No. 668,193. Patented Feb. 19, 1901.

F. KUGLER.

APPARATUS FOR TWISTING TOGETHER ENDS OF THREADS OF WOUND BOBBINS.

(Application filed Jan. 18, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

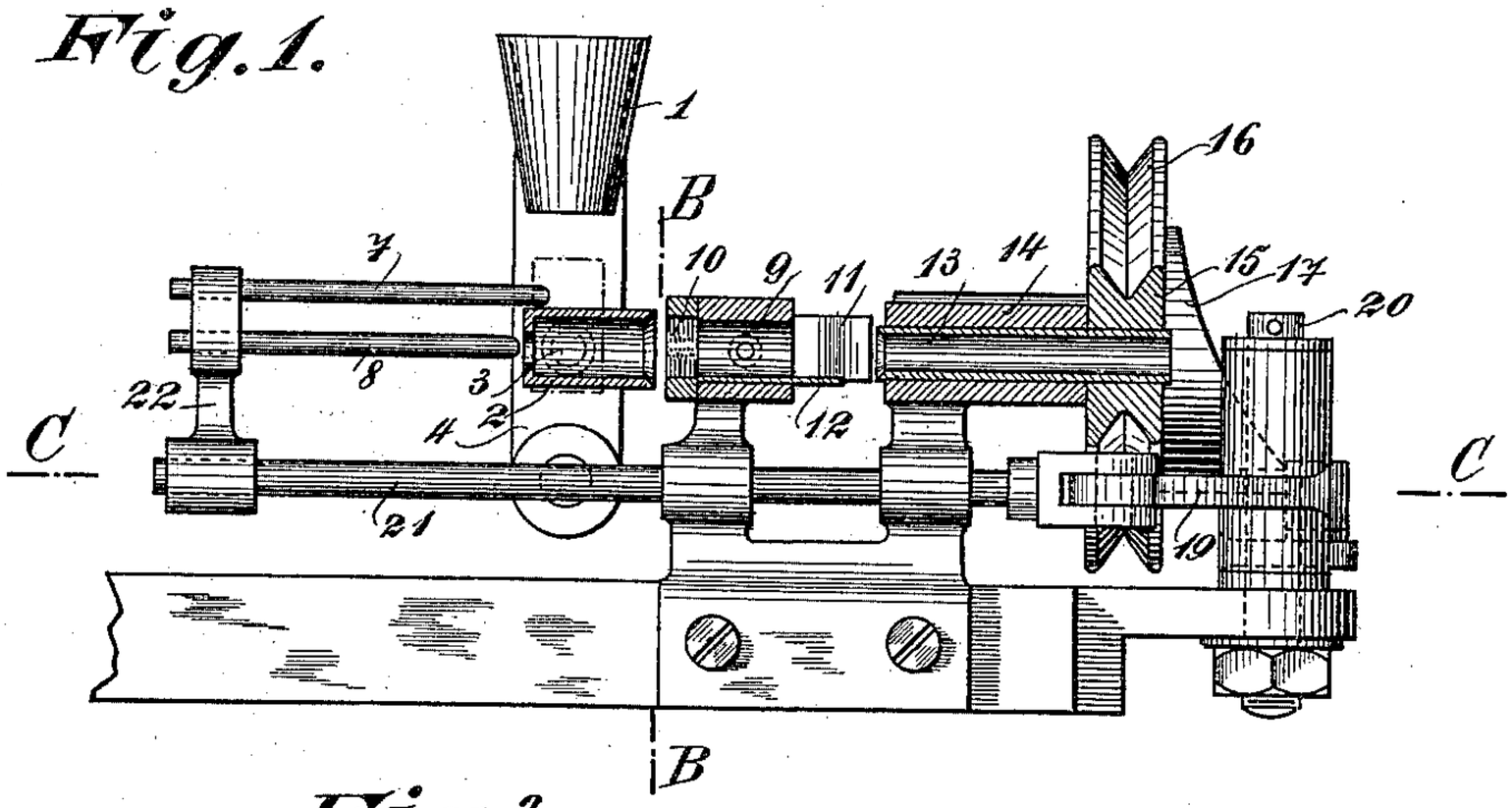
