

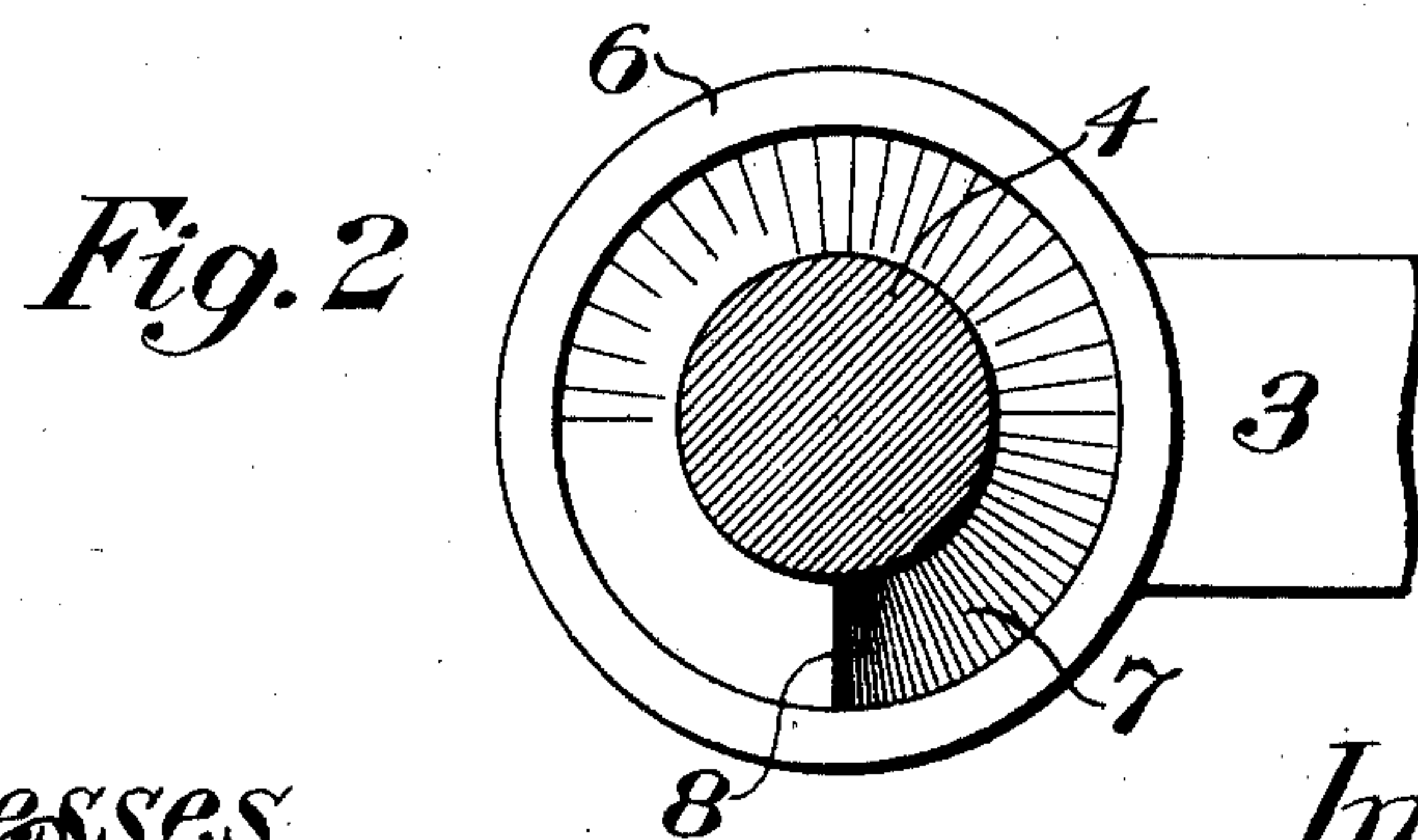
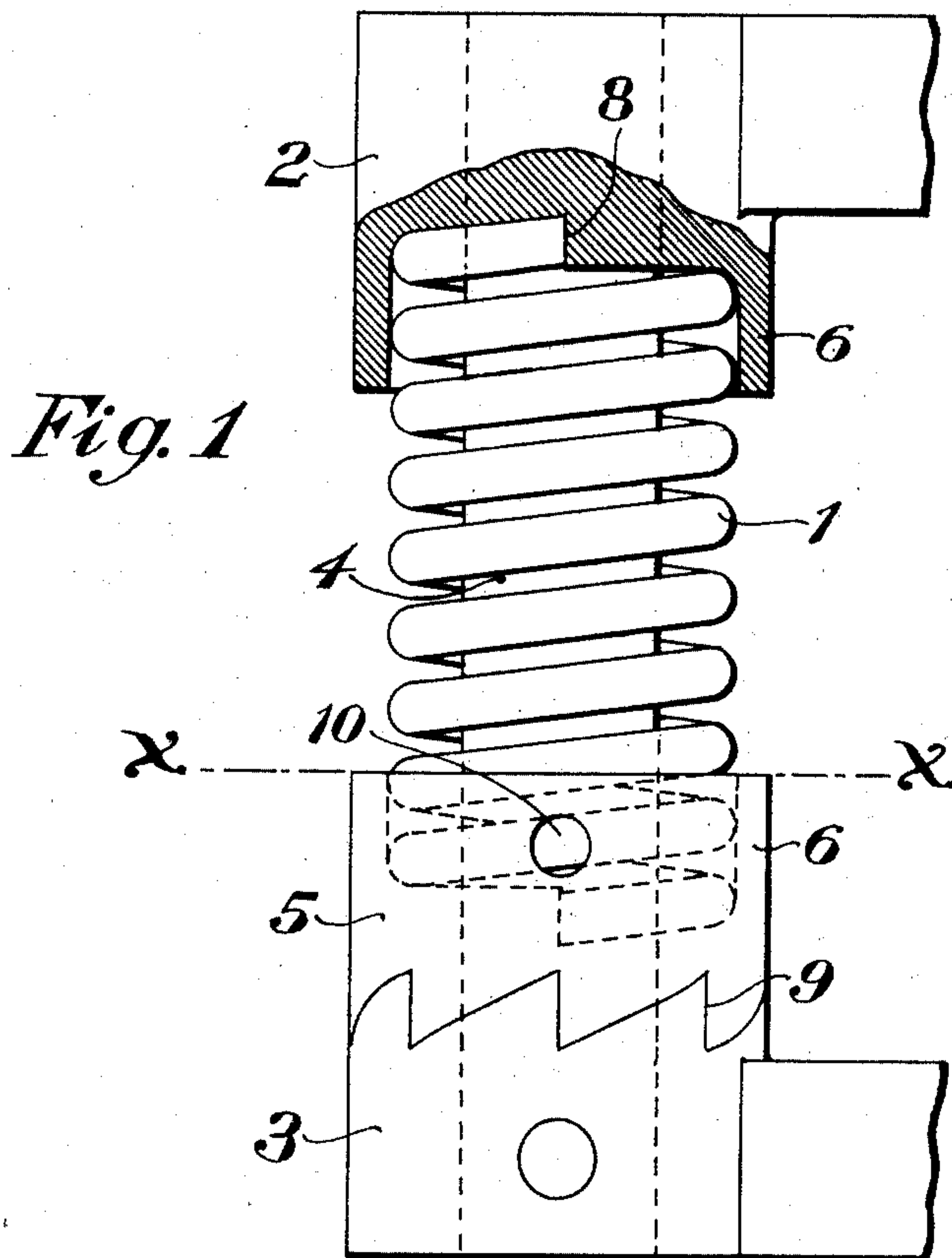
No. 864,932.

