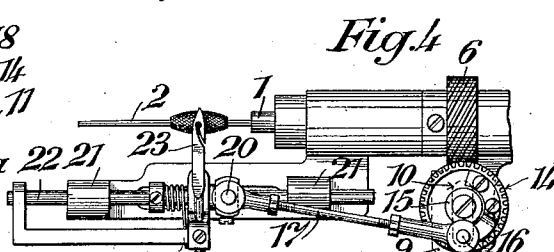
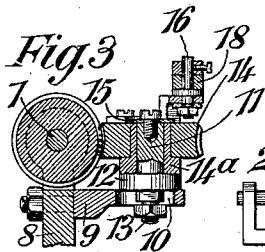
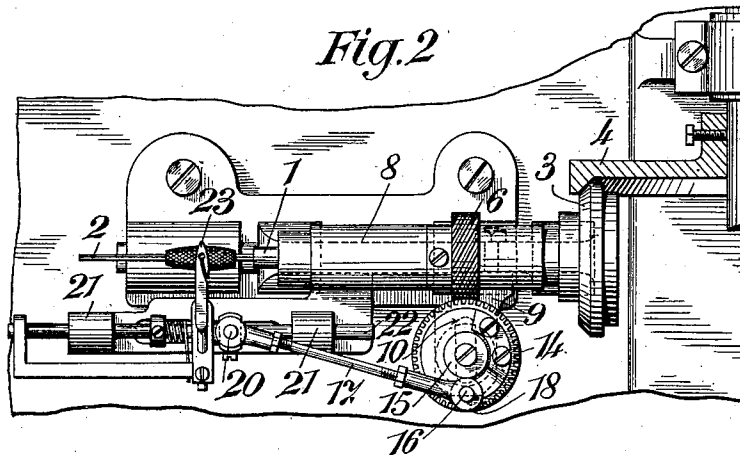
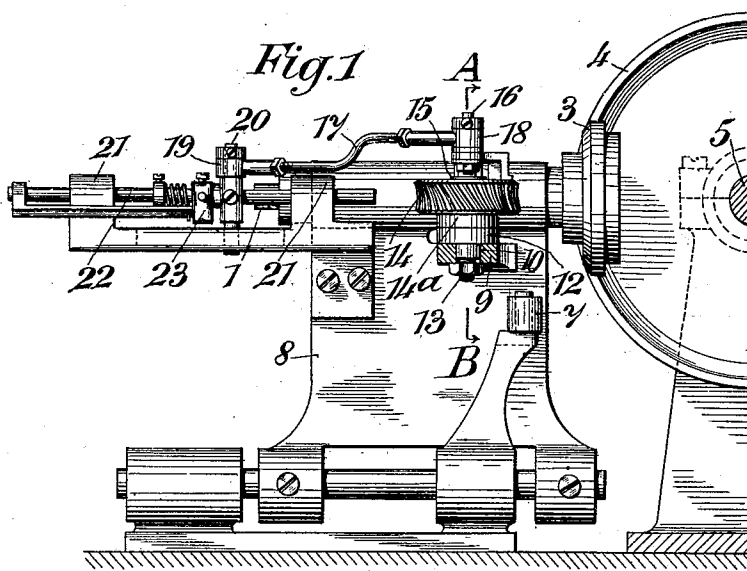


E. BERGER.
BOBBIN WINDER.
APPLICATION FILED SEPT. 3, 1907.

977,157.

Patented Nov. 29, 1910.



Witnesses:

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ERNST BERGER, OF THAL, SWITZERLAND, ASSIGNOR TO THE FIRM OF HENRI LEVY, OF RORSCHACH, SWITZERLAND.

BOBBIN-WINDER.

977,157.

Specification of Letters Patent. Patented Nov. 29, 1910.

Application filed September 3, 1907. Serial No. 391,127.

