

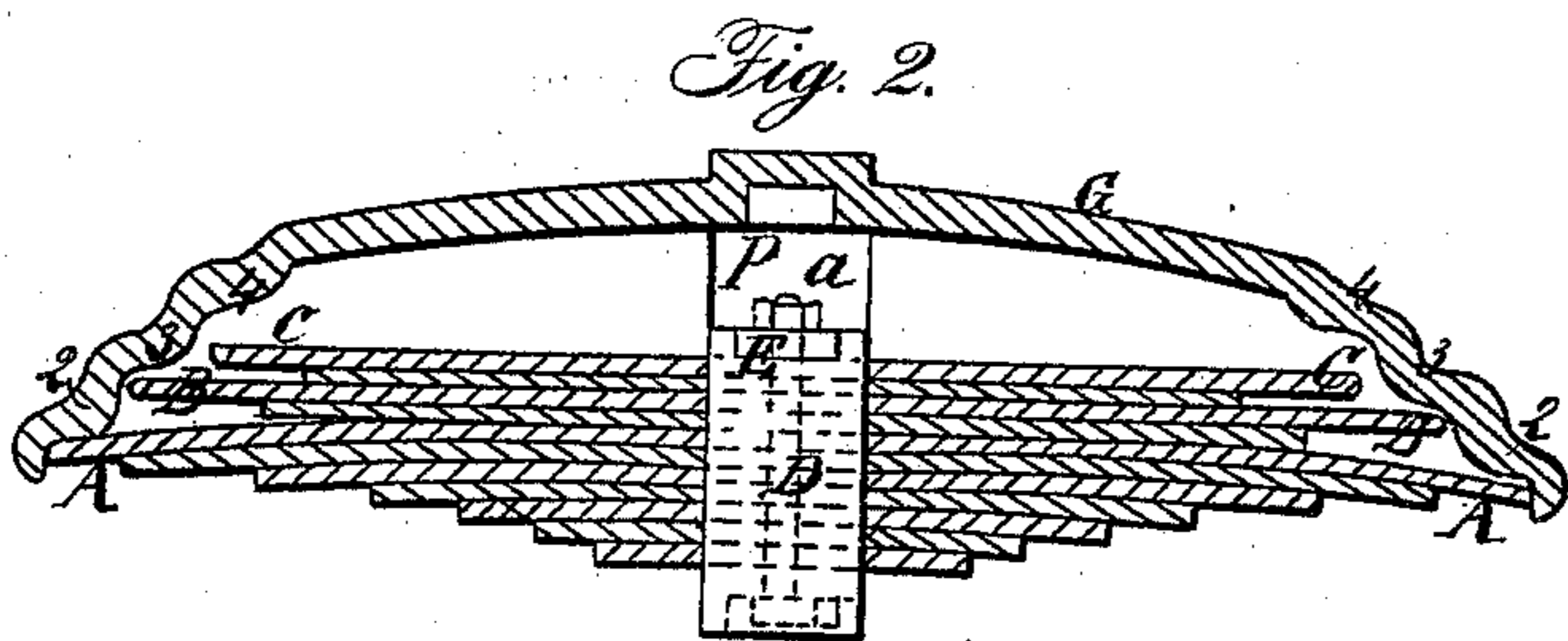
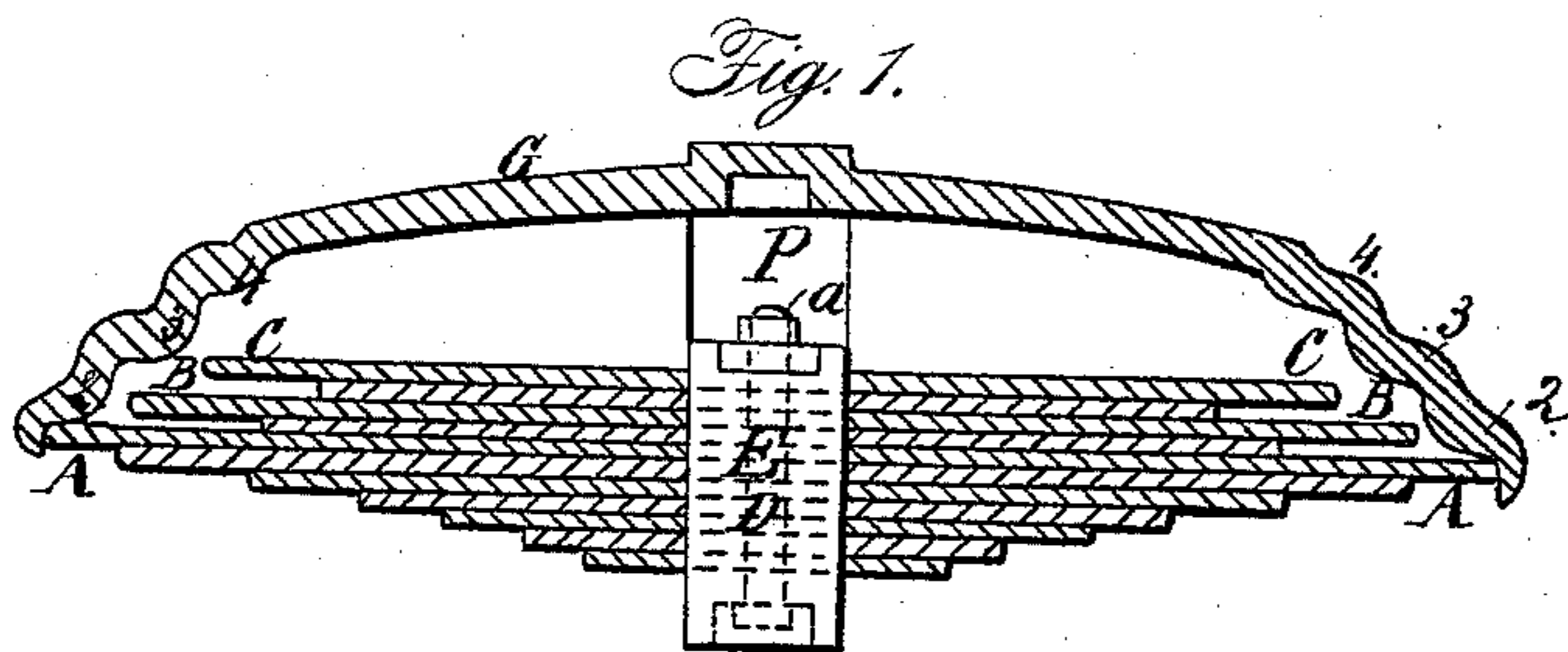
