(No Model.)

2 Sheets—Sheet 1.

A. F. PUREFOY.

SPRING BED BOTTOM.

No. 279,013. Patented June 5, 1883.

Fig. 1.

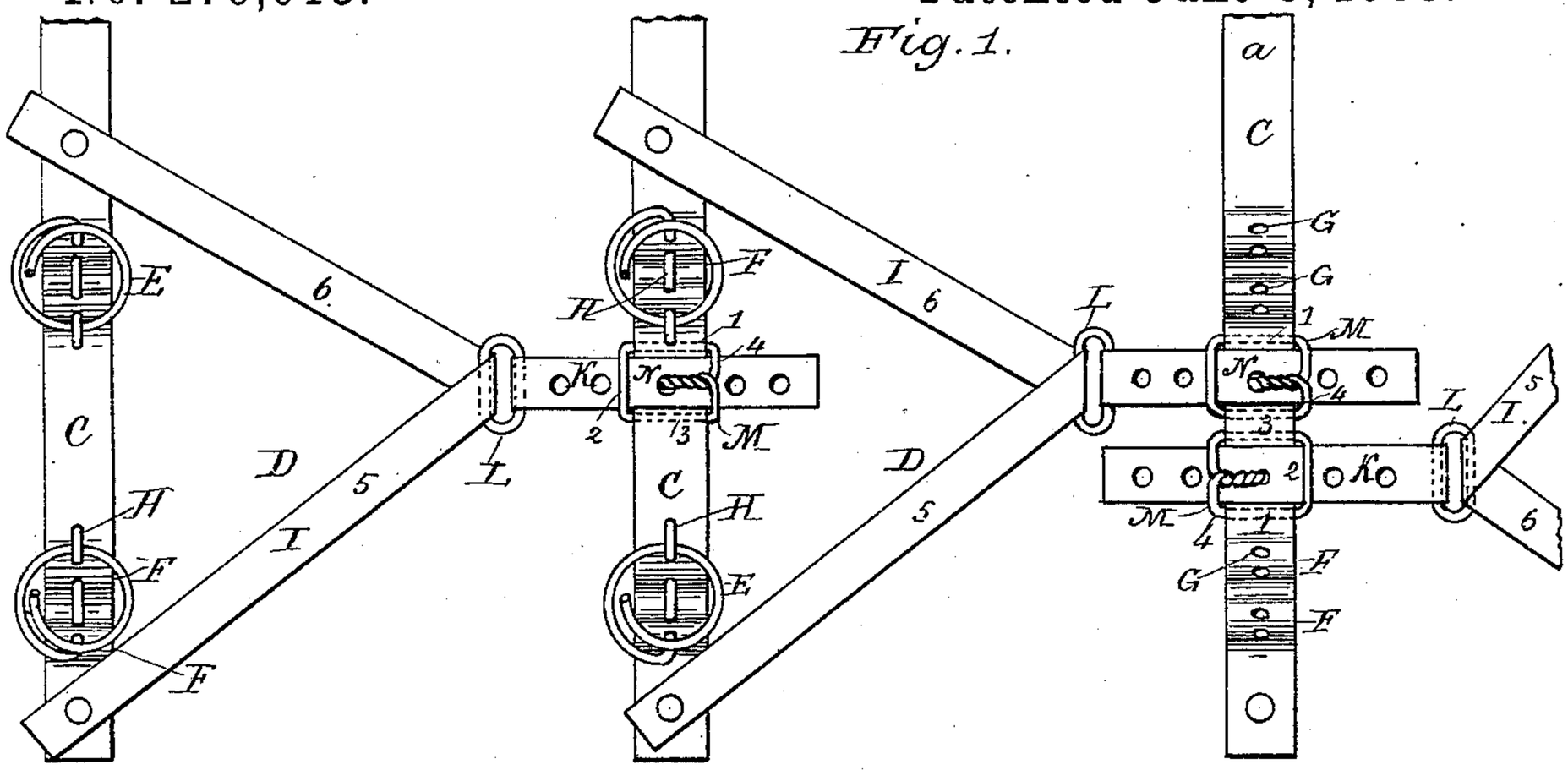


Fig. 2.

