(No Model.)

A. F. PUREFOY.

SPRING BED BOTTOM.

No. 458,067. Patented Aug. 18, 1891.

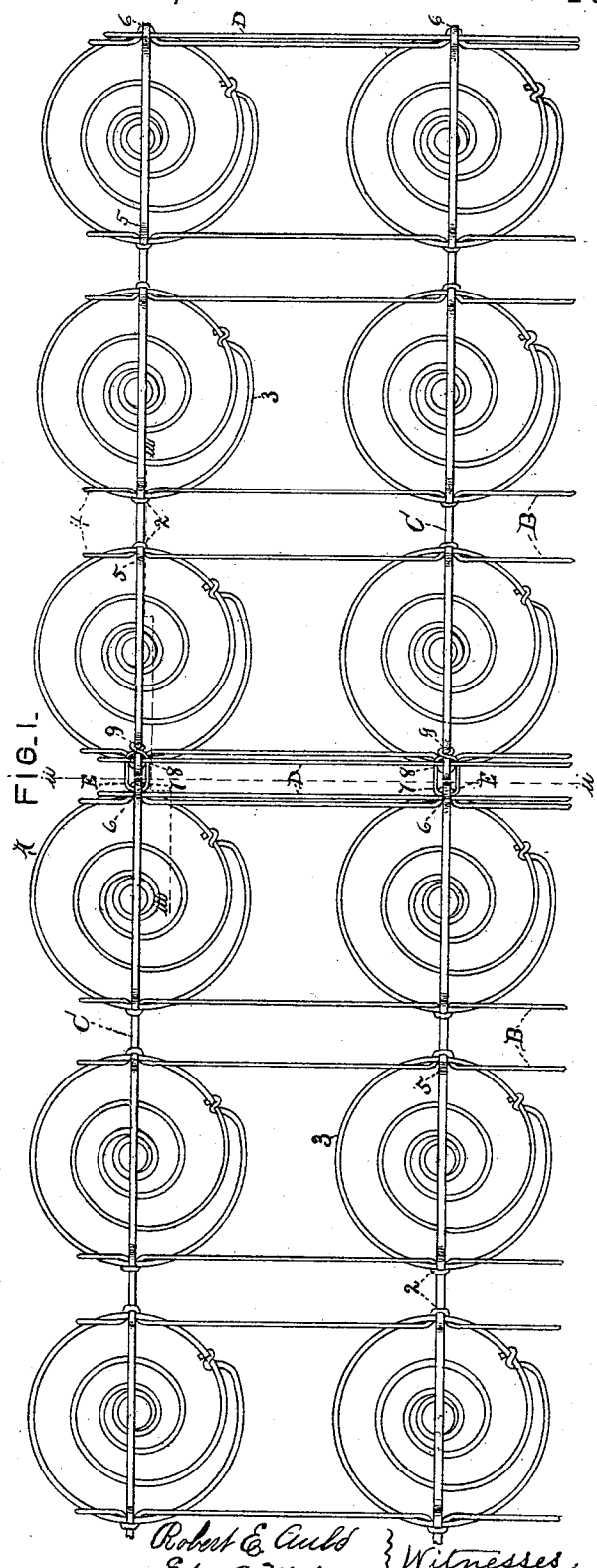


FIG. I.

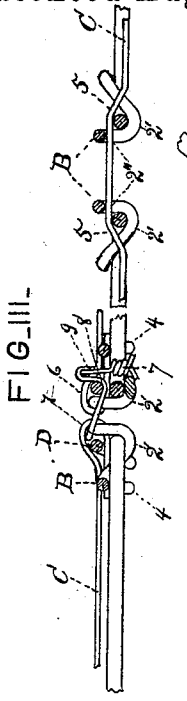


FIG. III.

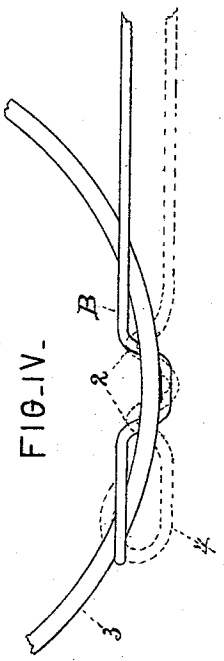


FIG. IV.

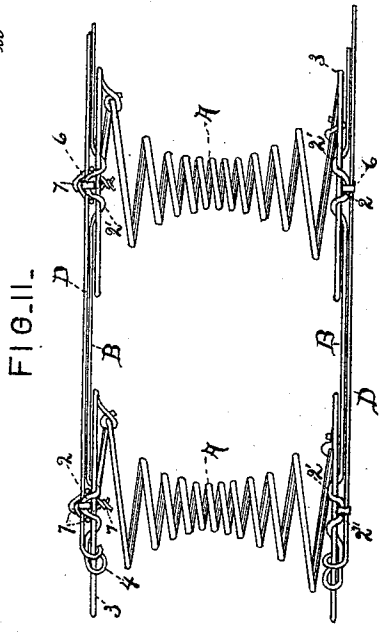


FIG. II.