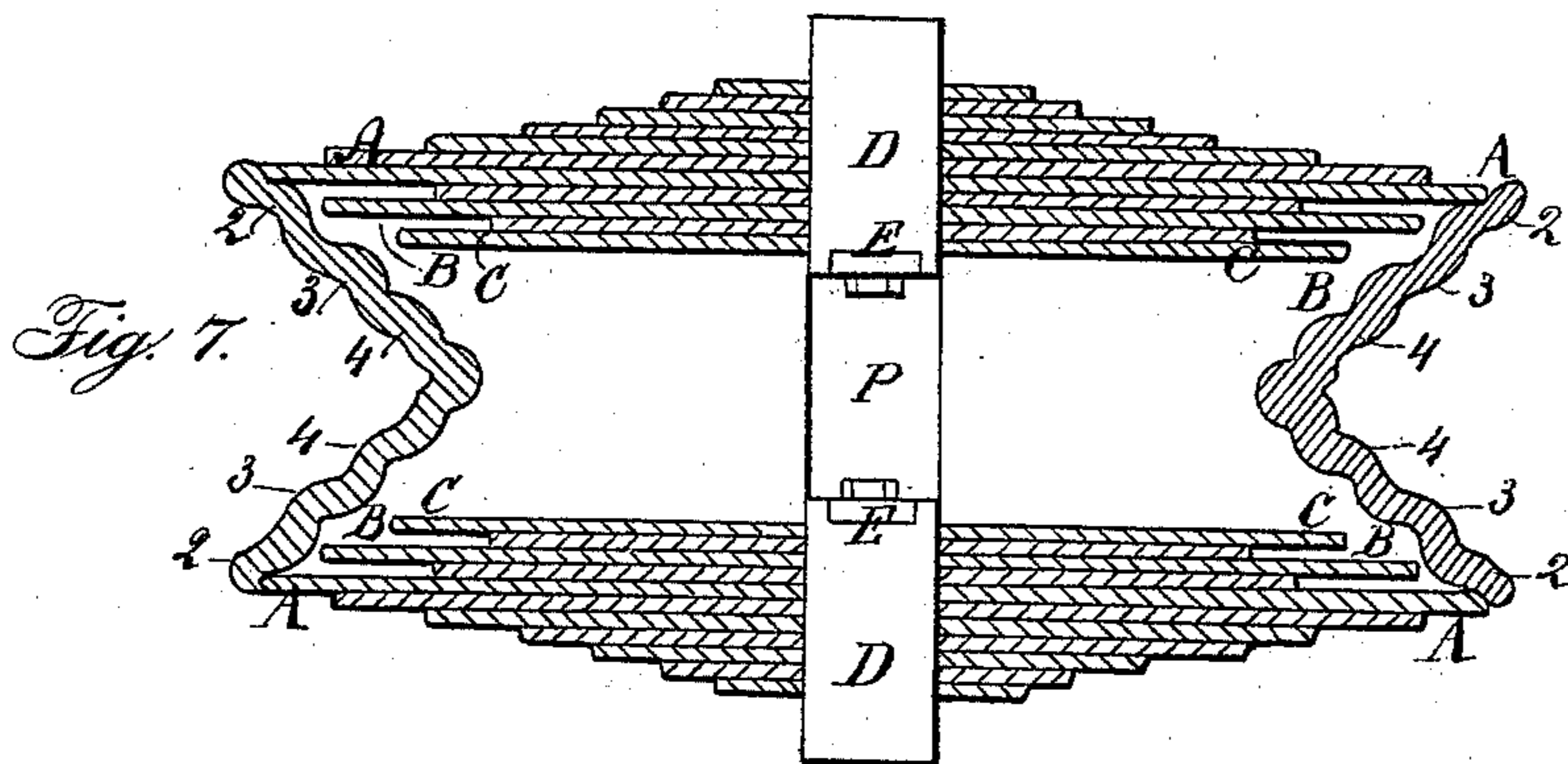
H. E. ROEDER.

