

W. TOSHACH.

Car Spring.

No. 44,027.

Patented Aug. 30, 1864.

Fig. 1.

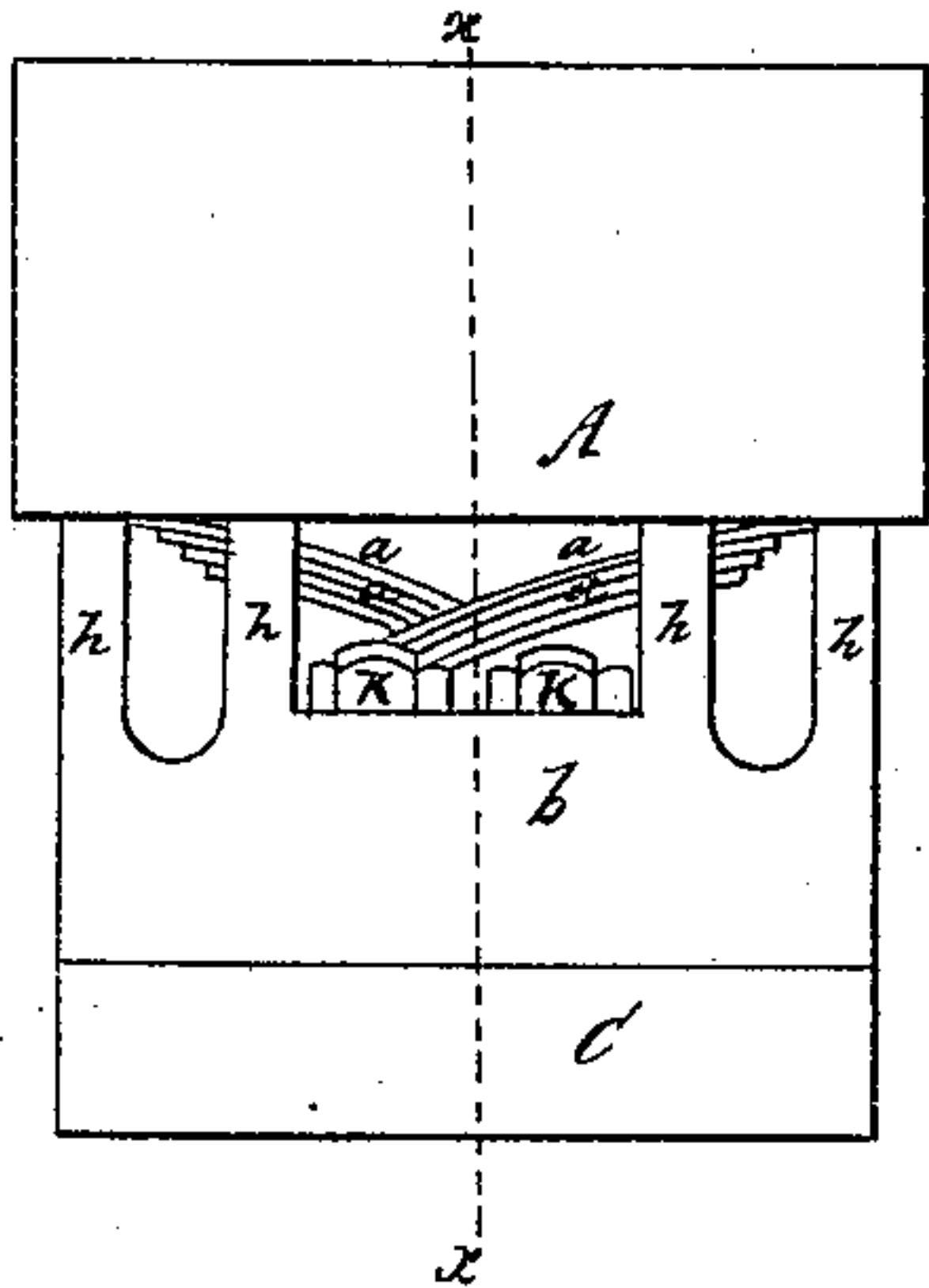


Fig. 4.

