

E. HAWKINS.
SAFETY WINDING DEVICE.
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970,221.

Patented Sept. 13, 1910.

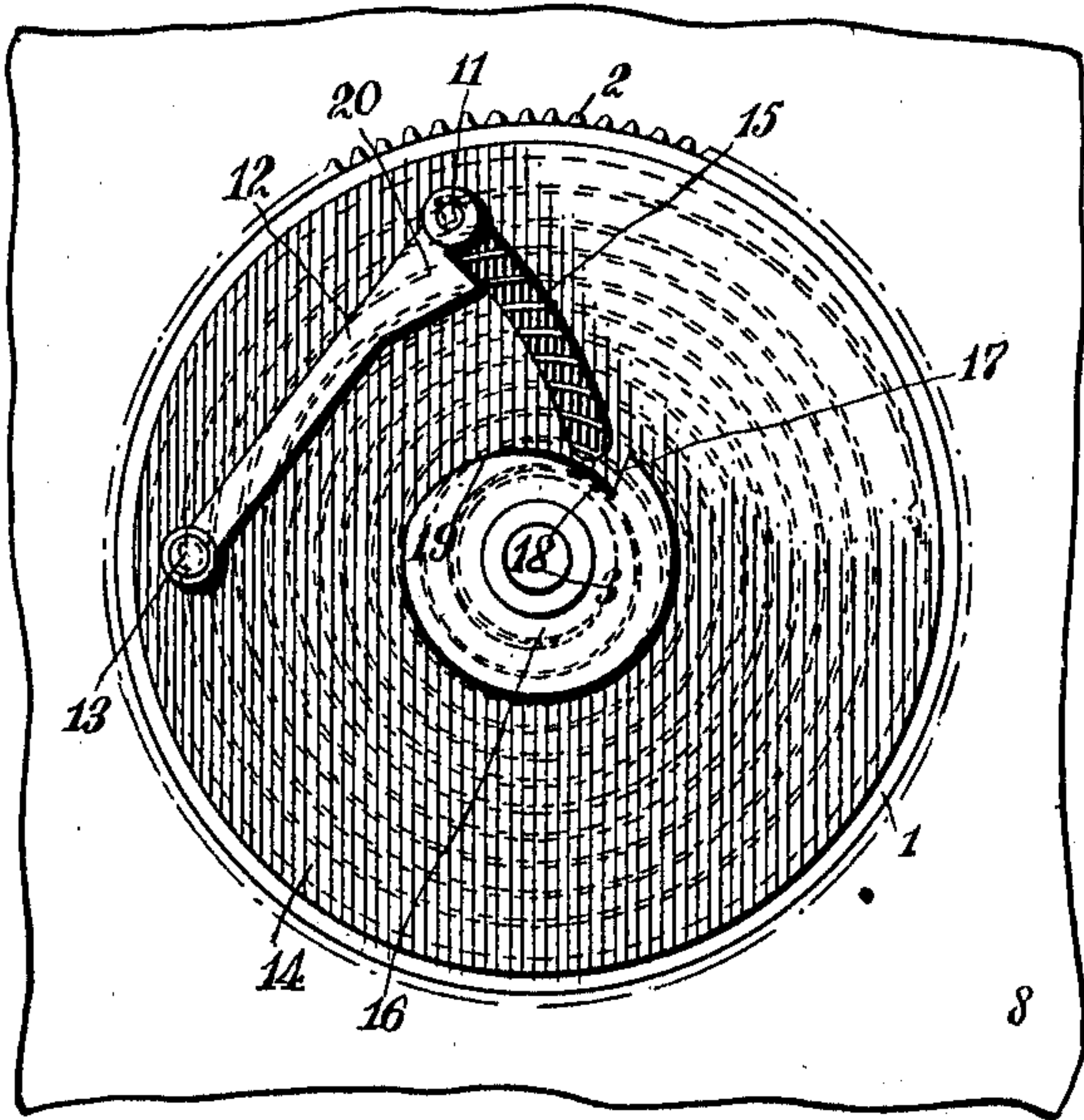


Fig. 1

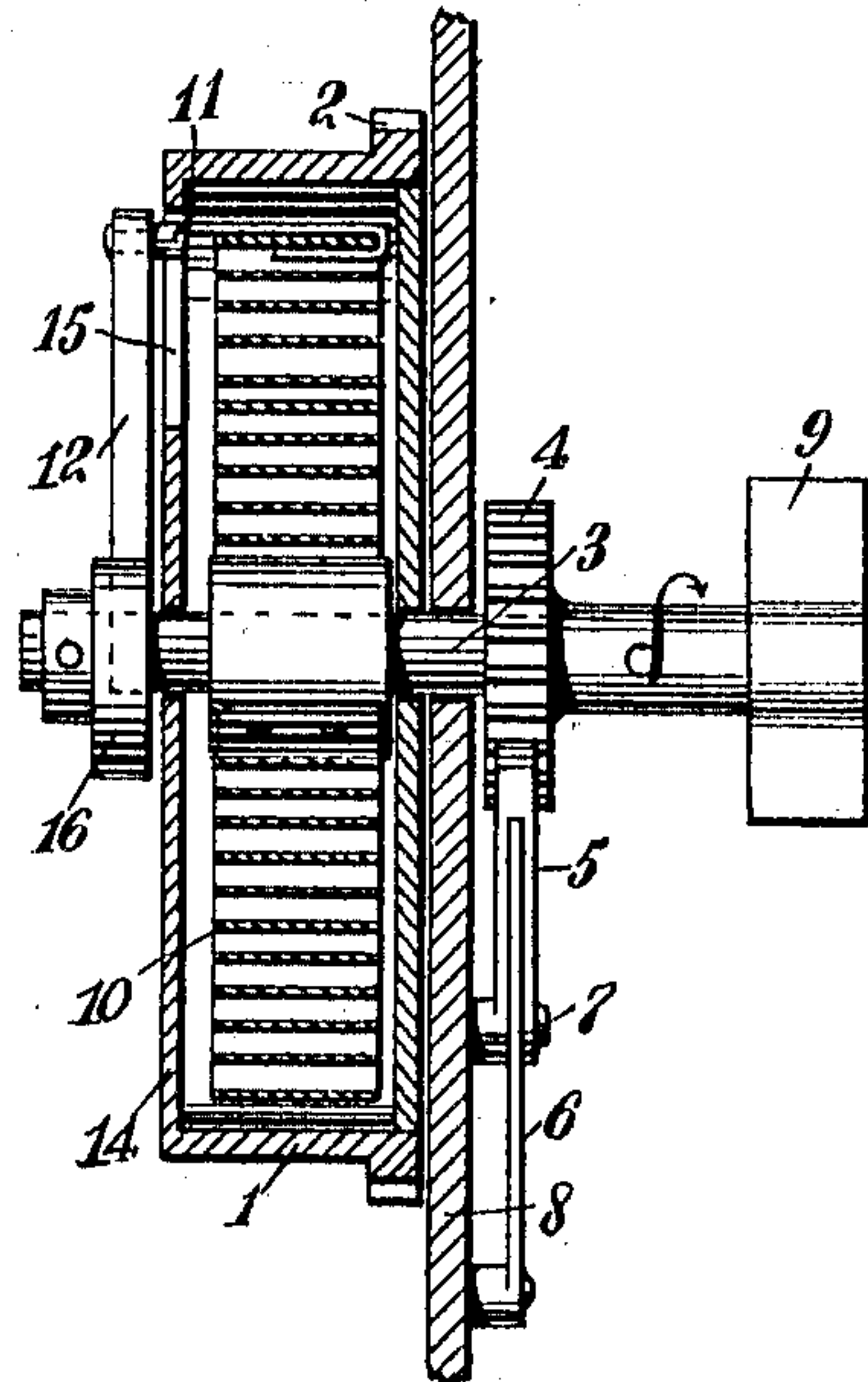


Fig. 2

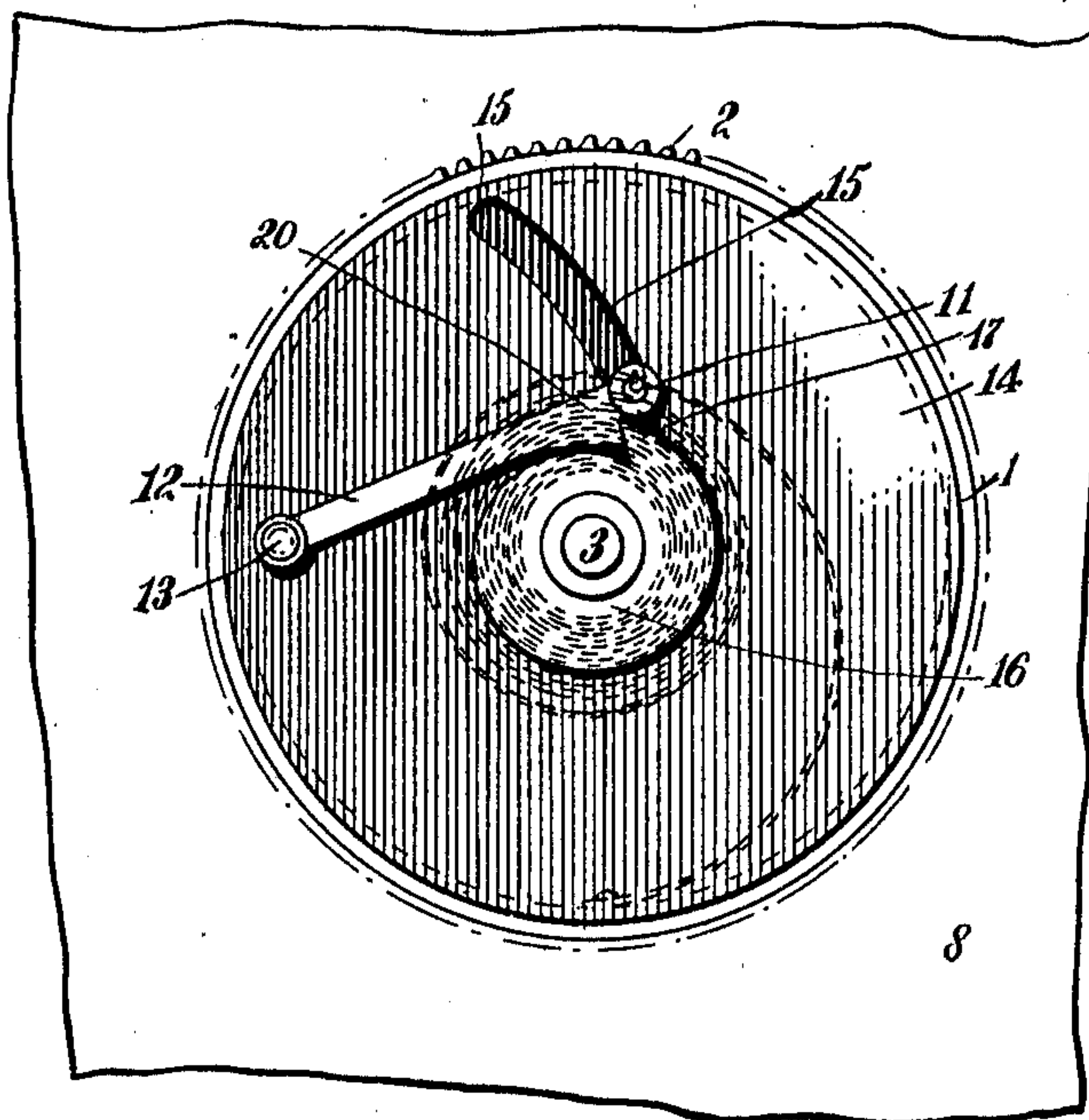


Fig. 3

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UNITED STATES PATENT OFFICE.

ELWOOD HAWKINS, OF ST. MICHAEL, DISTRICT OF ALASKA.

SAFETY WINDING DEVICE.

970,221.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed December 13, 1909. Serial No. 532,721.

To all whom it may concern:

Be it known that I, ELWOOD HAWKINS, a citizen of the United States, and a resident of St. Michael, in the District of Alaska, have invented a new and Improved Safety Winding Device, of which the following is a full, clear, and exact description.

