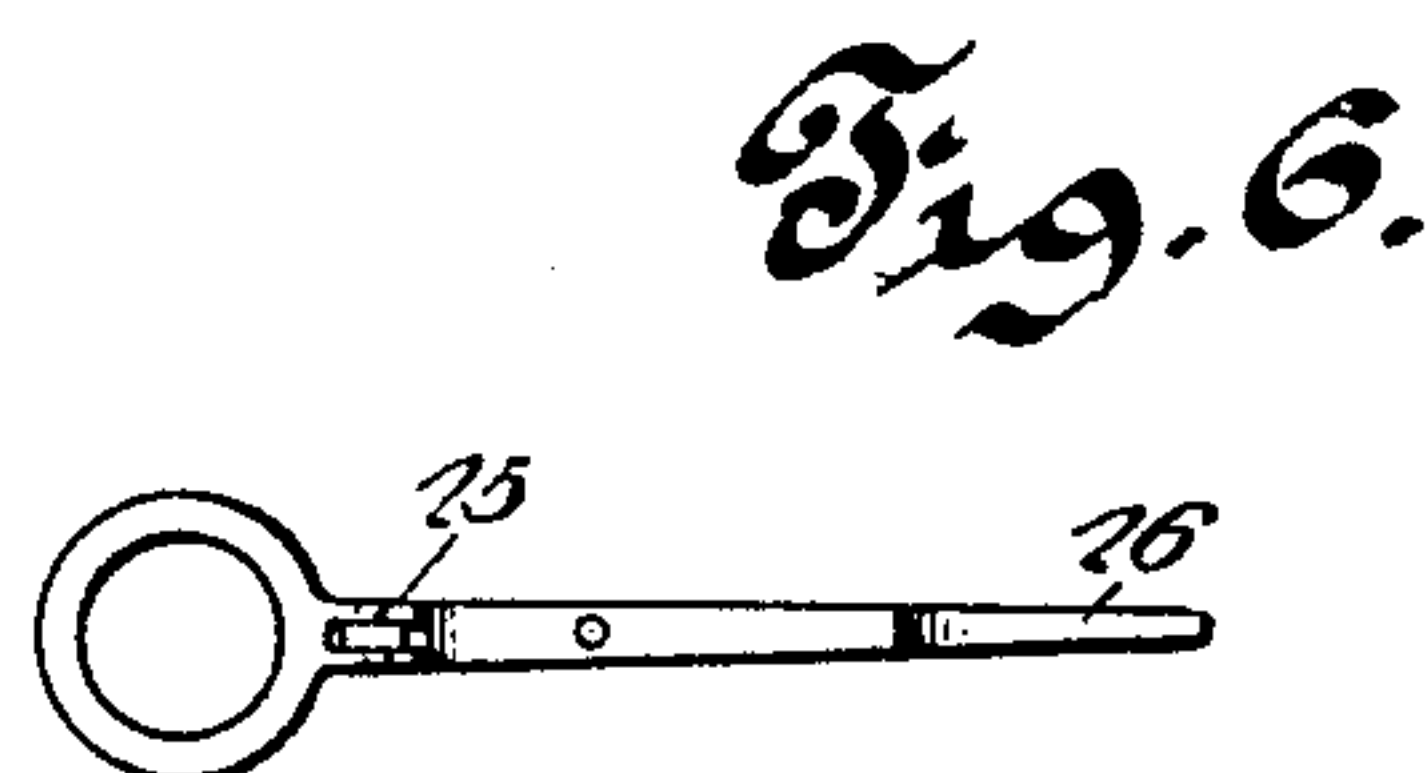