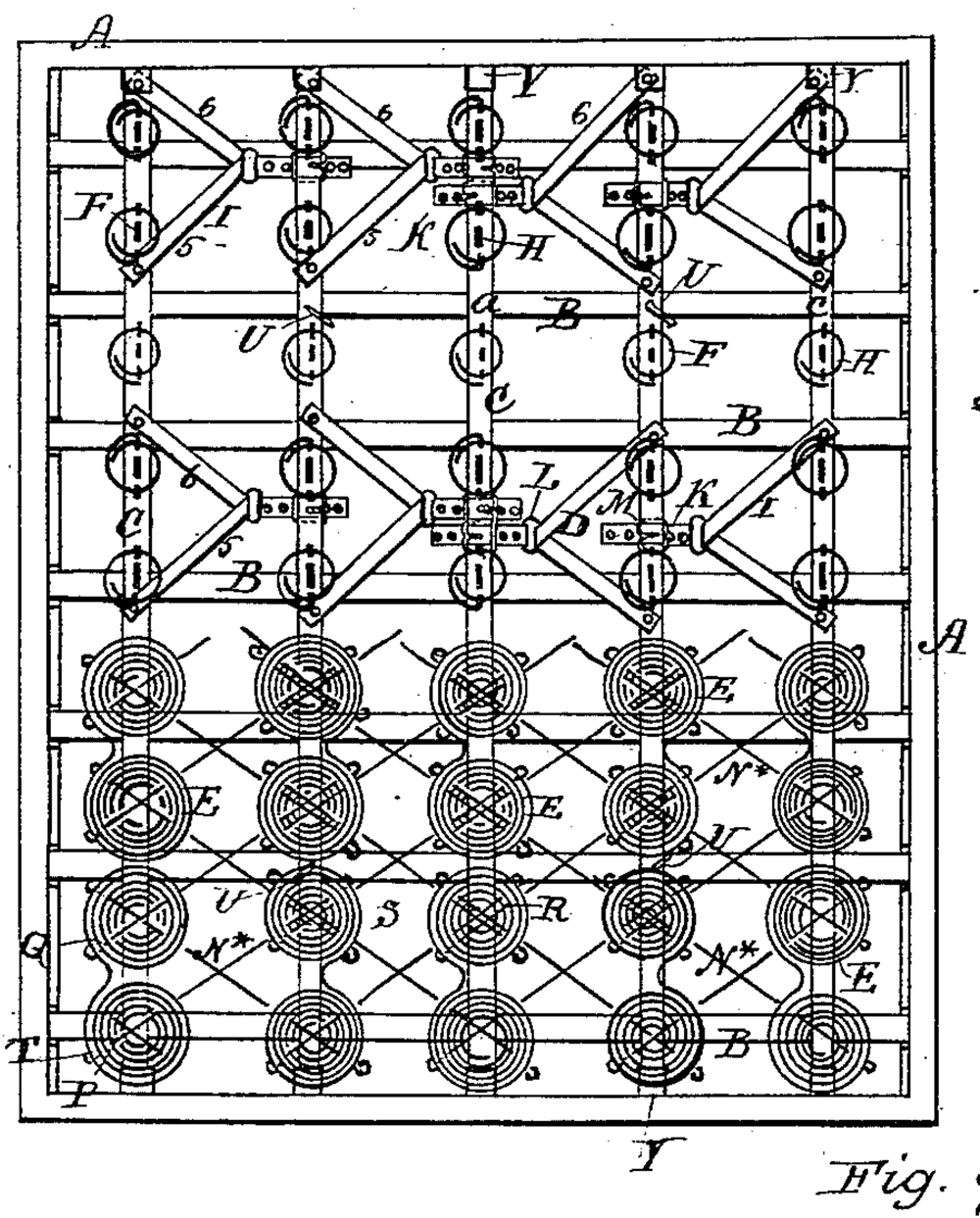


Fig. 9

Fig. 3.

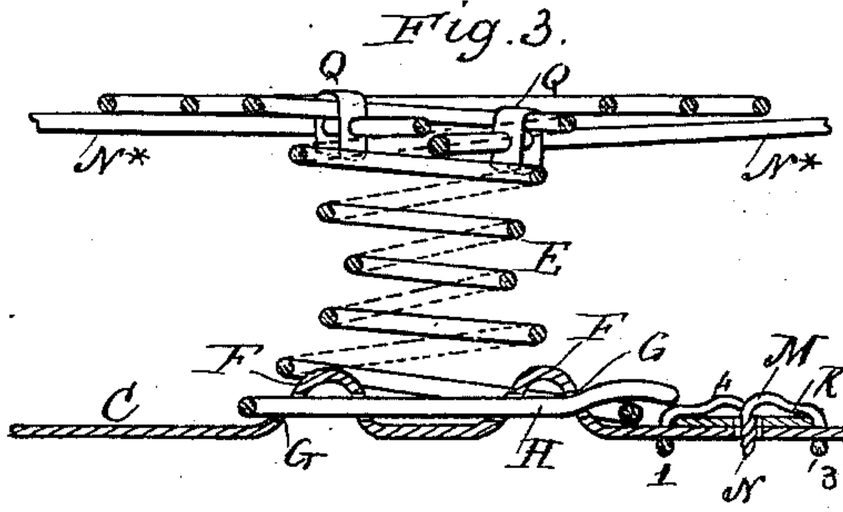
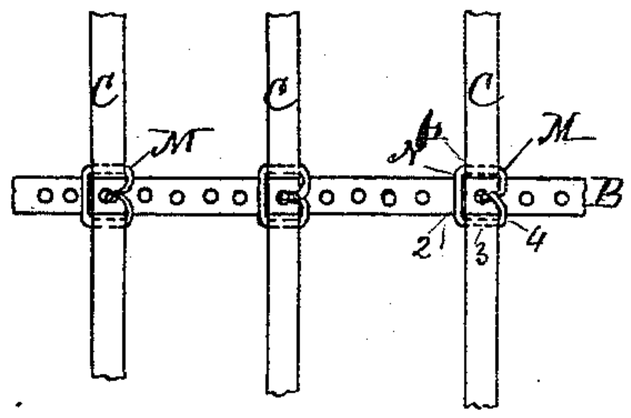
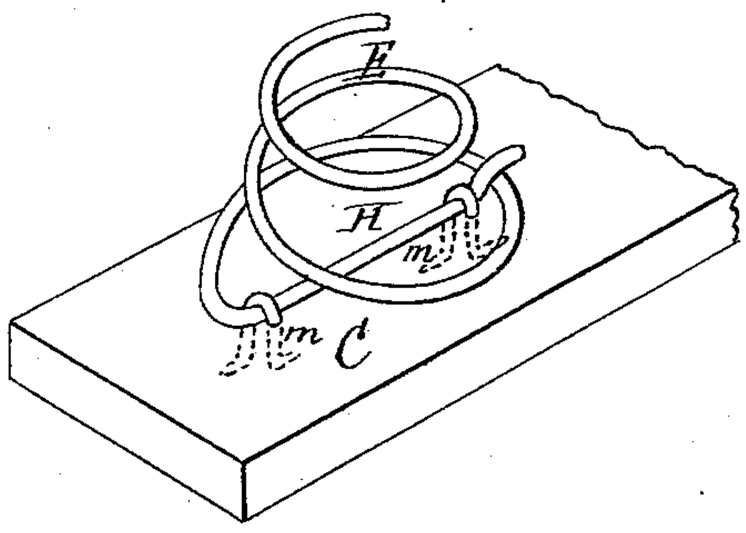


