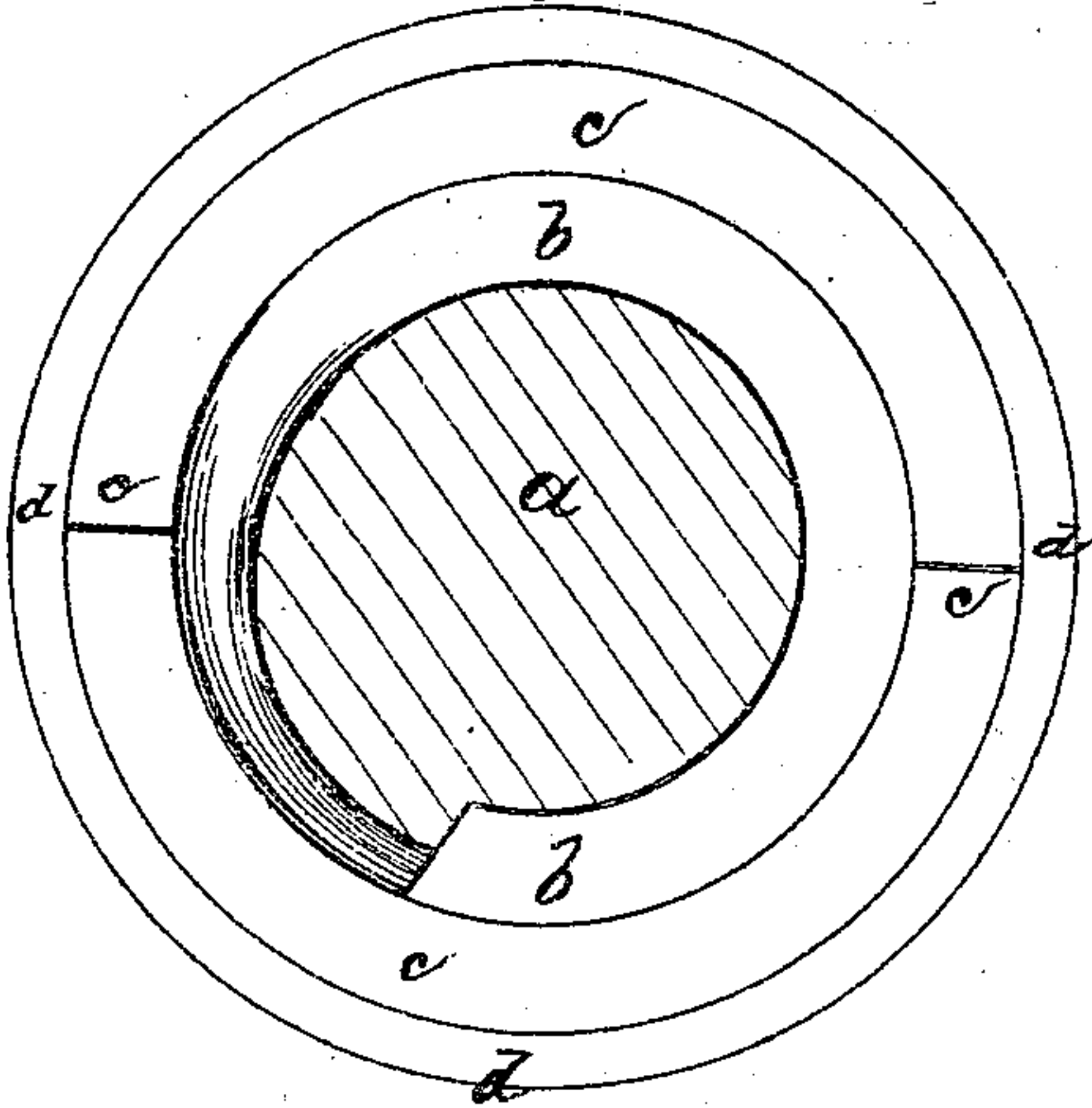


Richard Vose's

Impt in construction of Spring

Fig: 1.

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PATENTED
DEC 31 1867

Fig: 2.