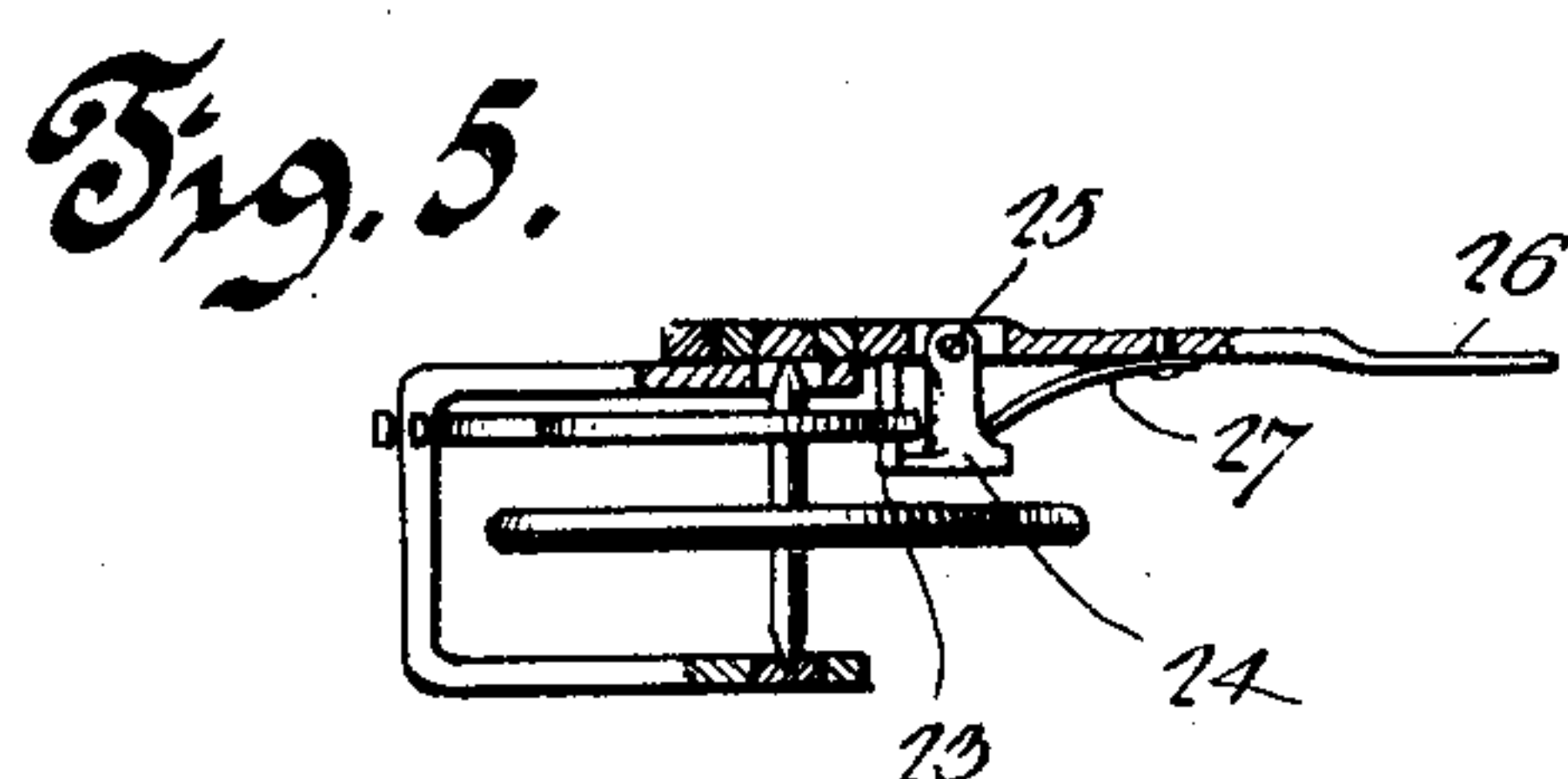
