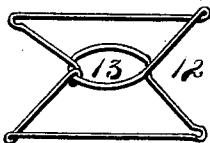
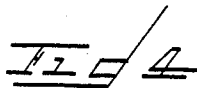
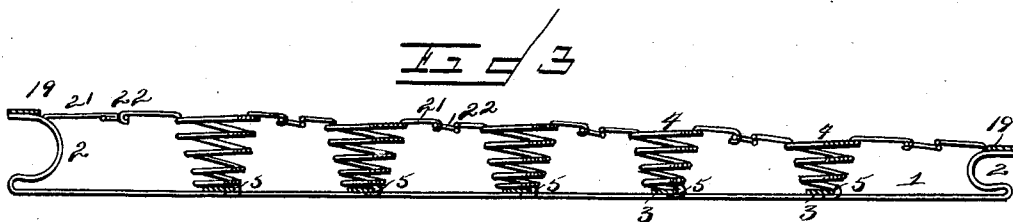
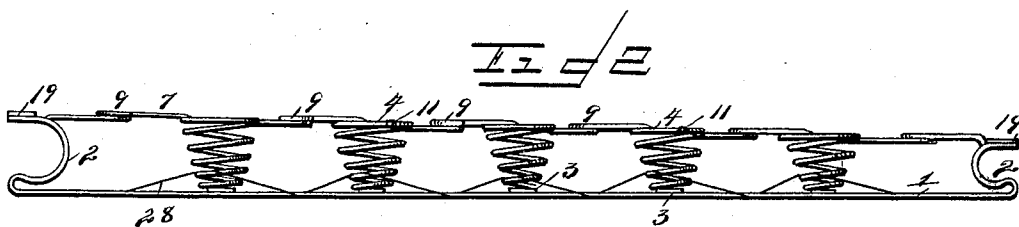
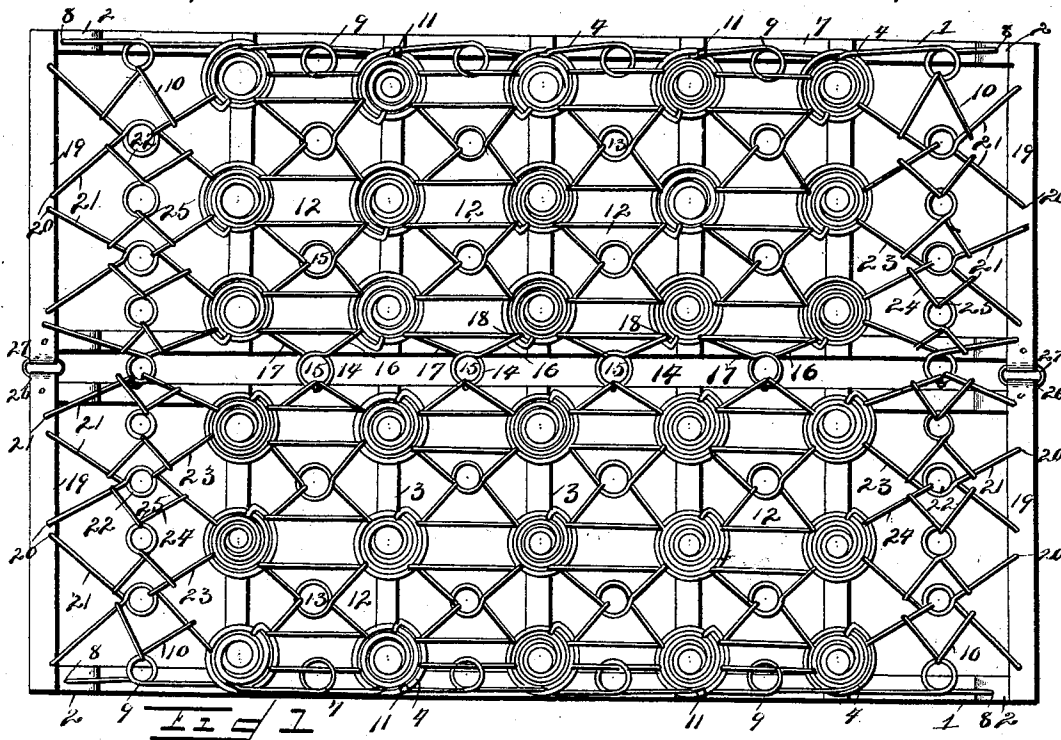


D. LEONARD.
SPRING BED BOTTOM.

Patented June 19, 1894.



