

(No Model.)

I. W. AMES.  
SPRING BED BOTTOM.

No. 335,873.

Patented Feb. 9, 1886.

Fig. 1.

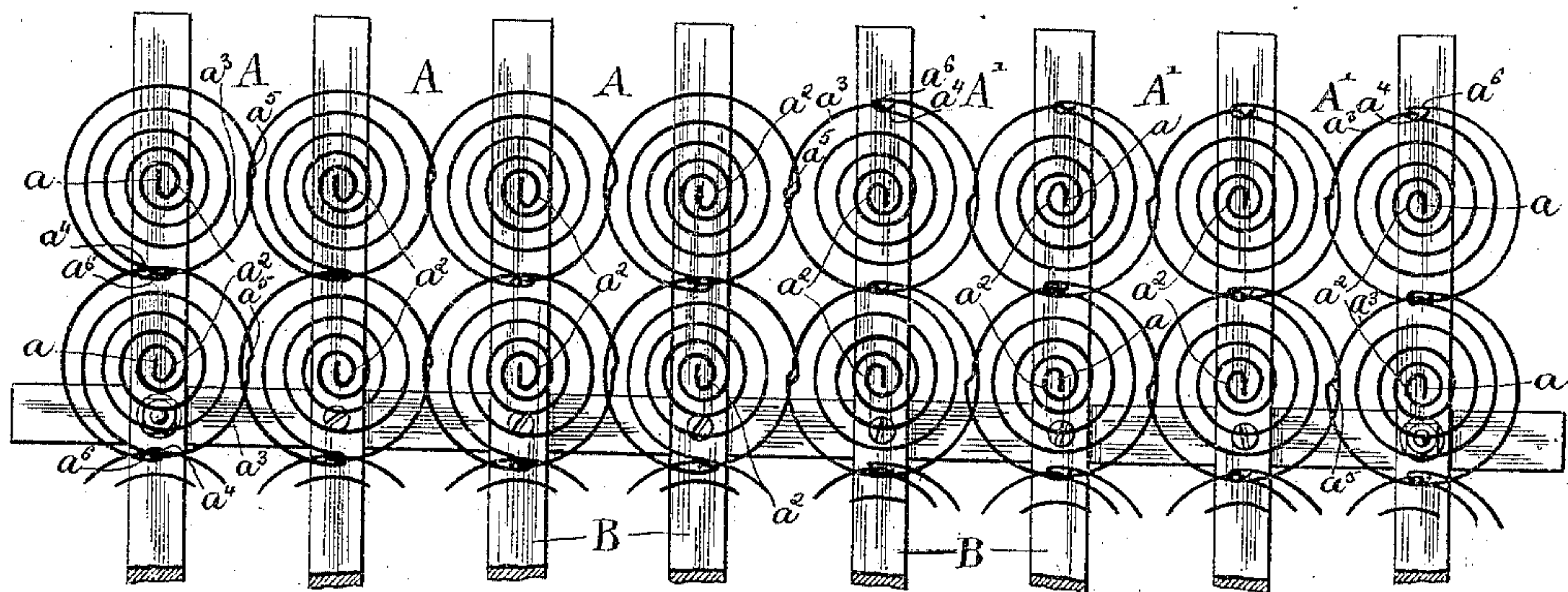


Fig. 2.