Fig. 8





Witnesses:

E. E. Masson

L. C. Hills

Inventor:

Addison F. Purefoy

by Chas. J. Hedrick

his attorney

(No Model.) 2 Sheets—Sheet 2.

A. F. PUREFOY.

SPRING BED BOTTOM.

No. 279,013. Patented June 5, 1883.

Fig. 4.

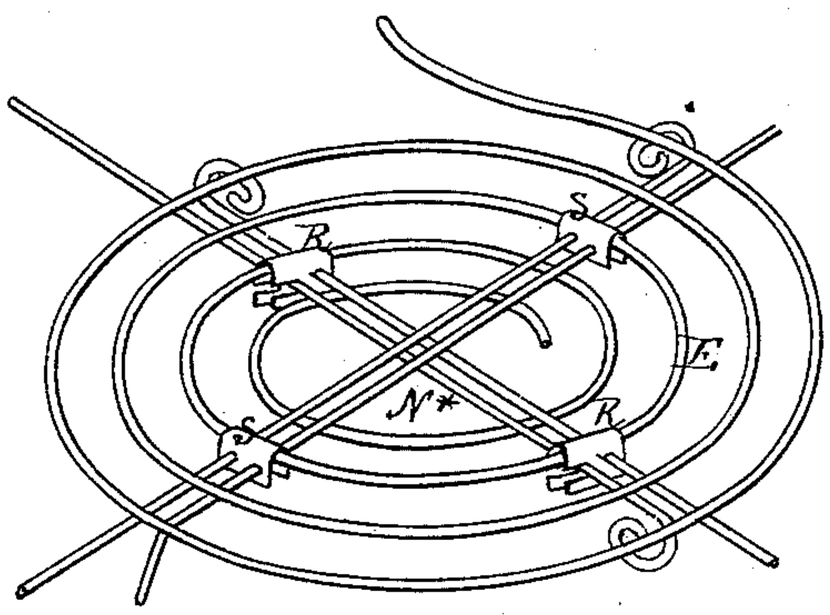


Fig. 5.

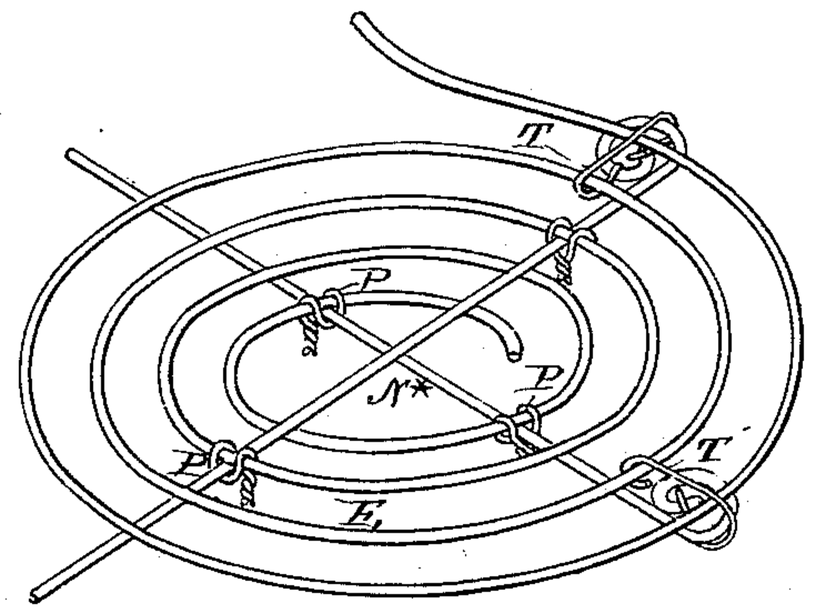


Fig. 6.