Inventor
David Leonard.

Witnesses

Witnesses
H. Schneider.
M. S. Duval.

By *his* Attorneys.

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UNITED STATES PATENT OFFICE.

DAVID LEONARD, OF ST. LOUIS, MICHIGAN, ASSIGNOR TO FRANK G. KNEELAND, DAVID E. HARRISON, AND JOHN R. KNIGHT, OF SAME PLACE.

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 521,590, dated June 19, 1894.

Application filed October 23, 1893. Serial No. 488,914. (No model.)

To all whom it may concern:

Be it known that I, DAVID LEONARD, a citizen of the United States, residing at St. Louis, in the county of Gratiot and State of Michigan, have invented a new and useful Spring Bed-Bottom, of which the following is a specification.

My invention relates to improvements in bed-bottoms and especially to that class thereof employing convolute-springs.

The objects of my invention are to produce a strong and durable bed bottom whose springs will yield only vertically; to provide for a support of the head of the mattress above the general plane of the bed-bottom; and for a support of the mattress between the sets of springs, whereby the said mattress is prevented from sagging at these spaces and becoming injured.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a plan view of a bed-bottom embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a longitudinal section between a set of springs. Fig. 4 is a detail in perspective of one of the wire coupling frames employed between each set of springs.

Like numerals of reference indicate like parts in all the figures of the drawings.

For the purpose of rendering the bottom capable of folding compactly for storage, &c., I preferably construct the same in two sections, the two sections being laid side by side and hinged together in a manner hereinafter described and capable of one folding over upon the other. Each section is a duplication of the other, and I will therefore describe one section and explain how the two are connected: The section consists of a pair of longitudinal, preferably steel side-bars 1, whose opposite end-portions are bent inward upon their upper sides or surfaces, and then outward so that at each end of each bar there is produced an upwardly disposed integral curved yielding spring standard 2. The standards at the head of the section are higher than those at the foot in order to give

to the head of the mattress a proper elevation over the remaining portion. These side bars 1 are connected by transverse metal strips or slats 3, and each of these slats is occupied by a series of companion springs 4. The bases of the springs exceed in diameter the width of the slats, so that the lower terminals of the convolute-springs may be bent under the slat upon which it is mounted as indicated at 5 and its extremity tucked between the edge of the slat and the base of the spring, whereby I produce a sufficient fastening means for the spring. The outer springs of the series have run therethrough a stringing-wire 7, every other spring being clipped at the outer side of its upper coil or convolute to the aforesaid wire. The extremities of this wire pass through perforations 8 formed in the upper ends of the curved standards 2, and are bent beyond the same so as to remain in position. Between the springs through which said wire passes the same is coiled to form eyes 9, and short tie-wires 10 pass through the eyes and have their ends bent to engage two adjacent convolute springs. The convolute springs are also connected to the stringing-wire by clips 11 located upon each alternate spring. Each four adjacent springs are connected by an intermediate frame, which might be termed star-shaped and is designated by the numeral 12. Each of these frames is formed of a single piece of wire, which is first bent gradually to form a central bridge eye coil 13, the terminals being crossed and diverged at an angle of about forty-five degrees, bent about the upper coils or convolutes of two adjacent springs, then carried parallel to each other to the two opposite coils around which they are also bent, and finally bent to engage the aforesaid eye 13. This forms a filling-frame and keeps the mattress from sagging between the sets of springs, each four springs being thus connected and composing a set. The adjacent springs of the two body-sections are connected by frames of a similar contour but differently constructed, in that they must yield in a hinge-like manner to permit of a folding of the sections one upon the other. In this connection I employ flexible filling-frames 14, and each consists of two sections