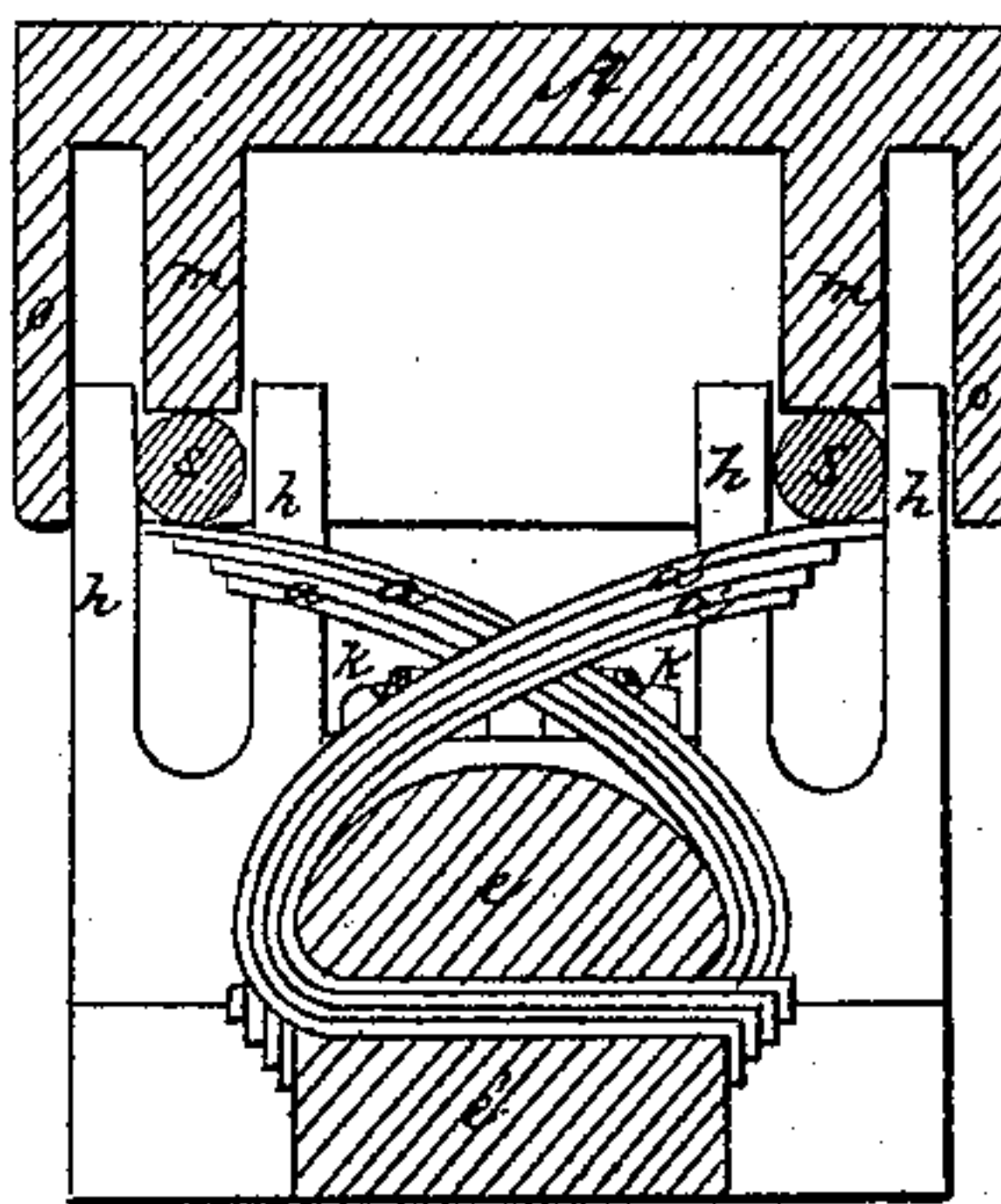


Fig. 3.