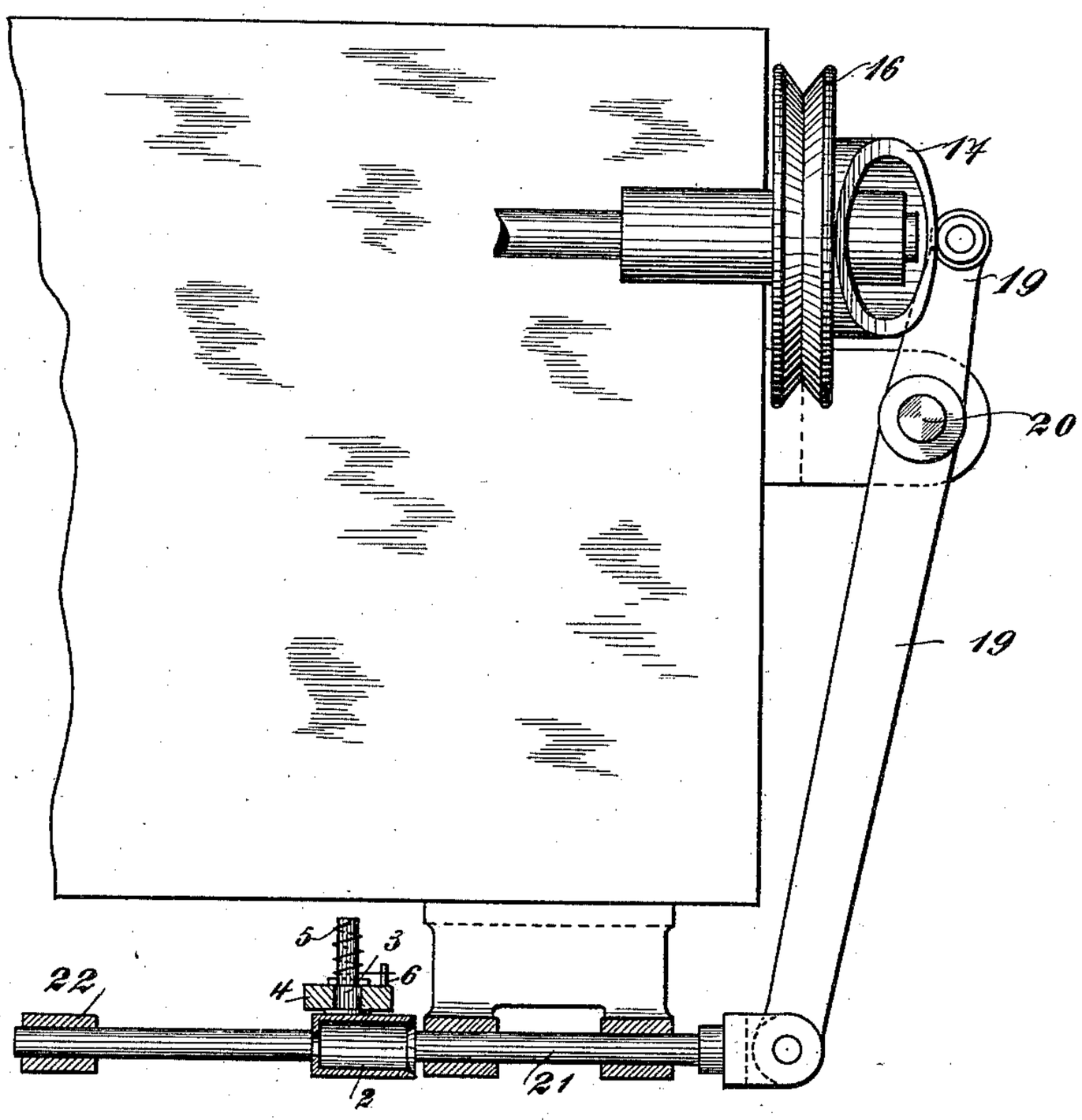


Fig. 3.



Witnesses:
Anton Aldoetzner
N. Mitchell.

Inventor:
Friedrich Kugler
by Marcus Wright
Attorney

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Fig. 2.

