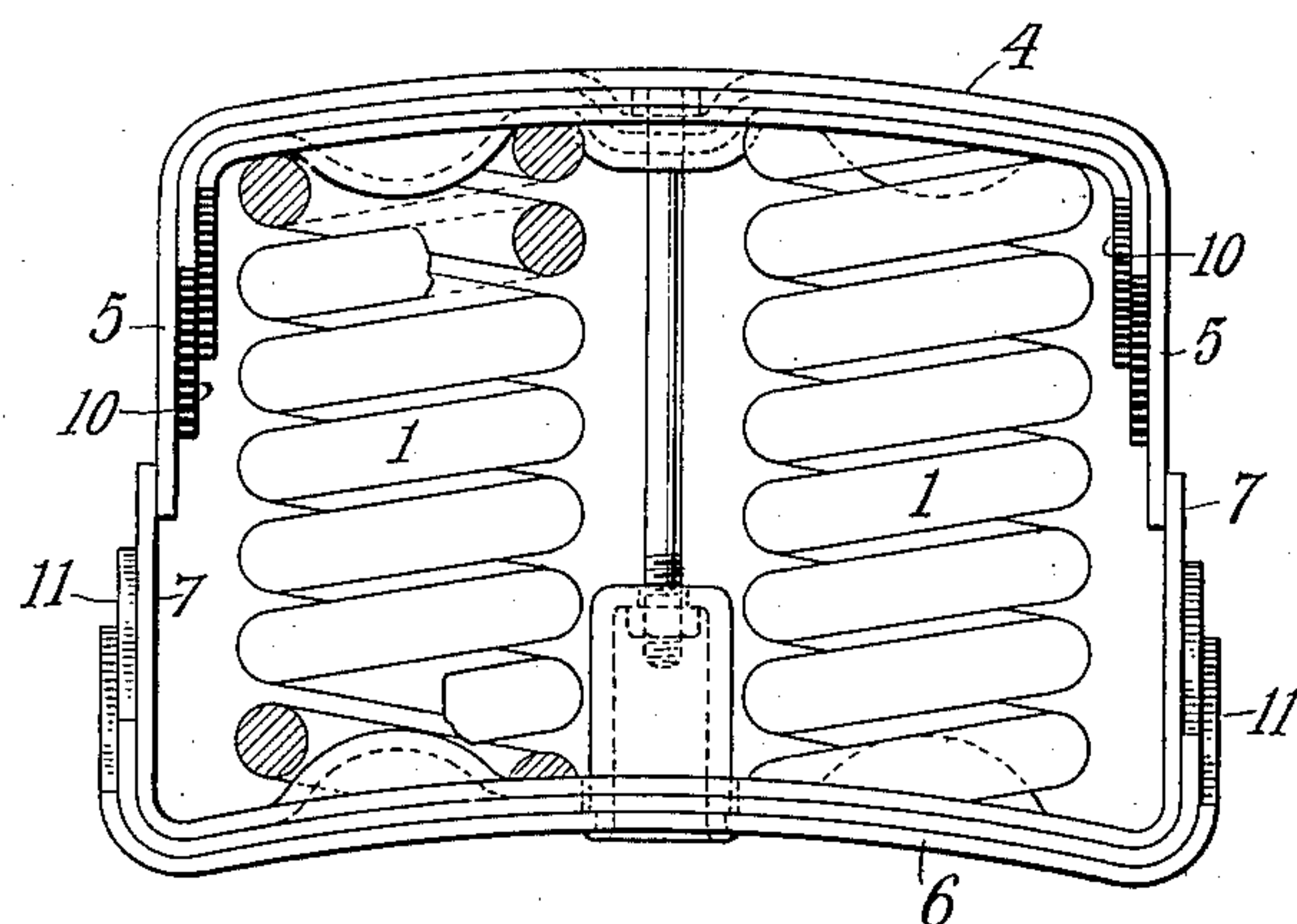


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