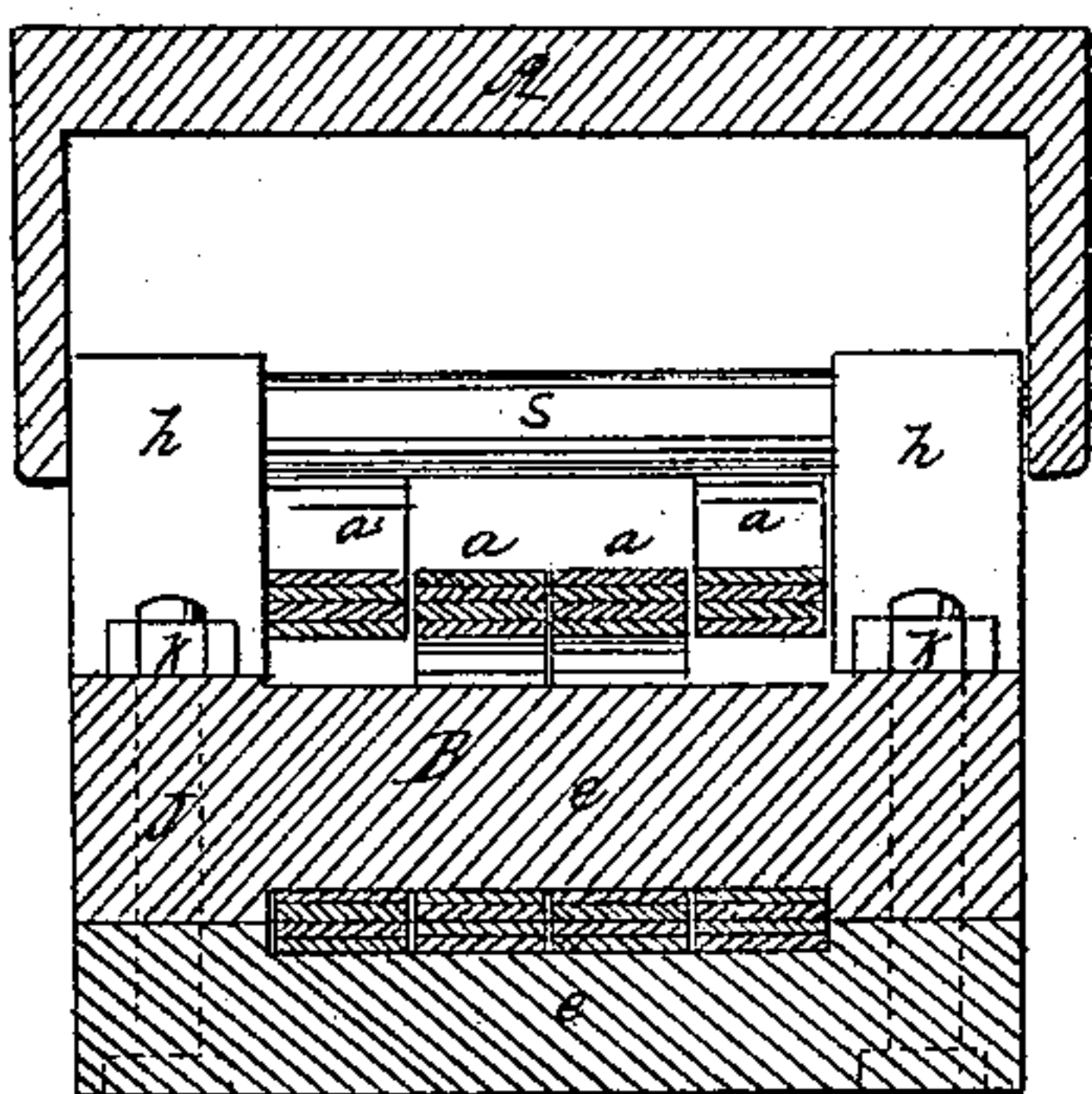


Fig. 5.

