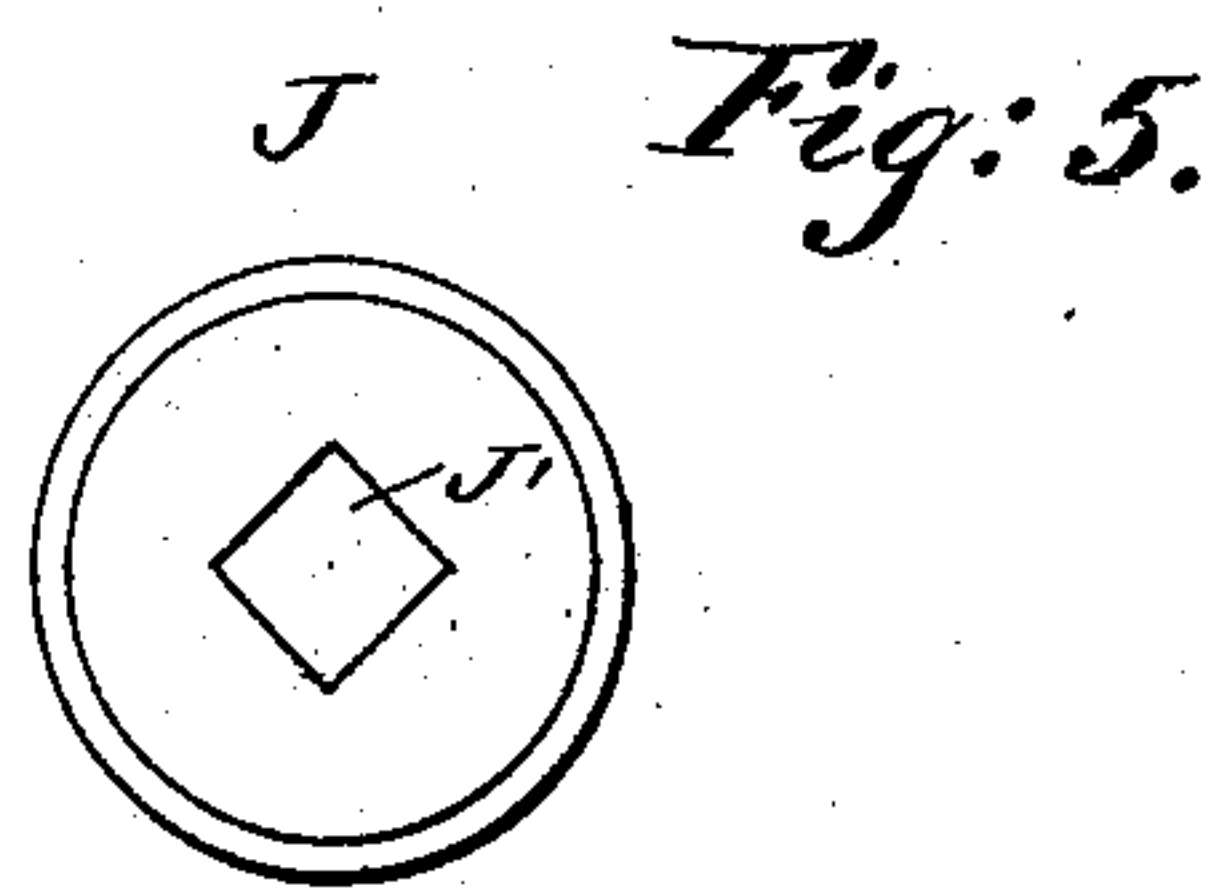