2 Sheets—Sheet 1.

Car Spring.

No. { 2,362, }
 { 33,366. }

Patented Sept. 24, 1861.



Witnesses:

J. G. Wheeler.
J. R. Post.

Inventor:

Henry E. Roeder.

H. E. ROEDER.

2 Sheets—Sheet 2.

Car Spring.

No. { 2,362, }
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Patented Sept. 24, 1861.

Fig. 3.

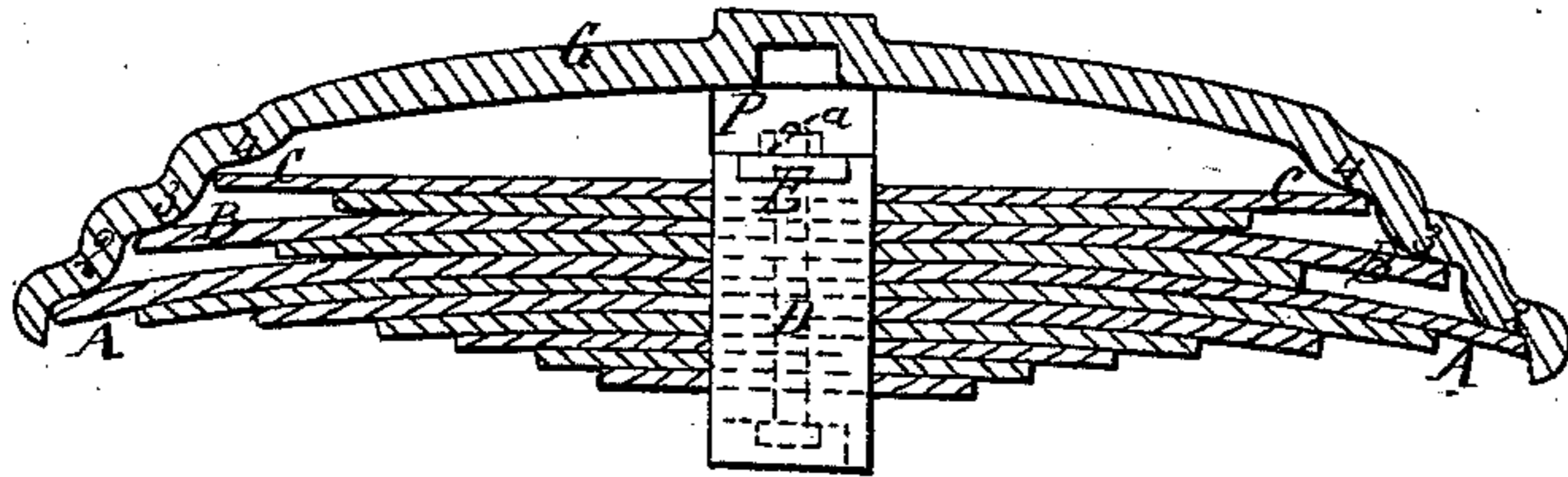


Fig. 4.

