

J. C. PICKELS.
Car-Springs.

No. 150,077.

Patented April 21, 1874.

Fig 1.

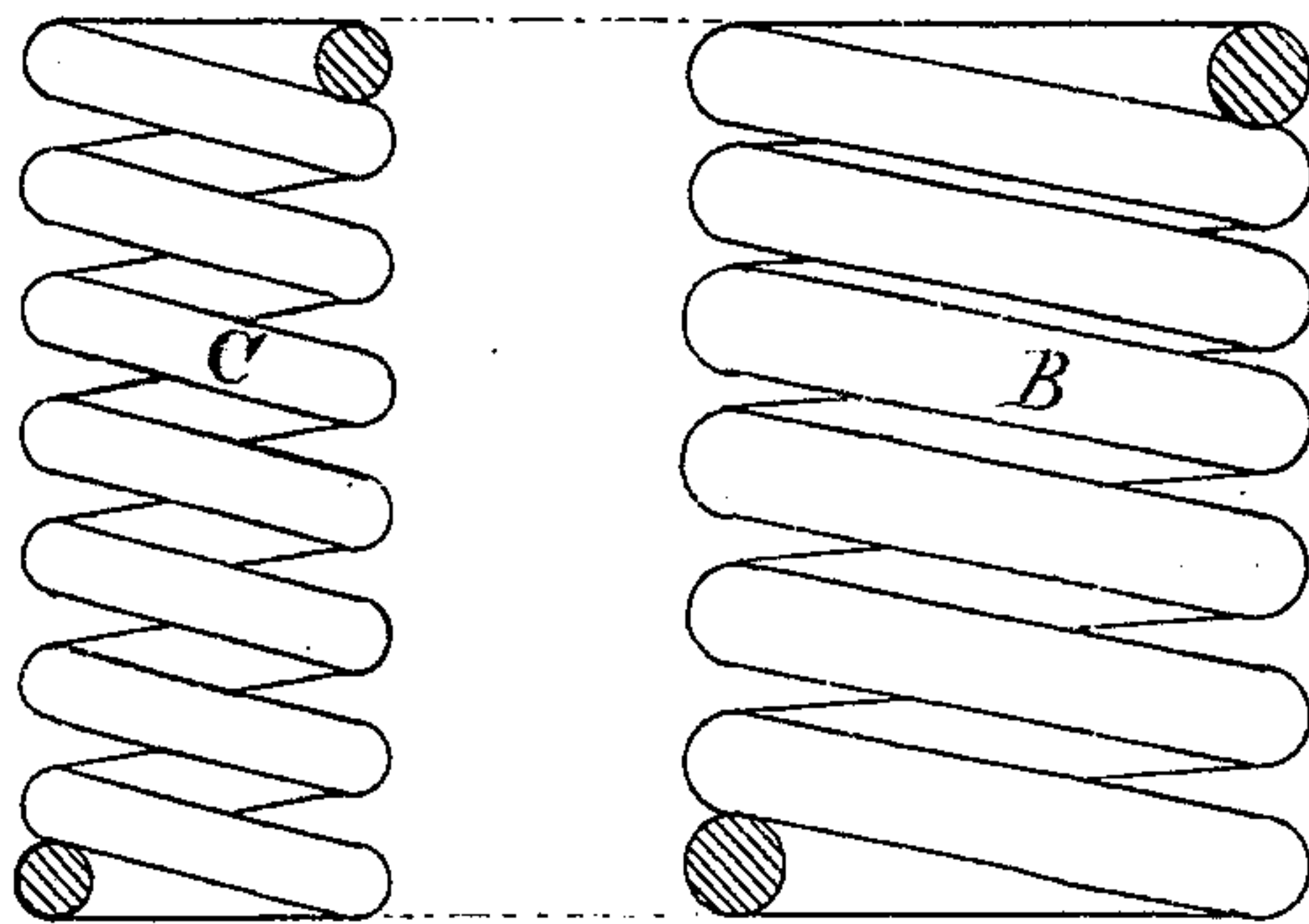
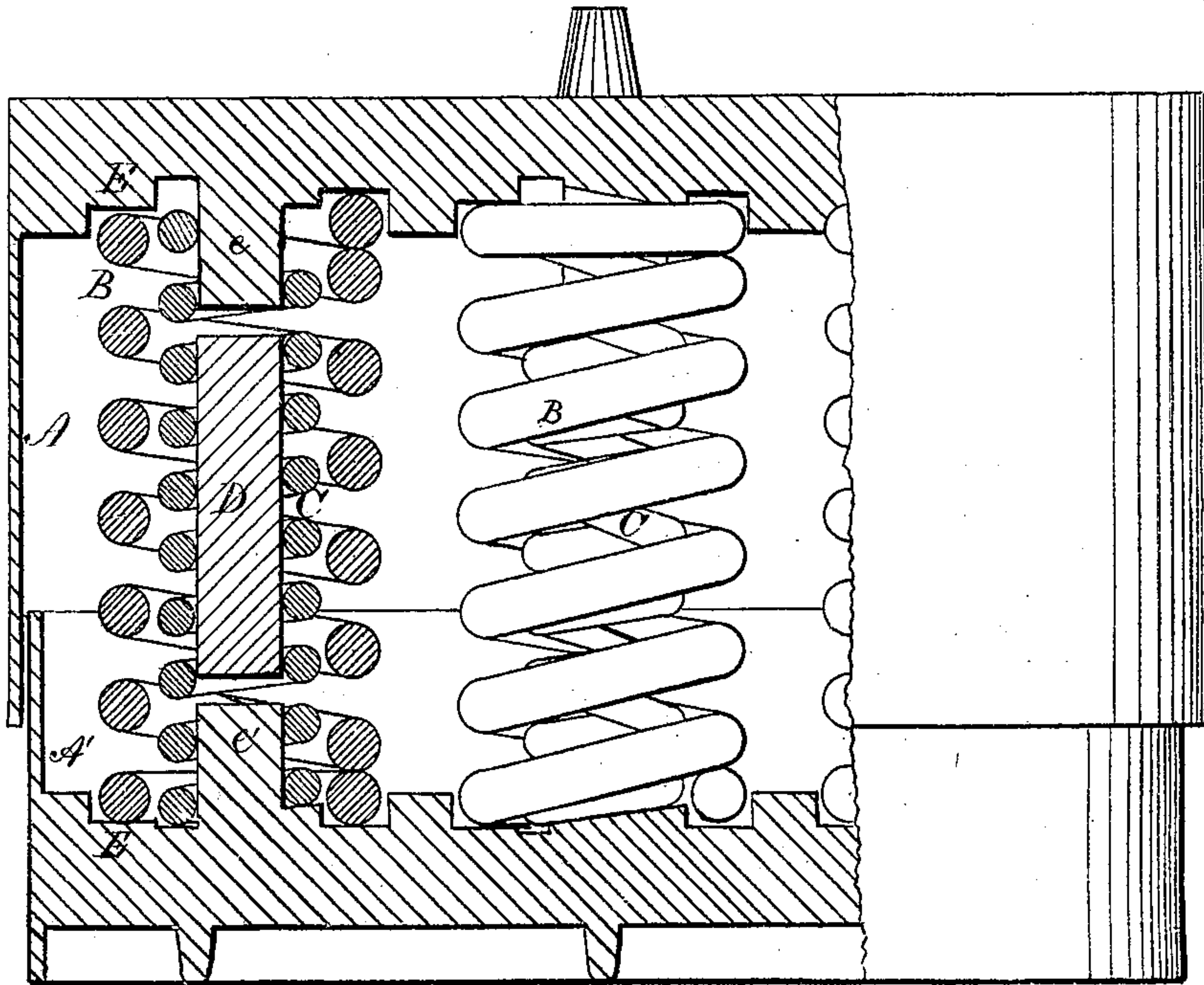