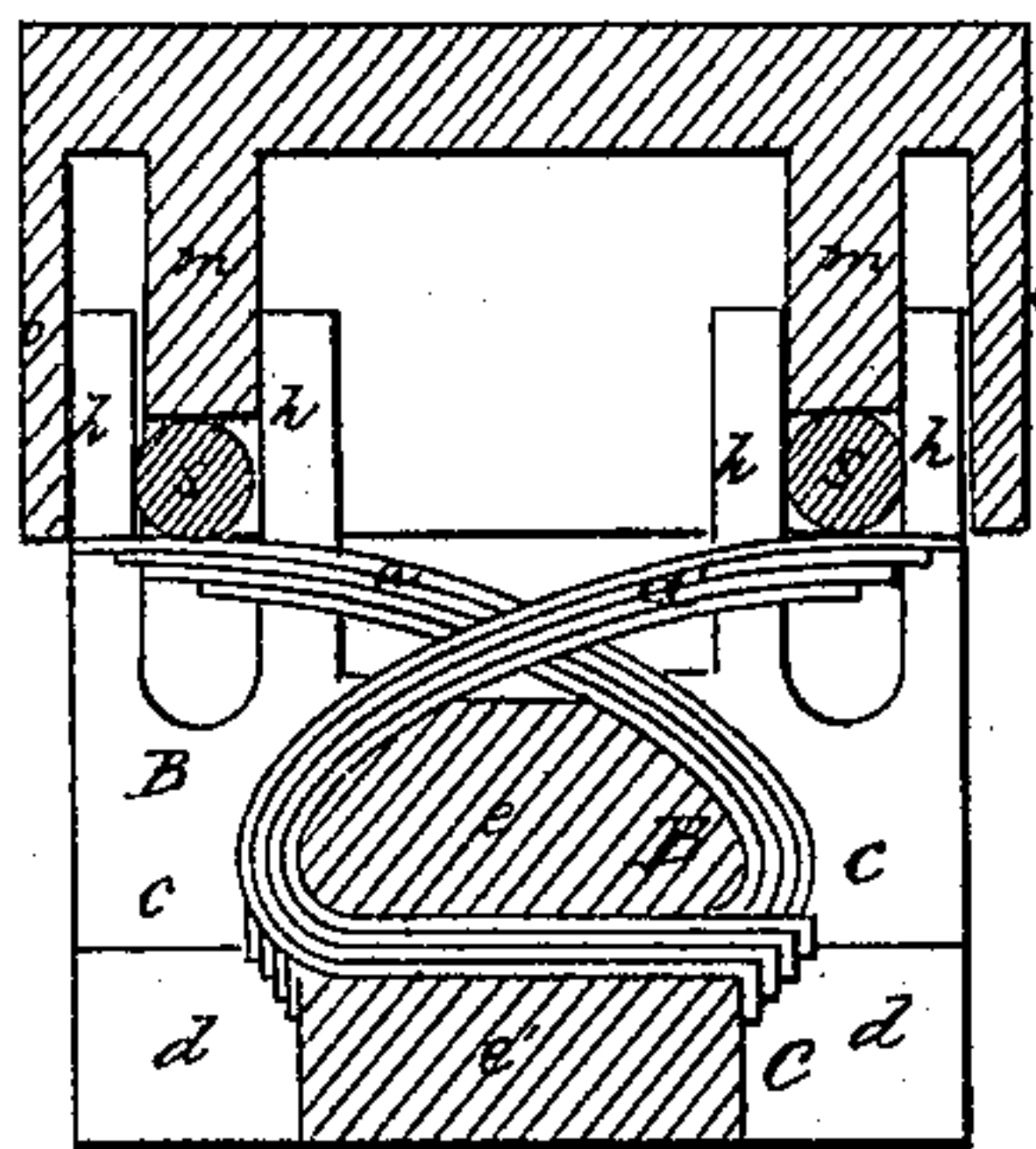


Fig. 2.

