

W. R. NICHOLS.

Car Spring.

No. 56,084.

Patented July 3, 1866.

Fig. 2.

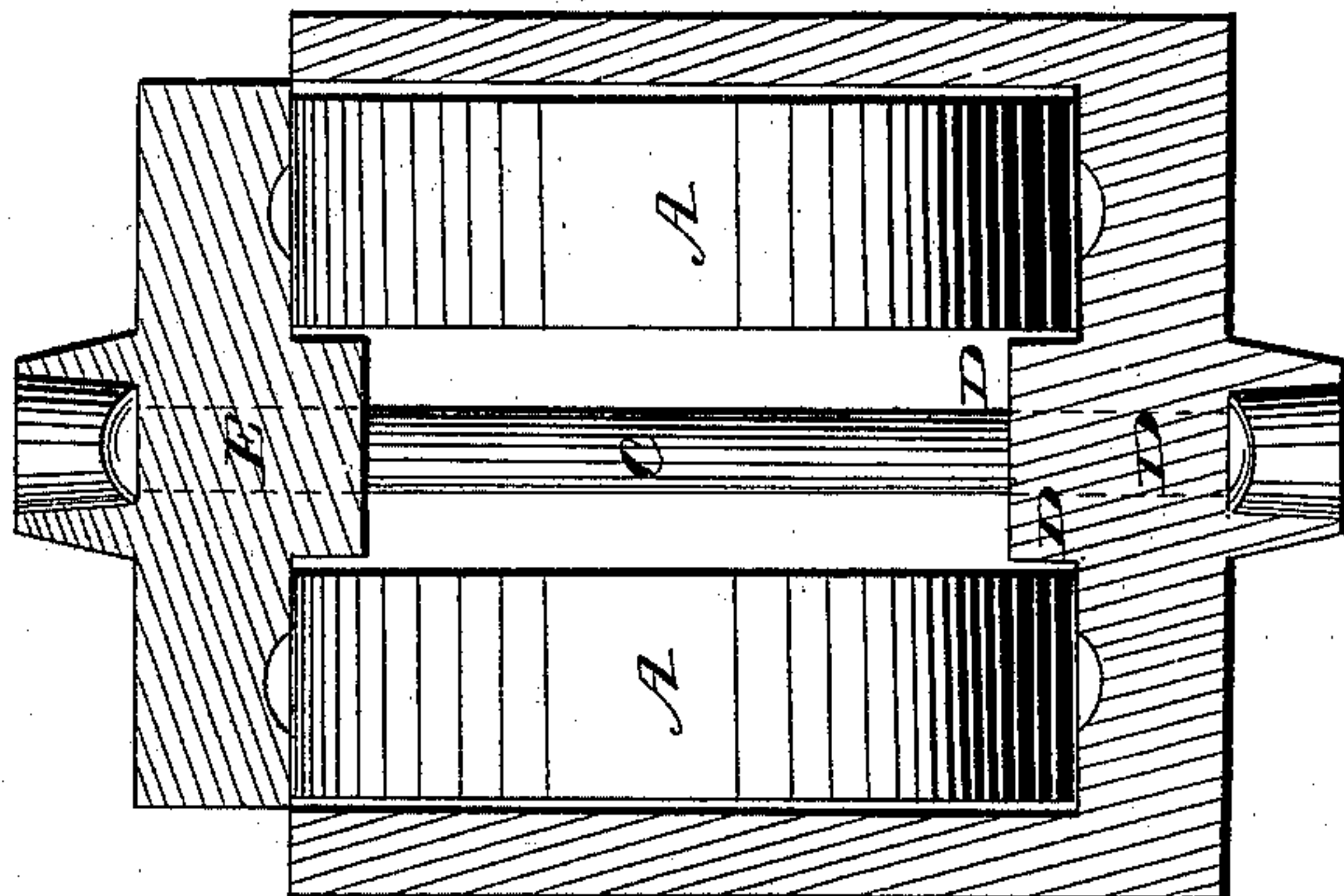


Fig. 3.