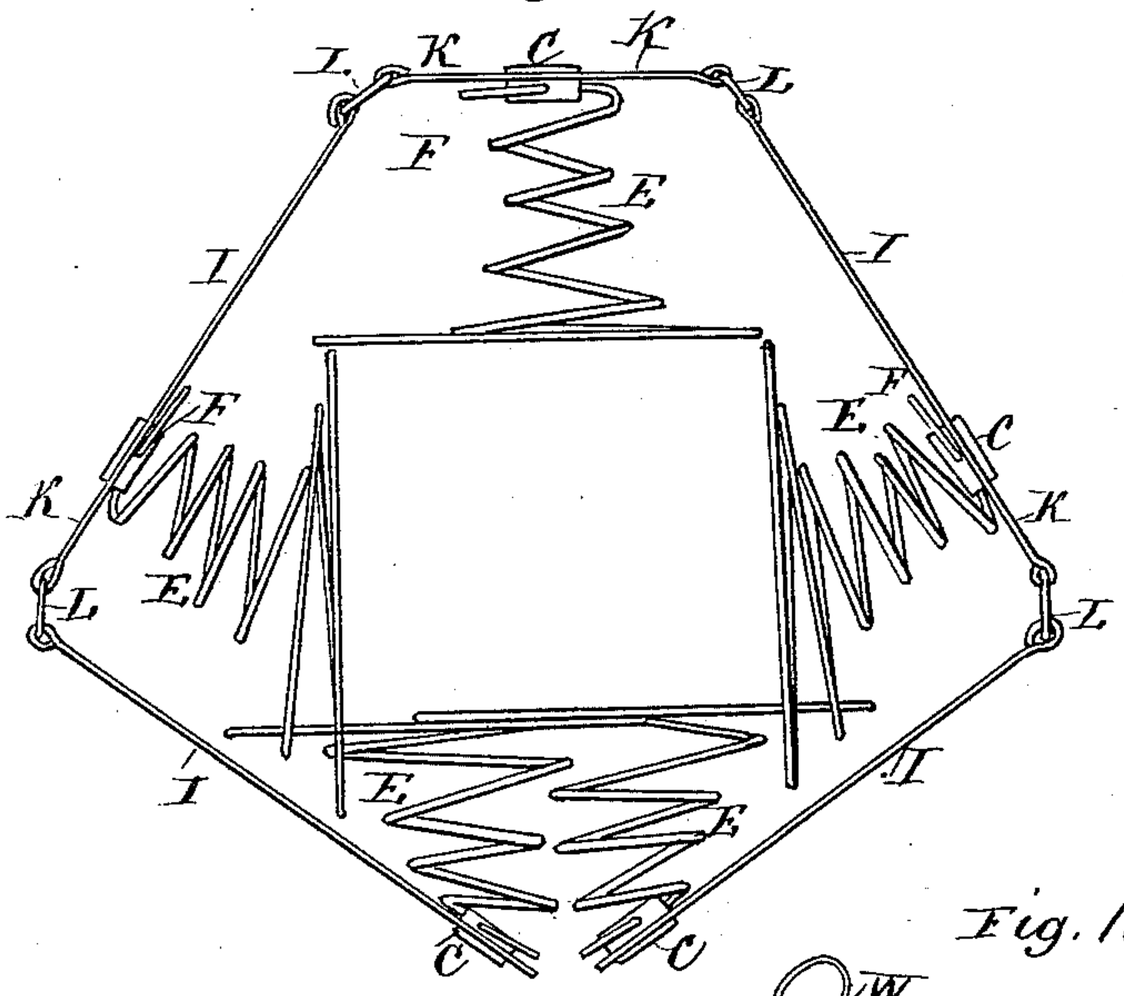


Fig. 7.

