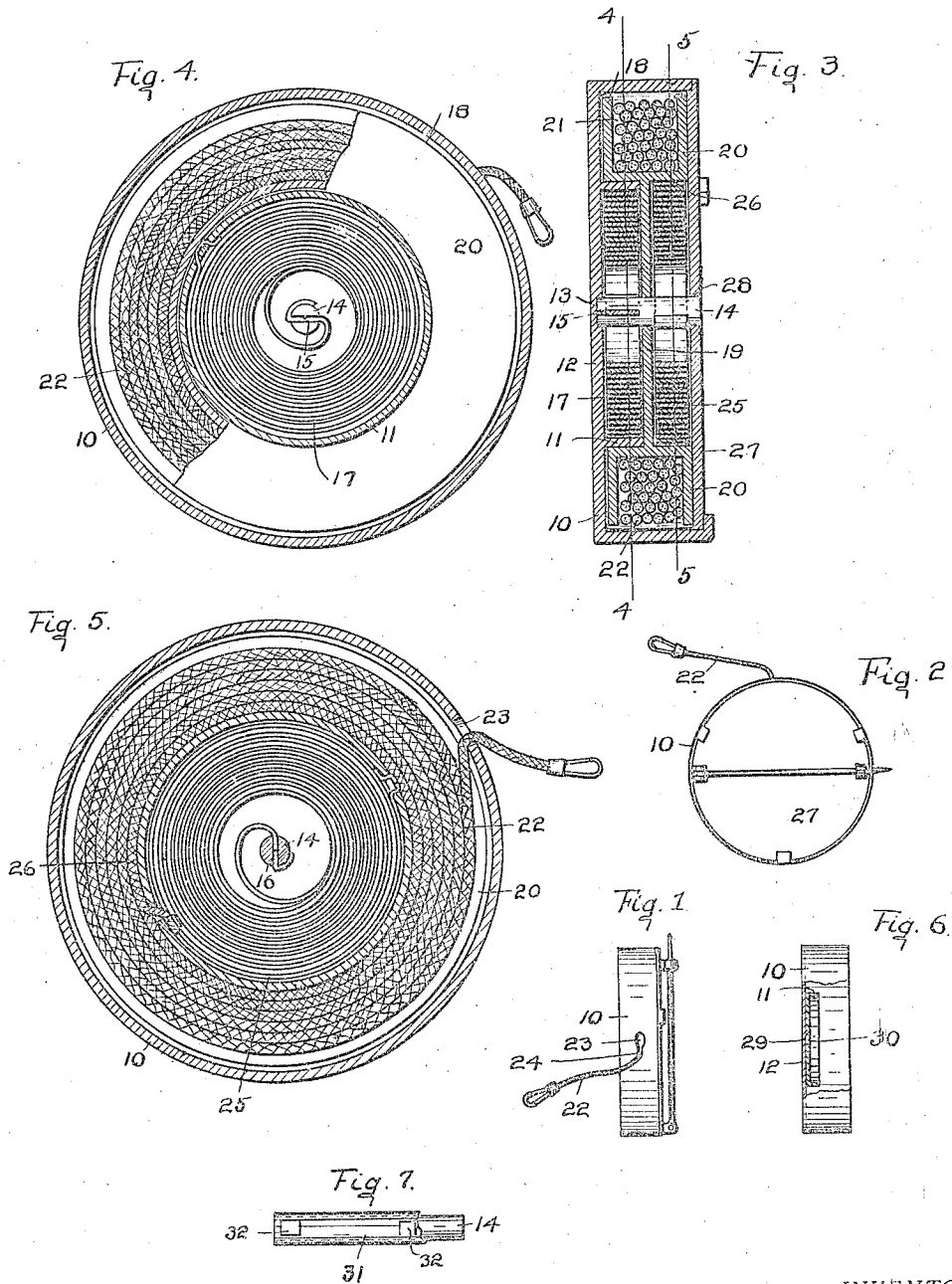


D. F. GREEN.
 SPRING DRIVEN DEVICE.
 APPLICATION FILED JULY 18, 1912.

1,057,543.

Patented Apr. 1, 1913.



WITNESSES:

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DALLAS F. GREEN, OF FORT WAYNE, INDIANA.

SPRING-DRIVEN DEVICE.

1,057,543.

Specification of Letters Patent.

Patented Apr. 1, 1913.

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To all whom it may concern:

Be it known that I, DALLAS F. GREEN, a citizen of the United States, and resident of Fort Wayne, in the county of Allen and State of Indiana, have invented new and useful Improvements in Spring-Driven Devices, of which the following is a specification.

This invention relates to devices operative by spring tension for furnishing power for various purposes, and particularly to reels in which a rotatable member is spring driven for winding up a chain or cord attached to a pair of eyeglasses or other article.

The invention is adapted for many uses and its object is to provide a simple and efficient means whereby spring tension is applied in a novel manner to drive a rotatable member.

In the drawings I illustrate an adaptation of my invention as an eye-glass reel, the reel in use being attached to the garment of the user and the cord or chain being attached to the eye-glasses.

Figure 1 is a side elevational view of the reel; Fig. 2, a back view of the same; Fig. 3, an enlarged central vertical section of the same; Fig. 4, a section on line 4-4 of Fig. 3; Fig. 5, a section on line 5-5 of Fig. 3; Fig. 6, a modification of the frame or case, and Fig. 7, a modification of the revoluble member connecting the springs.