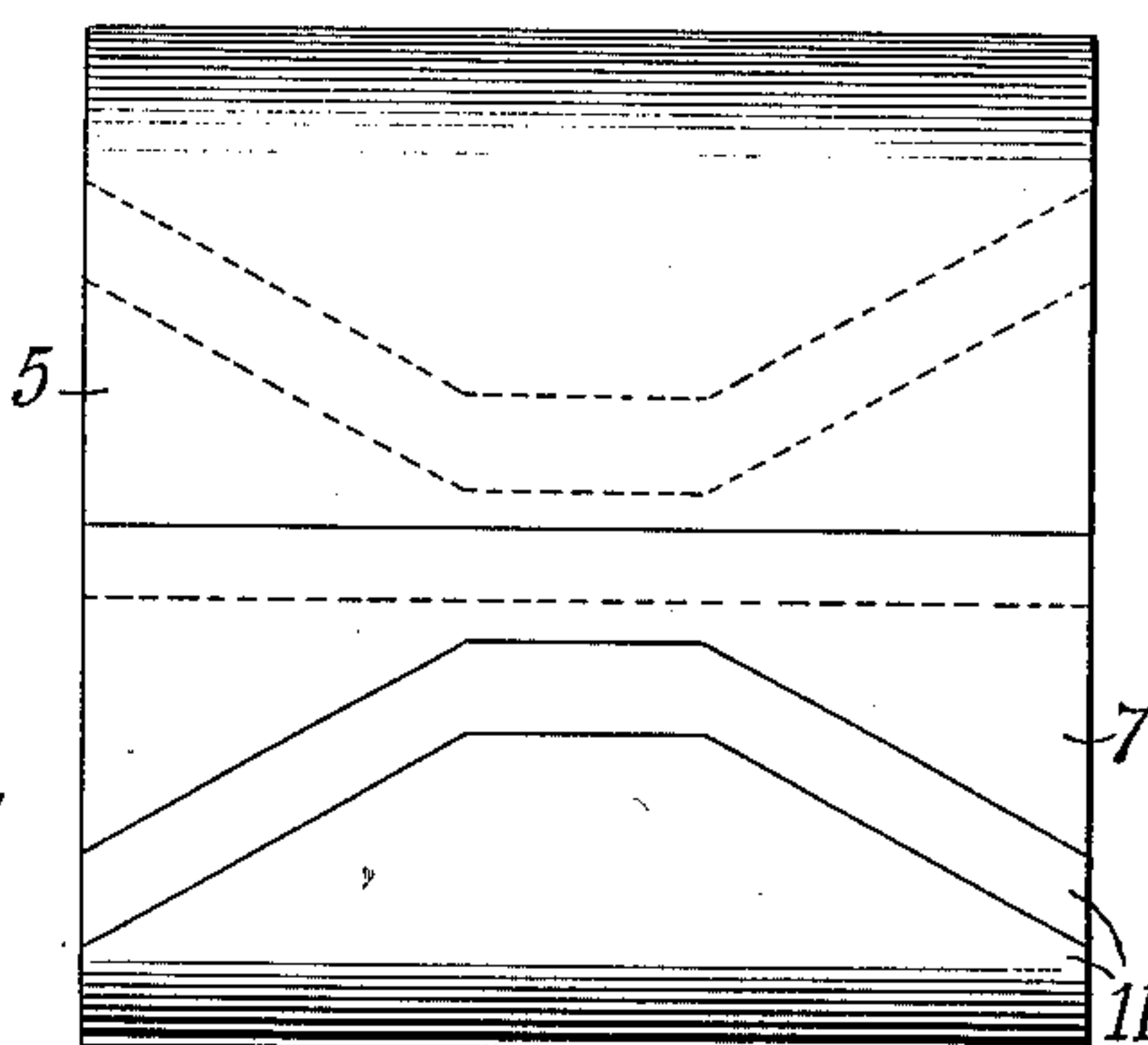
PATENTED AUG. 28, 1906.

