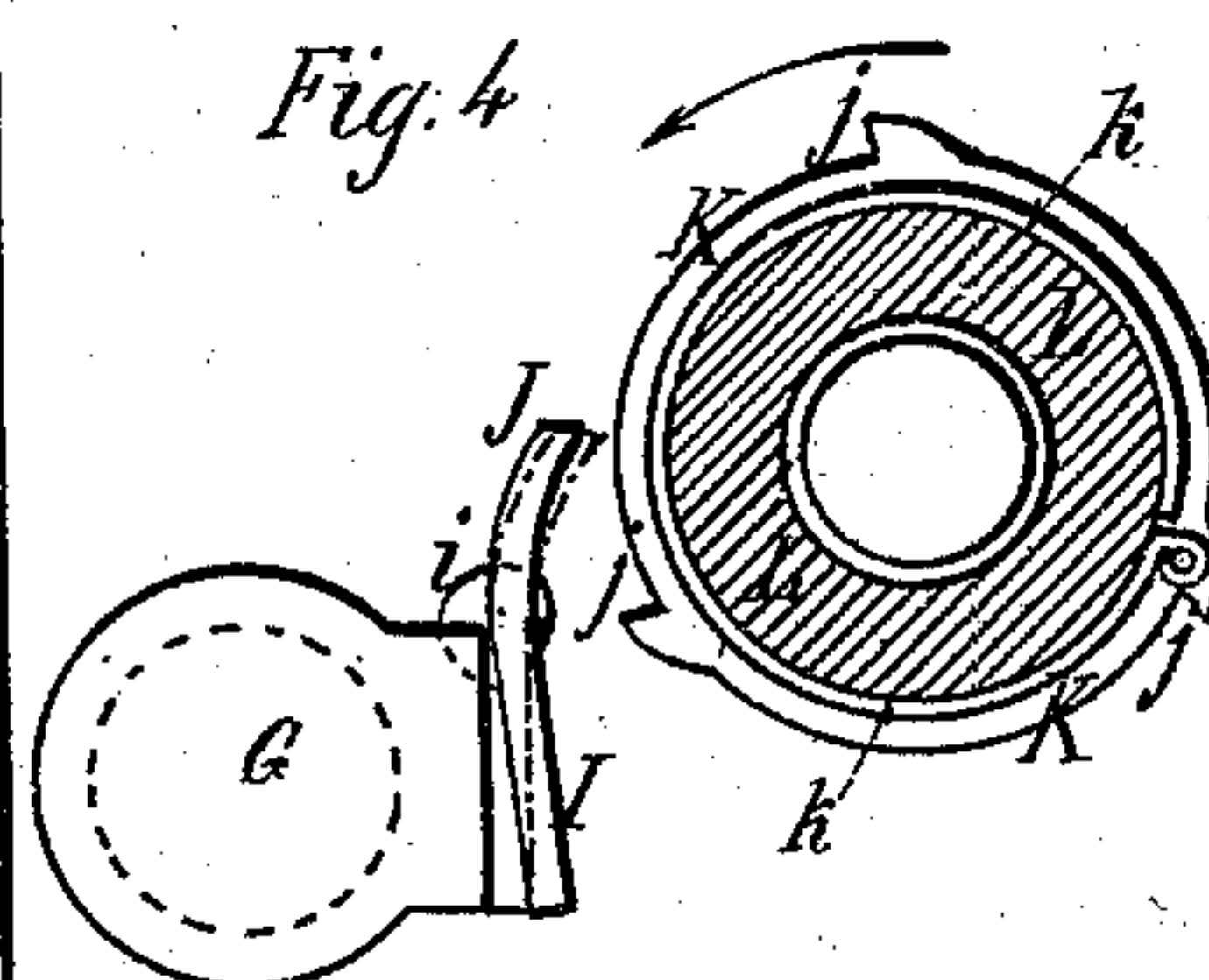
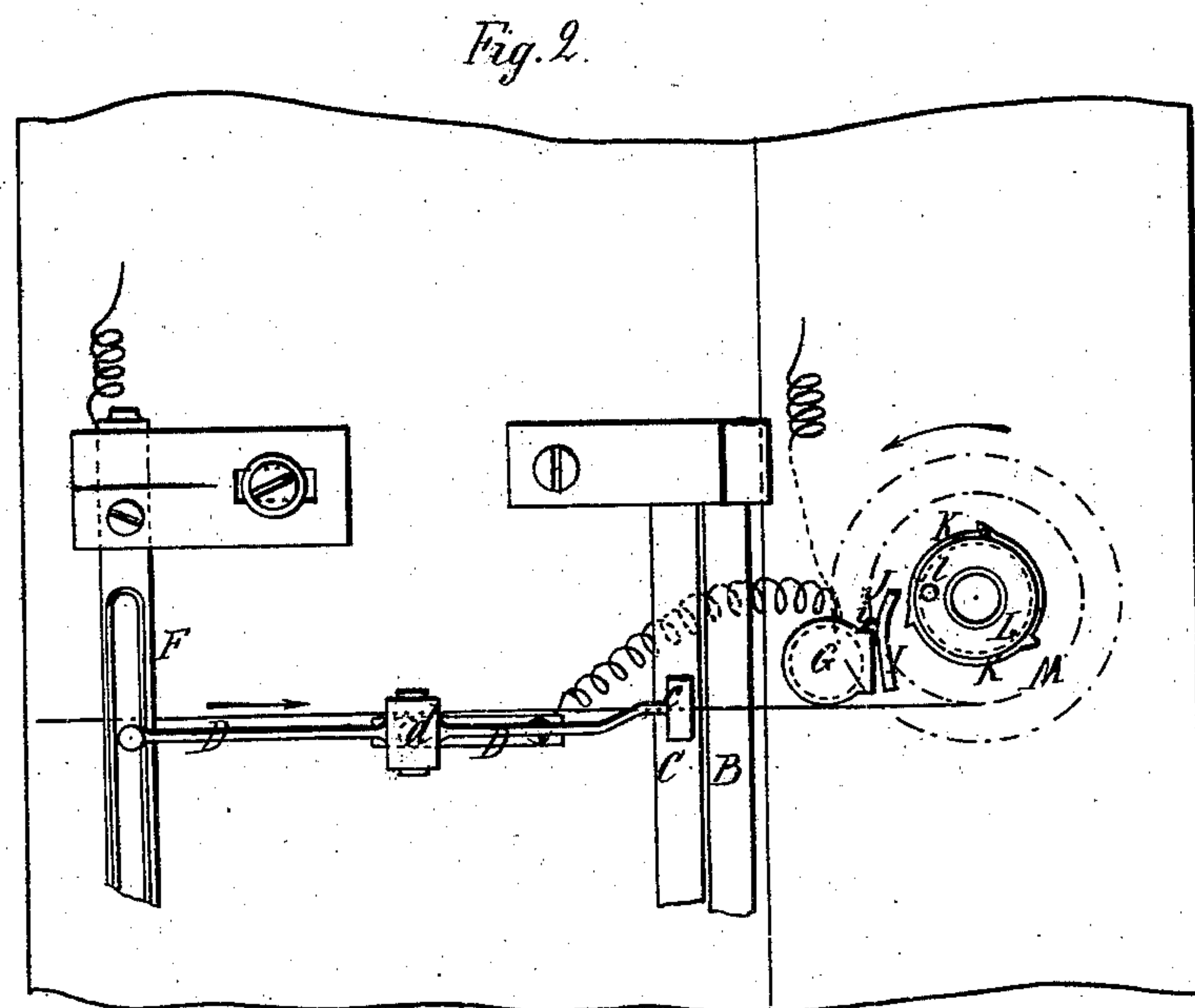