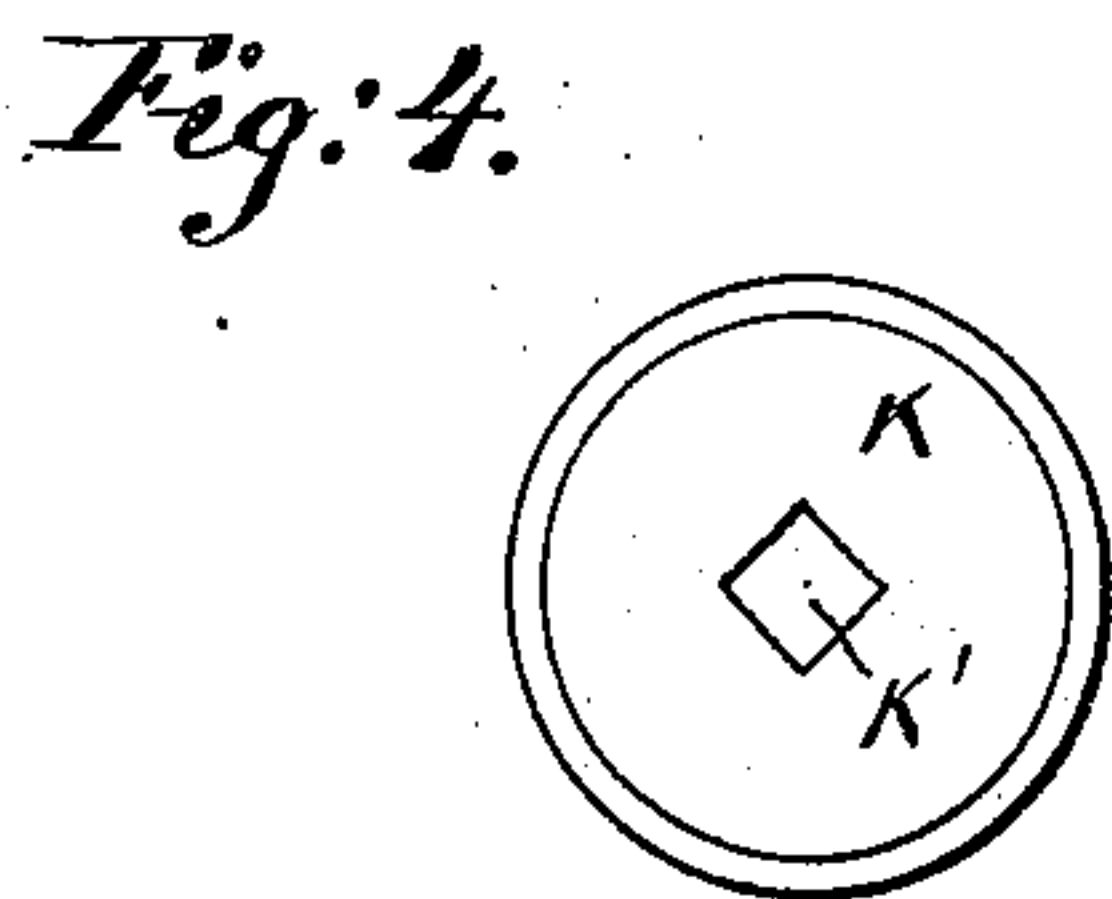