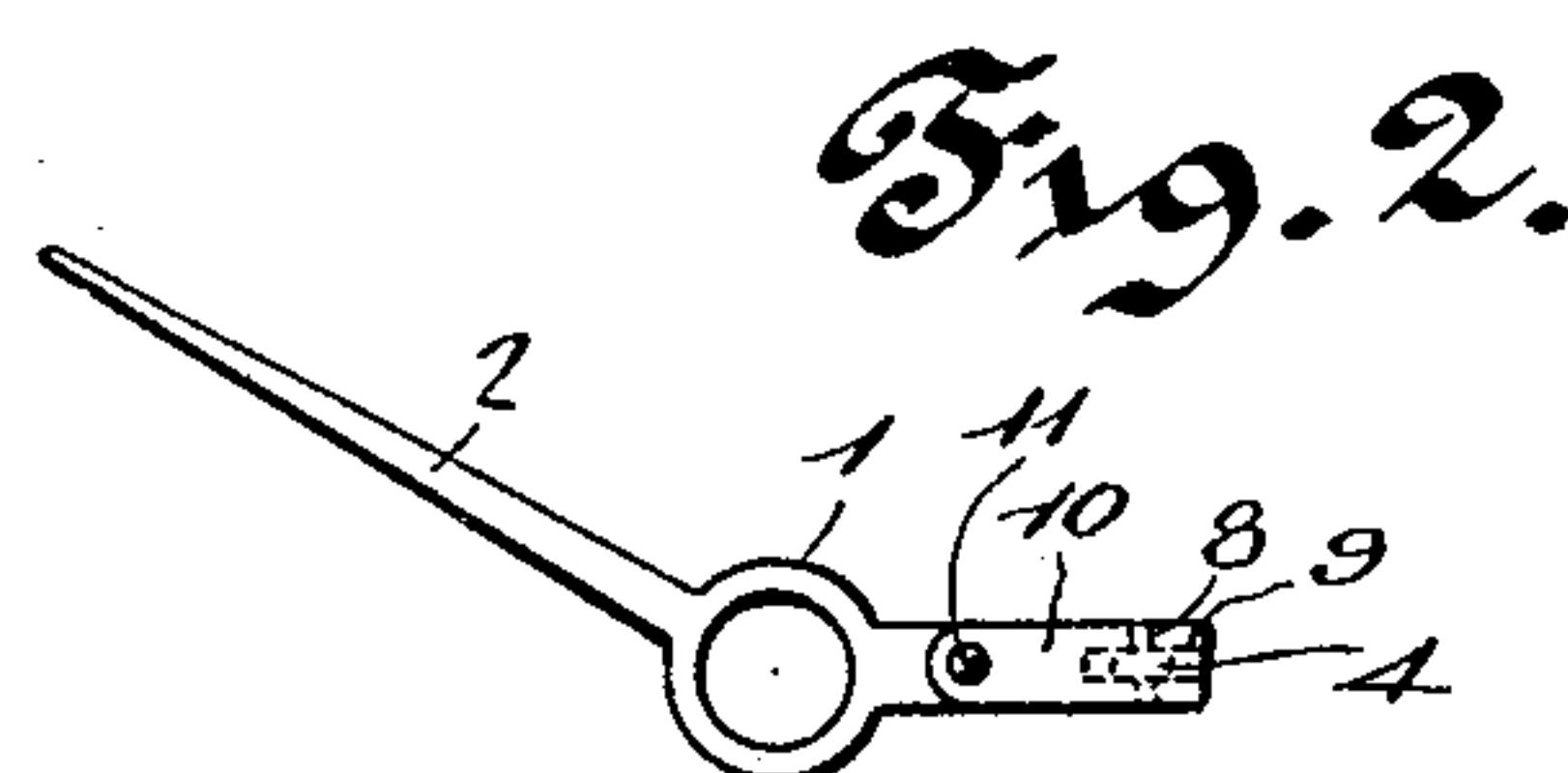
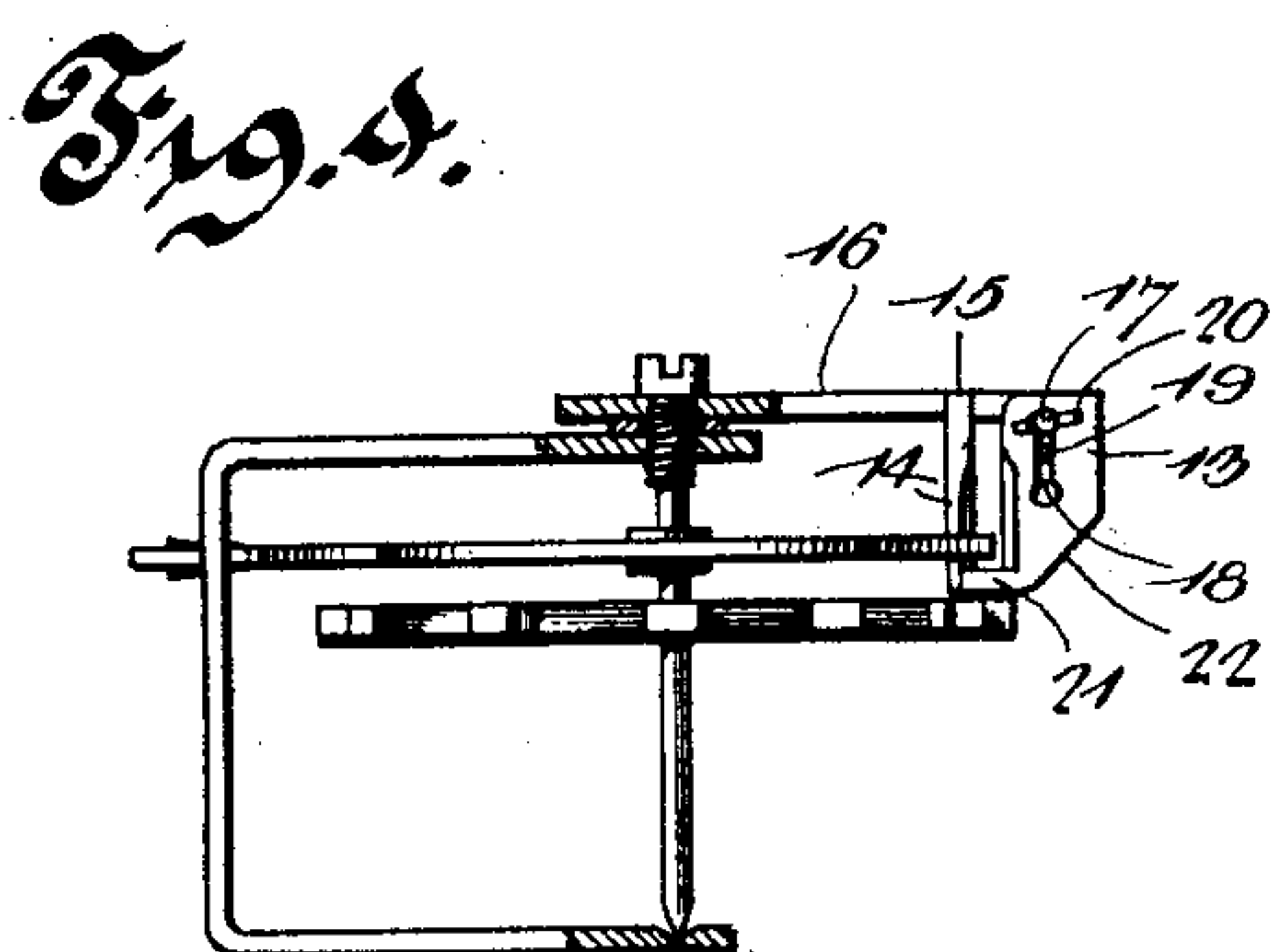
