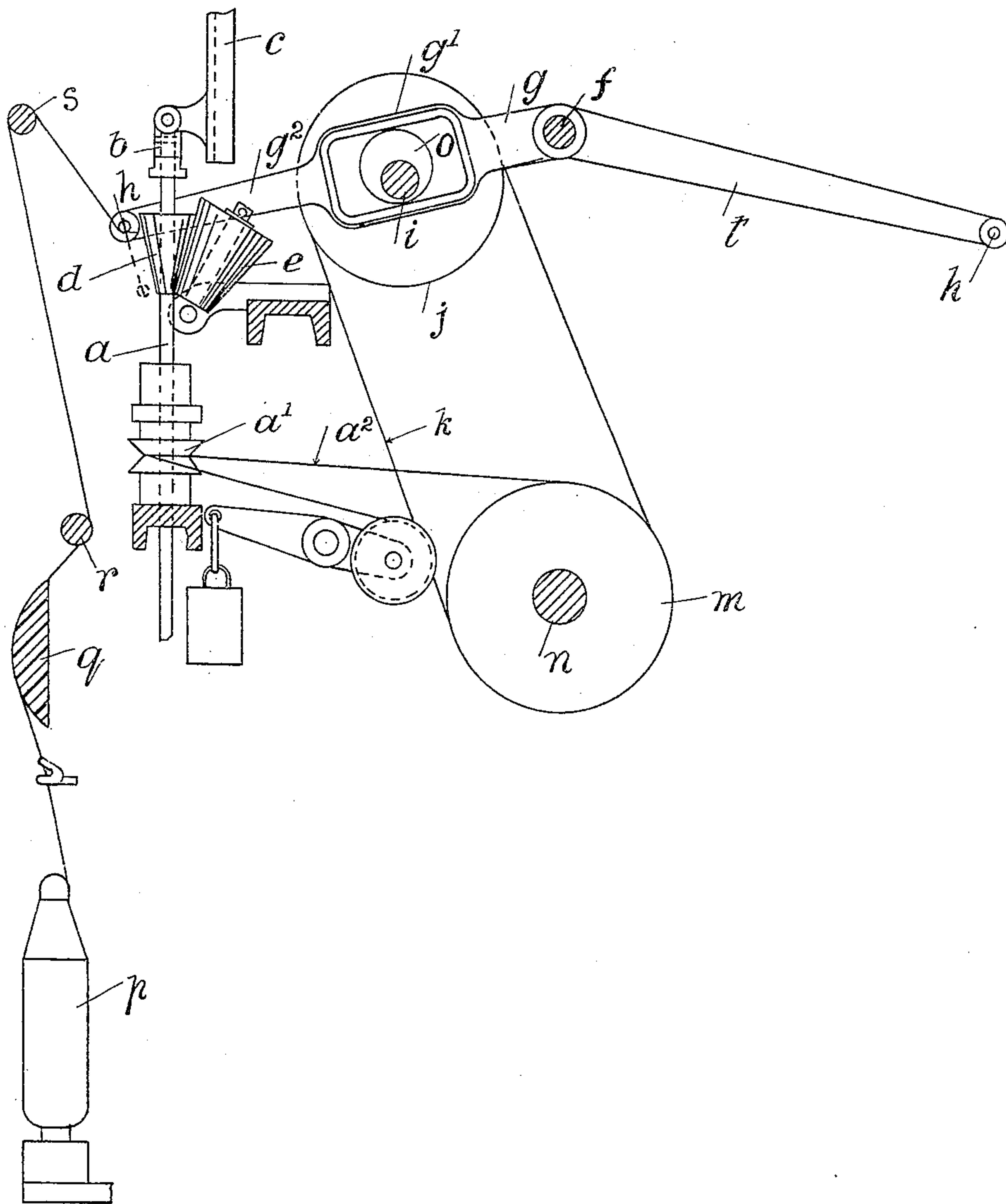


H. S. GOLLAND.  
YARN WINDING MACHINE.  
APPLICATION FILED MAY 21, 1909.

948,320.

Patented Feb. 8, 1910.



Witnesses

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# UNITED STATES PATENT OFFICE.

HENRY STAFFORD GOLLAND, OF MANCHESTER, ENGLAND.

YARN-WINDING MACHINE.

948,320.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed May 21, 1909. Serial No. 497,476.

*To all whom it may concern:*

Be it known that I, HENRY STAFFORD GOLLAND, a subject of the King of Great Britain and Ireland, residing at "Dunstan," Eccles, Manchester, in the county of Lancaster, England, merchant, have invented new and useful Improvements in Yarn-Winding Machines, of which the following is a specification.

10 This invention relates to that class of yarn winding machine in which the cop is wound in an inverted position upon a counterbalanced spindle, the cop being commenced on a cone placed on the spindle, against which  
15 cone a presser cone acts to thrust the spindle upward as the yarn is being wound.

The accompanying drawing illustrates the essential novel features of my invention the frame of the machine and well known parts  
20 being omitted as unnecessary.

In my invention I use the known type of spindle *a* which is suspended from a bracket *b* slidable in a guide *c* and which is also suitably counterbalanced. On the spindle *a*,  
25 before winding is, as usual, placed the cone *d* and a pivoted pressure cone *e* is employed which cone is preferably placed behind the cone *d* on the spindle as shown in the drawing.