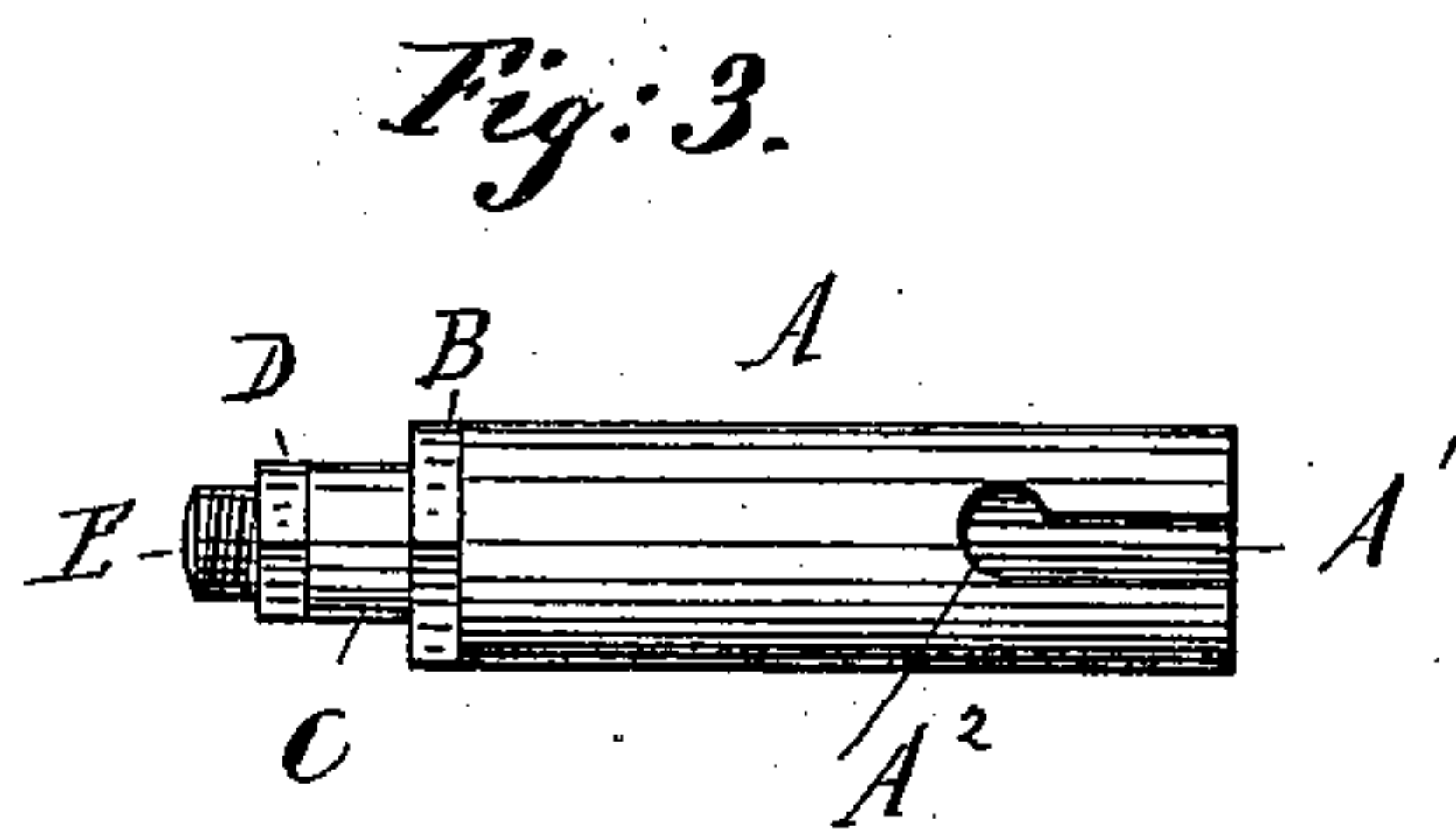