T. A. SHEA.  
COIL SPRING CONTROLLER.  
APPLICATION FILED JAN. 30, 1905.

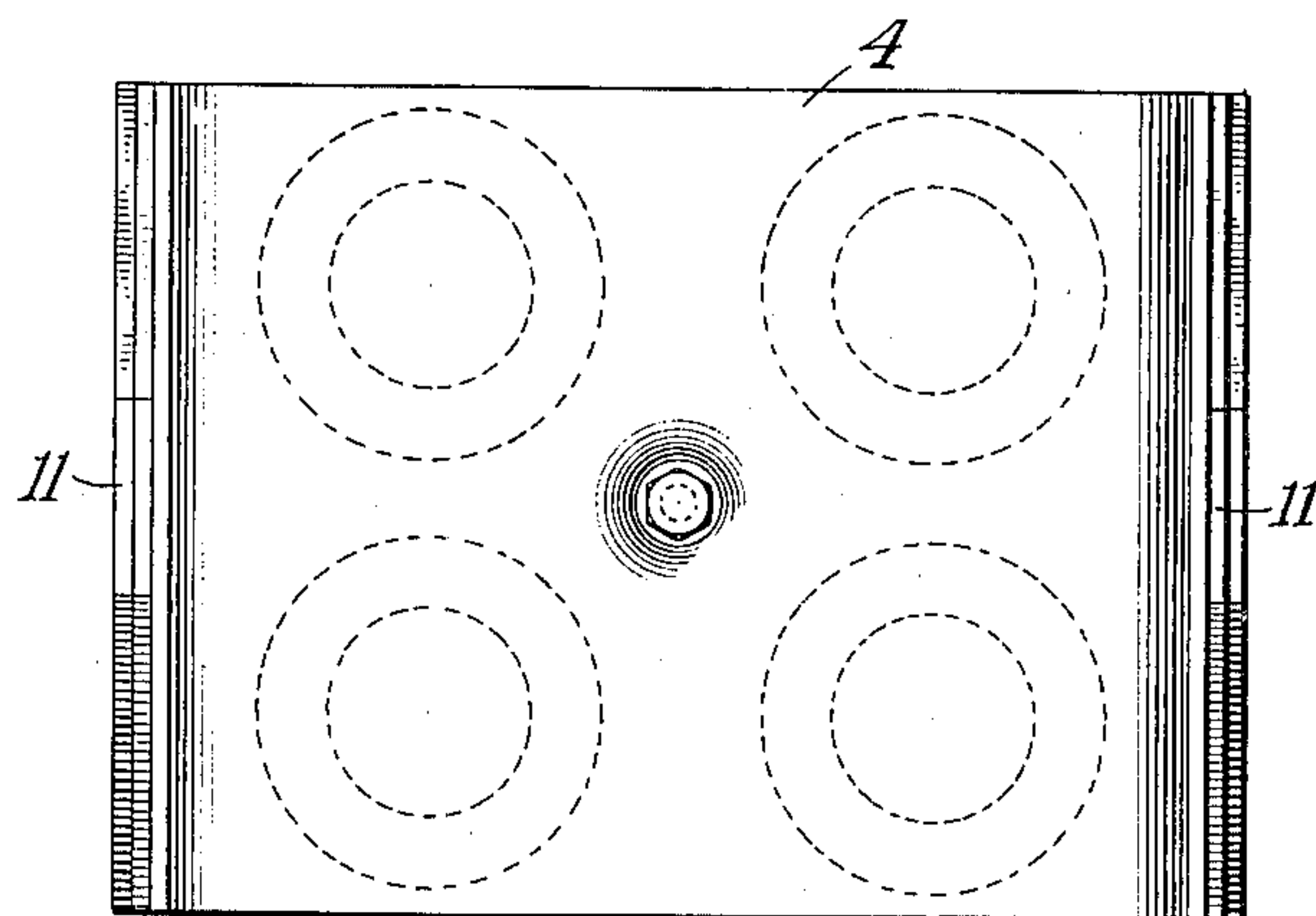
*Fig. I*



*Fig. II*



*Fig. III*



Witnesses  
*Raphaël Ketter*  
*M. B. Smith*

Inventor  
*Thomas A. Shea*  
By His Attorney *Alfred Wilkerson*



# UNITED STATES PATENT OFFICE.

THOMAS A. SHEA, OF HAMMOND, INDIANA.

## COIL-SPRING CONTROLLER.

No. 829,437.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed January 30, 1905. Serial No. 243,267.

*To all whom it may concern:*

Be it known that I, THOMAS A. SHEA, a citizen of the United States, residing at Hammond, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in Coil-Spring Controllers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to devices for controlling the recoil of coil-springs; and it consists in cap-plates adapted to be forced into frictional engagement by the load and in means for reinforcing said cap-plates.