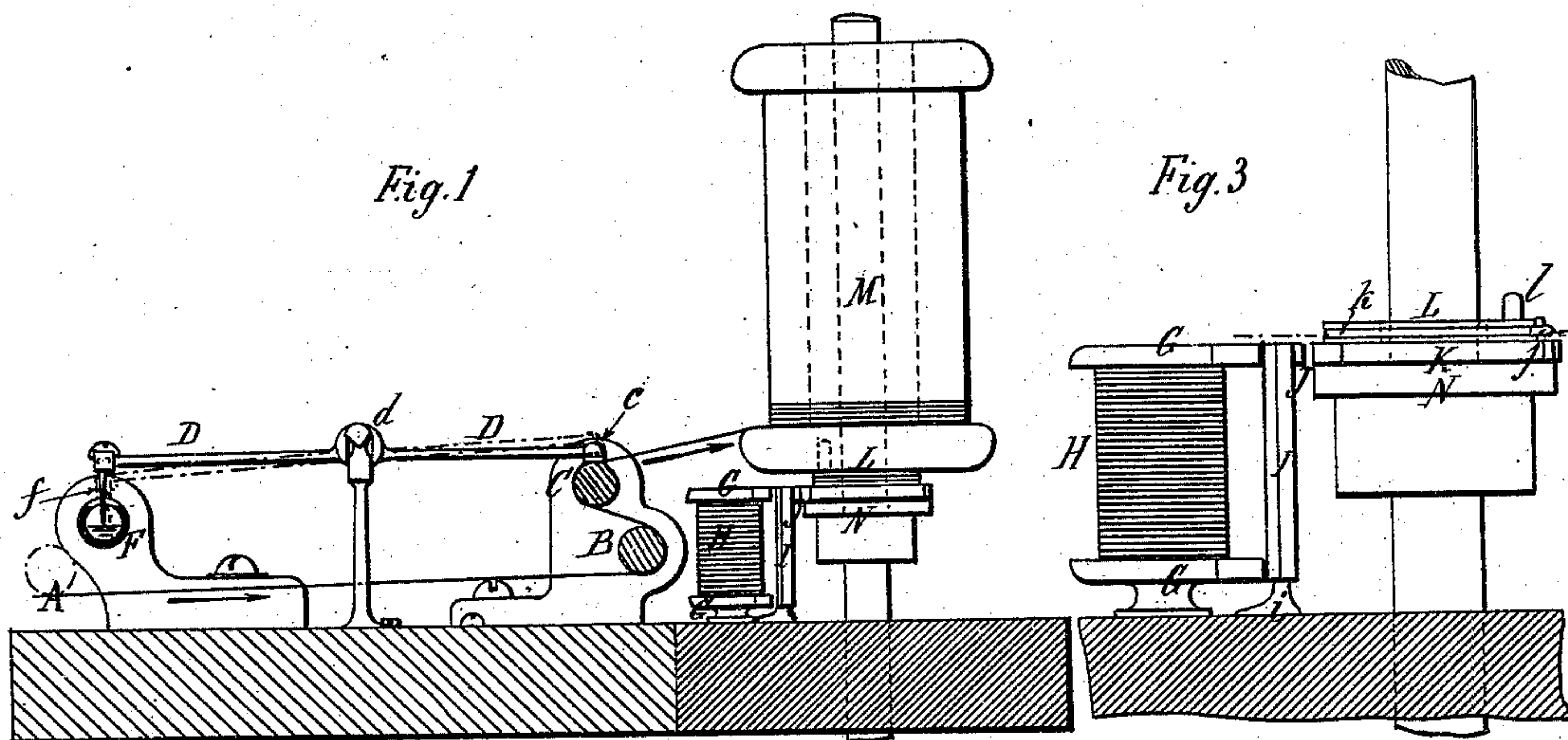