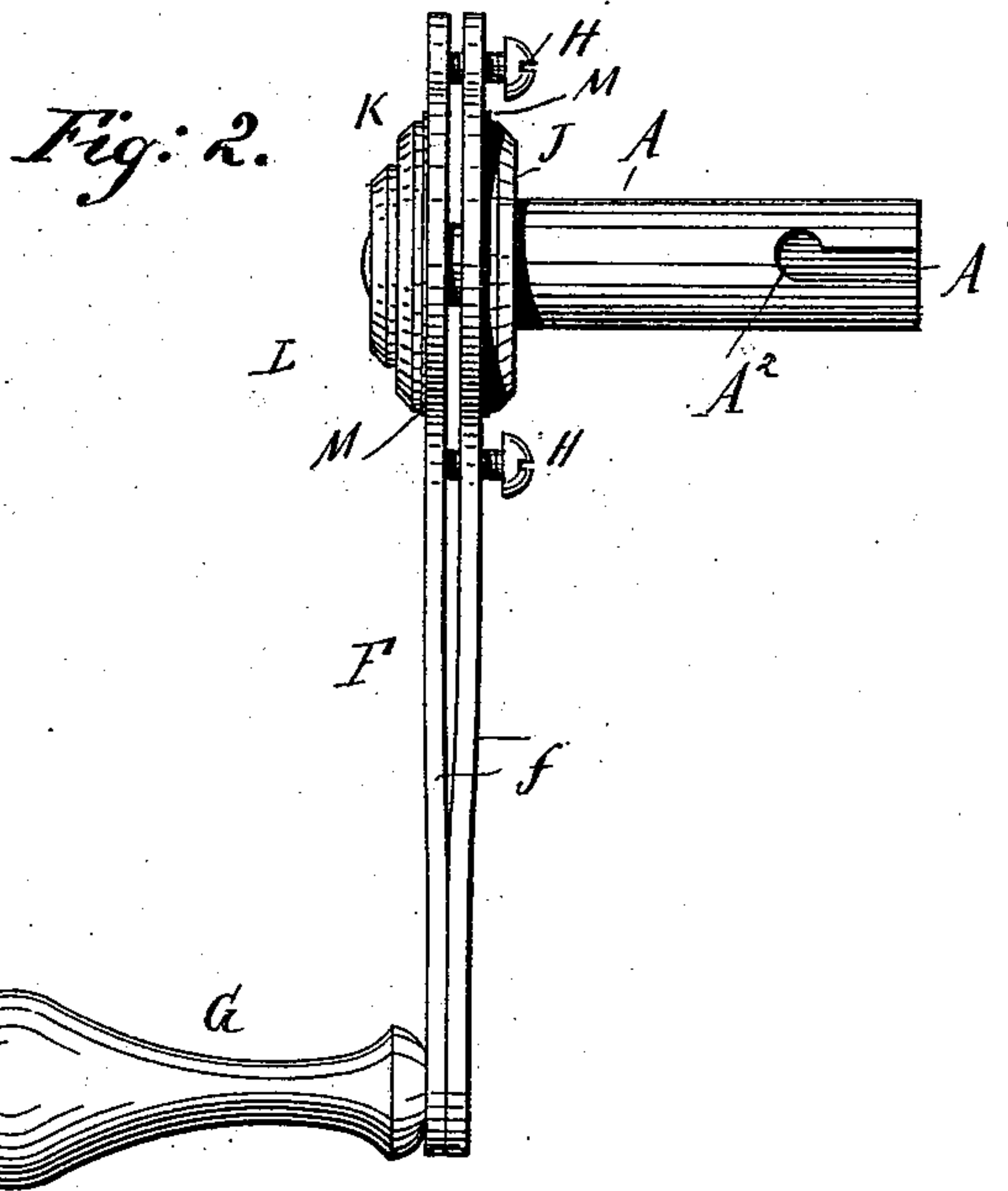