Referring to the drawings, 10 is a frame having an annular flange 11 projecting inwardly from the side 12 of the same, to form a spring space on said side. A recess or socket 13 is provided in the inner face of side 12 in which is revolubly seated one end of a shaft 14. The shaft is provided with two longitudinal slits 15 and 16 in opposite ends. The slits are of suitable depth for the purposes hereafter described, and are disposed preferably 90° apart relatively to the circumference of the shaft. A coiled spring 17 is operative in the space contained within flange 11, the outer end of the spring being secured to the flange and the inner extremity being inserted in slit 15, a portion of the same projecting through the slit and being bent backwardly over the adjacent surface of the shaft. Any suitable manner of securing the spring to the

shaft will suffice, the manner just described being the preferred connection.

A rotor, or chain or cord barrel 18 is revolubly mounted on shaft 14 and the outer surface of flange 11 and is freely rotatable thereon. The reel barrel preferably consists of a web or disk 19 which is centrally apertured to permit shaft 14 to pass through the same. On the periphery of the web is a U-shaped portion 20 which is integral with the web and forms between its walls the space 21 for the reception of the chain or cord 22. One end of the chain or cord is secured to the barrel in a suitable manner and the other end is projected through an opening 23 in the side wall of frame 10, which opening is provided with a reduced portion or extension 24 into which the chain or cord may be engaged, when unwound from the barrel, to retain the same and prevent the barrel from winding it up under the influence of spring 17 and spring 25.

Spring 25 is contained within the space formed by the rear side of disk 19 and the portion of the bottom 26 of the U portion 20 which projects rearwardly from the disk. The outer end of the spring is secured to said bottom 26 and the inner end is inserted in slit 16, a portion of said end being bent back over the shaft 14. Spring 25, it is seen from the drawings, is wound in the opposite direction to spring 17.

In the reel adaptation of my invention frame 10 also forms a casing and a suitable back 27 is suitably secured thereto and the rear end of shaft 14 extends into an aperture 28 in the back. Shaft 14 is free to rotate in socket 13 and aperture 28 and barrel 18 is free to rotate on the shaft except as spring 25 drives the shaft as is about to be explained.

When the user pulls on the chain or cord the barrel is rotated and spring 25 is wound up. As said spring is wound its inner end soon begins to rotate shaft 14, at much less speed than the barrel is rotating, and the rotation of the shaft winds up spring 17, since the outer end of spring 17 is fixed. When the cord or chain has been unwound as much as the user desires he engages it in the reduced portion 24 of the opening in frame 10. Upon releasing the cord or chain from said engagement the springs drive the

barrel in the opposite direction and cause it to wind up the chain or cord. Each spring acts independently of the other, yet its action is coördinate and continuous with the other and the combined action produces a uniformly continuous pressure or motive force on the rotor within a small space.

In the application of the invention herein described I am enabled, by the use of two springs arranged in parallel planes, to construct the reel of exceedingly small dimensions, thereby making a large saving in material as well as greatly improving the appearance of the device.

In order that the material out of which frame 10 of the reel is made shall be thin and light I contemplate providing flange 11 on a separate plate 29 and soldering the plate to the frame as shown in Fig. 6. Opening 30 in the plate serves as a bearing for shaft 14. I may also secure shaft 14 to frame 10 or to back 27 and revolubly support thereon a sleeve 31 to which sleeve the inner ends of springs 17 and 25 will be attached in a suitable manner as to ears 32. In either case the tension of the springs is effective to drive the shaft or spindle and the rotor 18 with great accuracy and continuity within a given space, the springs acting independently of each other.

Numerous modifications of construction and arrangement of parts will suggest themselves to one skilled in the art, hence I do not wish to be limited to the precise construction shown.

It is also apparent that the main feature of my invention—the two springs connected by a revoluble part, one spring being also connected to a fixed point and the other to a movable part or rotor—is capable of adaptation to numerous uses. The reel I have herein described is only one adaptation of the invention.

What I claim is:

1. The combination of a revoluble bearing, a support for the bearing, a driven member revolubly mounted on the bearing, a plurality of springs, opposite ends of one spring being connected respectively to the bearing and the bearing support and opposite ends of another spring being connected respectively to the bearing and the driven member.

2. The combination of a frame, a member revolubly supported by the frame, a rotor revolubly mounted on the member, and two springs connected to the member, one end of one of the springs being fixed and one end of the other spring being connected to the

rotor, the parts being so arranged that the tension of the springs is independently effective to drive the rotor.

3. The combination with a frame, of a shaft revolubly supported thereon, a driven member revolubly mounted on the shaft, and two coiled springs connected at one end to the shaft, the other end of one of the springs being connected to the driven member and the other end of the other spring having a connection to the frame.

4. The combination with a frame of a shaft revolubly supported thereon, a driven member revolubly mounted on the shaft, two oppositely coiled springs each secured at one end to the shaft, the other end of one of the springs being connected to the driven member and the other end of the other spring having a connection to the frame, a cord connected to the driven member, and means in the frame to coöperate with the cord for holding the driven member in any rotated position.

5. The combination with a frame, of a shaft revolubly mounted thereon, a driven member revolubly mounted on the shaft and having a spring space on one of its sides, a spring secured at one end to the driven member and at its other end to the shaft, said spring being operative in said space, a second spring having its inner end connected to the shaft and its other end to the frame, said springs being operative in parallel planes.

6. The combination of a frame, a shaft revolubly mounted thereon, a driven member revolubly mounted on the shaft, two springs secured to the shaft and also to the driven member and frame respectively, the connections being such that as the driven member is rotated one of the springs is wound up and rotates the shaft to cause the other spring to wind up.

7. The combination of a casing, a shaft revolubly mounted therein, a spring connected to the shaft and to the casing, a barrel revolubly mounted on the shaft, a cord wound on the barrel and secured at one end thereto, and means connecting the barrel and shaft for rotating the shaft, when the barrel is rotated, to place tension on the spring.

In witness whereof I hereunto sign my name.

DALLAS F. GREEN.

Witnesses:

HELEN F. GLENN,
ELWIN M. HULSE.