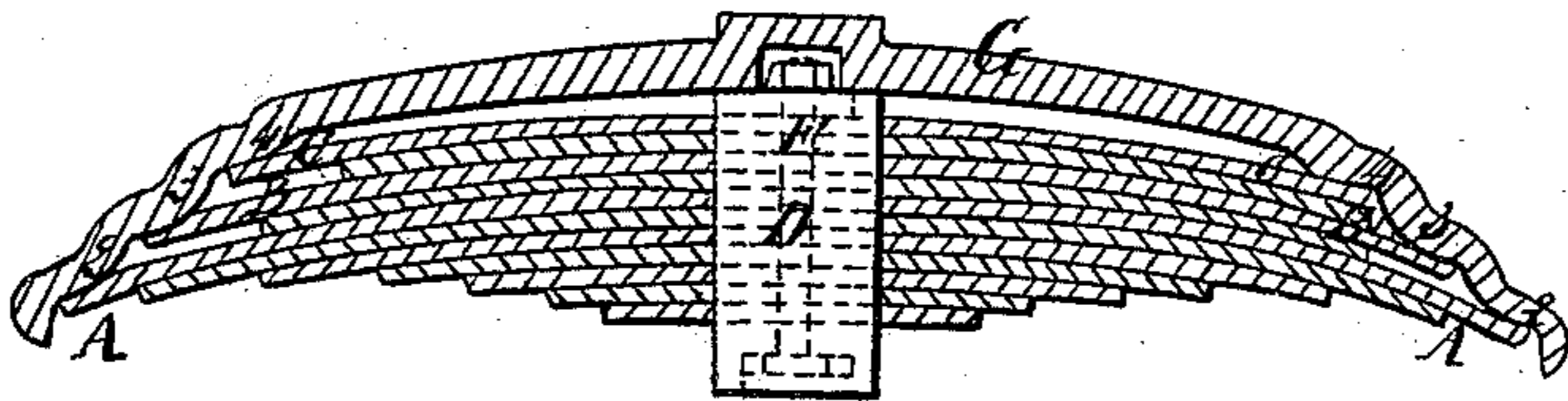


Fig. 5.

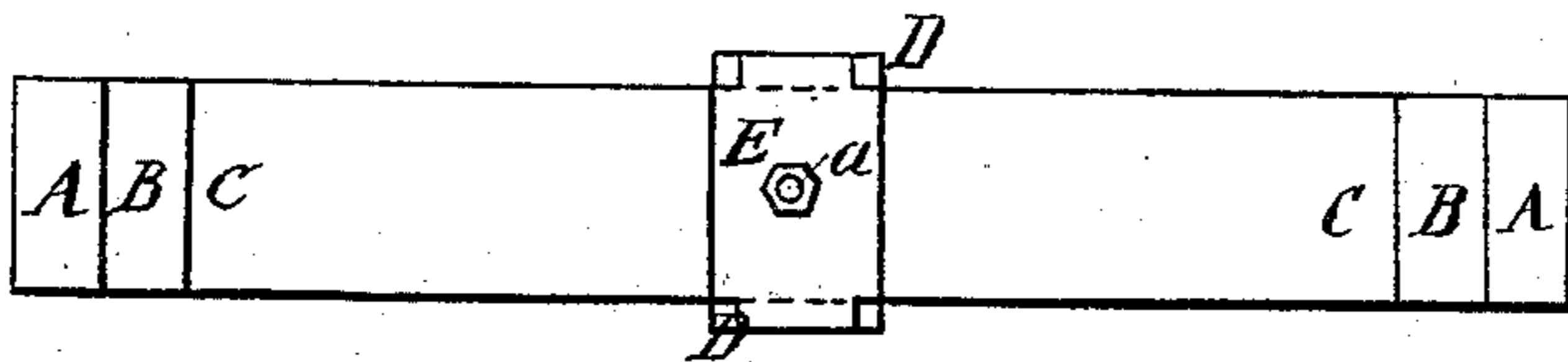
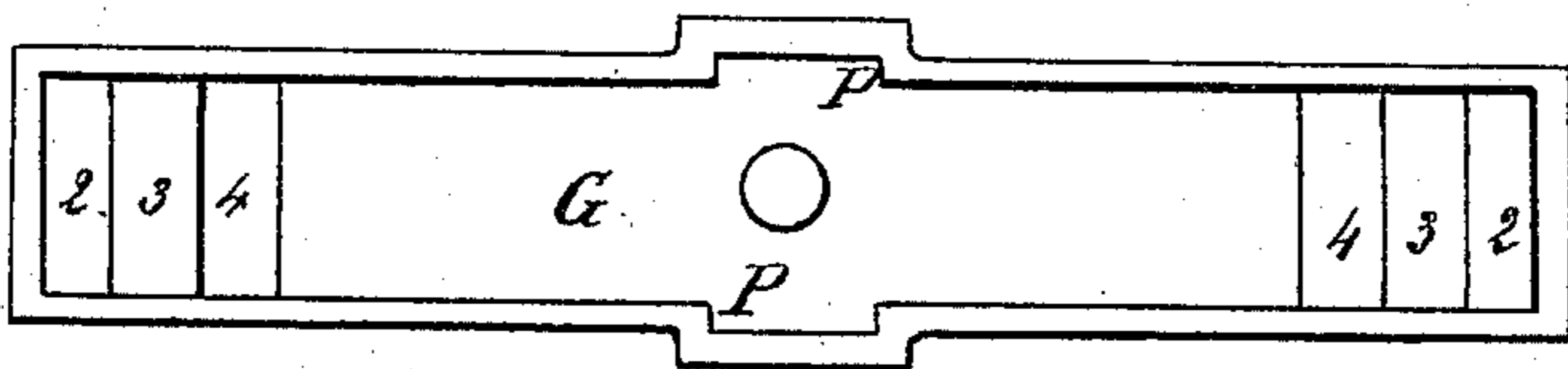