R. ALIOTH.
Apparatus for Detecting Knots in Yarns.
No. 225.039. Patented Mar. 2, 1880.



Philip Mauro
C. G. Hedrick witnesses.

by Rodolphe Alioth
A. P. P. his attorney.

UNITED STATES PATENT OFFICE.

RODOLPHE ALIOTH, OF BASLE, SWITZERLAND, ASSIGNOR TO CHANCEL,
VEILLON, ALIOTH & CO., OF SAME PLACE.

APPARATUS FOR DETECTING KNOTS IN YARNS.

SPECIFICATION forming part of Letters Patent No. 225,039, dated March 2, 1880.

Application filed November 22, 1879. Patented in France, April 3, 1879.

To all whom it may concern:

Be it known that I, RODOLPHE ALIOTH, of Basle, Switzerland, have invented a certain new and useful Improvement in Apparatus for Controlling Yarns of Silk by Electricity, of which the following is a specification.

In the spinning of silk one of the most important operations is the controlling or examination of the threads, so that there shall be therein no lumps, buttons, knots, or other inequalities. This controlling operation has been ordinarily performed by hand.

In the apparatus in which the present invention consists the stoppage of the bobbin on which the thread is wound is effected automatically whenever an increased thickness or button presents itself, and this is accomplished by electricity, by causing a current which operates an electro-magnet near the spindle, so that its armature acts as a stop to the means for driving the bobbin.

In order the more clearly to explain the nature of my invention and the manner of carrying the same into effect, reference is made to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is an elevation, partly in section, of the apparatus; Fig. 2, a plan, and Figs. 3 and 4 enlarged detail views, Fig. 3 being an elevation, and Fig. 4 a plan, partly in section, on line *xx*, Fig. 3.