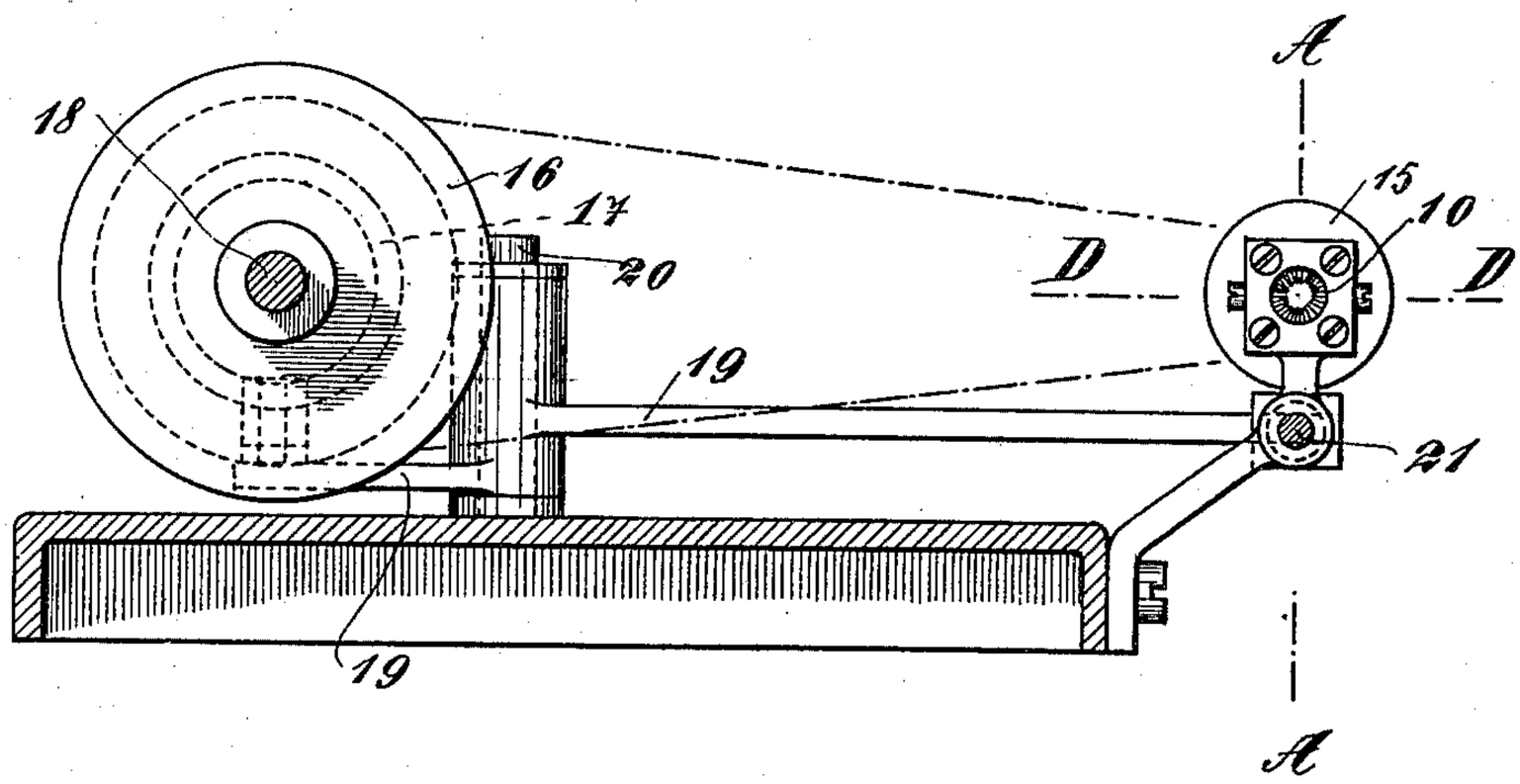
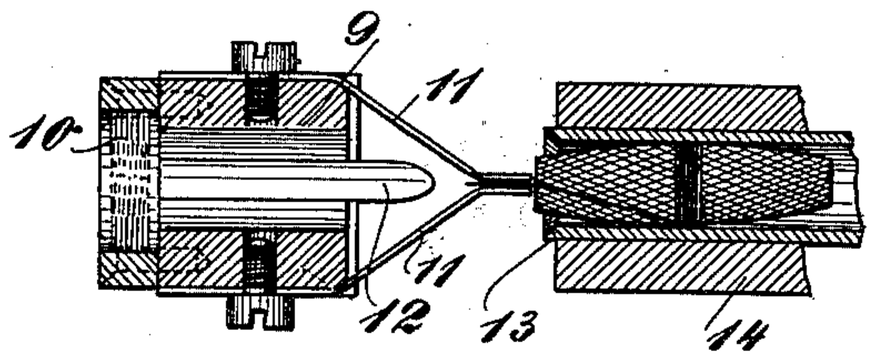