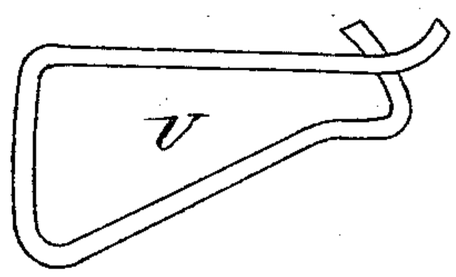
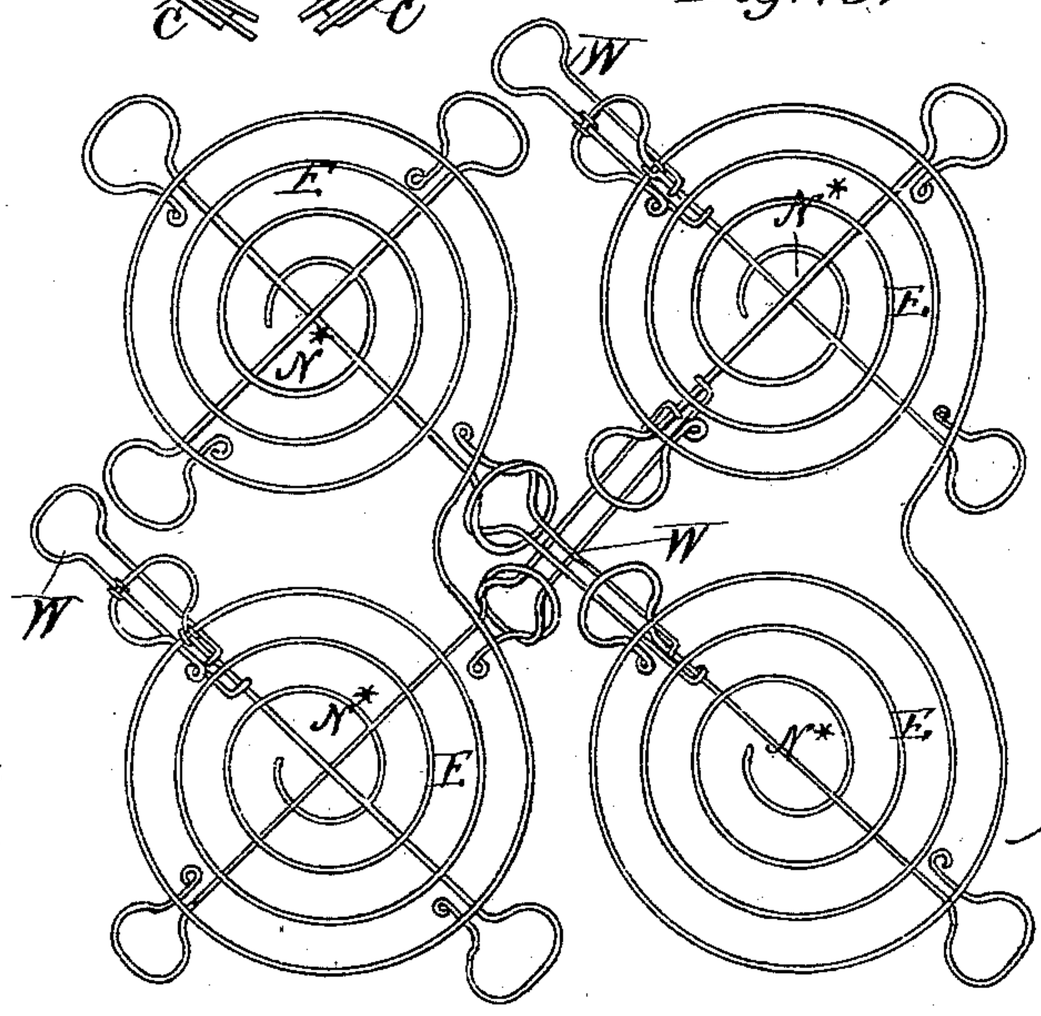


Fig. 10.



Witnesses:
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L. C. Hills

Inventor
Addison F. Purefoy
by Chas. J. Hedrick
his attorney

UNITED STATES PATENT OFFICE.

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

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 279,013, dated June 5, 1883.

Application filed February 13, 1883. (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, in the county of Wake and State of North Carolina, have invented certain new and useful Improvements in Spring Bed-Bottoms, of which the following specification is a full description.

This invention, although not wholly limited thereto, has reference more particularly to that class of spring bed-bottoms in which the springs, instead of being fastened to the ordinary wooden cross-slats, are attached to auxiliary slats or elongated base-pieces which rest upon the cross-slats; and which are adjustable toward and away from each other in order that the same set of springs may be uniformly distributed in bedsteads of different widths.