of wire. One section is bent to form the coil or eye 15 and is provided with one long terminal 16 and a short terminal 17. The long terminal passes about the upper convolute of one of the springs 4, thence across to the adjacent spring, where it is clinched, and to this spring the short terminal is also clinched. The opposite section of wire is constructed in a similar manner and is provided with an eye 18 which engages the eye of the companion wire-section so that a hinge-joint is produced. The opposite standards 2 of the two bars 1 are connected by transverse strips 19, which are provided with pairs of perforations that engage with the terminals 20 of V-shaped wires 21. These V-shaped wires are coiled at their inner ends or angles to form eyes 22 which are located between the strips 19 and the series of springs and alternate with said springs. Similar V-shaped wires 23 are coiled to form eyes which engage those of the V-shaped wires 21 and have their terminals diverged and engaged with the adjacent convolute springs. V-shaped wires 24 engage with the terminals of the V-shaped wires 21 and 23 and are provided with eyes 25 at their angles, which interlock with each other, and at the ends with the eyes of the stringing-wires. The inner ends of the strips 19 terminate in eyes 26 and these are connected by intermediate links 27, whereby the bed-sections are coupled together in a hinge-like manner and are capable of being folded for transportation, storage, &c. The side bars 1 at the outer sides of the two sections are between the springs provided with perforations 27', and a lacing wire 28 is passed through the perforations through an intermediate convolute of each spring in an alternate manner, whereby a stay is formed for said end wires. I do not limit my invention to the precise details of construction herein shown and described, but hold that I may vary the same to any degree and extent within the knowledge of the skilled mechanic.

It will be seen that I have provided a construction of bed that is braced in all directions, that is strong and durable, that will resist any lateral strain, and which will readily yield to all vertical pressure, the weight upon any set of springs being diffused so as to influence the same as little as possible.

Having described my invention, what I claim is—

1. In a bed bottom, the combination with

opposite side-bars, transverse slats, and a series of convolute-springs arranged on the slats, the ends of said side bars being up-turned to form standards and perforated, of connections between the springs, a longitudinal stringing wire passed through the upper coils of the outer springs, clipped thereto, and engaging the perforations of the standards, short tie-wires between the springs, and eyes coiled between the springs upon the stringing-wire and loosely engaging the tie-wires, which pass therethrough, substantially as specified.

2. In a spring bed bottom, the combination of the opposite sections hinged together, slats arranged therein, the convolute springs arranged on the slats, the star shaped frames 12 connecting a series of four adjacent springs of each section and formed of a single piece of wire, circularly bent at its center to form a bridge eye or coil located between the sets of springs and having its terminals diverge to engage over the upper coil of two of the springs, thence transversely disposed to engage the upper coils of the adjacent two springs and finally returned and secured to the central bridge eye or coil, the diverging parts of the frame forming V-shaped portions extending from the central coil and connected at their apices to the springs, and the flexible star-shaped frames 14 having a hinged connection between the inner springs of the two sections, substantially as set forth.

3. In a bed-bottom, the combination with the oblong frame comprising side and end-bars, the latter being above the former, and the transverse slats, of the convolute springs arranged on the slats, connections between the same, V-shaped wires connecting each pair of end-springs and terminating at their angles in eyes, similar V-shaped wires connected to the end-bars and at their inner ends bent to form eyes loosely coupled with the companion V-shaped wires, and the intermediate pairs of loosely coupled V-shaped wires engaging the terminals of those V-shaped wires of the end-bars and of the convolute-springs, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DAVID LEONARD.

Witnesses:

C. H. COLLICOTT,
D. R. WAIT.