30 My invention relates essentially to novel yarn guides and means for actuating the same whereby I am enabled to successfully wind cross wound cops in such machines.

The machine may be fitted with any desired number of spindles and in connection  
35 with the row of spindles I provide a fixed bar *f* on which are loosely pivoted a series of yarn guides *g* one for each spindle. The yarn guides are preferably of metal, say  
40 cast steel or other metal and each has a frame *g'* the purpose of which will be explained, and a limb or member *g''* passing alongside the cone *d* on the spindle *a* carrying a finger or wire *h* projecting at right angles to the limb and in front of the cone on  
45 the spindle.

Passing through the frames *g'* of the yarn guides *g* is a shaft *i* on which is mounted a pulley or drum *j* rotated by a band *k* or  
50 suitable gearing from the drum *m* on the driving shaft *n* of the machine or other revolving part, and on the shaft *i* are threaded eccentrics *o* one for each yarn guide, the eccentrics being placed within the frame of the  
55 yarn guide. As the shaft *i* is revolved the

eccentrics acting on the frames oscillate the yarn guides.

The yarn is led up from the bobbin *p* or the like over the breast beam *q* then behind the bar *r* and over a fixed tension bar *s* and  
60 down underneath the finger *h* of the yarn guide, to the cone on the spindle. It is important to so guide the yarn by a fixed tension bar *s* as to direct the yarn below the  
65 finger *h* as thereby strain on the yarn as it is being wound is greatly reduced, as the finger *h* of the yarn guide presses the yarn down from the thicker portion of the cop  
70 nose to the tip thereof during which the strain on the yarn is least whereas when the finger rises the yarn will follow from the tip to the thickest part of the cop nose without being under the influence of the finger  
of the yarn guide.

The yarn guides are rapidly vibrated on  
75 their pivots by the eccentrics and the fingers in front of the cones on the spindles move through an arc of a circle as shown in dotted lines which path for all practical purposes, corresponds to the same angle as the  
80 cone on the spindle and to the cop nose as the cop is built up. Therefore the guiding fingers for the yarn can be set close to the cone or cop nose and remain close thereto  
85 during their up and down movement which is beneficial to the process of winding. In a machine having spindles at each side, instead of providing each side with the yarn  
90 guides *g* one side may have plain guides *t* attached to or formed in one with the guides *g* at the other side and receiving their vibratory motion from them as shown. The  
spindles *a* are provided with wharves *a'* and driven by bands *a''* from the drum *m* or pulleys on the driving shaft *n* or other  
95 shaft of the frame or by suitable means or gearing. It will be understood that the driving shaft *n* may be provided with fast and loose pulleys, and that a suitable or  
100 well known stop motion for individual spindles may be used.

I declare that what I claim is.

1. In combination in a yarn winding machine a counter-balanced spindle, a cone thereon on which the cop is started, a  
105 presser cone to actuate the spindle as the yarn is wound thereon, a shaft, an eccentric, yarn guides *g* pivoted loosely on the shaft, a frame forming part of each guide within which rotates the eccentric to oscillate the  
110



guides, and a finger or wire carried by the yarn guides placed in front of the cone on the spindle to cross wind the yarn thereon substantially as described.

5 2. In combination in a yarn winding machine a counter-balanced spindle, a cone thereon on which the cop is started, a presser cone to actuate the spindle as the yarn is wound thereon, a shaft, an eccentric,  
10 yarn guides *g* pivoted loosely on the shaft, a frame forming part of each guide within which rotates the eccentric to oscillate the guides, yarn guides *t* formed in one with or attached to the yarn guides *g*, and a finger  
15 or wire carried by the yarn guides placed in front of the cone on the spindle to cross wind the yarn thereon substantially as described.

3. In combination in a yarn winding machine, a counter-balanced spindle, means for  
20 driving such spindle, a cone on the spindle and a presser cone to raise the spindle as the yarn is wound thereon, a shaft, yarn guides *g* pivoted loosely on the shaft, frames  
25 carried by the yarn guides, a shaft passing through the frames and means to rotate such shaft, eccentrics on the shaft disposed within the frames to oscillate the yarn guides *g* a finger or wire carried by the yarn guides

placed in front of the cone on the spindle 30 a tension bar and means to conduct the yarn over the tension bar and beneath the finger *h* to the cone on the spindle substantially as described.

4. In combination in a yarn winding machine, a counter-balanced spindle, means for  
35 driving such spindle, a cone on the spindle, and a presser cone to raise the spindle as the yarn is wound thereon, a shaft, yarn guides *g* pivoted loosely on the shaft, frames carried by the yarn guides, a shaft passing  
40 through the frames and means to rotate such shaft, eccentrics on the shaft disposed within the frames to oscillate the yarn guides *g*, yarn guides *t* formed in one with or at-  
45 tached to the yarn guides *g* a finger or wire carried by the yarn guides placed in front of the cone on the spindle a tension bar and means to conduct the yarn over the tension  
50 bar and beneath the finger *h* to the cone on the spindle substantially as described.

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

HENRY STAFFORD GOLLAND.

Witnesses:

JOSHUA ENTWISLE,  
ALFRED YATES.