measuring the binding, and this invention relates to the construction of mechanism for effecting this winding and measuring.

The invention consists in the employment of independent disks or cheeks to support the coil as it is being wound; also, in the employment of a removable arbor as the core or spindle upon which the coil is wound, the withdrawal of the arbor permitting the wound coil to be taken from the disks; also, in slitting this arbor at one end, so that it may seize the end of the ribbon or tape to be wound; also, in driving the measuring-wheel by the contact of the winding tape or ribbon; also, in connecting the measuring-wheel with the driving mechanism in such manner that the rotation of the coil is automatically stopped when a determined length is wound in the coil.

The drawings represent a machine embodying the invention, Figure 1 showing a plan, Fig. 2 a side elevation, and Fig. 3 an end elevation, of the same. Fig. 4 is a central transverse section of the measuring-wheel and the coil-supporting disks or cheeks and arbor. Figs. 5 and 6 are side and edge views of said arbor.

a denotes the bed; *b*, the measuring-wheel, supported in stationary bearings. *c* is a shaft, having mounted upon it a swinging frame, *d*, extending out over the shaft of the measuring-wheel. Upon the opposite sides of this frame, near its end, are two bearings, *e*, each of which supports a short rotary shaft, *f*, and the inner end of each shaft carries a disk or cheek plate, *g*, fixed to and rotating with its shaft, the inner faces of the disk being parallel and at a distance equal to the width of tape or ribbon to be wound. The measuring-wheel extends up between these disks, and when no tape is in the machine the frame *d* may rest upon a stop, *h*, with one side of the measuring-wheel up to, or nearly to, the center of the disks.

The outer shaft, *f*, has a central hole extending through it for the reception of the arbor *i*, the other shaft having a smaller hole extending into it, as seen in Fig. 4. This arbor slides in and from the shafts. Its inner end is bifurcated or slit, and one side cut away, as seen in Figs. 5 and 6.

The arbor forms the core or spindle upon which the tape is wound, and the disks form supporting-cheeks to hold the coil and regulate the lay of the tape as it is being wound. The end of the tape to be wound is introduced between the disks from a guide or leader, *j*, and the arbor is pushed partly in until the flat side of the part beyond the slit is brought between the disks. The tape is laid against this flat side, and the arbor is then pushed into the opposite disk, carrying the end of the tape into the arbor-slit and keying the inner disk to the arbor, so that said disk and arbor rotate together.

The inner shaft, *f*, carries a pulley, *i*, which is driven by a band, *k*, from a pulley, *l*, on the shaft *c*. The end of the tape in the arbor as the pulley *i* is rotated rests against the perimeter of the measuring-wheel, and as the coil grows in diameter the frame is raised by it, the weight of the frame or a weight or spring upon such frame keeping the surface of the coil in contact with the surface of the wheel, while the rotation of the coil and its impingement against the measuring-wheel rotates the said wheel.

It will be obvious that by this operation the coil measures its length upon the surface of the wheel, the number of revolutions of the wheel indicating the exact length of tape wound upon the coil. These revolutions may be registered by any suitable index mechanism operated by the rotating wheel, or a given length may be indicated by connecting the wheel with a mechanism which shall throw the pulley *l* out of connection with the driving-shaft.

The shaft *c* carries a loose sliding pulley, *m*, which is driven by a band from the main shaft, and this pulley has a clutch through which it is connected with and drives the pulley *l*. The pulley *m* is slid into and out of connection

with the pulley *l* by a lever, *n*, one arm of which is applied to the pulley, while its other arm is fastened to a spring-slide, *o*, carrying an incline, which, with the slide, is raised by a cam or lifter, *q*, on a worm-wheel, *r*, which is rotated by a worm, *s*, on the shaft of the measuring-wheel. When the pulley *m* is thrown into connection with the pulley *l* by an arm, *t*, projecting from the lever *n*, the slide is drawn endwise by the lever and is locked in position by a latch-pin, *n*, in one of the posts in which it slides, slipping into a slot in the slide, the slide rising in the post until the slot comes over the latch-pin, when it is drawn down by a spring, *v* After the cam or lifter *q* in its rotation shall have disengaged the slide, which, by the action of a spring, *w*, will drive the slide endwise, actuating the clutch-lever and disengaging the pulleys *m* and *l*, the coiled tape is removed, the end of the tape to be wound is attached to the arbor, and the pulleys *l* and *m* are again thrown into connection, and the slide *o* is thereby driven back and locked in position. As the tape is winding upon the arbor the contact of the coil rotates the measuring-wheel, and through it the worm-wheel *r*, as will be readily understood. As the wheel *r* completes a revolution (and its relation to the circumference of the measuring-wheel is such that it makes a revolution at such number of revolutions of the measuring-wheel as shall express in length the length of tape required upon the coil) the lifter *q* comes into contact with the incline *o* and lifts and unlatches the slide, which, by the action of the spring *w*, will again unclutch the pulleys *m* and *l* and stop the machine. The arbor *i* is then withdrawn from the disks, leaving the coil free to be taken from the disks, which may be effected by pressing down the frame *d*, the measuring-wheel driving the coil partially out, so that it may be seized by hand.

It will be obvious from this description that the machine may be employed to wind woven or any other tape or ribbon, and to measure the same when necessary.

We claim—

1. The employment of the independent cheeks or disks for supporting the tape or ribbon as it is being wound, in combination with the removable arbor *i*, upon which the coil is formed, substantially as described.

2. The removable and slit arbor forming the core or spindle, upon which the coil is wound.

3. The employment of a measuring-wheel driven by contact of the rotating coil, when such coil is formed and supported between disks, substantially as described.

4. So connecting the measuring-wheel with the mechanism by which the coil is wound that the rotation of the coil shall be automatically stopped when the determined length is wound, substantially as set forth.

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