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C. FELSING, JR.

DEVICE FOR WINDING SILK, COTTON, OR OTHER MATERIALS ON WIRE.

APPLICATION FILED NOV. 14, 1901. RENEWED JUNE 8, 1904.

NO MODEL.

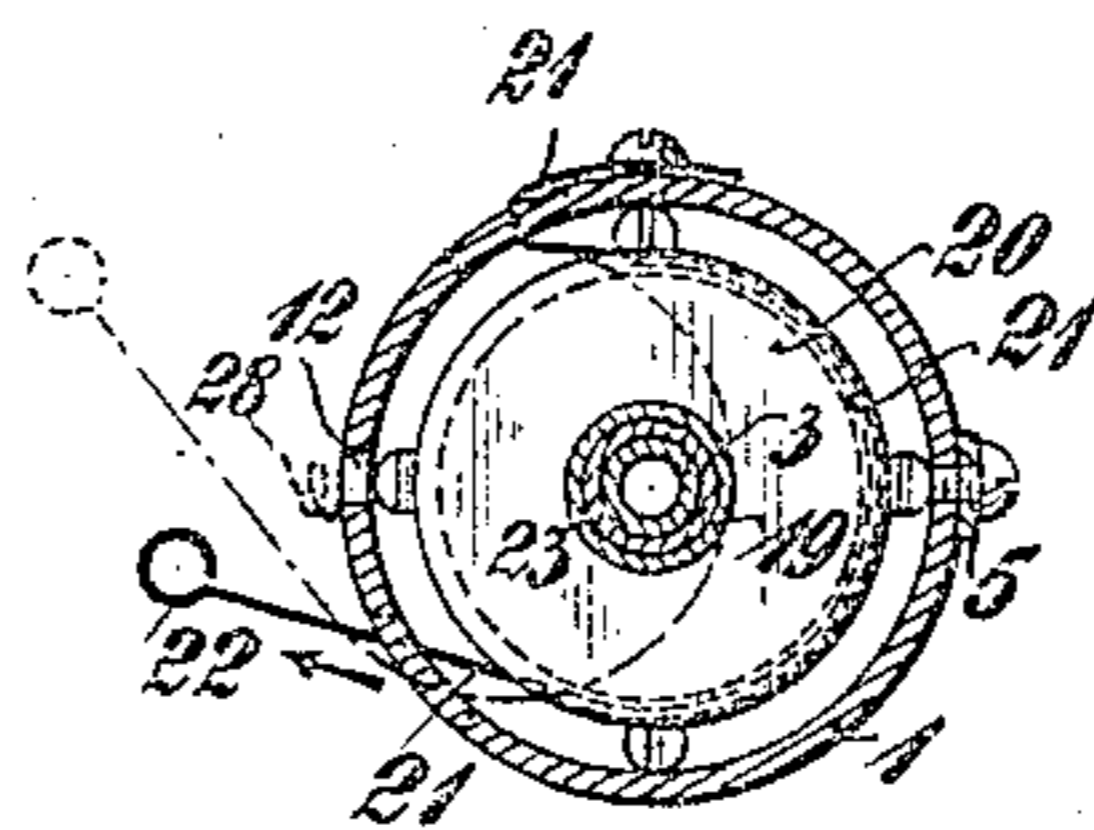
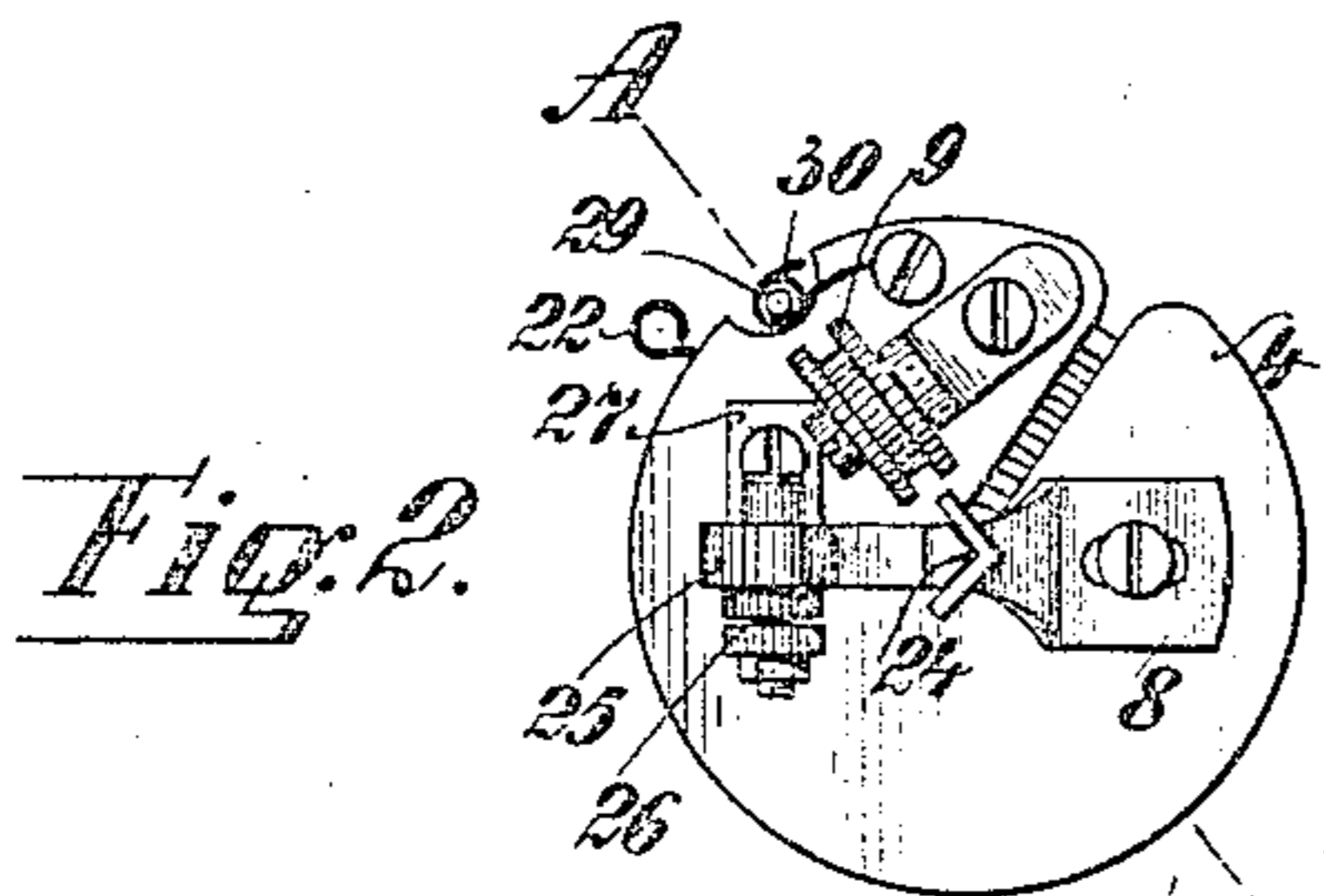
