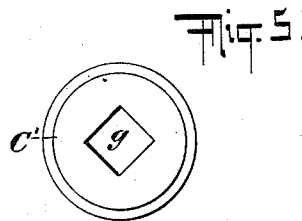
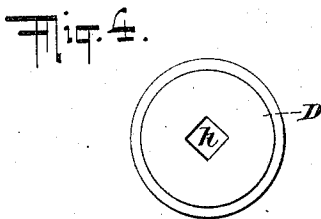
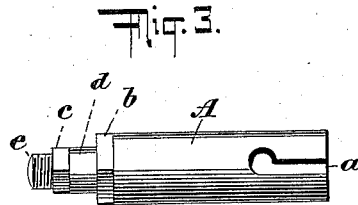
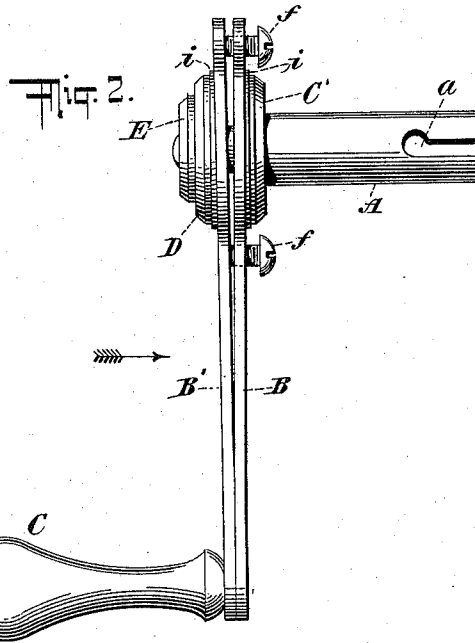


A. WOLFF.
WINDING CRANK.

Patented Mar. 23, 1897.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON D. C.

UNITED STATES PATENT OFFICE.

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WINDING-CRANK.

SPECIFICATION forming part of Letters Patent No. 579,208, dated March 23, 1897.

Application filed January 10, 1896. Serial No. 574,958. (No model.)

To all whom it may concern:

Be it known that I, ALFRED WOLFF, a resident of Bayonne, county of Hudson, 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 safety winding cranks, such as are used for winding the springs of spring-motors.

The object of my invention is to provide a new and improved safety winding-crank to prevent overwinding the spring.

My invention consists in the special matters hereinafter described and claimed.

My invention will be understood by referring to the accompanying drawings, wherein like letters of reference indicate like parts in all the views.

Figure 1 represents an end view of a winding-crank embodying my invention, looking in the direction of the arrow in Fig. 2. Fig. 2 is a side view of the same. Fig. 3 is a detail side view of the winding-stem. Figs. 4 and 5 are detail face views of the friction-disks.

The stem A of the winding-crank is provided at one end with suitable means, as *a*, for engaging the winding-arbor of a spring-motor. At the opposite end of the stem A prismatic shouldered parts *b c* are provided on each side of the cylindrical portion *d*, and extending from the prismatic portion *c* is a screw-threaded extension *e*.

It will be observed that in the device shown the prismatic portion *b* is larger than the cylindrical portion *d* and the portion *c* is smaller than this cylindrical portion, the screw-threaded portion *e* being smaller than any of these portions just described, in order to allow the parts connected with the stem to be readily placed thereon and withdrawn.

The crank-arms B B' are united at one end and connected with handle C and are provided at the opposite ends with circular holes, so that the arms will embrace the cylindrical portion *d* of the winding-stem. One of the arms is also provided with set-screws *f*, which are adapted to project against the face of the other arm when the parts are put together, as shown in Fig. 2. The friction-plate C' is

provided with a prismatic hole *g* of the same shape and extent as the prismatic portion *b* of the stem of the crank, while a like hole *h* in the plate D is of the same shape and extent as the prismatic portion *c* of the stem. The friction-plate C' is first placed upon the portion *b* of the stem. The crank-arms, which are adapted to rotate upon the cylindrical portion *d* of the stem, are next placed in position and the friction-plate D is placed upon the prism *c* of the stem, so as to confine the crank-arms between it and the friction-plate C'. A suitable nut E is then secured upon the screw-threaded extension *e* to secure the parts in the position shown in Fig. 2.

In order to prevent the crank-arms and the friction-disks from abrading each other, I prefer to interpose friction-washers *i* between the arms and the friction-plates. These friction-washers may be of paper, leather, or other suitable material.

It is thought that the operation of my improved safety-winder will be obvious from the foregoing description. However, to render it perfectly clear I will briefly describe the operation.

The set-screws *f* having been first set to maintain a small amount of friction between the crank-arms and the friction-plates, the stem of the crank is applied to the winding-arbor of the instrument which is to be wound and the handle turned to wind the spring. If the tension upon the spring overcomes the friction between the parts before the spring is fully wound, the set-screws *f* should be further tightened to increase the friction between the crank-arms and the stem, so that the crank-arms and the stem may turn together until the spring of the motor is fully wound up, but so that a further effort to wind it will merely result in the handle of the crank turning about the stem without communicating movement to the stem or to the winding-arbor of the instrument.

It will be observed that my improved winding-crank is adapted to springs of various tensions, it being merely necessary to increase or decrease the amount of friction maintained between the crank-arms and the friction-disks.

It will be observed that the friction-disks and the crank-arms constitute a friction device which forms the connection between the handle and stem. It will likewise be observed
5 that the friction between the crank-arms and disks is practically constant during successive periods of time for any given adjustment of the screw *f*.

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

1. In a winding-crank, the combination with a stem, of two friction-plates held on said stem to turn with the same, two crank-arms mounted
15 loosely on said stem between the friction-plates, a handle secured to the united ends of said arms, and means for spreading said crank-arms and pressing them against the

friction-plates, substantially as herein shown and described. 20

2. In a winding-crank, the combination with a stem having two prismatic parts and a cylindrical part between the two prismatic parts, of a friction-plate mounted on each
25 prismatic part, two crank-arms mounted to turn on the cylindrical part between the two friction-plates, which two crank-arms are connected by a handle at their united ends, and screws screwed through threaded apertures
30 in one crank-arm and resting against the other crank-arm, substantially as herein shown and described.

ALFRED WOLFF.

Witnesses:

CHARLES E. SMITH,
HARRY M. TURK.