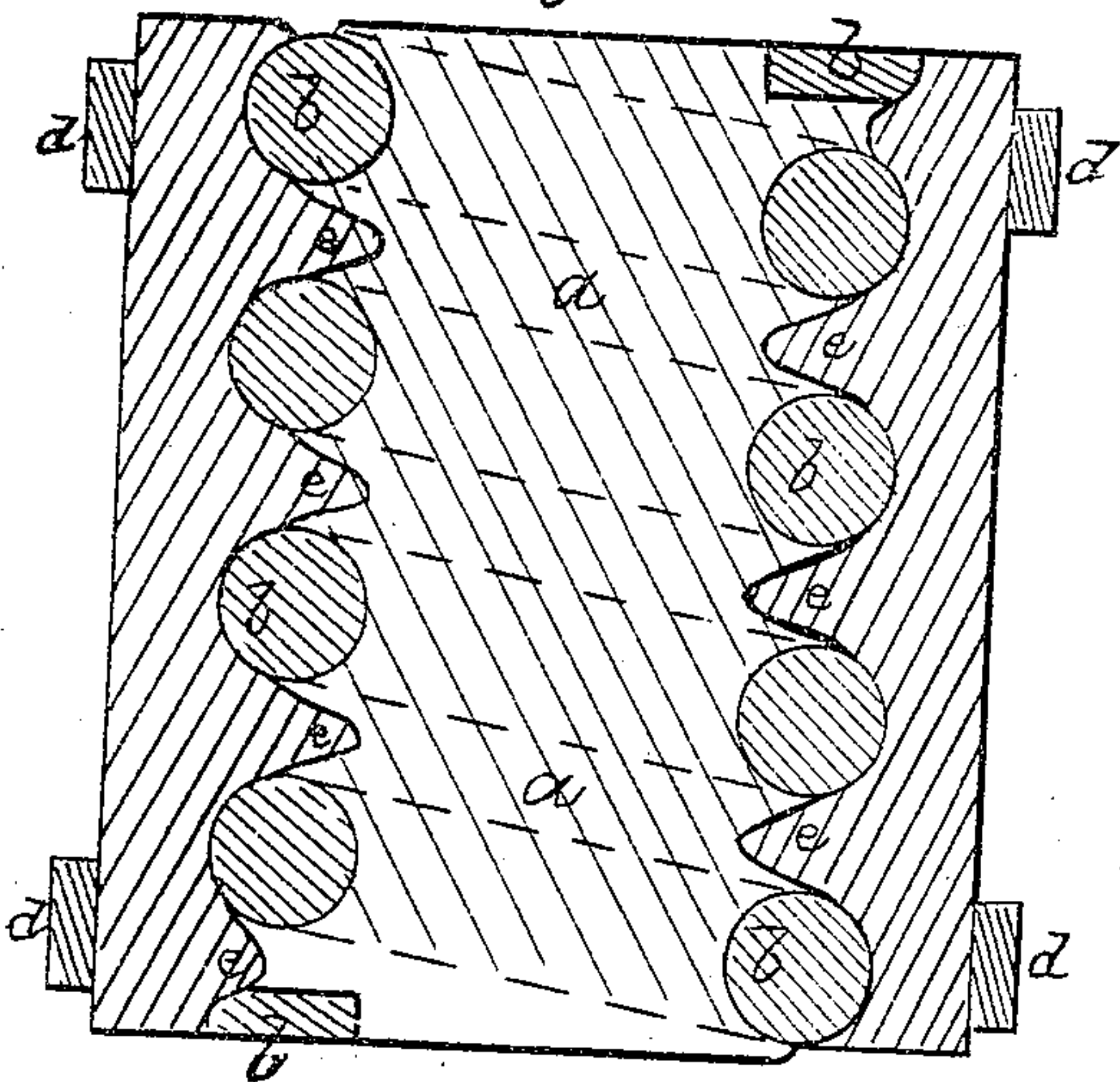
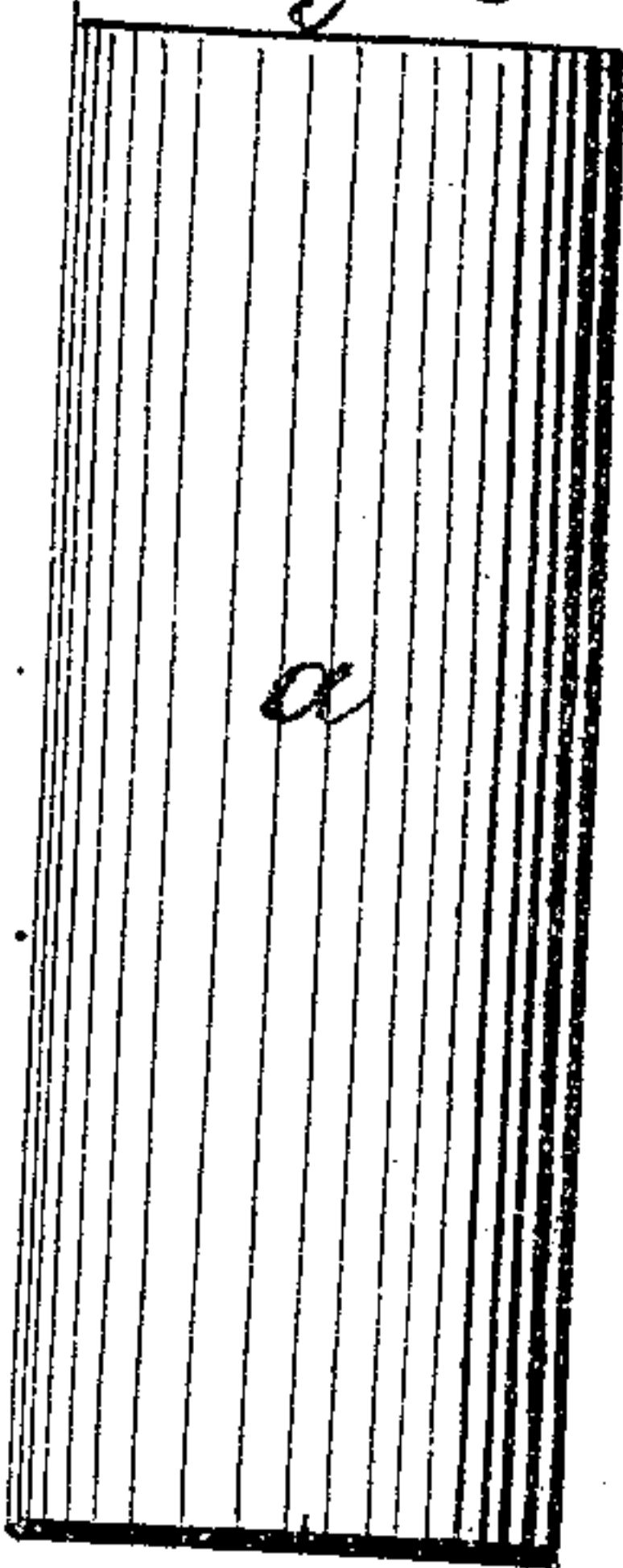