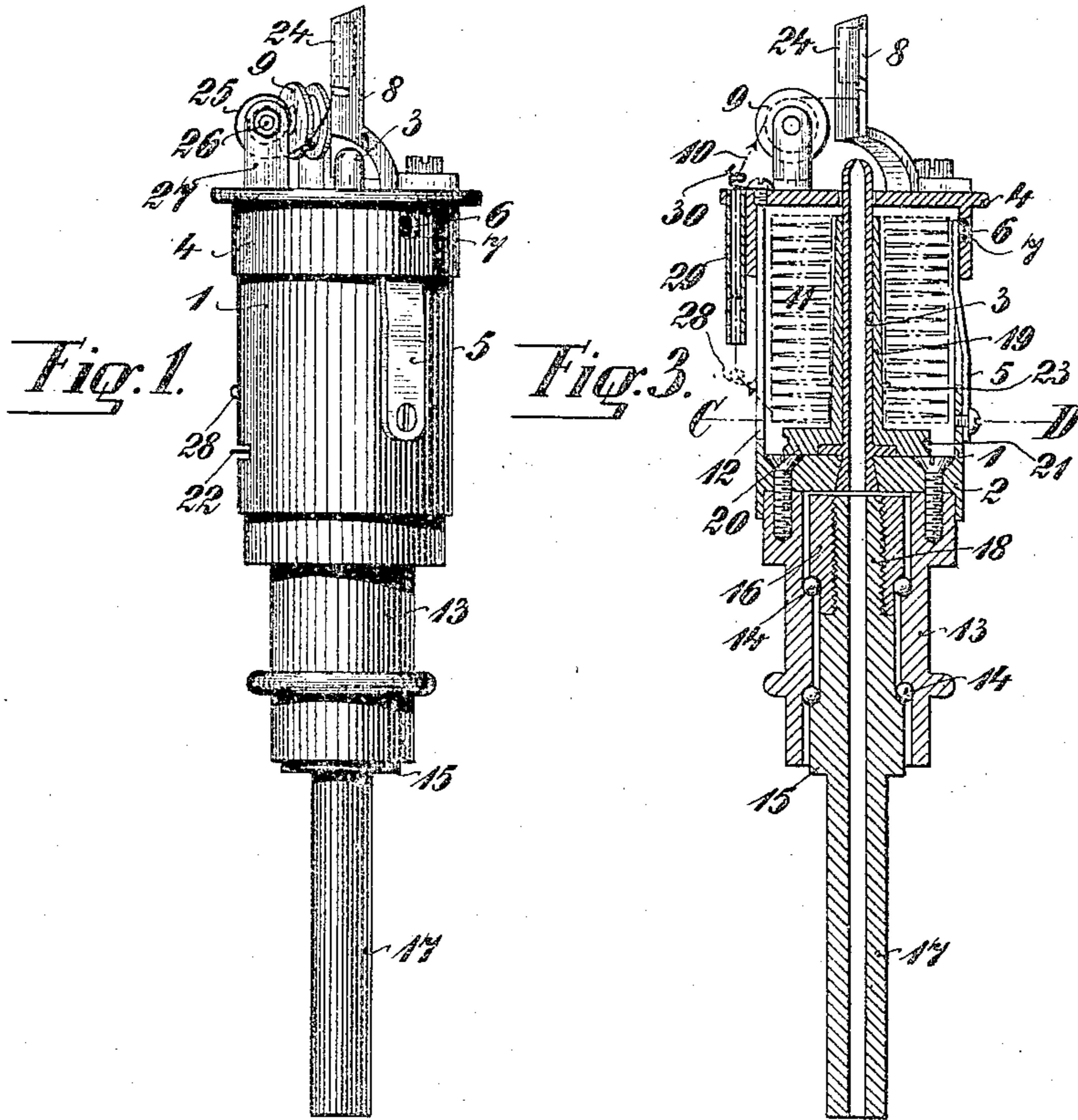
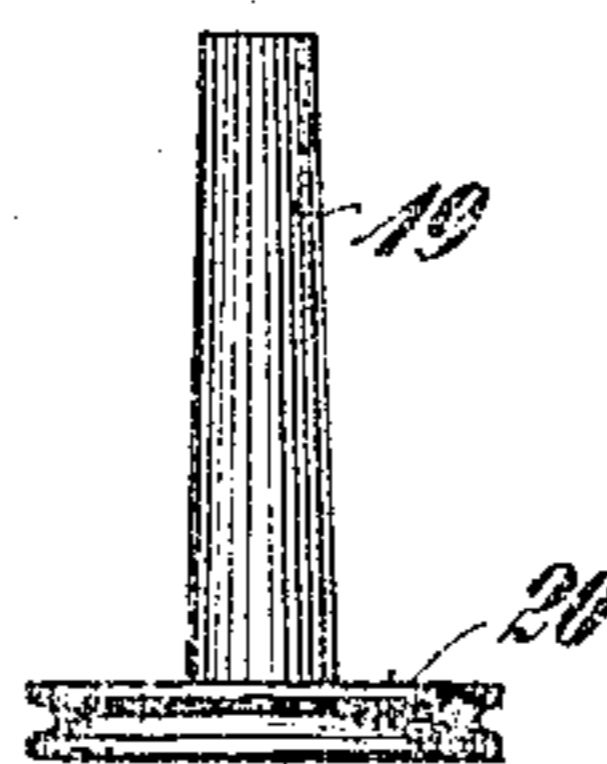
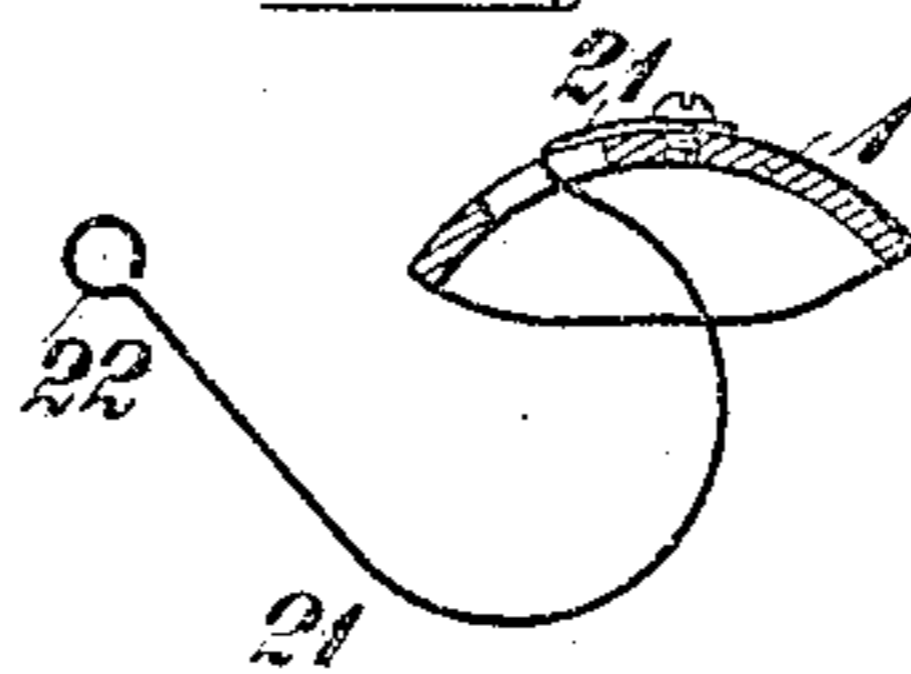
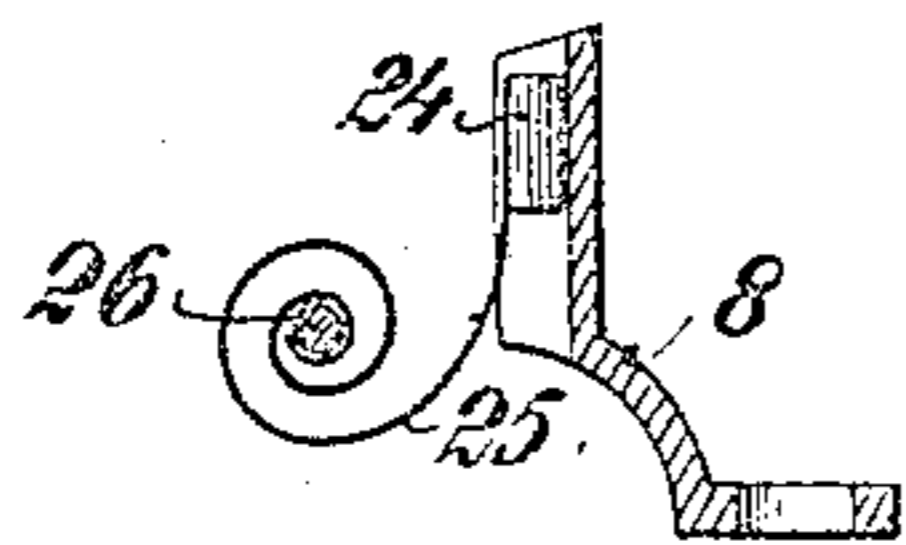


