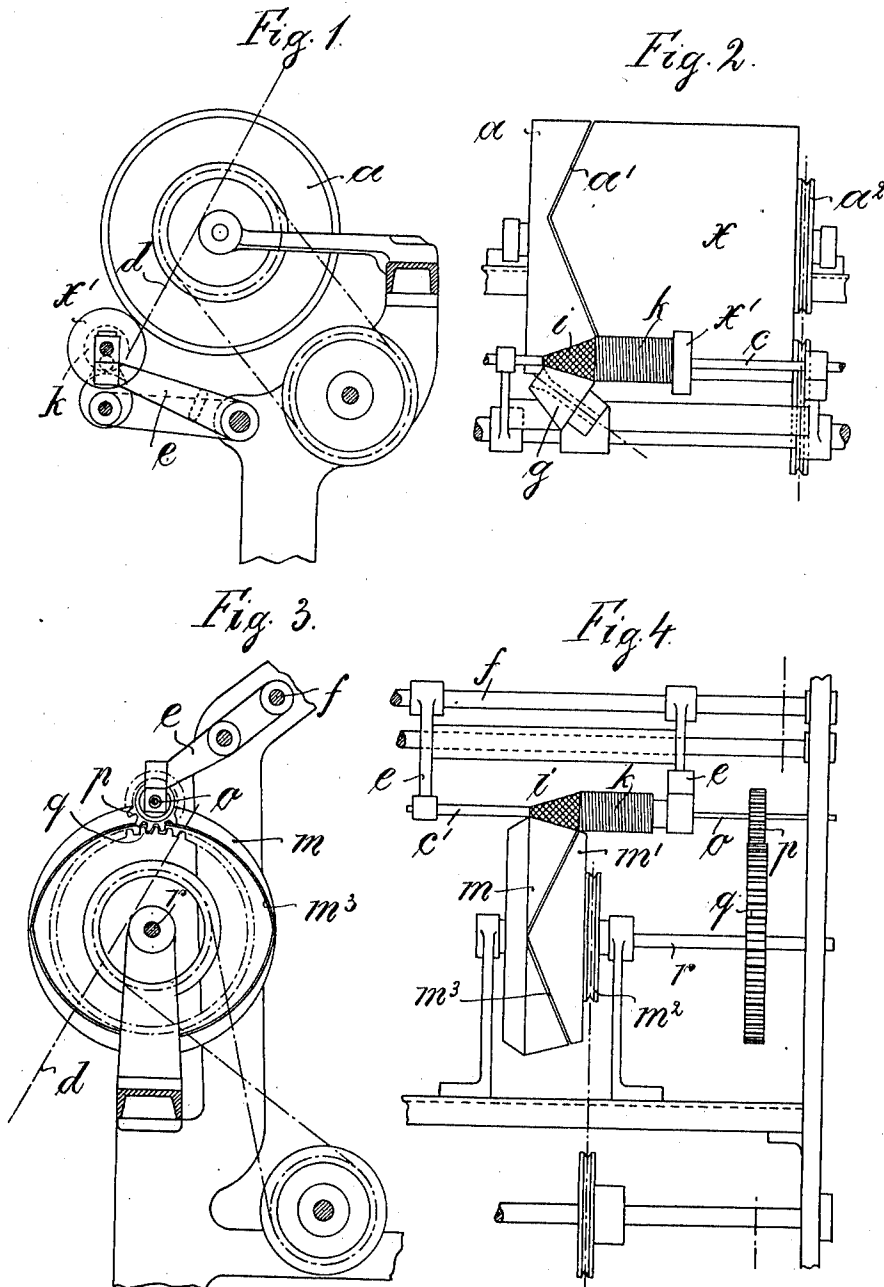


J. HUNZ.
COP WINDING MACHINE.
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1,061,543.

Patented May 13, 1913.



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UNITED STATES PATENT OFFICE.

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COP-WINDING MACHINE.

1,061,543.

Specification of Letters Patent.

Patented May 13, 1913.

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To all whom it may concern:

Be it known that I, JOSEPH HUNZ, a subject of the King of Prussia, and resident of 32 Engelsholt, München-Gladbach Land, German Empire, have invented certain new and useful Improvements in Cop-Winding Machines, of which the following is a specification.