Fig. 4.



Witnesses:
Anton Albertzner.
N. Mitchell

Inventor:
Friedrich Kugler
by Munn & Co
Attorney.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

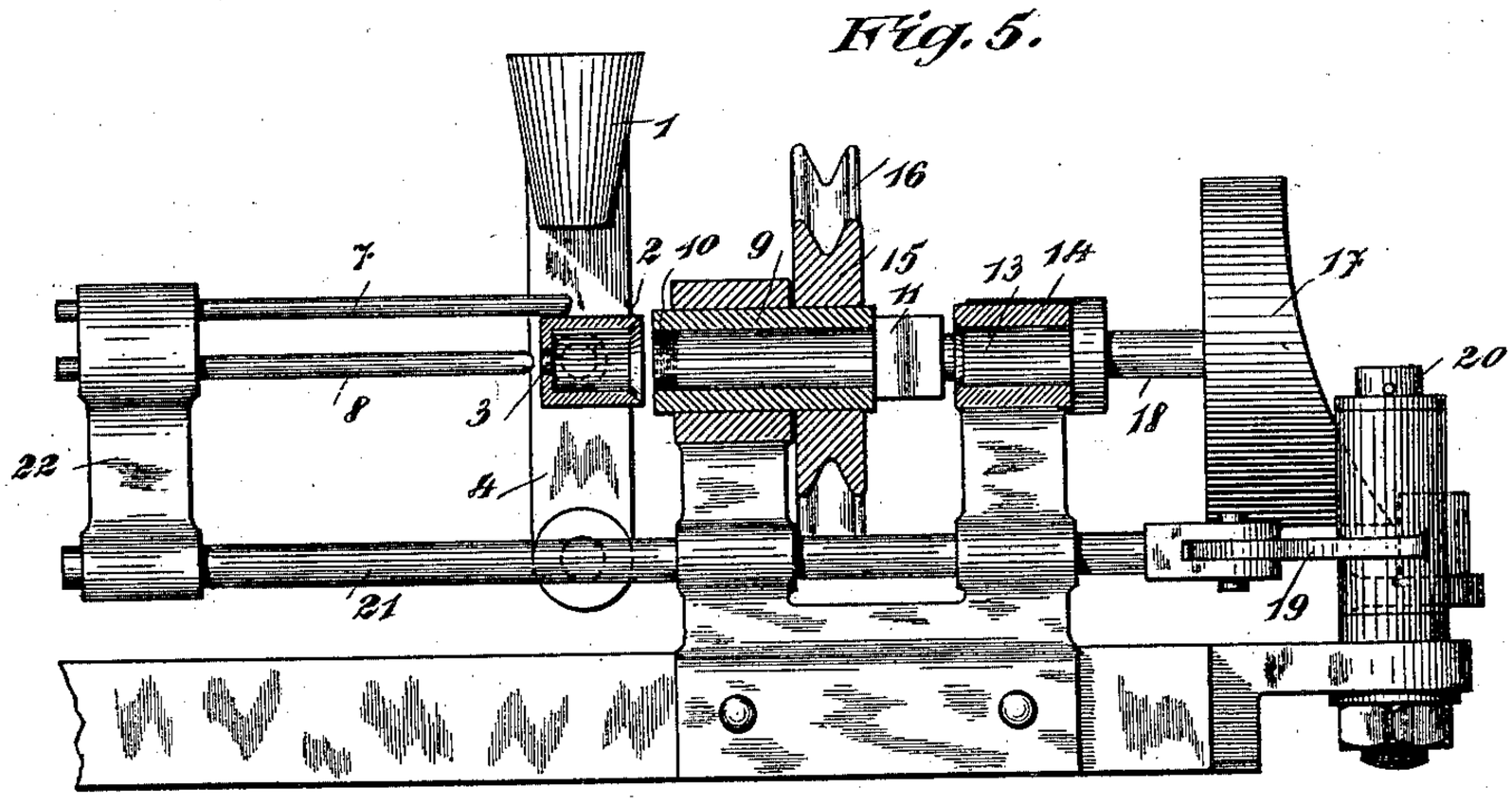
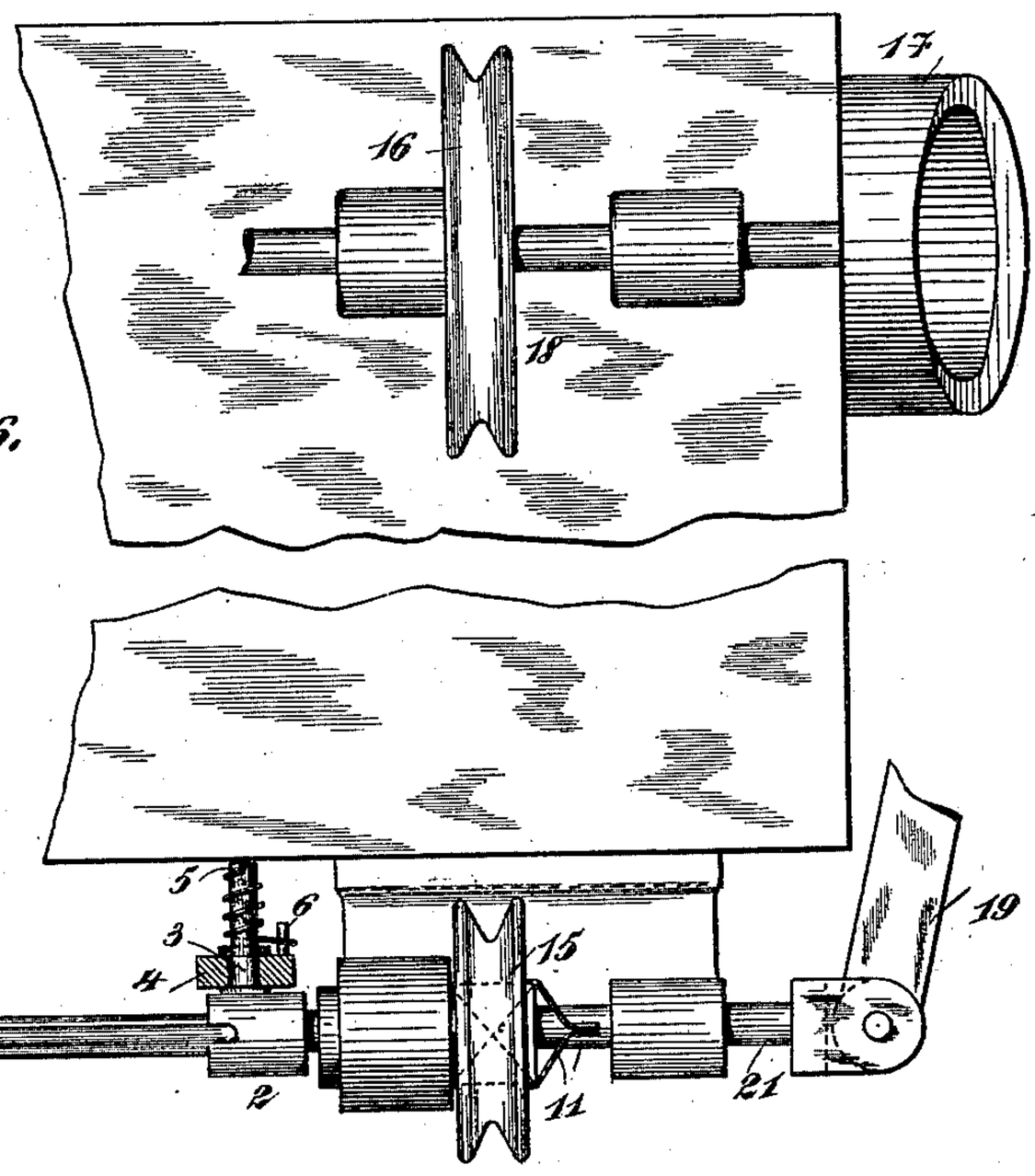


Fig. 6.