Fig. 5. B

Fig. 6. Fig. 7.



Witnesses
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DEVICE FOR WINDING SILK, COTTON, OR OTHER MATERIALS ON WIRE.

SPECIFICATION forming part of Letters Patent No. 767,267, dated August 9, 1904.

Application filed November 14, 1901. Renewed June 8, 1904. Serial No. 211,670. (No model.)

To all whom it may concern:

Be it known that I, CONRAD FELSING, JR., manufacturer, a subject of the German Emperor, residing at 4 Kaulsdorferstrasse, Coepenick, near Berlin, Germany, have invented certain new and useful Improvements in Devices for Winding Silk, Cotton, or other Materials on Wire; 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.

My invention relates to improvements in devices for winding or spinning silk, wool, cotton, or the like on a central thread or a wire, either naked or insulated by a coating of india-rubber, gutta-percha, or other suitable material.

In my improved apparatus, which belongs to the class of spinning devices in which the central thread or wire is led through the longitudinal opening in the bobbin or spool carrying the exterior thread, the box or casing containing said bobbin or spool and rotating with the latter is provided with several contrivances by which the final result is improved. These contrivances, which are all disposed in such a manner that during the rotation of the box or casing all injurious influences due to centrifugal force are avoided, consist, in the first place, of a peculiar automatic brake which under the influence of centripetal force retards the motion of the bobbin or spool, and thus controls the unwinding of the exterior thread; secondly, of a smoother connected to said box or casing and resting on the interior surface of the thread or wire guide, said smoother being designed to equalize the exterior thread while the same is wound onto the central thread or wire, and, thirdly, of different parts connected to the box or casing and designed to guide the exterior thread in a safe manner, these parts consisting of metallic eyelets or loops and a vertical tube of suitable diameter.