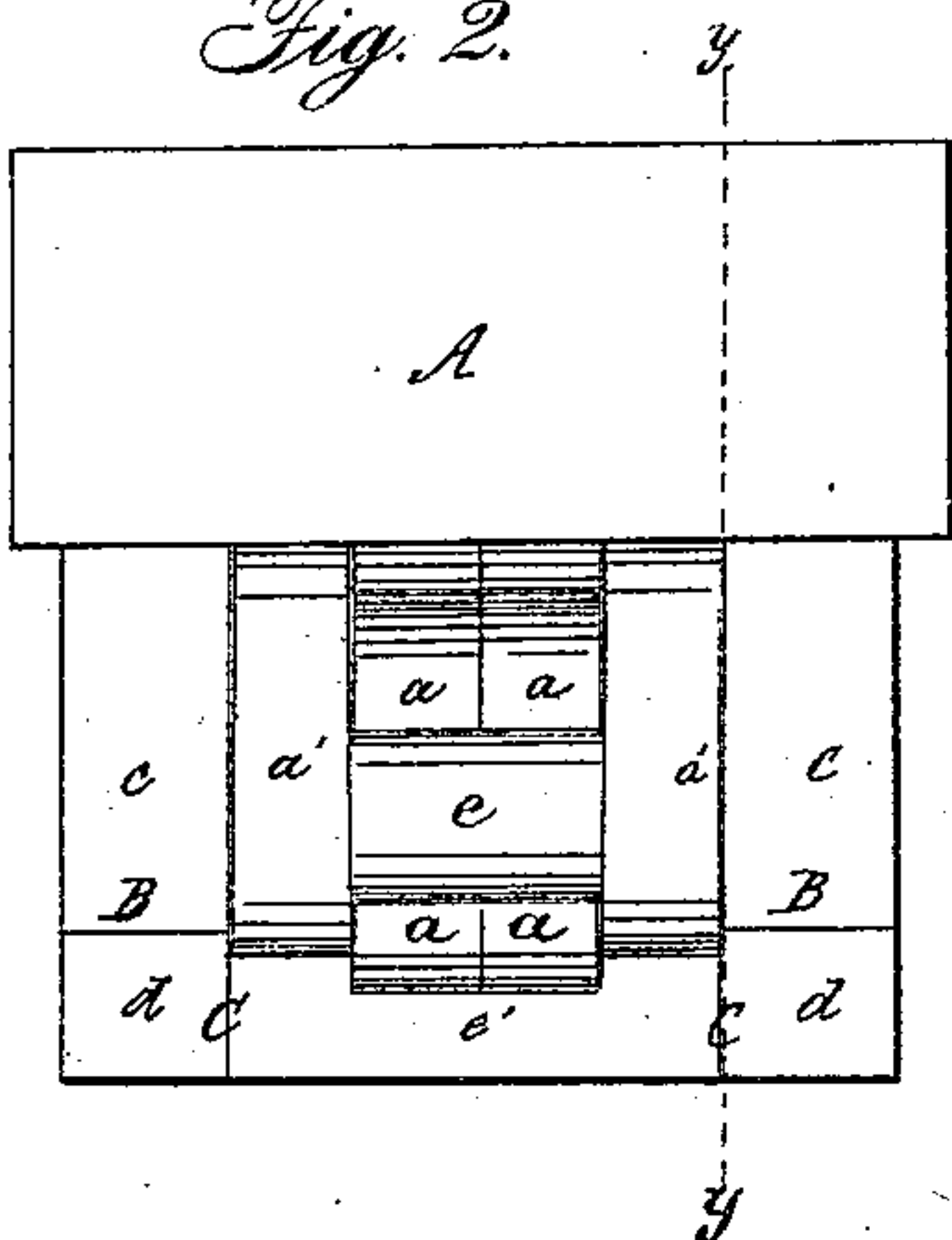


Fig. 6.