The invention consists, first, in attaching the springs to flat metal strips—such as lengths of hoop-iron—constituting the slats or base-pieces, by means of bends or raised places in said strips, the said bends fitting within the base of the springs; secondly, in forming holes horizontally through the bends or elevations to receive fastening-wires for securing the springs in place; thirdly, in forming the fastening-wire integral or in one piece with the springs, or, in other words, in having the end of the spring-wire in the several springs inserted through the holes in the bends, so as to fasten the said springs to the slats or base-pieces; fourthly, in providing for one spring a long bend or a series of two or more short bends in the slats or base-pieces, whether these be flat strips or wire, so that the raised portions fill more or less closely the base of the springs, (under the first head, which is limited to flat metal strips, a single short bend to a spring could be used;) fifthly, in attaching the springs to their supports, slats or base-pieces by inserting the spring-wire through two or more loops formed by the perforated bends aforesaid, by staples fastened to the supports, or otherwise, and bending the end of said wire over the base-coil of the spring; sixthly, in connecting the auxiliary slats or base-pieces together by braces with spreading or V-shaped ends, when the V-shaped part is formed of a metal strip bent obliquely at the middle, so that the said part is simpler and more easily and cheaply made, and is as strong as if not stronger than in the braces with V-shaped ends heretofore made; seventhly, in making the V with sides of unequal length, for a purpose hereinafter explained; eighthly, in connecting the auxiliary slats or base-pieces by hinged braces having each a V-piece fastened to one of a pair of slats or base-pieces, and a straight piece hinged to the point of the V and connected with the other slat of the pair beyond the hinge; ninthly, in making the connecting-braces adjustable by means of ties or fasteners having loops, and a tongue or similar device for engaging in holes or irregularities, of which a series are provided in said braces, the said adjustment permitting the bed-bottom to be widened or narrowed at pleasure, and the ties or fasteners holding the parts securely in the positions to which they may be adjusted; tenthly, in combining with the springs of a bed-bottom or similar article a base which is at once flexible, to allow of rolling into a small compass, and adjustable to allow of its width being increased or diminished when the flexibility is obtained by hinges in the braces or cross-pieces, instead of by the natural flexibility of said braces or cross-pieces, and whether the adjustable connection or connections be in the body of the braces or cross-pieces or between them and the auxiliary slats or base-pieces, or both, the said combination being, moreover, independent of the particular form or material of the braces or cross-pieces and of the slats or base-pieces, and of the particular devices for making the adjustable connections; eleventhly, in combining a flexible base with springs having extension-tops and braces therefor—such, for example, as described in Letters Patent Nos. 254,372 and 261,954, dated February 28 and August 1, 1882, respectively; twelfthly, in combining with the springs the longitudinal slats or base-pieces and jointed or flexible braces or cross-pieces connecting said longitudinal slats or base-pieces with each other, top braces formed of rods, bars, or stiff wire detachably connected with the upper part of the springs, so as to allow the disconnection of said braces in order to the rolling up of the bed-bottom for transportation; thirteenthly, in making the top braces just mentioned extensible, as well as detachable, so as to admit as well the adjustment of the rows of springs as their rolling up; fourteenthly, in fastening the base of the bed-

bottom, whether of the improved construction herein more particularly described or of other known or suitable construction, to the ordinary supporting-slats by spring-clips; fifteenthly, in a special fastener or tie for connecting together the longitudinal slats or base-pieces and the braces or other cross-pieces, the said fastener comprising loops to receive the said pieces, and a tongue or pin to engage in holes or recesses therein, the whole made in one piece of wire or bent metal strip.

The invention further comprises the particular constructions, combinations, and arrangements of parts, as hereinafter specified.

The several dispositions or parts of invention above indicated, while they all are or may be employed in one bed-bottom, may be used separately, or two or more together. For example, the series of bends or raised portions to one spring, as specified under the fourth head, could be made in slats or base-pieces made of wire instead of hoop-iron, or in slats or base-pieces of other suitable construction. The hinged or flexibly-jointed braces, specified under sixth head, could be used to connect bent wire slats or base-pieces, or those of wood or plain metal strip, or, in fine, of any suitable construction; so, also, braces embodying the other improvements, or one or more of them. A brace shaped like a Y could have the straight connecting-piece rigidly attached to the other portion, and it could be provided or unprovided with an adjustable connection between itself and the auxiliary slat or base-piece. The same or a substantially-similar adjustable connection could be used between the auxiliary slats or base-pieces and any suitable cross-pieces, whether simply braces or supporting-slats also, and of whatever material.

The connection of the auxiliary slats or base-pieces with one or more of the supporting-slats is advantageous, even when a full set of braces is employed, as it prevents the bed-bottom from all lateral movement; but it is not necessary to employ such connection, and by the use of a sufficiently strong connection the place of the braces may, in a measure, be supplied by the supporting-slats. The auxiliary slats or base-pieces preferably extend in one piece from the head of the bed to the foot; but they may be made of two or more pieces rigidly or flexibly joined. The invention is partly applicable to bed-bottoms having the spring carried directly by supporting-slats fitting in the bedstead. The springs, except when otherwise indicated, may be of any ordinary or suitable construction, but preferably are such as embody the improvements heretofore made by me, and described in above-named Letters Patent.

Having thus explained the principle of the invention, what is considered the best mode of carrying the same into effect will now be described, with the aid of the accompanying drawings, which form a part of this specification.

Figure 1 is a view showing the connection of the longitudinal slats or base-pieces by adjustable and jointed or flexible Y-braces, and the manner of securing the springs to the said slats or base-pieces. Fig. 2 is a plan view, partly in horizontal section. of a spring bed-bottom constructed in accordance with the invention; Fig. 3, a vertical section through one of the springs and its connected parts; Figs. 4 and 5, perspectives showing the arrangement of the top braces and the means for connecting them with the springs; Fig. 6, an end view of the improved bed-bottom rolled up for transportation, the top braces being omitted; Fig. 7, a perspective of one of the spring-clips for securing the longitudinal slats or base-pieces to the supporting-slats; Fig. 8, a plan view, showing the connection of several longitudinal slats or base-pieces with a common cross-piece or base; Fig. 9, a perspective illustrating the attachment of the springs to longitudinal slats of wood or metal by staples; and Fig. 10, a plan view, showing another arrangement of top braces.