In the accompanying drawings, forming a part of this specification, and in which similar numerals of reference indicate corresponding parts throughout the several views, Figure 1

device; Fig. 2, a plan of the same; Fig. 3, a sectional elevation on the line A B of Fig. 2; Fig. 4, a sectional plan on the line C D of Fig. 3; Fig. 5, an elevation of the smoother resting against the thread or wire guide, the latter being shown in section; Fig. 6, a top view of the curved or loop-shaped spring acting as an automatic brake to retard the motion of the thread-bobbin, while Fig. 7 shows the brake-tube forming one of the essential parts of the automatic brake.

The cylindrical box or casing 1 of the apparatus is provided with a bottom part 2, carrying a hollow spindle 3, through the opening of which passes the central thread or wire. The hollow spindle 3 carries the brake-tube, composed of a hollow spindle 19, having a grooved brake-pulley 20 at its lower end, Figs. 3 and 7. The hollow spindle 19, which has a conical shape exteriorly, receives the usual paper tube 23, carrying the thread bobbin or spool 11, Fig. 3.

To the exterior of the box or casing 1 is fixed the one extremity of a loop-shaped brake-spring 21, which passes in two places through the box or casing 1, Figs. 4 and 6, said spring 21 engaging into the groove of the pulley 20 of the brake-tube and embracing more than half of the circumference of said pulley 20. The exterior end of the brake-spring 21 is provided with the eyelet 22, which serves as a knob or handle to press in the spring 21, so as to enlarge the diameter of the loop formed by said spring 21 sufficiently to disengage the pulley 20 of the brake-tube, and thus enable the removal of the latter.

The cover 4, embracing the upper part of the box or casing 1, is secured to the latter by means of a spring 5, provided with a pin 6, engaging into a corresponding hole 7 in the cover 4. In order to remove the cover 4, the spring 5 is pressed against the box or casing 1, so that the pin 6 is disengaged from the hole 7. The hollow spindle 3 passes through the cover 4. Further, on the top of the latter are provided a grooved guide-pulley 9 and the thread or wire guide 8. Against the inner surface of said thread or wire guide 8 rests the head part or block 24 of the smoother, said block 24 being supported by a spiral spring

25, fixed to a pin 26, carried by the bracket 27, Fig. 5.

The box or casing 1 is held and rotated by means of the driving-pulley 13, suitably connected to the bottom 2 of the casing 1. Said driving-pulley 13 turns on the balls 14, inserted between the journals 15 and 16 of the hollow support 17 and the driving-pulley 13, respectively. The part 16 is screwed onto the end 18 of the support 17, which carries the whole device.

The thread 10, unwound from the bobbin or spool 11, passes through the vertical slit 12 of the box or casing 1, then through the first eyelet or loop 28, the vertical tube 29, the second eyelet or loop 30, and over the grooved guide-pulley 9, so as to reach the central thread or wire passing through the hollow spindle 3, Fig. 3.

The operation and way of using my improved apparatus are as follows: The cover 4 being removed and the bobbin or spool 11, with its paper tube 23, having been brought onto the brake-tube 19 20, the latter is placed on the hollow spindle 3, and at the same time the loop-shaped spring 21 by pressing the eyelet 22 is opened sufficiently to enable said spring 21 to embrace the groove of the pulley 20 of the brake-tube 19 20, as shown in Fig. 4.

When the brake-tube 19 20 is removed, the spring 21 occupies the position shown in Fig. 6. The brake-tube 19 20 having been put in place together with the spool 11, the cover 4 is fixed onto the upper part of the box or casing 1, whereupon the pin 7 of the spring 5 again engages with the hole 6 of the cover 4. The thread 10 is then passed through the slit 12 of said box or casing 1, through the loop 28, the vertical tube 29, the loop 30, and finally over the little guide-pulley 9, so that the resistance of the air cannot affect the thread 10. The central wire or thread, which is to be pulled gradually in an upward direction, is then passed through the support 17, the hollow spindle 3, and between the smoothing-block 24 and the interior surface of the thread or wire guide 8, whereupon the apparatus is ready for working. When the box or casing 1 is turned on the support 17 by means