Fig. 6.



Witnesses:

J. G. Wheeler
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Inventor.

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UNITED STATES PATENT OFFICE.

HENRY E. ROEDER, OF NEW YORK, N. Y.

IMPROVED CAR-SPRING.

Specification forming part of Letters Patent No. 33,366, dated September 24, 1861.

To all whom it may concern:

Be it known that I, HENRY E. ROEDER, of New York, in the county and State of New York, have invented a new and Improved Anti-Friction Railroad-Car Spring; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and the letters and figures of reference marked thereon.

The nature of my invention consists in the arrangement of a number of bars of steel of uniform width and of graduated lengths, in combination with a casing with graduated ledges, so that the weight brought to bear upon the spring will first be received by the longest bar or bars and by the increased weight thereafter by the different lengths successively until all the bars are brought into action.

Figures I, II, III, and IV represent sections of my improved spring in different positions. Fig. V represents a plan of the spring-bars; Fig. VI, an inside bottom view of the casing, and Fig. VII represents the manner of combining two springs together to obtain an increase of motion.

A series of straight steel bars A, B, and C, of uniform width and graduated length—say fourteen, sixteen, and eighteen inches the longest of each set, more or less, as the case may require—and strengthened by smaller bars to give the required stiffness for each set, are placed into a block D, provided with a loose cap E and secured together by a small bolt *a*, passing through the center of each bar and securing the same to the block D. Instead of putting the bars into the block D, made with a loose cap, and fastening the same together by means of a bolt, as described, this block may be made like a band and shrunk on the bars, so as to fasten the same together in the center. This arrangement of steel bars is placed into a casing G, provided with graduated ledges 2, 3, and 4, corresponding to the length of the base-bars of each set, and so arranged that by the greatest deflection of said bars the ends of the same will never move away from said ledges. In the middle of this casing G a recess P is made, into which the block D fits, and by which the same is guided.

When the spring is unloaded, the different bars will be all straight, the casing G resting upon the largest bar A, as represented in Fig. I. As soon as any weight is placed upon the casing this bar will bend and support this weight until the bar B comes against the ledges 3 of the casing G, combining there the strength of both bars or sets of bars to counteract the load or weight, but each set of bars acting independent of each other, as represented in Fig. II. When the weight or load is further increased, the bar C comes against the ledges 4 of the casing G, bringing all three sets of bars into play to counteract the load, but, as above mentioned, each set of bars acting independent of each other, as represented in Fig. III, until the load is so much increased that the end of the block D or its cap E comes against the top of the casing G, as represented in Fig. IV, where the spring bottoms and any further motion is stopped.

I prefer to make the different lengths of the base-bars of very thin steel and strengthen them by additional shorter bars until the required strength for each set is obtained, by which arrangement a greater elasticity at the extreme ends of the bars or each set of bars is obtained, as well as a more even temper in the steel is insured.

To obtain an increased amount of motion, two sets of bars are placed in one casing H, as represented in Fig. VII, working toward each other.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a number of steel bars of uniform width and of graduated length with a casing provided with graduated ledges, the whole being constructed and arranged in the manner and for the purpose substantially as specified.

2. The recess P in the casing, into which the block D fits, and whereby the same is guided to prevent any lateral motion of the bars.

HENRY E. ROEDER.

Witnesses:

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J. W. POST.