The same letters refer to like parts where they occur.

The thread to be wound upon the bobbin M is guided around the glass rods A B C. A small block, *c*, fixed at the end of one arm of a lever or beam, D, fulcrumed at *d*, rests upon the thread as it passes over the rod C. The other arm of the lever is provided with a pointed rod arranged above a bath of mercury contained in the vessel F, so as to be plunged therein by the tilting of the lever D. The liquid in the vessel and the rod *f* are interposed in circuit with a source of electricity—a battery or mageto-electric machine. Ordinarily, and so long as the thread passes without any irregularity, the rod is held above the level of the mercury. When, however, an enlargement passes between the block *c* and the

rod C the lever is tilted and the rod depressed so as to plunge in the mercury and cause a current of electricity, which shall disconnect the means for driving the bobbin by the aid of an electro-magnet placed near the spindle.

The construction and disposition of the parts for this purpose will more clearly appear by reference to Figs. 3 and 4.

G is the core, and H the coil of the electro-magnet. The core has its ends so conformed as to furnish two poles in a vertical plane.

The armature I of the magnet is pivoted on a vertical axis, *i*, so as to turn thereon when attracted by the magnet.

At or near the upper edge the armature I is prolonged to form a finger or projection, J, which, when the armature is attracted, engages with one of the teeth or projections *j* formed on the periphery of the wheel K. This wheel is connected, by means of a spring-clamp, *k*, with a roller, L, which carries the pin *l*, on which the bobbin M is placed. The bobbin is thus fixed relatively to this roller, which communicates to it the movement of rotation which it receives from the wheel K and from the flange or collar N, upon which the latter rests. The coil H is connected electrically at one end with the post which supports the lever D, and at the other with the source of electricity. (See Fig. 2, in which the bobbin is shown in dotted lines.)

From the foregoing it will be readily understood that the armature is attracted by the passage of a current whenever the lever D is tilted into the position shown in dotted lines, Fig. 1, by the action of a thickness in the thread on the block *c*, and the finger or projection J comes in contact with one of the teeth or projections on the wheel K, and thus the engagement prevents it from being turned by the flange or collar N. The roller L and the bobbin come to rest almost immediately after continuing to turn for an instant by reason of the spring *k*, which acts as a brake in relieving the shock.

When the attendant has taken out the unevenness in the thread she gives a slight impulse backward to the bobbin, which carries with it the wheel K, so that one of the teeth

j acts against the finger J, and returns the armature to the position shown in full lines, Figs. 2 and 4, which permits the bobbin to recommence its revolution.

5 A polarized electro-magnet could also be employed, of which the armature should be normally in contact with the poles and repelled at the moment of the passage of a current. In this case the finger or projection
10 J must be otherwise disposed. Other modifications might also be used.

Instead of the devices employed, a clutch or stop mechanism, of any ordinary or suitable construction adapted to be operated by the
15 armature of the electro-magnet, could be employed.

The invention is applicable to other machines of the same class, and can be used for controlling and insuring the evenness of fibers
20 and yarns other than silk.

It is obvious that other means could be readily devised for supporting the thread and for closing the electric circuit.

25 Instead of having a block resting by its weight, it is obvious that a spring made to press lightly against the thread and arranged to close the circuit when lifted or pressed aside could be used.

30 Having thus fully described my said invention and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a rod or similar device, over which a thread or yarn is drawn, with a block arranged to rest upon the thread
35 passing over said rod, and means, substantially as described, for closing an electric circuit through the movement of said block, occasioned by inequalities in the thread, as set forth.

2. The combination, with the roller for engaging and holding the bobbin, of a spring or friction clamp, with means for rotating the same, connected therewith by said clamp, and a stop mechanism, substantially as described.
45

3. The herein-described apparatus for controlling threads and yarn by electricity, consisting of an insulated support, over which the thread passes, a lever one arm of which is arranged to bear against the thread passing
50 over said support, and the other carries a depending pointed rod, a mercury-cup located under said rod, an electro-magnet, a stop mechanism arranged to be operated thereby, and means for connecting in an electric circuit the
55 said mercury-cup, rod, lever, and electro-magnet, substantially as described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

R. ALIOTH.

Witnesses:

ADOLPH KUHN,
GEO. HOBART.