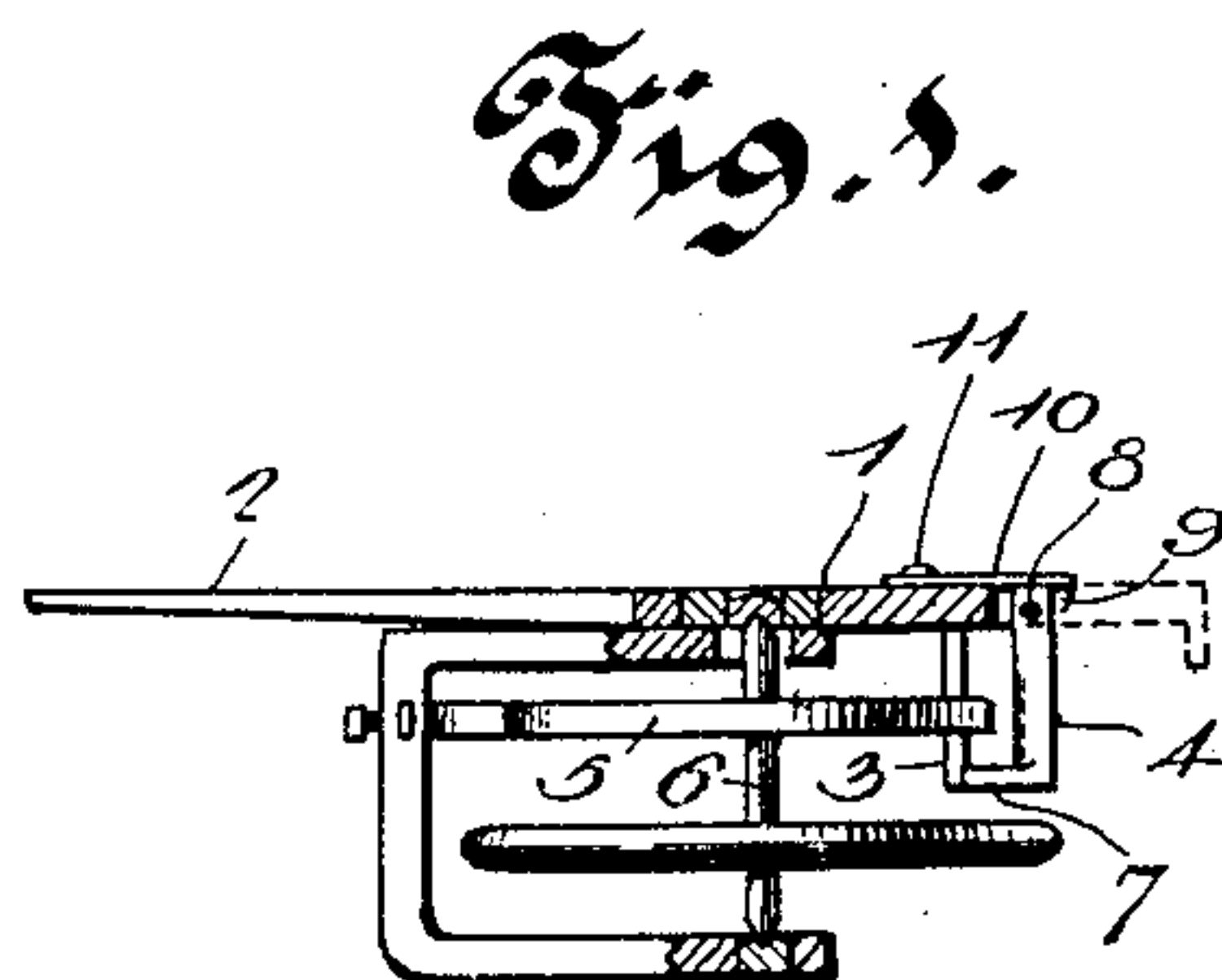