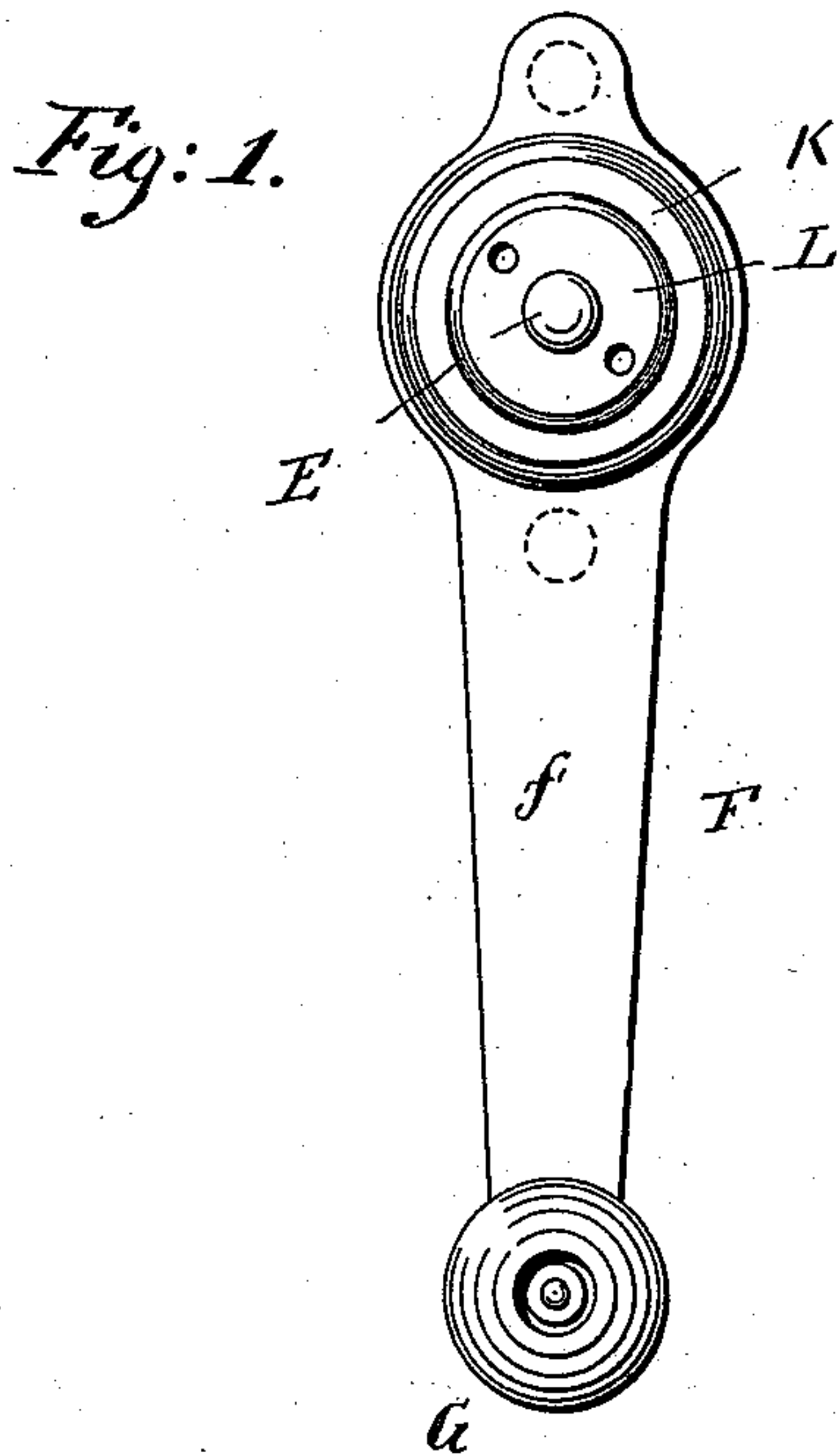