My present invention is a modification of the device of my Patent No. 688,490, dated December 10, 1901, and is particularly adapted for use with heavy rolling-stock—such as locomotives, tenders, and cars carrying heavy loads. The cap-plates, as shown in my said patent, are preferably made of tempered spring-steel and are formed with curved bases, one concave and one convex, or, if desired, one base only curved and the other flat. The flanges of the cap-plate with the convex base are arranged inside of and in contact with the flanges of the cap-plate with the concave base, so that the flanges of one are sprung in and the other out into frictional engagement, the greater the load the greater the friction, and thereby the effect of retarding the recoil and lessening the vibrations is directly in proportion to the load. These cap-plates have proved very successful in operation on various roads for several years; but it has been found desirable for excessive loads to strengthen and reinforce the cap-plates without practically diminishing their resiliency. Increasing the thickness of the plates would tend to strengthen them; but it would reduce the resiliency and would increase the danger of cracking them at the angles when being formed or weakening them at those points, so that they might break thereafter under load. I have therefore combined with the said plates auxiliary plates of similar form for reinforcing and strengthening the main plates.

A desirable embodiment of my invention is shown in the drawings herewith, in which the reference-numerals of the specification indicate the corresponding parts in all the figures.

Figures I, II, and III are respectively front and side elevation and top plan.

In the figures, 1 indicates the coil spring or springs, retained in position between upper and lower compound cap-plates, of which 4 indicates the upper main cap-plate having the convex base and depending flanges 5 5, and 6 the lower main cap-plate with the concave base and the upwardly-extending flanges 7 7, arranged in contact with the flanges 5 5. These main flanges may be of any desirable form, but preferably with straight edges, as here shown. Arranged within the upper plate are the auxiliary reinforcing-plates 10 10 of any desirable form, but preferably made, as here shown, with the flanges gradually diminishing in length and having their corners truncated, by which weight is saved and the strain distributed. 11 11 are the corresponding auxiliary reinforcing-plates for the lower or concave cap-plate and are necessarily arranged outside thereof. It will be understood that "upper" and "lower" are relative terms and either cap-plate can be arranged above, though as the cap-plate with the concave base is necessarily wider it more appropriately serves as a base for the assembled spring.

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

1. In a car-spring, the combination with coil-springs and upper and lower main cap-plates having integral side flanges arranged in contact, of auxiliary cap-plates having truncated flanges arranged in contact with the main flanges.

2. In a car-spring, the combination with a coil spring or springs, of upper and lower main cap-plates inclosing the coils, said upper cap-plate having a convex base and downwardly-depending flanges, said lower cap-plate having a concave base and upwardly-extending flanges, arranged outside of and in contact with the upper cap-plate flanges, a plurality of auxiliary cap-plates arranged within the upper cap-plate and having correspondingly-formed bases and reinforced flanges arranged adjacent to the main upper cap-plate flanges, and a plurality of auxiliary cap-plates arranged without the lower cap-plate and having correspondingly-formed bases and reinforcing-flanges arranged adjacent to the main lower cap-plate flanges, the flanges of said upper and lower



reinforcing series being gradually shorter and having truncated corners, substantially as described and shown.

3. Main cap-plates for coil-springs, having  
5 side flanges arranged in contact, one or both of said plates being formed to spring the flanges into frictional engagement under pressure, the friction increasing as the pressure increases, and in combination therewith  
10 one or more auxiliary cap-plates having reinforcing truncated flanges arranged parallel and adjacent to the flanges of the main plates.

4. In a car-spring for supporting the  
15 weight of the cars, the combination with a coil-spring, or coil-springs, of upper and lower main cap-plates having side flanges arranged in contact, the bases of one or both of said plates being formed to spring the flanges into frictional engagement under load and in

combination therewith auxiliary cap-plates having flanges arranged to reinforce the flanges of the main cap-plates, said coils being arranged vertically and the flanges being arranged substantially vertically. 25

5. Main cap-plates for coil-springs, having side flanges arranged in contact and in combination therewith auxiliary cap-plates having side flanges arranged to reinforce the flanges of the main cap-plates, one of said  
30 main cap-plates having a concave base and its flanges arranged without the flanges of the other main cap-plate substantially as described and shown.

In testimony whereof I affix my signature 35  
in presence of two witnesses.

THOMAS A. SHEA.

Witnesses:

J. S. BLACKMAN,  
GEO. B. SHREVE.