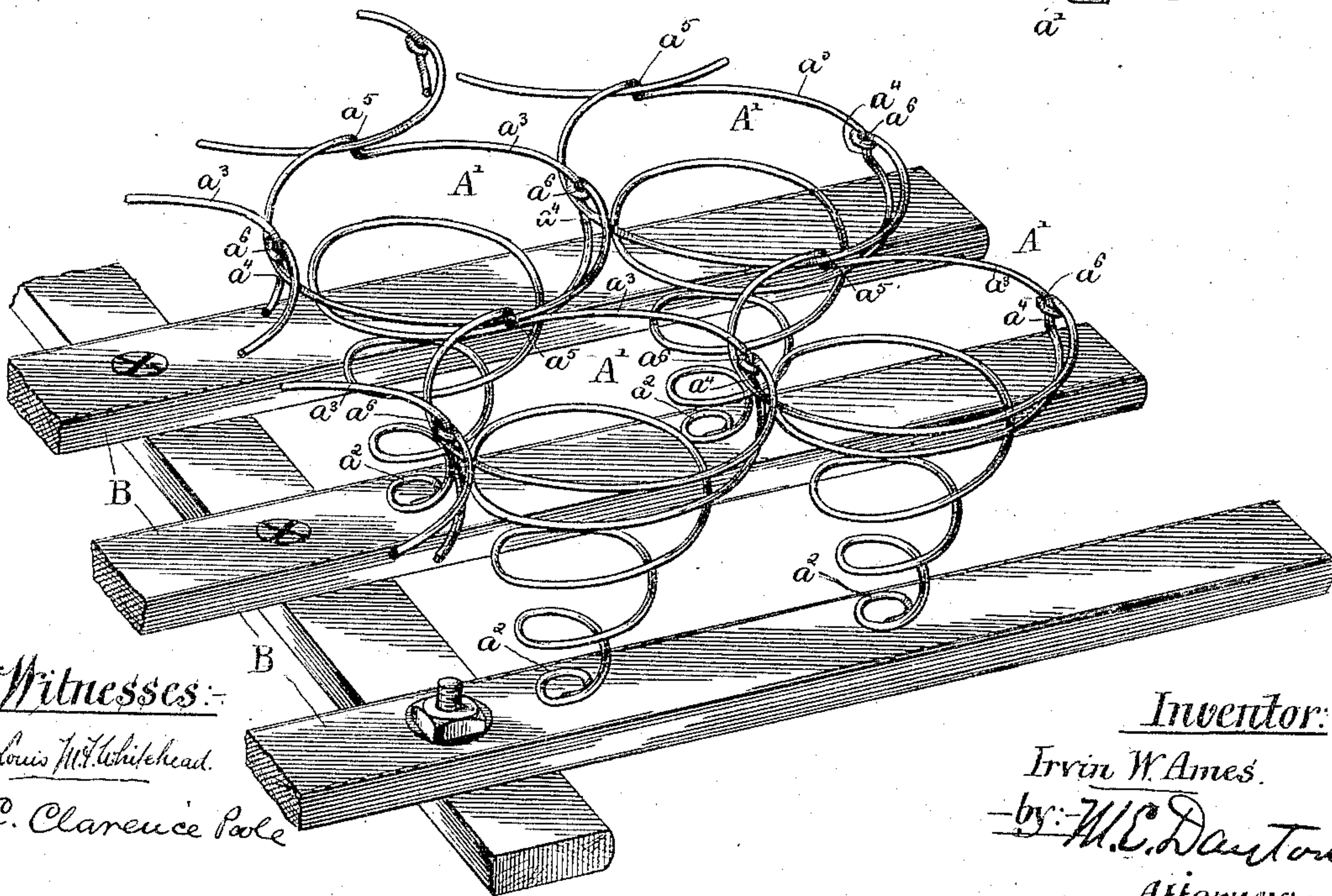
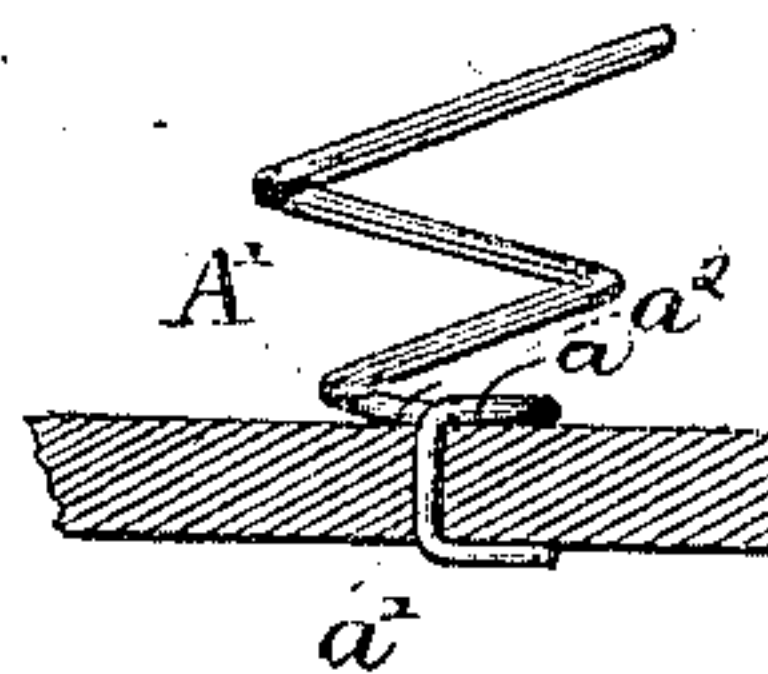


Fig. 3.



