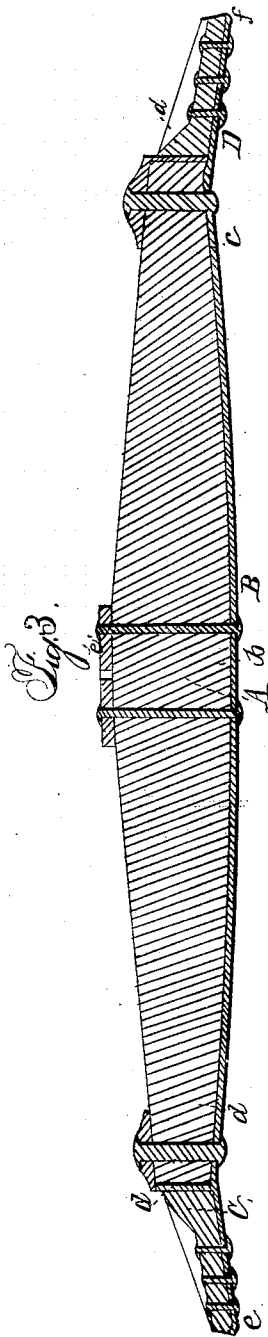
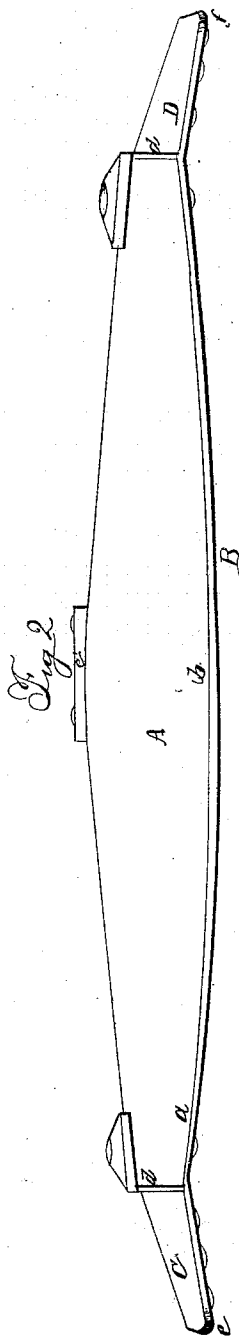
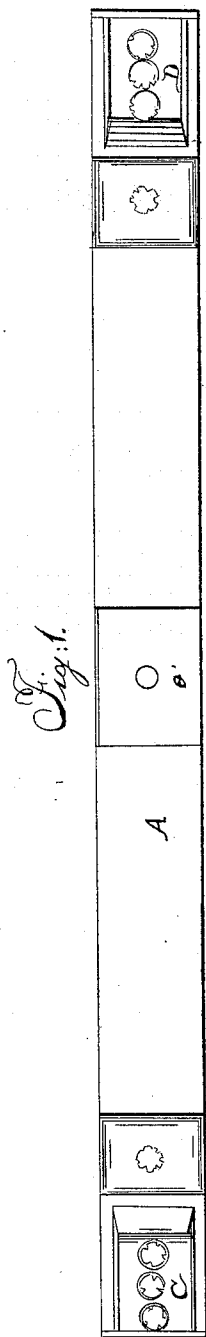


L. BISSELL.
Carriage-Spring.

No. 8,498.

Patented Nov. 4, 1851.



UNITED STATES PATENT OFFICE.

LEVI BISSELL, OF NEW YORK, N. Y., ASSIGNOR TO LEVI BISSELL AND LYMAN KINSLEY.

CARRIAGE-SPRING.

Specification of Letters Patent No. 8,498, dated November 4, 1851.

To all whom it may concern:

Be it known that I, LEVI BISSELL, of the city, county, and State of New York, have invented a new and useful Improvement in the Construction of Railway-Car or other Carriage-Springs; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1 denotes a top view. Fig. 2 a side elevation, and Fig. 3 a central, vertical, and longitudinal section of one of my improved springs.

Such spring is particularly intended for railway carriages, that is to say for supporting the bodies on the wheels thereof, but it is not necessarily confined to such, as it may be often used to good advantage on various other things or in various other ways. It is intended as a substitute for the metallic leaf spring, or that composed of a series of plates of steel placed one on the top of another. In general it not only can be manufactured much cheaper than such metallic springs, but is preferable in use, and affords to the carriage body a movement much more agreeable to the passengers than that of either the metallic, the air spring, or the india rubber spring.

I construct the main body A of the spring entirely of wood, or in other words make it a wooden beam forming its external side with a convex curve as seen at *a*, *b*, *c*, and making the said beam thickest in its middle part. The said beam so made, I lay on and securely bolt to a plate or thin bar of spring metal or steel formed as seen at B, and having strong buttresses C, D, bolted or otherwise fixed to its two ends. Against the inner ends of these buttresses the outer ends of the bar A, are made to bear, and either directly or indirectly through a shoe plate *d*, placed on the end of the wooden part A, and between it and the buttresses. The buttresses

C, D, are so arranged that when the spring is supported on the bearing points or angles *e*, *f*, and power is applied to the middle of the spring to bend it, they (the buttresses) will approach one another and compress the wood part A between them, and thus counteract the tendency of the downward strain to elongate and break the fibers of the wood. The spring has a bearer plate *e'*, fastened to its middle part as seen in the drawings.

In the manufacture of the wood and metallic springs I have carried the lower spring plate B, upward and around the ends of the wooden part A, and not made use of the buttress blocks C, D. Such a mode of constructing the spring has not the advantages which I gained by the employment of the buttress blocks. In the first place it offers little or no resistance to the force which extends the fiber of the wood. In the second place the bearing surface of each of the buttress blocks is between the middle of the spring and the resting points *e*, or *f*. This makes each buttress block act like a lever or with a powerful leverage to compress the wood, and prevent rupture of its fibers by the downward strain of the weight resting on the spring.

My improvement and therefore what I claim consists in—

Combining buttress blocks C, D, with the wood bar A, and the metallic strap bar B, in such manner substantially as specified, so that such blocks when the spring is in use shall act as levers to compress the wood and counteract the tendency of the fiber to be elongated and ruptured by the downward strain.

In testimony whereof I have hereto set my signature.

LEVI BISSELL.

Witnesses:

JACOB B. SCHENCK,
ALFRED BRIDGES.