Fig 2

WITNESSES
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By

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UNITED STATES PATENT OFFICE.

JAMES C. PICKELS, OF WILMINGTON, DELAWARE, ASSIGNOR TO HIMSELF
AND JAMES P. HAYES, OF SAME PLACE.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. 150,077, dated April 21, 1874; application filed
February 13, 1874.

To all whom it may concern:

Be it known that I, JAMES C. PICKELS, of Wilmington, in the county of New Castle and State of Delaware, have invented a certain new and useful Improvement in Railway-Car Springs; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a vertical longitudinal section, and Fig. 2 a side view of the two coils separated.

My invention has for its object to provide a car-spring which will ride easily with either a light or heavy load, and which will be at once strong, elastic, and durable. The nature of my invention consists in the novel construction and combination of parts as hereinafter fully described, having reference particularly to, first, the combination of a central india-rubber plug with surrounding cast-steel spiral coils, arranged right and left alternately, forming a nest; secondly, the employment of an equalizing-bearing, in combination with coils of equal length, these parts being so arranged that the weight imposed upon the spring will first take effect upon the outer coil, and, as said weight increases, will take effect on the inner coil, thus proportioning the resistance according to the increase of weight.

Referring to the accompanying drawing, which illustrates my invention, A A' are, respectively, the upper and lower sections of a box containing the springs. B and C are cast-steel spiral springs, of which any number greater than two may be employed, of equal length, and placed one within the other, as shown, to form a nest. D is a rubber plug, retained by compression in the position shown, or, if desired, resting upon a bearing beneath. The equalizing-bearing is shown at E, and is formed by recessing the top and bottom plates, or the top plate only, of the box-sections A and A', in such manner that the superincum-

bent weight will first fall upon the outer spring B, then, as the load increases, upon the next spring C, and so on, if more than two coils be employed, proportioning the resistance to the gravity, and preserving a due amount of elasticity under a heavy as well as under a light burden. Should the weight imposed be too great for the spirals alone it will take effect on the rubber plug, which may, if desired, be of equal length or vertical section with the spirals, or may, as shown, be shorter, its ends impinging upon the studs *e e'* at top and bottom, or upon a flat bearing at the bottom and upon a projection, *e*, at the top, when the upper section A of the box is duly depressed under weight.

The box formed of the sections A A' is made of cast-iron, and designed to contain any number—as four, five, or six—of nests of springs made up of the right and left alternate cast-steel coils and rubber plug, as above described.

A spring thus constructed combines all the essential requisites of strength, elasticity, and durability. A car provided with such springs will ride easy, whether empty or lightly or heavily loaded, and no ordinary burden will bring it to a solid bearing.

What I claim as my invention is—

1. The equalizing-bearing E, recessed so as to cause the superincumbent weight imposed upon the spring to fall first on the outer coil, and then on the inner coil or coils, all combined substantially as shown and described.

2. In combination with the sections A and A', having equalizing-bearings E, the right and left coils B C of equal length, and the rubber block D, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of February, 1874.

JAMES C. PICKELS.

Witnesses:

EUGÈNE P. EADSON,
JNO. A. BELL.