

(No Model.)

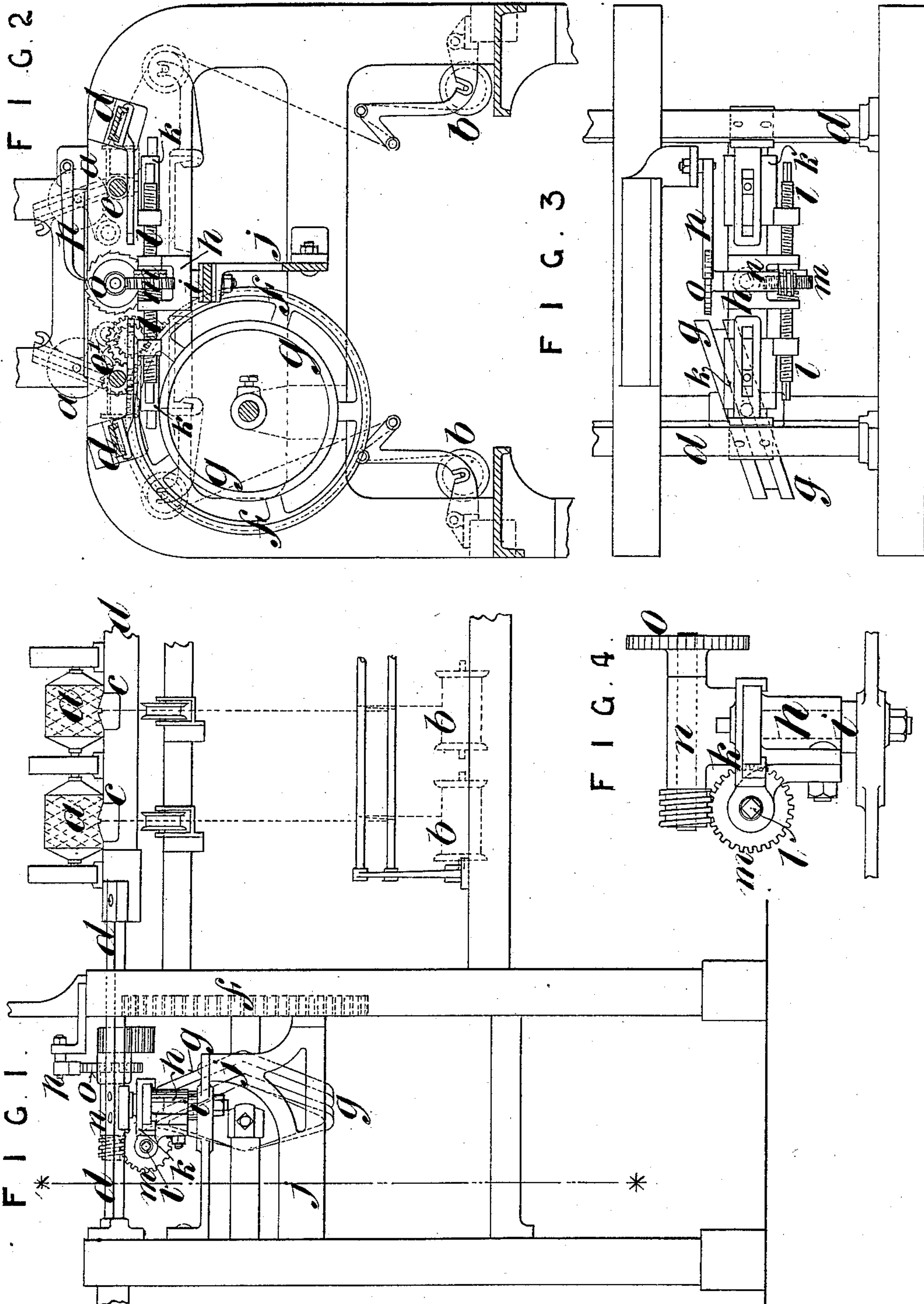
2 Sheets—Sheet 1.

E. ASHWORTH.

MACHINE FOR WINDING YARN, THREAD, &c.

No. 285,203.

Patented Sept. 18, 1883.