Witnesses:

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# UNITED STATES PATENT OFFICE.

IRVIN W. AMES, OF BETHEL, MAINE.

## SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 335,873, dated February 9, 1886.

Application filed April 8, 1885. Serial No. 161,543. (No model.)

*To all whom it may concern:*

Be it known that I, IRVIN W. AMES, of Bethel, in the county of Oxford and State of Maine, have invented certain new and useful  
5 Improvements in Spring Bed-Bottoms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon,  
10 which form a part of this specification.

This invention relates to an improvement in spiral-spring bed-bottoms, and embraces an improved construction in the springs, whereby a series of the latter, when used either with  
15 or without a supporting base or frame, may be connected with each other by the interlocking of the end coils or turns of the springs, and other matters, as will hereinafter appear.

The invention consists in the matters hereinafter described, and pointed out in the claims.

As it relates to means for connecting the ends of the spiral springs with each other in the construction of bed-bottoms, the invention consists in a spiral spring or springs the end  
25 coil or coils of which are provided with double bends or deflections, whereby when a series of said springs are connected with each other by the interlocking of the said end coils the latter may lie practically in the same plane,  
30 and the greatest practical area of spring-surface be obtained with a given number of springs, as will hereinafter more fully appear.

The invention may be more fully understood by reference to the accompanying drawings, in which—  
35

Figure 1 is a top plan view of a portion of a spring bed-bottom constructed in accordance with my invention. Fig. 2 is a perspective of a corner portion thereof. Fig. 3 is a  
40 detail section of the lower end of one of the springs attached to a slat.

A A' refer to the conical wire springs arranged in an inverted position upon a base, B, preferably consisting of a slatted frame, such  
45 as is ordinarily employed as a support for a set of connected bed-springs. The wire of each spring is at the lower and smaller end of the coil bent inwardly and radially to the axis of the coil, as at  $a$ , and then bent outwardly  
50 and approximately in alignment with said axis, the projecting end portion thus formed being inserted through one of the slats of the base-frame, and clinched against the under

side of the slat in a familiar manner. In this construction of the spring the short radial  
55 portion  $a$ , and also a portion,  $a^2$ , of the lowest flight or turn of the spiral coil, which is back of and adjacent to the said part  $a$ , both rest upon the slat, whereby the spring is seated and supported principally at one side of its  
60 axis. This construction and arrangement permits the spring to tip to one side more readily than to the opposite side, it being evident that the spring will tip more readily in a direction away from than toward its side which is di-  
65 rectly seated upon the slat.

In carrying out my invention the springs A, which are at one side of the middle or central longitudinal line of the spring bed-bottom, are preferably arranged with their por-  
70 tions  $a$   $a^2$ , which rest upon the slats, adjacent to said middle line of the bed; and in like manner the springs A', which are at the opposite side of said middle line, are also arranged with their seated portions  $a$   $a^2$  adjacent to the  
75 middle line of the bed-bottom. Under such arrangement the radial portions  $a$  of the springs A are approximately parallel with the length of the bed-frame, and extend from the lowest turns,  $a^2$ , toward one end of the bed-frame,  
80 while the radial parts  $a$  of the springs A' extend from the lowest turns,  $a^2$ , thereof toward an opposite end of the bed-frame, thereby bringing those portions of the lowest rounds of all  
85 of the springs at those sides of the axes of the latter which are nearest to the middle of the bed-frame. It will be observed that this feature does not require any difference in construction between the springs A and A', since  
90 a half-turn of a spring from the position shown, for example, by one of the springs A will bring the same into the position shown by one of the springs A'.

By the construction above set forth a greater uniformity of action on the part of the springs  
95 is preserved, and any tendency of the springs under pressure at or near the middle of the bed to draw the upper ends of the outer springs toward the middle of the bed will be to a great extent counteracted by the resistance afforded  
100 by the contact of the said parts  $a$  and  $a'$  with the slats. The same result is also to a considerable extent attained in case the weight of an occupant of the bed is distributed upon the  
105 springs nearest one side of the bed, since by reason of the connections between the springs



the depression of those at one side of the bed will tend to draw the springs at the opposite side thereof in a direction in which the greatest resistance is offered to a tipping movement.