A is the frame of the bedstead; B, the ordinary supporting-slats; C, the auxiliary slats or base-pieces; D, the connecting-braces or cross-pieces, and E the springs.

The auxiliary slats or base-pieces C are or may be made of metal strips, (hoop-iron.) Their ends are inclosed in caps Y, of leather or other soft material, to prevent injury from them to the bedstead. They are provided with bends or elevations F, two, as shown, to each spring. Through the sides of the bends or elevations are the holes G for the fastening-wires H. The base-coil of each spring E surrounds the two bends or elevations, and the fastening-wire H (formed integral with the springs) is passed through the holes in both bends, and over and partly around the coil on the opposite side, as clearly shown in Fig. 3.

The spring could be held by a fastening separate from the spring-wire, but it is preferred to run the spring-wire itself through the holes, as thereby joints are avoided and a stronger and more simple connection is made. The two bends or elevations F fill or nearly fill the interior of the base-coils, and with the aid of the fastening-wire H keep the springs from moving in any direction.

When the longitudinal slats or base-pieces C are of wood the springs are preferably attached thereto by staples *m*, Fig. 9, which are driven into the wood and the ends clinched, if need be. These staples may also be used with metal slats or base-pieces. They, like the bends F, with the holes through them, form loops through the eyes of which the spring-wire is introduced. The said wire is passed over and bent partly around the opposite part of the base-coil, as described with reference to the bends F.

The braces D are made in two parts of flat strips of hoop-iron; but they may be made of wire or of other suitable material, and of a number of parts other than two. The said

parts may be straight pieces running between the slats and hinged, but preferably comprise a V-piece, I, and a straight piece or link, K, and they are jointed or hinged together by a loop, L, at the point of the V. The V-pieces are riveted to or otherwise permanently connected with the auxiliary slats or base-pieces, and the straight pieces or links are adjustably connected thereto by means of a series of holes in said pieces or links and a fastener or tie, M, having a tongue, N, which engages in said holes. By shifting the tongue from one hole to another the length of brace between the slats or base-pieces may be lengthened or shortened, so as to bring the slats or base-pieces, and consequently the row of springs carried thereby, nearer together or make them farther apart.

To prevent the braces slipping longitudinally on the slats or base-pieces, the tongues N are made to extend into holes in said slats or base-pieces C. (See Fig. 3.)

Each tie or fastener M is made of one piece of wire, and comprises loops 1 2 3 4 to receive the slats or base-pieces and the cross-pieces or links K and a tongue, N, formed by twisting together the ends of the wire and bending them, as shown, or by bending the ends in one of them without twisting. Fasteners or ties with separate tongues could be used.

The pieces I are each formed of a single strip bent obliquely upon itself at the point of the V. The loop L, which is simply a hollow oblong, like a buckle-frame, rests in the bend. The said bend is made to one side of the middle of the strip, thus making the legs or sides of the V of unequal length, the legs 5, as shown, being longer than the legs 6. In connecting together the series of auxiliary slats or base-pieces for a bed-bottom, the braces are arranged with their adjustable pieces or links K pointing inward toward one of the inside slats, *a*. Two or more of the links K from opposite directions are therefore to be connected with said slat *a* at or near the same point.

The inequality in the lengths of the legs 5 and 6, when the braces are turned in opposite directions, causes the links to miss each other and pass by without overlapping, which, for obvious reasons, is desirable.

It is evident that the same relative position could be obtained by properly arranging the braces on opposite sides of the slat *a*; but in such case the rivet-holes for the V-shaped pieces I would have to be punched differently in the slats on the two sides of the slat *a*, whereas by making the V-pieces with unequal legs the slats or both sides may be punched just alike and at one operation. The V-pieces crossing the supporting-slats B obliquely, furnish a broad support to prevent the springs and their base-pieces from turning.

The top braces, $N^{\times}$, are connected each with two springs. The connection is made by couplings P Q R S. The couplings P, Fig. 5, are made of wire bent around the brace and the coil of the spring to which they are to be attached. The couplings Q, Fig. 3, are bent strips of metal with holes through them. These couplings P Q, being single, are preferably used on the outer rows of springs. The couplings R S are double, and have each two holes, or a hole and a slot or notch. They are used on the inner rows of springs, where the braces overlap. They are formed, as shown, of bent strips, but might be made of wire. All the couplings allow the top braces, $N^{\times}$, to slip therein, so that the rows of springs may be adjusted toward or away from each other without interference from the braces. They also allow the braces, when disconnected from one spring, to be turned around into a position parallel with the longitudinal slats or base-pieces without being disconnected from the other spring, the couplings slipping on the coil of the spring. When the couplings R S have notches the braces can be slipped sidewise into them; when holes or closed loops only, the end of the brace is to be passed through the holes. In either case the connection and disconnection with a spring may readily be made.