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ADDISON F. PUREFOY, OF WAKE FOREST, NORTH CAROLINA.

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 458,067, dated August 18, 1891.

Application filed October 18, 1890. Serial No. 368,562. (No model.)

To all whom it may concern:

Be it known that I, ADDISON F. PUREFOY, a citizen of the United States, residing at Wake Forest, North Carolina, have invented certain new and useful Improvements in Spring Bed-Bottoms, of which the following specification is a full, clear, and exact description.

This invention relates more particularly to spring bed-bottoms; but the improvements constituting the same are each included for all the uses to which it may be adapted—as, for example, in spring seats and lounges, or in structures generally which employ coiled-wire springs.

In my application filed August 8, 1889, and officially numbered 320,093, I have described the use of two sets of wire braces for the springs, one set consisting of parallel substantially straight tangential braces provided with lateral loops bent around the spring-wires, and the second set consisting of parallel diametrical braces running across the springs at right angles to the said tangential braces and threaded through the eyes formed by and between the closed ends of said lateral loops and the adjacent spring-wires. After the tangential braces have been applied to the springs, the diametrical braces can easily be threaded across the entire structure. In accordance with the present invention the said diametrical braces, after their insertion horizontally through the eyes, are bent close to the corresponding eyes, which bends, being transverse to the length of the said braces, insure against movement of the eyes over the same. They lie on the same side of both the tangential brace and the spring-wire and are easily made after insertion of the diametrical braces. Further, in the present invention at one or more of the edges of the structure a wire in addition to the tangential brace is employed, such additional wire being held in place by the looped ends of the diametrical braces which inclose the lateral loops or eyes of the tangential braces. Thirdly, in the present invention the ends of the tangential braces are bent into loops vertically, which loops are directly adjacent to the last lateral loops in the respective braces. These vertical loops, when hooked over the spring-wire, admit of the tangential brace being turned to insert the adjacent lateral loop under the same spring-wire, and are preferably then closed or contracted vertically by pressure, so as to engage the spring-wire more closely.

In addition to these improvements the present invention also comprises a new or improved hinge for connecting together two structures of springs, (such as the two halves of a bed-bottom,) and this hinge is included in the invention irrespective of the form and arrangement of the braces, as well as in connection with the tangential and diametrical braces aforesaid, the hinge adapted to this connection constituting a special feature of invention. This new or improved hinge is made of wire or flexible strip metal, which is looped about a wire on one of the connected structures, so as to constitute a flexible hinge-joint and which is secured to the other structure or half of the bed-bottom at two points at least, so as to be held rigidly. Thus the two structures when flattened out always occupy the same position, and the hinge or hinges (for a number are used) are not apt to get out of the top plane of the bed-bottom, as is the case when the hinges have each a pintle at each end like a link. Preferably the hinges are arranged at the ends of the cross-braces, the hinge-wires engaging the looped ends of the abutting cross-braces. With the above-mentioned arrangement of the tangential and diametrical braces, the former with lateral loops through which the diametrical braces are threaded, the hinge-wires are passed through the looped ends of the diametrical braces on one side of the line of hinging, and the said hinge-wires are each secured to the structure on the opposite side of said line by passing the ends thereof on either side of a lateral loop under a longitudinal wire and over and around a diametrical brace.

Another improvement consists in the use of one or more additional wires on one or on each side of the line of hinging in a spring bed-bottom having the hinges between the springs and provided with a tangential brace secured to said springs on each side of said line of hinging. Such additional wires prevent sagging of the bed in the middle.

In the accompanying drawings, which form part of this specification, Figure I is a plan view of part of a bed-bottom embodying the invention. Fig. II is a view in section in line *i i* of Fig. I. Fig. III is a detail view in section on line *i i i* of Fig. I, and Fig. IV is a diagram illustrating the application of one of the tangential braces.