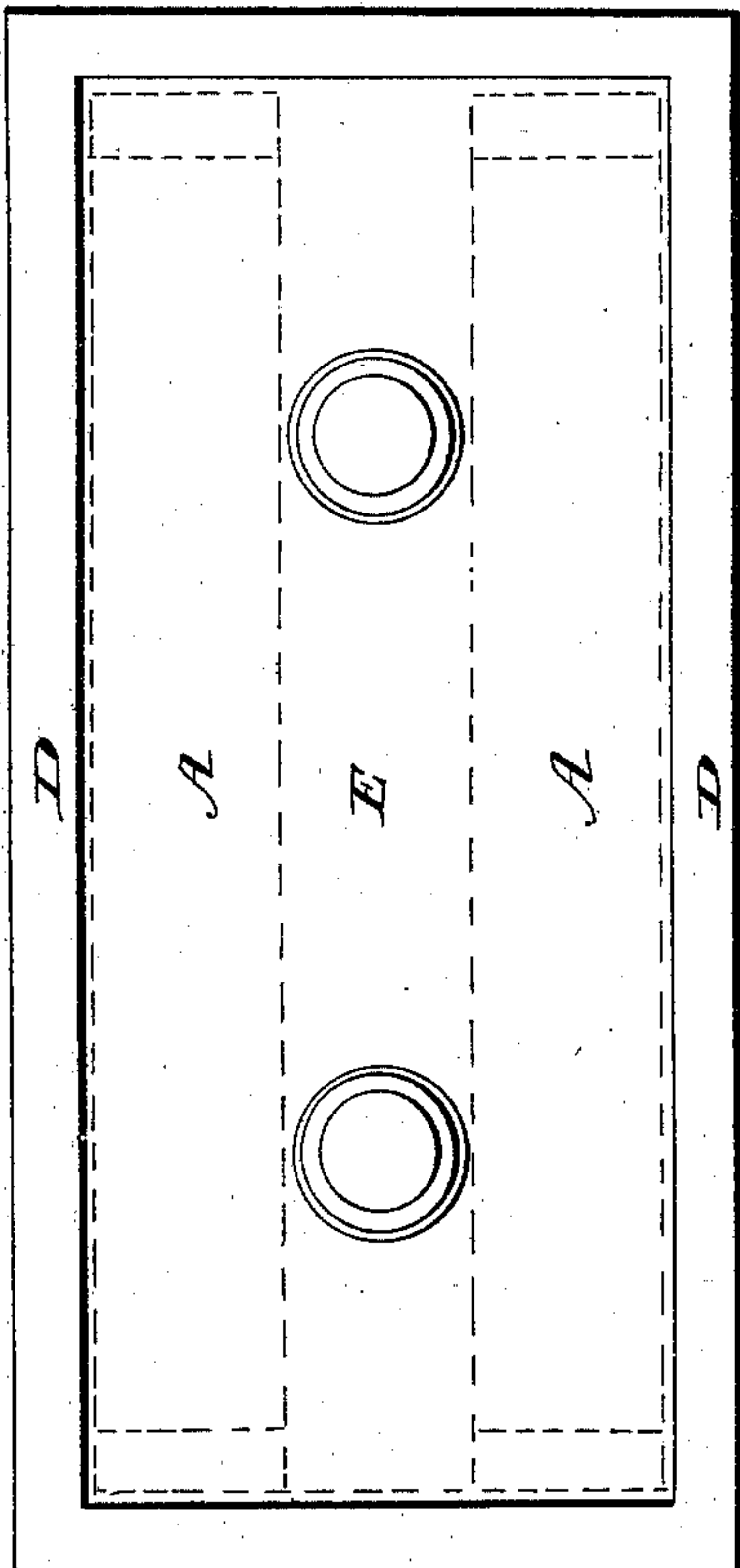
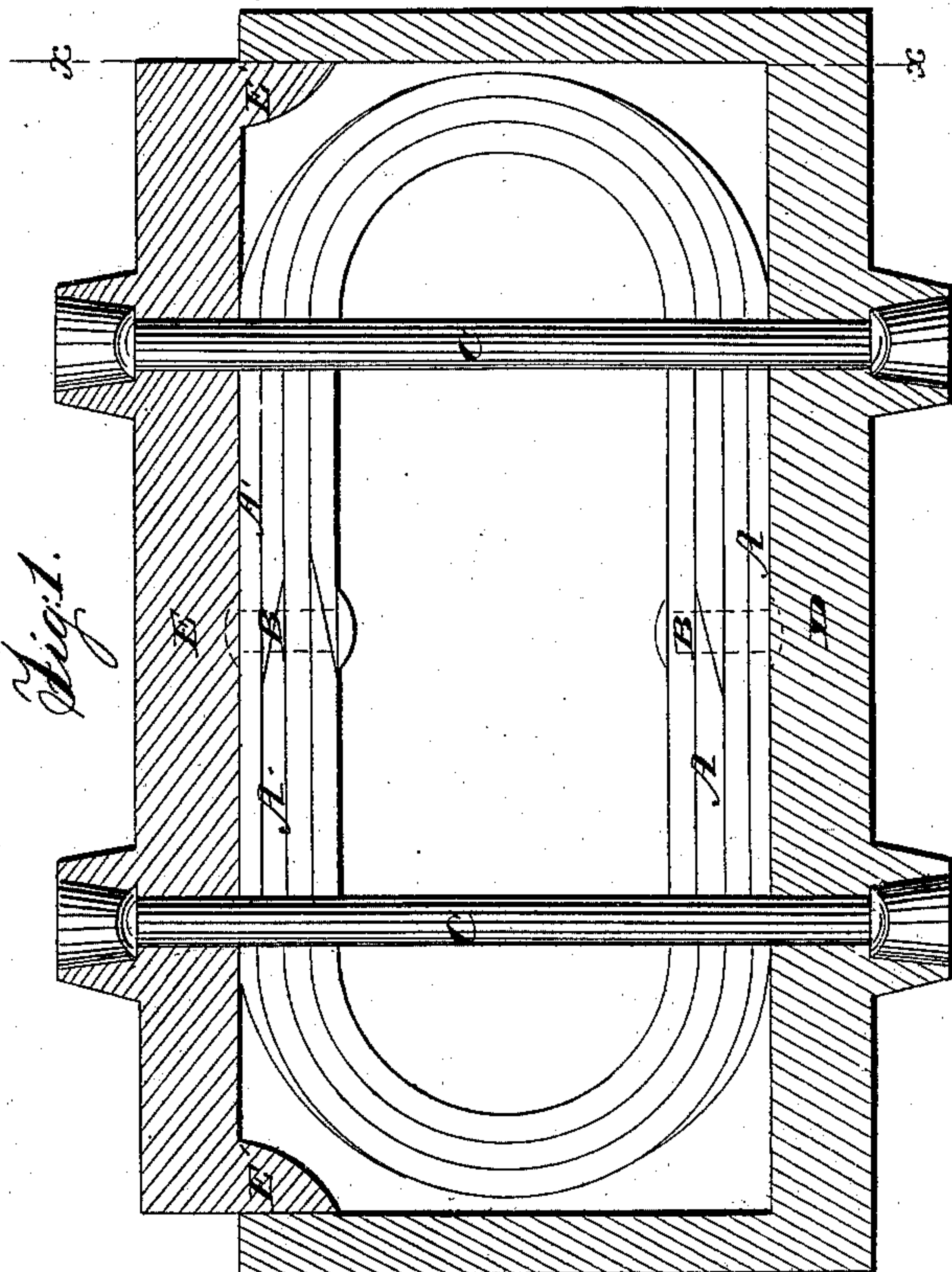