PATENTED SEPT. 3, 1907.

A. F. STAPLES.

SPRING HINGE.

APPLICATION FILED MAY 3, 1907.



Witnesses  
*[Signature]*  
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Farnum F. Dorey

# UNITED STATES PATENT OFFICE.

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## SPRING-HINGE.

No. 864,932.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed May 3, 1907. Serial No. 371,760.

*To all whom it may concern:*

Be it known that I, ALBERT F. STAPLES, a citizen of the United States, and a resident of Dorchester, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

The present invention relates particularly to spring mechanisms in which two relatively-rotatable members, such, for example, as the parts of a hinge, are connected with a helical spring which is normally coiled beyond its natural form so as to have a tendency to uncoil and rotate the members controlled by the spring. In such constructions it is the universal practice, so far as the inventor is informed, to utilize the uncoiling tendency of the spring, which necessitates the securing of the ends of the spring to the spring-controlled members, and this is usually accomplished by bending the ends of the spring sharply to form radial or longitudinal projections which engage suitable recesses formed in the spring-controlled members, so that the ends of the spring are prevented from pulling away from the members. This bending of the ends of the spring has the practical disadvantages that it increases the cost of manufacture of the spring, and it also weakens the spring, owing to the sharpness of the bend required and the hardness of the material of the spring, so that springs of this form break most frequently at the bend.

The object of the present invention is to simplify and improve spring mechanisms of the kind above referred to in such a way as to dispense with the bending of the springs, and this object is accomplished by utilizing the tendency of a helical spring to coil itself after being uncoiled beyond its natural form, instead of the tendency of such a spring to uncoil when coiled. When the spring is used in this new way the ends of the spring do not tend to pull away from the spring-controlled members, but act, on the contrary, with a circumferential thrust, so that instead of securing the ends of the spring to the spring-controlled members it is necessary only to provide abutments to receive this thrust, and it is not necessary to bend the ends of the spring in any manner. In this construction there are no weak points in the spring, and the spring may be very cheaply manufactured as a finished spring may be formed by

merely cutting the proper length from a continuous coil.

In the accompanying drawings, which illustrate the preferred embodiment of the invention, Figure 1 is an elevation showing one of the spring-controlled members partly in section, and Fig. 2 is a horizontal section on the line X—X in Fig. 1, with the spring removed.

In the illustrated embodiment of the invention the spring 1 is connected with two spring-controlled members 2 and 3 rotatably connected by a pintle 4. The member 3 is not directly connected with the spring, but an adjusting collar 5 is interposed. The collar 5 and the member 2 have socket portions 6 providing sockets in which the terminal coils of the spring are received, and at the bottoms of the sockets are depressions 7 terminating in shoulders 8 which constitute abutments to receive the thrust of the ends of the spring. The collar 5 is connected with the member 3 by inclined teeth 9, and the collar may be turned, by a spanner engaging an opening 10 in the collar, in a direction to partly uncoil the spring, and the collar will then be retained in this position by the teeth 9. After being so adjusted the spring has a tendency to coil itself, and this force is transmitted, by the thrust of the ends of the spring against the abutments 8, to the spring-controlled members. The sockets fit the spring closely but not tightly and serve to prevent lateral distortion of the spring by the unbalanced thrust of its ends. The collar 5 may be turned whenever it is necessary to adjust the spring.

I claim:—

A spring mechanism comprising a helical spring with unbent ends, and two relatively-rotatable spring-controlled members provided with spring-receiving sockets closely embracing the terminal coils of the spring and with abutments against which the ends of the spring rest, the spring being normally uncoiled beyond its natural form so as to impart a thrust to the abutments and tend to rotate the spring-controlled members in a direction to permit the spring to coil itself.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT F. STAPLES.

Witnesses:

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