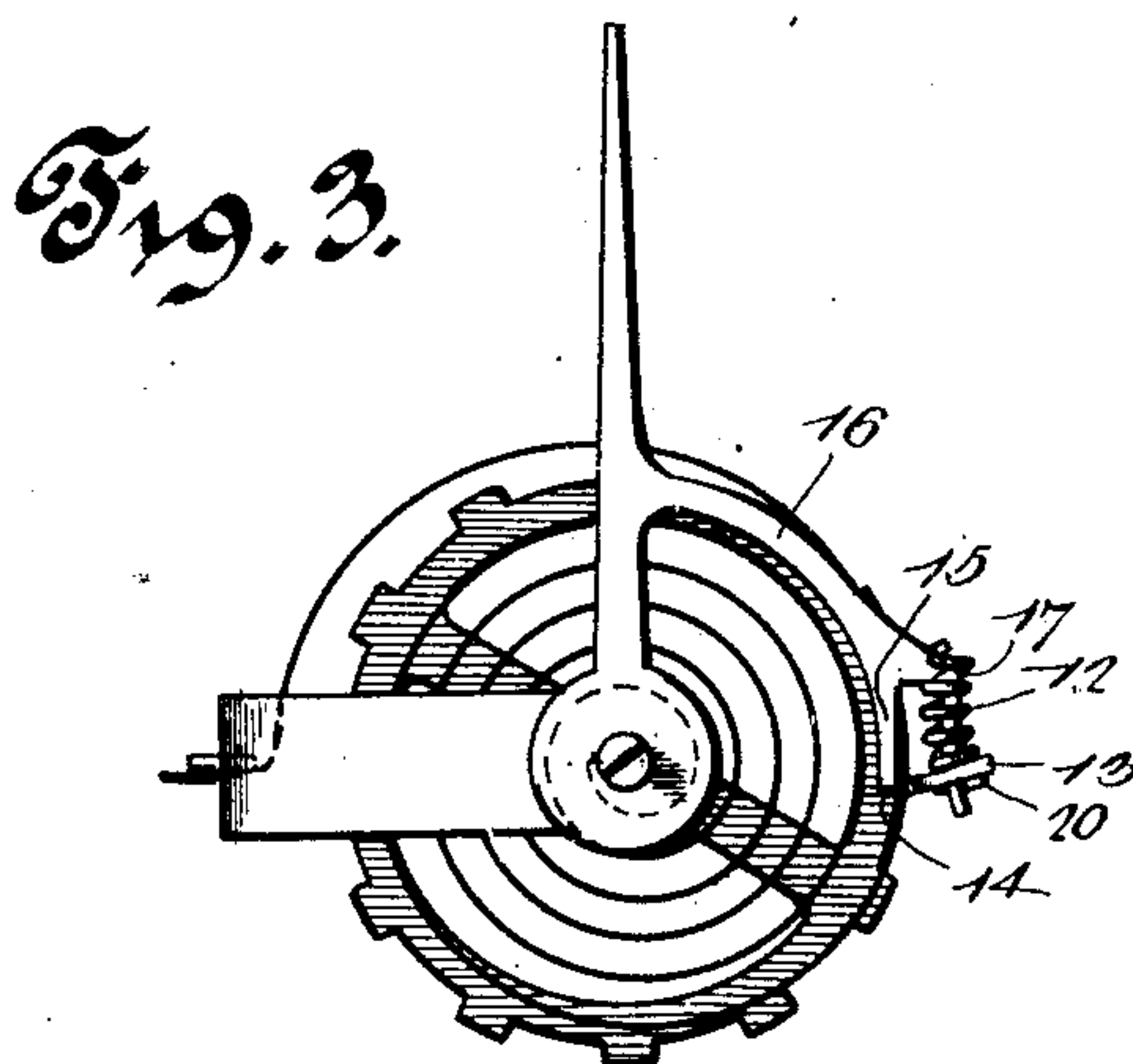