(No Model.)

F. J. BERNARD.
WINDING CRANK.

No. 551,177.

Patented Dec. 10, 1895.



Witnesses
S. Petri-Palmer
Emil Mueller.

F. J. Bernard Inventor
By his Attorney Oscar F. Tunn.

UNITED STATES PATENT OFFICE.

FRANK J. BERNARD, OF JERSEY CITY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE AMERICAN MUSIC BOX COMPANY, OF WEST NEW YORK, NEW JERSEY.

WINDING-CRANK.

SPECIFICATION forming part of Letters Patent No. 551,177, dated December 10, 1895.

Application filed August 31, 1894. Serial No. 521,830. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. BERNARD, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Winding-Cranks, of which the following is a specification.

This invention relates to improvements in winding-cranks, such as are used for winding the springs of spring-motors in music-boxes, automatic playing-instruments, automatic selling-machines, &c.

The object of my invention is to provide a new and improved winding-crank which is so constructed that when the spring of the motor has been fully wound the crank slips on the winding-stem and which winding-crank can readily be adjusted according to the tension of the spring.

The invention consists in a winding-crank formed of two plates united at one end and mounted loosely on a stem between friction-washers held on the same and means for spreading said plates and pressing them against the friction-washers.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and finally pointed out in the claims.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate like parts in all the figures, Figure 1 is a front view of my improved winding-crank. Fig. 2 is a side view of the same. Fig. 3 is a detail side view of the tubular winding-stem. Figs. 4 and 5 are detail face views of the washer-plates on the stem.

The tubular stem A is provided at one end with a longitudinal slot A¹, provided at its inner end with an enlargement A² in the usual manner, for receiving the usual cross pin or stud on the winding-arbor of the motor-spring, said arbor entering the bore of the tubular stem A. At the opposite end the stem A is provided with the square-shouldered part B, from which the cylindrical part C projects, and at the outer end of said cylindrical part

C the shouldered square part B is formed, which is smaller than the squared part B and also smaller than the cylindrical part C, and from the squared part D the screw-threaded cylindrical part E projects, which is smaller than the squared part D.

The crank proper F is formed of two flat pieces of metal *f*, preferably steel, which are united at that end of the crank at which the handle G is applied. The crank-plates *f* each have a circular aperture of sufficient size for receiving the cylindrical part C of the stem A, so that said crank can turn freely on said cylindrical part C. At opposite sides of said apertures, two screws H are screwed through threaded apertures in one plate *f* and their ends rest against the inner surface of the other crank-plate *f*.

A washer-plate J, having a central square aperture J' of sufficient size to receive the square-shouldered part B of the stem A, is placed on said part B and then the crank F is placed on the cylindrical part C, and a washer-plate K, having a central square aperture K' of sufficient size to receive the squared part D of the stem, is placed on said squared part D and a nut L is screwed on the threaded part E of the stem and drawn up tight.

I prefer to insert friction-washers M, of paper, leather, or other suitable material, between the inner surfaces of the washer-plates J and K and the outer surfaces of the crank-plates *f*, as shown in Fig. 2; but these may be omitted in some cases.

By means of the two screws H the two plates *f* of the crank are spread more or less, so as to produce more or less friction on the two washer-plates J and K, as circumstances may require.

When the crank is turned, the stem A is turned with it on account of the friction between the plates *f* and the washer-plates J and K and for the reason that said washer-plates are on squared parts of the stem A. When said winding-crank is used to wind a spring, and the spring is wound to its utmost capacity and the crank is still turned, it no longer turns the stem A, as the resistance

offered by the wound spring is greater than the friction between the crank and the washer-plates J and K.

In every case the plates *f* must be so adjusted that when the spring of the motor is wound, the crank turns loosely on the stem, for if the plates *f* were spread too far the friction might be so powerful that the stem would be turned even after the spring had been wound to its utmost capacity, and the spring would be broken, and again if the plates *f* are too loose the crank turns loosely on the stem before the spring has been completely wound.

My improved winding-crank can be used for springs of various tensions, all that is necessary being to adjust the plates *f* according to the tension of the spring.

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

1. In a winding crank, the combination with a stem of two friction washers held on said stem to turn with the same, two plates mounted loosely on said stem between the friction washers, a handle secured to the

united ends of said plates, and means for spreading said plates and pressing them against the friction washers, substantially as herein shown and described.

2. In a winding crank the combination with a stem having two squared parts and a cylindrical part between the two squared parts, of a friction washer mounted on each squared part, two plates mounted to turn on the cylindrical part between the two friction washers, which two plates form the crank and are united at one end, a handle on the united ends of the plates, and screws screwed through threaded apertures in one plate and resting against the other plate, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 18th day of August, 1894.

FRANK J. BERNARD.

Witnesses:

OSCAR F. GUNZ,
D. PETRI-PALMEDO.