This invention relates to winding devices for winding the springs of motors or the springs of clocks, watches, or other spring-driven mechanisms.

The object of the invention is to provide a spring-winding device which will operate so as to prevent the spring from being wound too tightly, the general purpose of the invention being to prevent the breaking of springs of this kind from over-winding, and to insure that the spring will be always wound to the same point, thereby insuring uniformity in the action of the spring.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures. Figure 1 is a side elevation showing a winding mechanism constructed according to my invention, this view showing the spring in its released or unwound condition; Fig. 2 is a vertical central section through the mechanism shown in Fig. 1; and Fig. 3 is a view similar to Fig. 1, but showing the spring in its wound condition and indicating how the device operates to prevent the spring from being wound too tightly.

Referring more particularly to the parts, 1 represents the spring barrel, the outer face of which is provided with teeth 2 so that it constitutes a driving gear. Through this barrel a stem or spindle 3 passes loosely, said spindle being provided with a ratchet wheel 4 with which coöperates a detent pawl 5 which is pressed by a spring 6, and which is pivotally attached to a stud 7 on the side of the frame plate 8. Beyond the ratchet wheel 4 the stem is enlarged and provided with a winding head 9 for rotating the stem in a direction to wind the spring 10, which spring is an ordinary spiral spring, the inner end of which is attached to the stem 3. The outer end of this spring is attached to the barrel 1, and has slidingly engaging

therewith, near its end a pin 11 secured in the outer end of an arm 12, said arm being pivotally mounted on a stud 13 on the outer side wall 14 of the barrel. The side wall 14 of the barrel is provided with a slot 15 which is disposed in an arc having its center at the pivot 13, so that the arm can swing toward the central point of the barrel. The stem 3 projects from the wall 14 of the barrel and is provided with a rigid detent collar 16. This collar is of substantially circular form, but at a certain point its edge is cut away so as to present an inclined shoulder or tooth 17. In other words, a deep notch 18 is formed in the periphery of this collar, said notch presenting an inclined edge 19 which recedes from the center of the collar, and gradually approaches the outer edge.

When the spring is wound up by means of the stem 3, the rotation being in the direction of the arrow indicated in Fig. 2, as the spring becomes wound its coils approach each other, and the spiral contracts in diameter. As this takes place the arm 12 swings inwardly and the pin 11 moves along toward the inner end of the slot. Near its outer end the arm 12 is provided with a large tooth 20 which is disposed on the edge toward the center of the spring barrel. As the arm swings inwardly in the manner suggested, its tooth finally presents itself in the path of the tooth 17 and arrests the rotation of the stem. The parts are proportioned so that this will take place before the spring is too tightly wound. In this way a spring arranged as described can be wound without danger of subjecting it to great stress.

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

1. In combination, a barrel having an inwardly extending curved slot in one side wall, a stem passing through the barrel, a collar on one end of the stem and provided with a shoulder, a spiral spring having one end secured to the stem and the other to the barrel, and an arm pivoted to the side wall of the barrel having the slot and provided adjacent to its free end with a projection adapted to engage the shoulder of the collar and at its free end with a pin projecting through the slot of the barrel and having a sliding engagement with the said spring.

2. In combination, a frame plate, a stem passing through said frame plate, means

mounted on said frame plate for preventing
a backward rotation of said stem, a spring
barrel through which said stem passes, hav-
ing an inwardly extending curved slot in
5 one side wall, a spiral spring disposed within
said spring barrel, having its inner end at-
tached to said stem and its outer end to the
barrel, an arm pivotally mounted on the wall
of said spring barrel and having at its free
10 end a pin projecting through the slot of the
barrel and having a sliding connection with
said spring, said arm being adapted to swing
toward said stem as the spring is wound,

said arm having a projection, and a collar
carried by said stem outside of the barrel 15
and having a projection into the path of
which the projection of the arm may move
to limit the winding movement of said stem.

In testimony whereof I have signed my
name to this specification in the presence of 20
two subscribing witnesses.

ELWOOD HAWKINS.

Witnesses:

EDWIN H. FLYNN,
E. C. BRADLEY.