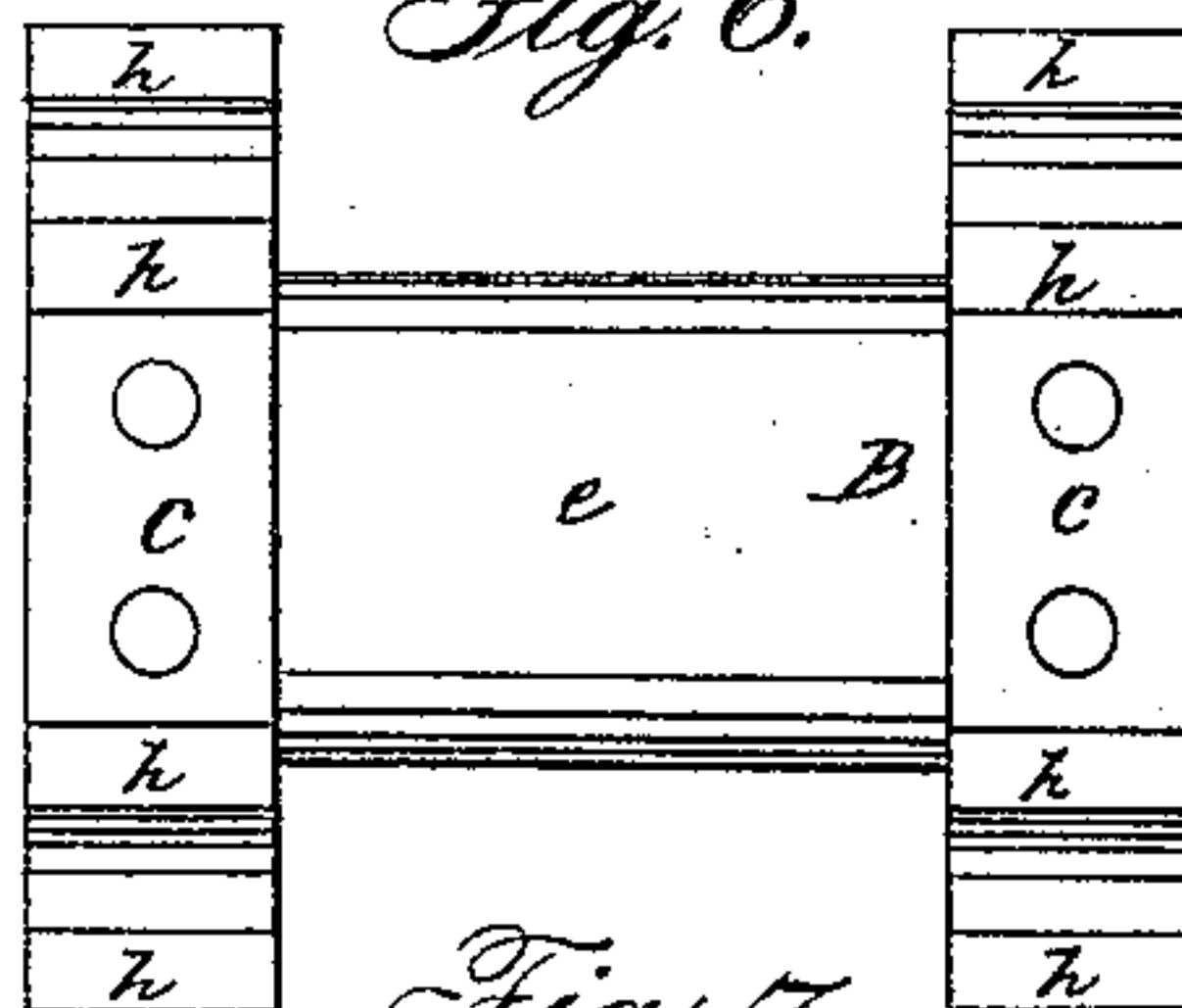
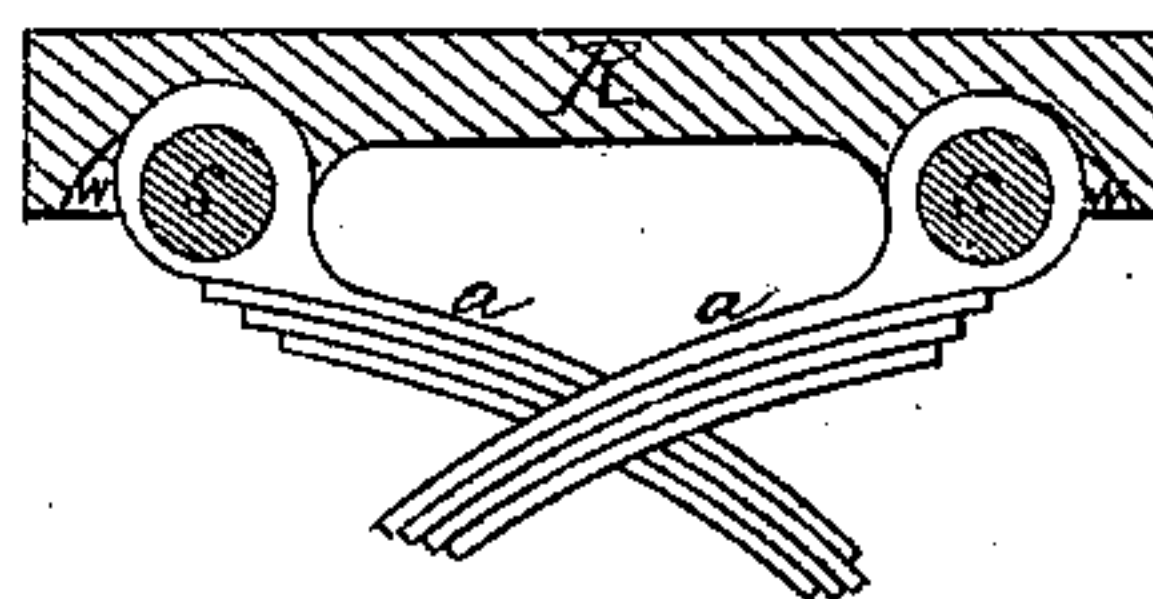