This invention relates to cop winding machines and has for its object to provide convenient and improved guiding means for the thread over the conical end of the cop. The thread is led back and forward over the conical end so as to produce a cross winding. According to the present invention the back and forward motion of the thread is effected by means of a slotted rotatable drum the slot in said drum being shaped to guide the thread in the required manner. The invention is illustrated by way of example in the accompanying drawings in which:

Figure 1 is a side view, and Fig. 2 a front view of the winding mechanism in a cop winding machine according to the present invention. Fig. 3 is a side view and Fig. 4 a front view showing a modified form of the invention.

In carrying the invention into effect according to the form shown in Figs. 1 and 2 the thread d is passed as a cord through the slot a' in the slotted drum a . The slot a' is arranged inclined, as seen in Fig. 2, so as to guide the thread d back and forward over the conical end i of the cop k . The cop k is carried on the rotatable cop spindle c which is in turn slidably carried by brackets e . The drum a is rotated by means of the pulley a^2 and in its rotation it effects the guiding of the thread back and forward over the conical end i of the cop k . As the cop is filled with thread it is necessary to feed the same axially and this is effected according to the present invention by means of a conical rotatable member g bearing on the conical end i of the cop. The conical member g assists the formation of the cop end and also effects the axial motion of the cop. For the purpose of driving the cop I connect the cop spindle c operatively to the drum a .

In Fig. 2 it will be seen that the drum a extends to the right of the slot a' for a considerable distance and this extension forms a friction surface x which engages with the

collar x' on the spindle c , whereby the spindle c is caused to rotate with the drum a .

According to the form illustrated in Figs. 3 and 4 I dispense with the conical rotatable pusher g and form the slotted drum m with a conical part m' . The conical part m' engages with the conical end i of the cop k . It will be seen that in this case also as the cop k becomes filled with thread, the said cop is pressed axially. In this case the spindle c' is carried by brackets e slidably mounted on a shaft f . The spindle c' in this case is hollow and within the spindle there is arranged a driving shaft o which is splined to the hollow shaft c' . The spindle o carries a gear pinion p which engages with a toothed wheel q mounted on the shaft r which carries the drum m . A pulley m^2 serves for driving the shaft r and drum m . In this case the thread d passes through the slot m^3 in the drum m and is guided to the end of the cop in the required manner. The cop spindle c' is also positively driven from the driving shaft r for the drum.

In the operation of the machine shown in Figs. 1 and 2 the thread is delivered through the inclined peripheral slot a' and as the drum and spindle are rotated the thread will be laid in spiral courses back and forth over the conical end of the cop, and as this end is built up it bears against the conical member g , which is frictionally driven thereby and effects a constant pressure against the cop to move it longitudinally so that the completed cop has substantially the appearance as indicated in Fig. 2. In the machine of Figs. 3 and 4 the spindle is positively driven through the train of gears described and is moved longitudinally by the slotted drum m . By making the latter in the form of a frustum of a cone it serves not only as a guide for the thread, but effects the longitudinal movement of the cop. In this construction, as well as that of Figs. 1 and 2, the angle of the slot in the drum is such as to lay the thread over the conical end of the bobbin only.

By "cop" in the present specification I mean a receptacle on which filling or weft is wound, such as is known by the name of bobbin, butt-cop, cop, all-cop, etc.

I claim:

1. In a cop winding machine, the combination of a spindle, a longitudinally movable shaft on which said spindle is mounted,

a drum having an inclined peripheral slot to guide the thread back and forth a fixed distance on said spindle less than the length of the cop and to effect a cross winding of the thread as the spindle is rotated, the axes of said spindle and drum being parallel, means for rotating the spindle and drum, and means contacting with the conical end of the cop to move the latter longitudinally as it becomes filled with thread.

2. In a cop winding machine, the combination of a spindle, a longitudinally movable shaft on which said spindle is mounted, a drum having an inclined peripheral slot to guide the thread back and forth a fixed

distance on said spindle less than the length of the cop and to effect a cross winding of the thread as the spindle is rotated, the axes of said spindle and drum being parallel, means for rotating the spindle and drum, and a conical rotatable member contacting with the conical end of the cop to move the latter longitudinally as it becomes filled with thread.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOSEPH HUNZ. [L. S.]

Witnesses:

OTTO KÖNIG,
WILLY KLEIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."