To all whom it may concern:

Be it known that I, ERNST BERGER, a subject of the King of Württemberg, Germany, residing at Thal, Canton of St. Gallen, in Switzerland, have invented certain new and useful Improvements in Bobbin-Winders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The subject of my invention is a machine for winding bobbins having no inner supporting tube, furnished with a bobbin spindle and a thread guide.

In prior machines of this class the thread guide is driven from a shaft auxiliary to the bobbin spindle shaft and the bobbin spindle is driven from the same shaft by means of friction gearing. It frequently happens, however, that owing, for instance, to a drop of oil getting between the friction wheels, the latter slip upon each other. Thus while the thread guide retains its normal speed, the bobbin spindle rotates at a speed below the average, whereby the speed ratio between bobbin spindle and thread guide—which for equal sized bobbins must always remain uniform—is altered, the result being faulty winding of the bobbins.

In apparatus of this description bobbins of different sizes can not be wound on one and the same machine, a number of such being necessary. Thus it is impossible to wind at one time 4/4 and at another time 6/4 bobbins on the same machine. 4/4 bobbins are about 30 cms. long and to wind them a speed ratio between bobbin spindle and thread guide of 1:2.99 is necessary. 6/4 bobbins are about 20 cms. long and the speed ratio must be 1:1.99.

To enable different sized bobbins to be wound on the same machine and to avoid the above-mentioned drawback, I drive the thread guide from the bobbin spindle by means of worm gearing, *i. e.* positively, and I render one of the worm gears changeable in order that the speed ratio between thread guide and bobbin spindle may be varied. In this manner bobbins of different dimensions (*e. g.* 4/4, 6/4, etc.) can be wound on the same machine.

One form of construction of my invention is illustrated in the accompanying drawing, only those parts of the machine being shown which are necessary for purposes of explanation.

Figure 1 is a side elevation. Fig. 2 is a plan of Fig. 1. Fig. 3 is a section on the line A—B of Fig. 1. Fig. 4 is a plan similar to Fig. 2, but showing a smaller worm wheel in use.

1 is the bobbin spindle shaft and 2 the bobbin spindle. At one end of the shaft 1 there is mounted the friction disk 3, a second friction disk 4 being mounted on the auxiliary shaft 5. On the shaft 1 there is also rigidly mounted a worm gear in the form of a worm 6.

8 is a bracket sliding axially to the bobbin spindle 2 and supported in vertical position by rollers 7. Projecting laterally from this bracket there is a plate 9, slotted at 10, and on this plate there rests the shoulder 12 of a pin 11, whose plane-sided, threaded end 13 projects through the slot 10 and is secured by a nut. Turning loosely on the pin 11 is a second worm gear in the form of a worm wheel 14, rigidly secured to the sleeve 14^a.

15 is a disk which prevents the worm wheel 14 from jumping off the pin 11. Projecting eccentrically from the worm wheel is a pin 16, which is loosely embraced by the eye 18 at one end of pitman 17. The other end of the pitman has an eye 19 which embraces the pin 20 mounted on the rod 22, which reciprocates in bearings 21 and carries the thread guide 23.

On rotation of the worm wheel 14 the thread guide 23 will thus be caused to reciprocate, and depending upon the size of the worm wheel, for example 4/4 bobbins as in Fig. 4, or 6/4 bobbins as in Fig. 2 can be wound.

Instead of the wheel 14 the worm 6 might naturally be changeable.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

In combination, a slidable bracket, a shaft rotatable therein, lateral guides for the bracket, a friction wheel on the shaft, a friction wheel to drive the latter wheel, a worm fixed on the shaft, a laterally projecting slotted plate mounted on the bracket, a spindle

adjustably mounted in said slot, a worm-wheel journaled on the spindle in mesh with the worm, bearings formed on the bracket, a rod reciprocably mounted in the bearings
5 parallel to said shaft, a thread-guide mounted on the rod, a crank-pin on the worm-wheel and a pitman connecting the thread-guide with the crank-pin.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

ERNST BERGER.

Witnesses:

WALTER DIENER,
AUGUST BELZ.