The springs A may be of any ordinary or suitable form; but, as shown, they are of the double-cone form. At one or both ends of the springs (preferably at both ends) are the parallel substantially straight tangential braces B, provided with lateral loops 2, which receive the spring-wires 3 in their U-bends 2′, and the diametrical braces C, which are threaded horizontally through the eyes 2″, made by the closed ends of the loops 2. The tangential braces B are each provided at its ends with vertical loops 4, which are directly adjacent to the last lateral loops 2 in the brace. Each of these loops 4 is hooked over the spring-wire 3, and is such as to permit the tangential brace B to be turned a quarter-turn into the position indicated in dotted lines in Fig. IV, to permit the closed end 2″ of the lateral loop 2 to be slipped under the spring-wire 3 of the outside spring A. The tangential brace is then turned into the position shown in full lines. The loop 4 may afterward be flattened vertically by pressure. When the end of the tangential brace has been secured the spring-wires of the inside springs A may be slipped over the closed ends 2″ of the corresponding lateral loops 2. After the diametrical braces have been threaded through the eyes 2″ they are bent at 5 close to said eyes, so that the transverse bends 5 thus made will prevent the braces from moving endwise relatively to said eyes. Said bends 5, it will be observed, lie on the same side of both tangential braces B and the corresponding spring-wires 3 and can easily be made. At the ends of the diametrical braces are loops 6, which inclose the ends of the corresponding lateral loops 2. These loops also inclose the additional longitudinal wires D, of which four are shown, one at each edge of each spring structure or half of the bed-bottom. These additional wires increase the stiffness at the lines where such extra stiffness is most useful. The hinges E between the connected structures are made of bent wire, the loop 7 of each hinge passing through and engaging the loop 6 at the end of a diametrical brace on one of said structures, so as to form a flexible hinge-joint, and the hinge-wire being secured to the other structure at the two points 8 and 9, so as to be rigidly held. As shown, the ends of each hinge-wire extend on either side of a loop 2 under the longitudinal wire D at 8, and are wrapped about the diametrical brace C at 9. It will be observed that, as shown, the hinges E are between the abutting ends of the cross-braces C, which are secured to the springs A, transverse to the line of hinging, the wires of hinges E engaging the looped ends of these braces. It will also be observed that, as shown, there is, in addition to the regular braces B, a wire D on each side of the line of hinging or axis at which the bed-bottom folds. The diametrical braces C, as shown, are of flat wire; but round wire may be used, and, in fact, the invention is not restricted to any form of wire for these braces or for other parts. In the references hereinafter made to a spring bed-bottom it will be understood that it is not intended to exclude analogous structures.

The term "horizontal" or "horizontally" is used herein with reference generally to a plane at right angles to the axes (ordinarily but not necessarily vertical) of the coiled-wire springs, rather than to a plane parallel with that of the terrestrial horizon.

I claim as my invention or discovery—

1. The combination, with the coiled-wire springs, the parallel substantially straight tangential braces provided with lateral loops bent around the spring-wires, and the diametrical braces threaded through the eyes which are made by the closed ends of said lateral loops and provided with end loops which engage the lateral loops of the corresponding tangential braces, of additional longitudinal wires laid along the last-mentioned tangential braces and inclosed with said lateral loops by the aforesaid end loops, substantially as described.

2. In combination with the coiled-wire springs and the diametrical braces, the substantially straight tangential braces provided with lateral loops with U-bends, as seen in end view, and also with end loops directly adjacent to the last of said lateral loops and lying in a plane parallel with the vertical members of the said U-bends, said end loops permitting a quarter-turn to the tangential braces after said end loops have been hooked over the spring-wires, substantially as described.

3. In combination with two parts or structures of coiled-wire springs and braces, hinges connecting said parts and composed each of a wire looped about a wire on one of the connected parts or structures, so as to constitute a hinge-joint and secured to the other part or structure at two points at different distances from the axis of hinging, so as to be held rigidly thereby, substantially as described.

4. In combination with two parts or structures of coiled-wire springs, longitudinal braces and cross-braces having looped ends, hinges of bent wire separate from said braces, each hinge engaging the abutting looped ends of cross-braces on the said two parts of structures, substantially as described.

5. The combination, with two parts or structures each composed of coiled-wire springs, substantially straight tangential braces having lateral loops bent around the spring-wires, and diametrical braces threaded through the eyes which are made by the closed ends of said lateral loops and provided with end loops, of hinges of bent wire, each passed through

the end loop of one diametrical brace to form a hinge-joint and rigidly secured on the opposite side of the line of hinging by having its ends extended on either side of the lateral loop in a tangential brace and over and around a diametrical brace, substantially as described.

6. A two-part bed-bottom composed of coiled-wire springs, longitudinal wire braces, wire-cross braces, and hinges directly connecting the wires of one part with the wires of the other at the upper surface of the bed-bottom, the bed-bottom being provided at the line of hinging with one or more extra wires in addition to the regular longitudinal braces, so as to make the bed-bottom stiffer along said line than on either side thereof, substantially as described.

In testimony whereof I have signed this specification in the presence of two witnesses.

ADDISON F. PUREFOY.

Witnesses:

F. H. BRIGGS,

JULIAN TIMBERLAKE.