*Harry C. ...*  
*James F. John* } *Witnesses*

— *Inventor*—  
*E. Ashworth*  
*per his Attys. Howan and Fox*

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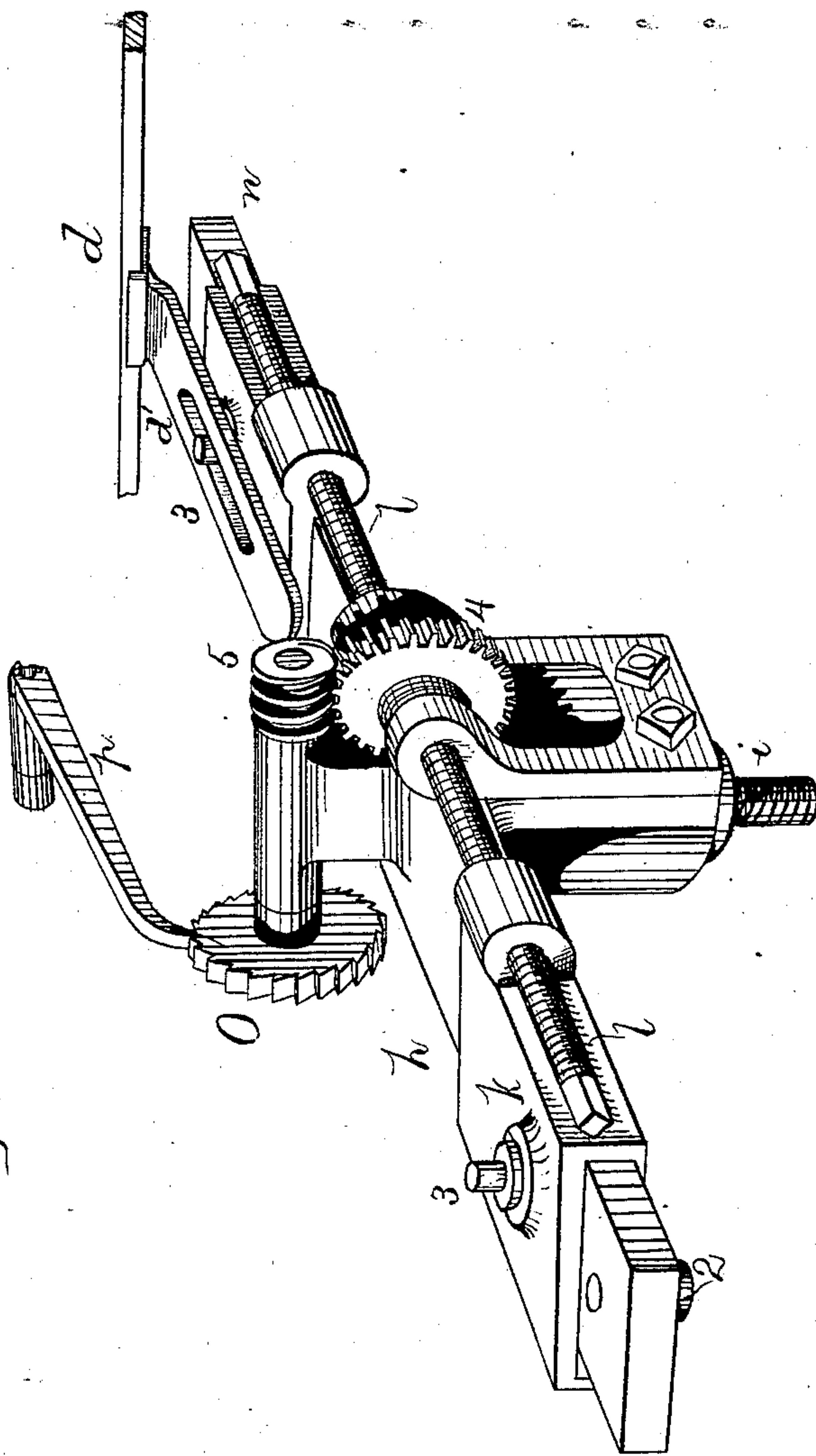


Fig. 5.

Witnesses:  
James F. Johnson  
Harry Smith

Inventor  
Edmund Ashworth  
by his Attys  
Howson & Sons



# UNITED STATES PATENT OFFICE.

EDMUND ASHWORTH, OF BOLTON LE MOORS, COUNTY OF LANCASTER,  
ENGLAND.

## MACHINE FOR WINDING YARN, THREAD, &c.

SPECIFICATION forming part of Letters Patent No. 285,203, dated September 18, 1883.

Application filed December 26, 1882. (No model.) Patented in England May 24, 1882, No. 2,448.

*To all whom it may concern:*

Be it known that I, EDMUND ASHWORTH, a subject of the Queen of Great Britain and Ireland, and residing at Bolton le Moors, in the county of Lancaster, England, thread-manufacturer, have invented certain Improvements in Machines for Winding Yarn, Thread, &c., (for which I have obtained a patent in Great Britain, No. 2,448, May 24, 1882,) of which the following is a specification.

My invention relates to yarn-winding machinery in which the yarn is wound with a quick traverse of the guides, so that the layers cross each other, the result being a cohering cylinder of wound yarn, which can be transported from place to place without requiring the support of a bobbin. This method of winding was patented in England by William Knowles in 1880, No. 3,331.

