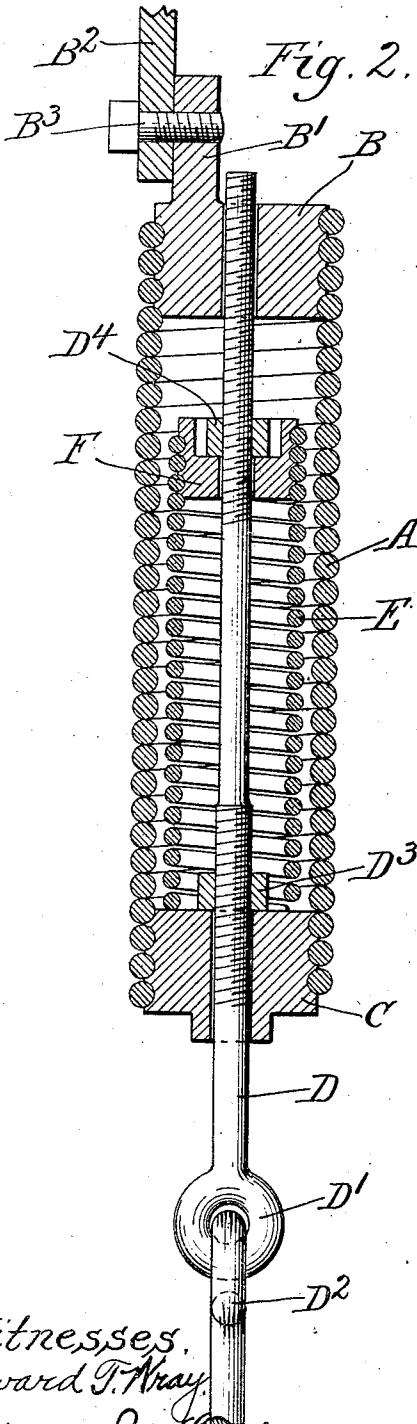


H. PLETSCH.  
SPRING.

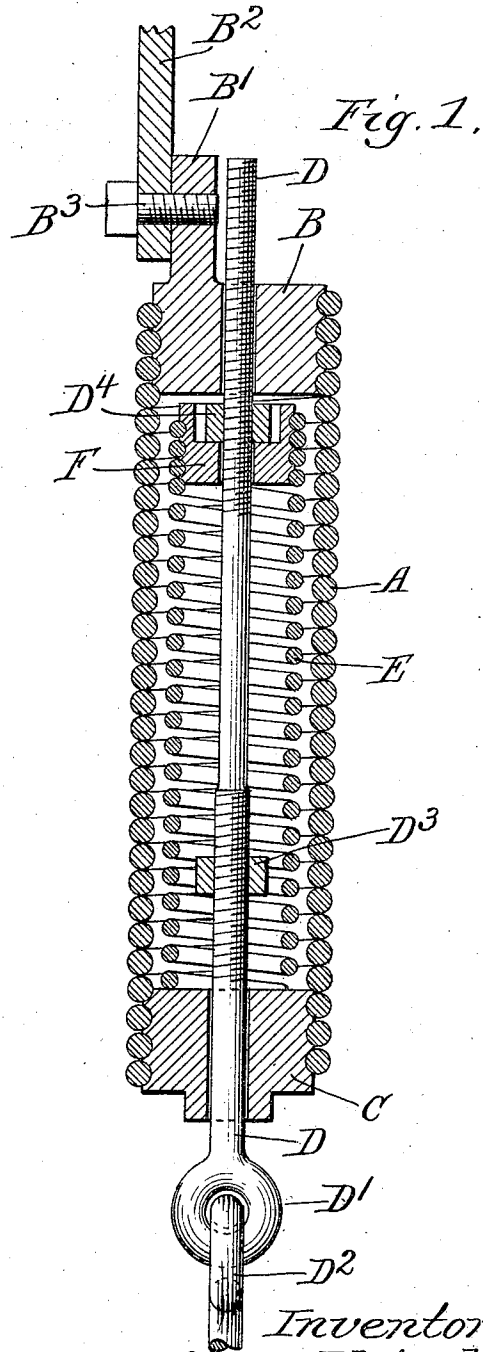
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991,539.

Patented May 9, 1911.



Witnesses.  
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# UNITED STATES PATENT OFFICE

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## SPRING.

991,539.

Specification of Letters Patent.

Patented May 9, 1911.

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*To all whom it may concern:*

Be it known that I, HENRY PLETSCH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Springs, of which the following is a specification.

My invention relates to improvements in springs, and is illustrated in the accompanying drawing, wherein—

Figure 1 shows the spring contracted; Fig. 2 shows the spring partially extended.

Like parts are indicated by the same characters in both the figures.

The tension spring A has at one end the plug B provided with the lug B<sup>1</sup> attached to any desired device B<sup>2</sup> by means of the screw B<sup>3</sup>, and at the other end, the plug C. The rod D provided at one end with the eyelet D<sup>1</sup> engaging any desired device such as the eyelet D<sup>2</sup>, is slidably mounted within the plugs B and C and carries adjustably mounted thereupon the collars D<sup>3</sup>, D<sup>4</sup>. The compression spring E of lesser stiffness than and within the spring A has at one end the plug F slidably mounted upon the rod D, and at the other end rests upon the plug C.

While I have shown in my drawing an operative spring, still it will be evident that numerous changes might be made both in the size and arrangement of parts without departing from the spirit of my invention. I wish, therefore, that my drawing be considered in a sense as diagrammatic.

The use and operation of my invention are as follows:—My spring is made up of a combination of two springs, one stiffer than the other. The weaker spring is a compression spring located within the stronger which is a tension spring. When force is exerted to extend the spring, the compression spring will first be compressed until a certain predetermined point has been reached. At this point the compression spring will no longer change its shape but will remain under compression at that point. The stronger tension spring will then take up the load and be extended quite independent of the compression spring. I mount these springs concentrically about a supporting tension rod, and provide this rod with adjustable collars or other devices, whereby the work of the compression spring may be regulated

between certain limits independent of the spring itself. By this means I am enabled to determine the point at which the tension spring will take up the load and the length of travel of the force before its application to the tension spring. By this means also I am able to provide a spring member wherein are two springs one of which takes up the load where the other one leaves it. This minimizes the wear and tear upon the springs and enables the use of a much shorter spring for the same elasticity or the use of a spring of greater elasticity for the same length than anything heretofore provided.

I have not shown this spring in connection with any particular mechanical device, as it will be evident that it may be used for an infinite number of different purposes where springs are used.

I claim:—

1. A spring comprising a heavy tension member, a perforated plug in each end of said member, a light compression member, one end of said member engaging one of the plugs within the tension member, a perforated plug in the other end of the compression member, a rod slidably engaging said perforated plugs, and a plurality of adjustable collars mounted upon said rod and adapted to engage the plug upon the compression member and one of the plugs within the tension member.

2. A spring comprising a heavy tension member, perforated plugs screw threaded within each end of said tension member, a screw threaded rod slidably mounted within said plugs, collars screw threaded and adjustable upon said rod, the distance between them being at all times less than the distance between said plugs, an inner light compression member surrounding said rod and in engagement at one end with one of said plugs, and a perforated plug screw threaded within the other end of said compression member slidably mounted upon the rod and in engagement with one of said collars.

HENRY PLETSCH.

Witnesses:

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