Fig: 3



Witnesses

Chas A. Wilson
R. S. Turner

Richard Vose
By his attorney
J. C. Robbing

United States Patent Office.

RICHARD VOSE, OF NEW YORK, N. Y.

Letters Patent No. 72,941, dated December 31, 1867.

IMPROVED CAR-SPRING.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, RICHARD VOSE, of the city, county, and State of New York, have invented a new and useful Improvement upon the Combination-Spring patented by me, December 17, 1865; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which form a portion of this specification.

The said patented combination-spring is composed of a spirally-grooved India-rubber or gutta-percha core, embraced by and combined with a coiled metallic spring, substantially as represented in the said patent.

My present improvement on the aforementioned spring consists in first placing a plain cylinder, Figure 3, of sulphurized India rubber or gutta percha, within the coiled metallic portion of said spring, and then, by external and indenting pressure exerted thereupon within the continuous open space between the coils of said spring, producing a spiral groove in said cylinder, immediately within the said open space, and, by the displacement of the material thus produced, also causing a portion of said cylinder to closely embrace the inner surface of the coils of the said metallic portion of the spring, thereby producing perfectly-proportioned grooves in the periphery of the gum-elastic core of the spring, and a more perfect combination of the gum-elastic and the metallic portions of the same than can possibly be produced by any other process.

The said external and indenting pressure upon the gum-elastic portion of this spring may be exerted in two ways, viz:

First. An inwardly-grooved, screw-threaded, and properly-proportioned sectional casing, *c*, may be employed, in the manner represented in fig. 2, the said grooves and screw-threads being respectively of such pitch and proportions that when the sections of the casing are forced together upon the spiral spring and its plain cylindric core, the inwardly-projecting screw-threads *e e* of said casing will penetrate said core, and produce the desired effect thereupon. The sections *c c* of said casing may be held together by embracing-rings, as shown in the drawings, or by any other suitable means, whilst the core of the spring is subjected to the heating or curing operation.

Second. The same effect upon the core or gum-elastic portion of this spring as that above set forth may also be produced by winding a cord of the proper size into the spiral space between the coils of the metallic portion of the spring, with sufficient force to nearly or quite embed it within the said core, and then subjecting the thus-prepared spring to a sufficiently high temperature to produce the desired curing effect upon the core thereof. The curing of this latter preliminary preparation of my said improved combination-spring will be more uniformly and more perfectly accomplished if the operation be conducted whilst it is enclosed in a tube or a tubular casing.

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

The within-described improvement on the combination-spring patented by me December 17, 1865, viz: placing a plain cylinder, of sulphurized India rubber or gutta percha, within the coiled metallic portion of the spring, and then grooving said cylinder, and more perfectly combining it with the said metallic portion of the spring, preparatory to subjecting it to the requisite curing process, all substantially as herein set forth.

The foregoing specification of my improved method of moulding and curing the spirally-grooved India-rubber core of the combination-spring, patented by RICHARD VOSE, December 17, 1865, signed June 28, 1867.

RICH'D VOSE.

Witnesses:

A. L. BUTLER,

R. R. WOOD.