No. 665,889.

Patented Jan. 15, 1901.

L. ERIKSON.  
WATCH REGULATOR.  
(Application filed May 31, 1900.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

LAURENCE ERIKSON, OF EVANSTON, ILLINOIS.

## WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 665,889, dated January 15, 1901.

Application filed May 31, 1900. Serial No. 18,611. (No model.)

*To all whom it may concern:*

Be it known that I, LAURENCE ERIKSON, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a new and useful Hair-Spring Regulator for Watches or Clocks, of which the following is a specification.

The invention relates to improvements in hair-spring regulators for watches and clocks.

One object of the present invention is to improve the construction of hair-spring regulators for clocks and watches and to provide a simple and comparatively inexpensive one which will not allow more than one coil of a hair-spring to get into the fork or the space between the inner and outer pins or members which constitute the fork of the regulator.

Another object of the invention is to provide means for preventing the second coil of the hair-spring from catching back of the outer pin or member of the fork and to provide an arrangement which will enable a workman to ascertain readily the required freedom and exactness necessary for a hair-spring.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation, partly in section, of a hair-spring regulator constructed in accordance with this invention. Fig. 2 is a plan view of the regulator-arm and the spring which engages the outer pin or member of the fork. Fig. 3 is a plan view illustrating another arrangement of the spring for holding the outer pin or member of the fork in contact with the inner pin. Fig. 4 is a side elevation of the same, partly in section. Fig. 5 is a similar view illustrating another form of the invention. Fig. 6 is a detail view of the regulator-arm illustrated in Fig. 5.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a regulator-arm having an index or pointer 2 and provided with a fork consisting of an inner rigid pin 3 and an outer movable pin or member 4, spaced from the inner pin 3 to provide the necessary open-

ing for the outer coil of a hair-spring 5. The hair-spring 5 is mounted on or connected at its inner end with a balance-staff 6 in the usual manner, and its outer end is fixed. The inner pin, which depends from the regulator-arm 1, is rigid with the same, and the outer pin or member, which is approximately L-shaped, has a horizontal arm 7 extending from its lower end across the space between it and the inner pin and abutting against the same to close the space or opening of the fork, and thereby prevent the second coil from catching into the fork of the regulator. The upper end of the outer arm is perforated for the reception of a transverse pivot 8 and is mounted in a slot or bifurcation 9 of the outer end of the regulator-arm, which is also perforated for the reception of the pivot 8. The outer pin 4 is firmly held in the position shown in full lines in Fig. 1 of the accompanying drawings by a flat spring 10, and it is adapted to be swung upward to the position shown in dotted lines in Fig. 1, and it will be held in such position by the spring 10. When the outer pin of the fork of the regulator is swung upward to the position illustrated in dotted lines in Fig. 1, a workman is allowed great freedom in adjusting the hair-spring to secure the necessary freedom and exactness. The upper end of the outer pin is cut off square and is arranged substantially flush with the upper face of the regulator-arm, and the spring is secured to the upper or outer face of the regulator-arm by a suitable fastening device 11, which passes through the spring 10, at the inner end thereof, the outer end of the spring being free and adapted to be forced outward by the upper end or heel of the outer pin 4 when the latter is swung on its pivot. This construction is also adapted to permit the adjustment of the hair-spring without removing any parts from the completed works or movement.