of the belt or other pulley 13, the thread wound off from the bobbin or spool 11 is gradually wound around the central wire or thread moved in a vertical direction, the smoother 24 25 pressing on the central thread or wire already covered with thread and equalizing the windings, so as to improve the final result obtained. During the normal rotation of the box or casing 1 the brake-spring 21, which is in engagement with the groove of the pulley 20 of the brake-pulley 19 20, is pressed with more or less force against the groove of said pulley 20, owing to the centripetal force due to the motion of the named pulley 20, whereby the motion of the brake-pulley 19 20 is retarded, so as to prevent the

thread 10 from being unwound too quickly or spontaneously from the bobbin or spool 11. When the box or casing 1 is at rest or moves slowly, the brake-spring 21 does not press against the grooved disk or pulley 20, but only when the speed is sufficiently increased, in which case it exercises a retarding action on the brake-tube varying in direct proportion with the velocity.

Of course I do not limit my invention to the special form of apparatus shown in the drawings, as it can be carried out in practice in various ways.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a device for winding silk, cotton and other material on wire and the like, the combination of a box 1 surrounding the thread-spool, said box 1 being provided with two lateral openings, a hollow spindle 3 rotatable with said box 1, a brake-tube comprising a hollow spindle 19 exteriorly of conical shape and a brake-pulley 20, and a loop-shaped brake-spring 21 connected at the one end with the exterior of the box 1 and provided at the other extremity with an eyelet 22, said brake-spring 21 first passing through the one lateral opening of the box 1, further engaging with the groove of the pulley 20 and lastly passing through the second lateral opening of the box 1, substantially as set forth.

2. In a device for winding silk, cotton and other material on wire and the like, the combination of a box 1 surrounding the thread-spool, a hollow spindle 3 rotatable with said box 1, a brake-tube 19, 20, a loop-shaped brake-spring 21 fixed at the one extremity to the box 1 and engaging with the groove of the pulley 20 of the brake-tube, a cover 4 adapted to surround the upper part of the box 1, and a flat spring 5 fixed to the box 1, said flat spring 5 being provided with a pin 6 adapted to engage with a corresponding hole 7 in the box 1, substantially as described and for the purpose specified.

3. In a device for winding silk, cotton and other material on wire and the like, the combination of a box 1 surrounding the thread-spool, a hollow spindle 3 rotatable with said box 1, a brake-tube 19, 20, a loop-shaped brake-spring 21 fixed at the one extremity to the box 1 and engaging with the groove of the pulley 20 of the brake-tube, a cover 4 adapted to be readily connected with and removed from the box 1, a guide-pulley 9 and a wire-guide connected to the top of said cover 4, and a yielding smoothing-block 24 resting against the inner surface of said wire-guide 8, substantially as described and for the purpose specified.

4. In a device for winding silk, cotton and other material on wire and the like, the combination of a box 1 surrounding the thread-spool, a hollow spindle 3 rotatable with said

box 1, a brake-tube 19, 20, a loop-shaped
brake-spring 21 fixed at the one extremity to
the box 1 and engaging with the groove of the
pulley 20 of the brake-tube, a cover 4 adapt-
ed to be readily connected with and removed
from the box 1, a guide-pulley 9 and a wire-
guide 8 connected to the top of said cover 4,
a smoothing-block 24 resting against the inner
surface of said wire-guide 8, a spiral spring
25 carrying said smoothing-block 24, a pin 26
to which the one extremity of the spiral spring
25 is fixed, and a bracket 27 supporting the
pin 26, said bracket 27 being fixed to the top
of said cover 4, substantially as described and
for the purpose specified.

5. In a device for winding silk, cotton and
other material on wire and the like, the com-
bination of a box 1 surrounding the thread-
spool, a hollow spindle 3 rotatable with said
box 1, a brake-tube 19, 20, a loop-shaped
brake-spring 21 fixed at the one extremity to

the box 1 and engaging with the groove of the
pulley 20 of the brake-tube, a cover 4 adapt-
ed to be readily connected with and removed
from the casing 1, a guide-pulley 9 and a wire-
guide 8 connected to the top of said cover 4,
a yielding smoothing-block 24 resting against
the inner surface of said wire-guide 8, and a
loop 28 fixed to the box 1, a vertical tube 29
and a loop 30 supported by the cover 4, said
loop 28, tube 29 and loop 30 being adapted to
guide the thread 10 wound off from the thread-
spool 11, substantially as described and for the
purpose specified.

In witness whereof I have hereunto signed
my name, this 30th day of October, 1901, in the
presence of two subscribing witnesses.

CONRAD FELSING, JUN.

Witnesses:

AUGUST HIRSCH,
JOHANN KNÖFEL.