Witnesses
M. C. Massie.
Anton A. Bloetzner.

Inventor:
Friedrich Kugler,
by Munn & Co
Attorneys.

UNITED STATES PATENT OFFICE.

FRIEDRICH KUGLER, OF FRAUENFELD, SWITZERLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE FIRMS OF J. SALZMANN-DAENIKER AND NUFER & CO., OF ST. GALL, SWITZERLAND.

APPARATUS FOR TWISTING TOGETHER ENDS OF THREADS OF WOUND BOBBINS.

SPECIFICATION forming part of Letters Patent No. 668,193, dated February 19, 1901.

Application filed January 18, 1900. Serial No. 1,937. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH KUGLER, a subject of the Emperor of Germany, residing at Frauenfeld, Switzerland, have invented a new and useful Apparatus for Twisting Together the Ends of Threads of Wound Bobbins, (for which I filed applications for patents in Switzerland on the 19th of June, 1899, No. 21,472; in Germany on the 24th of June, 1899, No. A.6,510, and in Great Britain on the 24th of November, 1899, No. 23,499,) of which the following is a specification.

This invention relates to an apparatus for twisting together the ends of threads of wound bobbins and the like, and is particularly applicable in connection with bobbin-winding machines.

In the said invention a journal or guide for the bobbin or spool and a securing device for the ends of the thread are so arranged that a relative rotary motion between the two is rendered possible. The object of this arrangement is to free the thread ends of the bobbins and to arrange them so that they can be readily got at during the further work of the bobbin.

In the accompanying drawings this invention is shown in two modified forms.

Figure 1 is a side view of one modification, partly in section, on line A A of Fig. 2. Fig. 2 is a sectional elevation on line B B of Fig. 1. Fig. 3 is a plan view on line C C of Fig. 1. Fig. 4 is a sectional elevation through a detail on line D D of Fig. 2. Fig. 5 is a side view, partly in section, of a second modification of my invention; Fig. 6, a broken plan view of the same.

Underneath a hopper 1 a rocking frame 2 is arranged, pivoted in the standard 4 by means of the axle 3. A helical spring 5, riding upon the said axle 3, Fig. 3, and being secured at one end within a slot in the axle and at the other end to a pin 6 of the standard 4, has the tendency to ordinarily hold the rocking frame in a vertical position underneath the hopper, as shown by dotted lines in Fig. 1. In front of the rocking frame is arranged a pushing device consisting of two horizontal rods 7 and 8. The one rod 7 is somewhat longer than the other one and serves to tilt during its forward motion the rocking frame. By gliding over it it holds the rocking frame in a horizontal position, while the other rod 8 advances through the rocking frame. Coaxially with the rod 8 behind the rocking frame is arranged a guiding-channel 9, with a circular brush 10. The radially-projecting bristles of this brush include an opening which about equals the diameter of the end of a bobbin. At the other end of the guiding-channel are provided two flat springs 11 11, fastened upon the outer wall of the guiding-channel and touching each other at the free end, as is clearly shown in Fig. 4. Upon the under side of the guiding-channel is arranged a rest or projection extending nearly to the touching spring ends. Back of these springs is arranged a hollow axle 13, journaled in a bearing 14 and provided with a strap-pulley 15. This pulley is driven from a larger pulley 16, which is secured, together with a cam-wheel 17, upon the axle 18. Upon the curved face of this cam-wheel 17 rests the shorter end of a double-armed lever 19, pivoted at 20, Fig. 3. The other arm of the lever 19 is linked to a rod 21, which carries at the outer end, by means of the member 22, the two rods 7 and 8. During rotation of the cam-wheel 17 a reciprocating motion in axial direction is imparted to these rods 7 and 8.