Fig. 1.



Witnesses.

Chas. H. Plamper
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Inventor.

Wm. R. Nichols
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his attys.

UNITED STATES PATENT OFFICE.

WILLIAM R. NICHOLS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED CAR-SPRING.

Specification forming part of Letters Patent No. 56,084, dated July 3, 1866.

To all whom it may concern:

Be it known that I, WILLIAM R. NICHOLS, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Car-Springs; and I do further declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, made part of this specification, in which—

Figure 1 is a longitudinal vertical and central section. Fig. 2 is a section on the line *x*, Fig. 1; and Fig. 3 is a top plan.

In the different figures the same letters refer to identical parts.

The spring A is composed of one or more plates, of spring-steel, round, or in the form of an ellipse, or of an oblong, rounded at the ends, and placed in nests, one within and fitting snugly against the other. The number and thickness of these leaves determine the strength of the spring. It may be strengthened by adding leaves above and below, as shown at A' in Fig. 1. The leaves thus arranged are secured by bolts B, passing through from side to side at the points where the ends of the leaves are lapped in forming, which joints are alternately disposed above and below at the center of the horizontal portion of the spring. One or more of these springs are set in a metallic case, D, as may be necessary to afford the necessary rigidity of the spring. This case D is open above and constructed with ribs D', separating and retaining the springs in place. When the springs are set in the

case room is allowed at each end between the case and spring, so that the transverse diameter may increase with the compression of the spring vertically. The cap E is formed with flanges E' at the ends, and with longitudinal ribs, corresponding to those in the bottom of the case D. The cap E is set upon the top of the spring, and, fitting freely inside of the case, slides up and down with the compression and expansion of the spring. Rods C pass through openings in the case, and serve as guides and to retain the cap on the springs.

Having fully explained the construction of my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A car-spring constructed of a series of elliptical plates, of steel, each of which is complete in itself, and of such size that, being arranged concentrically, they shall fit snugly upon one another, substantially in the manner set forth.

2. In combination with the above-described form of springs, the case D, cap E, and rods C, when constructed and arranged for use substantially in the manner and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM R. NICHOLS.

Witnesses:

EDWARD BACON,
CHAS. E. PANCOAST.