5 The springs H H' may be made in the form of double cones, connected with each other or to a base-frame to form a bed-bottom; or they may be in the form of single cones and attached to a frame in the manner herein shown; 10 or said springs may be of other form, inasmuch as the features of construction involved in my invention concern only the manner of constructing the springs at their ends, so as to enable them to be united by interlocking 15 their end coils.

In the improved construction herein shown the top coil or turn,  $a^3$ , of each spring is bent so as to lie in a plane substantially at right angles with the axis of the spring, and is formed 20 with two short double deflections or bends,  $a^4$  and  $a^5$ , so formed as to bring the portions of the wire between the bends vertical and those adjacent to the bends into approximately horizontal planes, said bends preferably being located 25 at points which are at a distance apart equal to about one-fourth of the circumference of the said top coil. The terminal of the wire at the upper end of the spring is bent to form an eye or hook,  $a^6$ , which is brought into engagement with and fastened to the main wire 30 at the bend  $a^4$ . The wire between this bend and the hook lies in a plane at right angles with the axis of the spring, while from the point  $a^4$  the wire commences its regular spiral descent. Each spring interlocks with the next 35 adjacent springs, the springs along the sides of the set being each interlocked with three and the remaining springs being each interlocked with four adjacent springs, excepting, 40 of course, the corner springs, each of which will necessarily interlock with but two neighboring springs. In each instance throughout the entire set one spring interlocks with another at a point where one of the bends is 45 formed in one of the two contiguous springs.

The extent of the lateral bend or flexure in the wire at each of the bends  $a^4$  and  $a^5$  is equal to or slightly greater than the diameter of the wire, whereby the bend in the one spring 50 compensates for the thickness of the wire in the adjacent spring interlocking therewith. This will be understood by referring to the two interlocking top portions of two springs at one of the bends  $a^5$ , Fig. 2, where the unbent portion of one spring is shown as passing 55 under and then over the top part of an adjacent spring in close proximity to the point where the bend or depression  $a^5$  occurs in the latter, the slight irregularity caused by the bend or depression being compensated for 60 by slight inclinations of the wire upwardly and downwardly from the point where the depression occurs. The bends  $a^4$ , formed at the points where the wire is brought round 65 and engaged with itself, serve to afford shoulders to permit such engagement, and at the same time subserve the same purposes as the

bends  $a^5$ , just described. Preferably the wire inclines slightly downward from the bend  $a^4$  in a spring to the next bend,  $a^5$ , therein, while 70 in the opposite direction from the bend  $a^4$  the wire descends more abruptly, so as to form the spiral. The unbent portion of one spring is permitted to lie close against the depressed portion of the wire of the next adjacent spring 75 with which it interlocks, which arrangement, while permitting the direct interlocking of the springs, permits them to be set farther apart than if the top portions of the springs were interlocked without being bent, and 80 thereby affords a greater area of spring-surface with a given number of springs than is obtainable by the use of interlocking springs otherwise constructed. The presence of the bends also enables the top ends or coils of the 85 springs to normally lie in or substantially in the same plane with obvious advantages.

I am aware that it has been proposed heretofore to employ, as a means of connecting 90 the top ends of the spiral springs in a bed-bottom, the upper end portion of the wire composing the coil itself, such portion of the wire in each coil being bent vertically over or around the adjacent portions of the top coil of the adjacent spring and having its extreme 95 end returned and secured to the spring of which it forms a part.

The springs forming the subject of claims herein differ from those described, in being located close together and having their circular top coils interlocked, and each provided 100 with two or more double bends adapted to permit the said top coils to lie in the same horizontal plane.

I claim as my invention— 105

1. A set of conical wire bed-springs interlocked at their top ends, each spring having a practically circular top or end coil having short vertical parts  $a^4$   $a^5$  at its interlocking 110 points formed by two opposite right-angled bends in the wire of the coil, said vertical parts  $a^4$   $a^5$  being adapted to engage the horizontal parts of the top coils of the adjacent springs, whereby the top coils of the several 115 interlocked springs will remain practically in the same plane, substantially as described.

2. A set of conical wire bed-springs interlocked at their top ends, each spring being provided with practically circular top coils having two double bends forming short vertical 120 parts  $a^4$  and  $a^5$ , adapted to engage the horizontal parts of the top coil of an adjacent spring, and having the terminal of its wire secured at one end to one of the said two bends, substantially as and for the purpose set 125 forth.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

IRVIN W. AMES.

Witnesses:

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