The *modus operandi* of the described arrangement is as follows: From the hopper 1 a bobbin drops into the rocking frame 2. The rod 7 in advancing tilts the rocking frame, and the rod 8 pushes the bobbin, the inner thread end of which rests upon the rod 8, through the circular brush 10, into the channel 9. The circular brush hereby brushes the outer thread end from the surface of the bobbin backward, so that now both thread ends lie together at the rear end of the bobbin. During the further progress of the rod 8 it pushes the bobbin through the flat springs into the hollow axle 18, serving as guide or journal for the bobbin, and within which the bobbin is fitted with a friction just strong enough to cause the bobbin to be taken along during the rotation of the axle. The ends of the flat springs 11 after having slipped off the bobbin come into contact again and grip the two thread ends.

During the rotation of the bobbin these two thread ends are twisted about each other until after a certain time they slip from between the springs. By treating a number of bobbins in this way the bobbins are successively pushed out of the bobbin-guide. As the thread ends are twisted about each other, entangling is effectually prevented. The rods 7 and 8 after having pushed out a bobbin are moved back again, when the rocking frame is brought back into its original vertical position ready to receive a fresh bobbin.

Instead of the rotary bobbin-guide a stationary one may be used. In this case the flat springs 11 are given a rotary motion to bring about the twisting of the thread ends. This modification is illustrated in Figs. 5 and 6, which will be understood without further description.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an apparatus for twisting together the ends of threads of wound bobbins, the combination of a journal or guide for the bobbin, a securing device for holding the ends of the bobbin-threads, and means for producing a relative motion between the two, whereby the ends of the thread are twisted together.

2. In an apparatus for twisting together the ends of threads of wound bobbins, the combination of two machine elements, namely, a journal or guide for the bobbin and a securing device for holding the ends of the bobbin-threads, one of which elements is stationary and the other movable, whereby the ends of the thread may be twisted together.

3. In an apparatus for twisting together the ends of threads of wound bobbins, the combination with two machine elements, namely, a journal or guide for the bobbin and a securing device for holding the ends of the bobbin-threads, of means for producing a relative motion between the said two machine elements, whereby the ends of the threads may be twisted together.

4. In an apparatus for twisting together the ends of threads of wound bobbins, the combination of a rotatable journal or guide for the bobbin, and a stationary securing device for the ends of the thread, whereby a relative motion between the two results.

5. In an apparatus for twisting together the ends of threads of wound bobbins, the combination with a journal or guide for the bobbin, of a securing device for the thread ends, and means for producing a relative motion between the two and for withdrawing the twisted ends from the securing device.

6. In an apparatus for twisting together the ends of threads of wound bobbins, the combination with a journal or guide for the bobbin, of a guide-channel device, flat springs secured to the guide-channel device and serving to hold the thread ends, and means for producing a relative motion between the journal or guide and the flat springs whereby the thread ends are twisted.

7. In an apparatus for twisting together the ends of threads of wound bobbins, the combination with a journal or guide for the bobbin, a securing device for the ends of the bobbin-thread, a feed-hopper, a rocking frame arranged to receive bobbins from the hopper, means for yieldingly holding the rocking frame in its normal position, mechanism for tipping said rocking frame and holding it in a tipped position, and means for operating said mechanism.

8. In an apparatus for twisting together the ends of threads of wound bobbins, the combination of a guide or journal for the bobbin, a securing device for the thread ends of the bobbin, means for producing a relative rotation between the two, a rocking frame underneath a hopper, a spring for holding the said rocking frame ordinarily in a horizontal position a rod adapted to tilt the said rocking frame and to hold it in the tilted position, until a new bobbin has to be introduced and means for imparting a reciprocating axial motion to the said rod, substantially as set forth.

9. In an apparatus for twisting together the ends of threads of wound bobbins, the combination with a journal or guide for the bobbin, a securing device for the ends of the bobbin-thread, means for producing a relative motion between the journal or guide and the securing device, and a brush arranged in advance of the securing device to wipe the thread ends so that they may be grasped by the securing device.

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

FRIEDRICH KUGLER.

Witnesses:
MORITZ VEITH,
A. LIEBERKNECHT.