The object of my invention is to simplify and improve the construction of the mechanism for automatically shortening the movement of the traverse-bar as the winding proceeds, to form a cylinder with coned or beveled ends, as more fully described hereinafter.

In the accompanying drawings, Figure 1 is a front elevation of one end of the improved winding-machine. Fig. 2 is a section on the line \*, Fig. 1. Fig. 3 is a plan view of the automatic reducing devices. Fig. 4 is an end view of part of Fig. 3, drawn to an enlarged scale; and Fig. 5 is a perspective view of the same.

Referring to Figs. 1 and 2, *a a* are the coils of yarn, which are being wound from the bobbins *b b*, the thread passing over yarn-guides *c c* on the traverse-bar *d* in the usual manner. A quick reciprocating motion is imparted to the traverse-bar, so that the coils of yarn are caused to cross each other, as indicated by dotted lines in Fig. 1, the yarn being wound in this manner upon plain paper or other tubes without flanges, for the crossing of the coils referred to causes them to cohere, so that the coiled yarn will bear handling without the use of flanges on the tube.

The machine illustrated in the drawings is a double machine, there being, as shown in Fig. 2, two sets of winding devices, one on each side of the machine; and motion is derived

from the shafts *e* and *e'*, extending longitudinally of the machine, the coils *a a* being in frictional contact with these shafts and receiving rotary motion therefrom directly.

The shaft which carries the cam-wheel *g* for imparting motion to the traverse-bar *d* has a spur-wheel, *f*, Figs. 1 and 2, which, through suitable gear-wheels, receives motion from the shaft *e'* (or *e*) and imparts rotary motion to the cam-wheel *g*.

On a bracket, *j*, secured to the frame is mounted a horizontal lever, *h*, which can vibrate on its central pivot, *i*, Fig. 5, a stud, 2, on the under side of one end of the lever being adapted to the groove of the cam *g*, whereby the desired vibrating motion is imparted to the said lever. On this lever, on opposite sides of its pivot, are mounted carriages *k*, adapted to slide longitudinally thereon, and these carriages have pins 3, adapted to slots in arms *d'*, carried by the traverse-bar *d*; hence the vibrating motion imparted to the lever *h* by the cam *g* imparts in turn the desired traverse motion to the bars *d d*, and the extent of this traverse motion will vary with the positions of the pins 3 with reference to the pivot center *i*. Therefore, by gradually moving the carriages *k* toward the center of the bar *h* as the winding progresses, the extent of the traverse of the bars *d* will be lessened, and the coils of yarn will be wound with beveled or coned ends.

Through a threaded lug on each carriage *k* passes the screw-shaft *l*, which is mounted to turn in bearings near the center of the lever *h*, and has secured to it a worm-wheel, 4, gearing into a worm, 5, on a shaft at right angles to the shaft *l*, and mounted in bearings in a stud on the center of the lever *h*. The opposite end of this shaft, which carries the worm 5, is provided with a ratchet-wheel, *o*, into which gears a pawl, *p*, pivoted to a fixed part of the frame, so that as the lever *h* vibrates on its pivot *i* the wheel *o* will vibrate through a small arc from that center *i*, and at each movement the pawl *p*, being on a fixed pivot, will cause the ratchet-wheel to turn slightly, and so transmit motion to the screw-shaft *l*. The threads on the shaft *l* being right and left handed, the carriages *k* will be caused to gradually advance toward the center or pivotal



point of the lever *h*, and correspondingly reduce the traverse of the guide-bars *d* as the building up of the yarn proceeds.

When it is desired to return the carriages *k* 5 to their outward positions, the pawl *p* is thrown out and a key or wrench applied to the squared end of the shaft *l* to turn it.

I am aware that mechanism has heretofore been devised for this purpose of varying the 10 traverse of the guide-bar to cone the ends of the coils of yarn, and I therefore do not desire to claim this, broadly.

I do not confine myself, however, to the double-armed lever fitted with two carriages, 15 *k k*, for each side of the machine may have a separate lever with a carriage; but I prefer the construction shown.

I claim as my invention—

1. The combination of winding mechanism 20 and guide-bar *d*, having a slotted arm, *d'*, with

a pivoted lever, *h*, a carriage, *k*, mounted on the lever, and having a pin adapted to the slot in the arm *d'*, and devices, substantially as described, for advancing the carriage toward the pivotal point of the lever, as set forth. 25

2. The combination of winding mechanism, a traverse-bar for the yarn, a pivoted lever, *h*, and a carriage, *k*, connected to the traverse-bar, with a screw-shaft, *l*, worm-wheel 4, worm 5, its shaft and ratchet *o*, mounted on said lever *h*, and a pawl pivoted to the frame, substantially as set forth. 30

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

EDMD. ASHWORTH.

Witnesses:

EDWARD K. DUTTON,

DAVID FULTON.