Fig. 7.



Witnesses:

Randolph Lloyd
H. King

Inventor:

William Toshach
Robt. B. Burr
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM TOSHACH, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILROAD-CAR SPRINGS.

Specification forming part of Letters Patent No. 44,027, dated August 30, 1864.

To all whom it may concern:

Be it known that I, WILLIAM TOSHACH, of the city, county, and State of New York, have invented a new and Improved Car-Spring; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an end view of my improved railroad-car spring; Fig. 2, a side elevation thereof; Fig. 3, a vertical section in the line *xx*, Fig. 1; Fig. 4, a vertical section in the line *yy*, Fig. 2, showing clearly the arrangement of the spring-plates and the mode of securing the same; Fig. 5, a similar section in the line *yy* of Fig. 2, showing the spring under pressure; and Fig. 6, a top view of the upper division of the plate which secures the spring-plates in position.

Similar letters indicate like parts in each of the drawings.

The main feature of my improvement consists in supporting the load to be carried on the vibrating ends of elastic plates or bars whose opposite extremities are held fast by some suitable device, the plates being so arranged as to cross each other and thus bend in opposite directions. This arrangement and combination of the elastic plates or bars constitutes the chief novelty of the spring, which from its peculiar construction can be made more cheaply than others possessing the same resilient power.

In the accompanying drawings, A represents the cap or top plate of the spring, upon which the load is placed; B and C, the upper and lower portions of the case, which hold and support the spring-plates, and *a a a' a'* the spring-plates themselves, whose free ends are clearly seen supporting the top plate, A.

The divisions B and C of the case each consist of end pieces, *c c'* and *d d'*, with cross-bars *e e'* at right angles thereto, as seen in the top view of the upper division, B, Fig. 6. Each cross-bar *e* and *e'* is formed or cast in one piece with its ends *c c* or *d d*. The two divisions B and C fit accurately one upon the other. Recesses, however, are cut in the opposite faces of the cross-bars *e* and *e'*, so that when fitted one upon the other a horizontal rectangular slot

is thereby left, or rather formed, between them, as illustrated in Fig. 3.