In Fig. 3 of the accompanying drawings is illustrated a coiled spring 12 for holding an outer pin or member 13 in engagement with an inner pin 14. The inner pin 14, which is rigid, depends from and is formed integral with an extension 15 of the regulator-arm 16, which is also provided at the outer side of the extension with an approximately L-shaped support 17, the outer arm of which is dis-



posed approximately parallel with the extension 15. The outer arm of the L-shaped support 17 is rounded to form a pivot for the outer pin 13, which is provided with a slot 5 18, receiving one end 19 of the coiled spring 12, the other or inner end of the coiled spring engaging the inner arm of the L-shaped support. The spring and the outer pin are retained on the outer arm of the L-shaped support by a suitable fastening device 20, passing 10 through a perforation of the said outer arm of the support 17 and arranged at the outer face of the outer pin 13. The outer pin 13 is provided at its lower end with a horizontal arm 21 and it is cut away at its lower portion 15 to form an inclined edge 22, which is adapted to prevent the second coil of the hair-spring from catching on the back of the outer pin 13. The horizontal arm 21 abuts against the rigid 20 inner pin and closes the lower end of the space of the fork of the regulator.

In Figs. 5 and 6 of the accompanying drawings is illustrated another arrangement of fork, and this fork consists of a depending 25 rigid inner pin 23 and an approximately L-shaped outer pin 24, pivoted at its upper end 25 in a slot or opening of the regulator-arm, which is extended outward to form an index or pointer 26. The outer edge of the 30 outer pivoted pin or member is engaged by one end of a spring 27, which is secured at its other end to the inner or lower face of the regulator-arm, as clearly shown in Fig. 5. The spring holds the lower horizontal arm of 35 the outer pin firmly in engagement with the rigid inner pin to close the space at the bottom of the fork.

It will be seen that the hair-spring regulator is simple and comparatively inexpensive 40 in construction, that it is adapted to close the space at the bottom of the fork in order to allow only one coil of the hair-spring within the said fork, and that means are provided for preventing any of the coils of the hair-spring from catching on the outer pin of the 45 fork.

What is claimed is—

1. A device of the class described comprising a regulator-arm, a rigid inner pin depending 50 from the arm, an outer pin pivoted at its upper end to the arm and provided at its lower end with an inwardly-extending arm or

portion abutting against the lower end of the rigid pin and closing the space between the pins at the lower ends thereof to prevent 55 more than one coil of the hair-spring from getting into such space, and a spring engaging the outer pin, substantially as described.

2. A device of the class described comprising a regulator-arm, a rigid inner pin depending 60 from the arm, an outer pin pivoted at its upper end to the regulator-arm and provided at its lower end with means for closing the space between the pins, and a spring arranged at the upper end of the outer pin and 65 engaging the latter to hold the same in its closed position, substantially as described.

3. A device of the class described comprising a regulator-arm, a rigid inner pin depending 70 from the regulator-arm, a horizontal pivot projecting from the regulator-arm, an outer pin mounted on the regulator-arm and supported by the horizontal pivot thereof, said outer pin being provided at its lower end with 75 means for engaging the inner pin, and a coiled spring disposed on the horizontal pivot and engaging the regulator-arm and the outer pin, substantially as described.

4. A device of the class described comprising a regulator-arm, having an extension and 80 provided with a substantially L-shaped support arranged horizontally at one side of the extension, a rigid inner pin depending from the extension, an outer pin pivotally mounted on the horizontal support and provided at its 85 lower end with an arm abutting against the inner pin, and a coiled spring mounted on the said support and engaging the same and the outer pin, substantially as described.

5. A device of the class described comprising 90 a regulator-arm, a rigid inner pin, a substantially L-shaped outer pin having an inclined edge at its lower portion to prevent the second coil of the hair-spring from catching on it, and a spring engaging the outer 95 pin, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LAURENCE ERIKSON.

Witnesses:

FRANK BOYER,  
ROSA A. BOYER.