The elastic leaves or plates *a a a' a'*, Figs. 4 and 5, of my improved spring are so shaped as that when clamped at one end between the cross-bars *e* and *e'* of the divisions B and C of the case the remaining ends will be bent or curved back over the upper bar.

In order to give an even support to the bearing cap A of the spring I secure an equal number of the spring-plates upon each side of the clamping-bars *e e'*, so that their free ends, bending back over the same from opposite directions, will cross and counterbalance each other, as shown in Figs. 4 and 5. The lower ends of the elastic leaves or plates are confined by being cramped into the slot between the cross-bars *e* and *e'*, these cross-bars being drawn together by the bolts *j j* and nuts *k k*, as illustrated in Fig. 3. The width of the slot, Fig. 3, is somewhat less than the united thicknesses of the confined ends of the elastic plates. Its length, Fig. 3, is also proportioned to the number and width of these plates, so that they fit closely therein. The pressure of the load to be carried by the spring-plates is communicated thereto by rods S S, Figs. 3, 4, and 5, which rest upon the ends of said plates in a direction parallel to that of the clamping-bars *e e'*. The extremities of these rods pass through guiding standards *h h h h*, which project upwardly from the end pieces, *c c*, of the case. These standards embrace also parallel cleats *m m*, Figs. 4 and 5, secured to the under side of the bearing cap or plate A, and which bear directly upon the friction-rods S S, and the outer standards pass up between the cleats *m m* and the outer sides, *o o*, of the cap, as is clearly shown in Figs. 4 and 5. The friction-bars S S, although advantageous, are not essential, as the cleats might be left to bear directly upon the springs. The number of the elastic leaves or spring-plates *a a a' a'* may of course be varied at pleasure. By diminishing or increasing their length the degree of elasticity is controlled. So also any convenient mode of confining them may be substituted for the mode herein illustrated of confining them between clamping-jaws.

It is evident that by rounding off the upper side of the superior clamping-bar, *e*, a rest or

support is afforded to the spring-plates curving over it, which will change and increase according to the amount of pressure exerted upon the plates. The springs are thereby eased and protected when brought down by a sudden jolt or an unusual weight.

I propose to substitute in certain cases the arrangement of bearing or pressure plate illustrated in Fig. 7 in the place of the cap A of Fig. 1. In this case the free ends of the springs are looped around the bars S S, and the under side of the cap R is fitted with recesses *w w*, which embrace those portions of the rod not clasped by the spring-plates. The recesses are so enlarged as to allow the necessary horizontal movement of the ends of the spring as they spread under pressure.

I contemplate the use of any form of spring bars or plates, whether round, flat, grooved, fluted, corrugated, or made to taper in breadth or thickness, or both, and I also design to insert india-rubber, felt, leather, or other elastic, gummy, or fibrous material between the superimposed leaves forming the spring, in order to protect the same and increase their durability.

Having thus fully described my improved

invention in all its details, what I claim therein as new, and desire to secure by Letters Patent, is—

1. A spring for railroad-cars or other vehicles, formed of two or more elastic bars, plates, or series of plates, which are rigidly confined at one end, when the vibrating extremities of any two of the same extend toward and cross each other, furnishing an even bearing for the load, substantially in the manner hereinbefore set forth.

2. When two or more elastic spring-bars, plates, or series of plates, are rigidly confined at one end only, and so arranged as that their vibrating ends shall extend toward and cross each other, substantially as herein described, combining therewith a relieving block or bar, *e*, of any suitable material, either elastic or non-elastic, placed centrally between the said elastic spring-plates and so shaped as to gradually ease the same while bending under pressure, all substantially as herein set forth.

WILLM. TOSHACH.

In the presence of—

A. L. BUTLER,
A. I. MUNDY.