In order to prevent the braces escaping from the coupling by endwise movement, and also to avoid the sticking of the ends of the braces into the mattress or catching in other objects, the ends are bent into annular or other suitable shape to form flat enlargements, as shown in Figs. 2, 4, 5. When couplings R with notches are used the braces may have a ring or enlargement at both ends; but when the brace is to be inserted through a closed loop one end only has a ring or enlargement, the other being left plain, so that it may be inserted. In this case, to prevent the brace drawing out or sticking into the mattress or other objects, the end is bent down, as shown in Fig. 4. The ring or enlargement at the opposite end, lying flat against the spring-top or the mattress, will prevent the brace turning, so that the deflection at the end will prevent its accidentally drawing out.

In connection with the braces double hooks T are or may be used to connect the end of the braces to the outer coils at the top of the springs, as shown in Fig. 5. They may be used on part or on all the top braces. One to a brace will suffice, the same being attached to the spring with which the brace has a permanent connection. It is obvious that a coupling could be made with two holes and a notch, or with two notches; also that two single couplings could be used instead of a double one, and that a single coupling could be made with a hook or notch. The couplings formed of metal strips may most easily be made by punching from sheet metal.

The spring-clips U, for holding the longitudinal slats or bases to the supporting-slats, are preferably formed of a large wire or small bar bent in the shape shown in Fig. 7, or other suitable form; but other spring-clips may be used. In Fig. 10 each spring is shown as having top braces permanently connected with it, and the adjacent ends of these braces are connected with

each other by sliding coupling W. They are so constructed as to be readily detachable in order to permit the bed-bottom to be rolled up when desired, while at the same time they render the connected braces substantially one. The connection and disconnection are made by slipping the rings or enlargements on the end of the brace through the central slot of the coupling and then turning and drawing the coupling into the position shown. The coupling is made to slip on the brace to which it is permanently attached to facilitate connection and disconnection with the other brace, and also to allow the rows of springs being drawn together or separated. The rings or enlargements on the ends of these braces, as well as those seen in Figs. 2, 4, 5, give a large bearing at those points.

For transportation the top braces, N×, are each released from one of the springs with which they are connected, and are turned parallel with the longitudinal slats or base-pieces. The couplings P Q R S remain attached to the springs. The braces are slipped sidewise out of the notches in couplings R, or endwise from their holes in couplings S, as before explained.

Ordinarily the braces would be withdrawn entirely from one longitudinal row of springs. After the top braces are properly placed, nothing remains but to roll up the bed-bottom, folding over the rows upon one another, beginning at the sides. The tops of the two outside rows overlap or run into each other. When folded the parts occupy substantially the position represented in Fig. 6. The outside slats can be fastened together to keep the bed-bottom rolled up. It is then ready for shipment.

In setting up, the bed-bottom is unrolled. The slats or base-pieces, with the rows of springs carried thereby, are adjusted the proper distance apart by shifting the position of the ties or fasteners M. The bed-bottom, when placed in the bedstead, is preferably fastened to one or more of the supporting-slats B. This is preferably done by the spring-clip U, but can be done by means of the ties or fasteners M, as shown in Fig. 8, the supporting or cross slat B (which may be of metal or other suitable material, as of wood) being provided with a series of holes to receive the tongue N.

It is obvious that a series of cross-pieces (whether constituting the supporting-slats or serving simply as braces) could be used in addition to or in substitution of the Y-braces, although not, as it is believed, with advantage. After or before securing the bed-bottom to the supporting-slats—and it may be before the base is adjusted to the width of the bedstead—the top braces, N×, are turned diagonally and are secured to the couplings R S of the adjacent springs. When couplings S are employed the double hooks T, if used, are temporarily removed from the braces, and afterward, when the other ends of the braces have been inserted through the holes in the couplings, are reapplied.

If the arrangement shown in Fig. 10 be adopted, the top braces are disconnected for rolling up by slipping the enlargement in one of the connected braces through the slot therein. The coupling is then pushed in under the top of the spring, to which it remains attached. In setting up, the reverse operation is followed. With both kinds of braces the slip-joint allows the ready separation of spring in adjusting the base to the middle of the bed.

Modifications in details may be made without departing from the spirit of the invention.

I claim the new improvements herein described, all and several, to wit:

1. In combination with the springs of a bed-bottom, auxiliary slats or base-pieces carrying the springs, formed of flat metal strips with upward bends or elevations inclosed by the base-coils of said springs, said bends or elevations extending across the strips, substantially as described.

2. A slat or base-piece provided with upward bends extending across the same, and with holes through the sides of said bends, in combination with springs attached to said slats or base-pieces by means of fastening-wires through said holes, substantially as described.

3. A slat or base-piece having for each spring two or more short upward bends extending across the slat or base-piece, in combination with springs carried by and secured to said slat or base-piece, with their base-coils encircling said bends, substantially as described.

4. The combination, with slats or base-pieces provided with eyes or loops, of springs attached to said slats or base-pieces by passing the spring-wire of each through two or more eyes or loops and diametrically across the space inclosed within the base-coil of the spring and bending the end of said wire over the base-coil at the opposite side of said space, substantially as described.

5. In a bed-bottom, a brace connecting slats or base-pieces together, and comprising a metal strip bent obliquely at the middle to form a V, substantially as described.

6. A connecting-brace comprising a V-piece with unequal legs, substantially as described.

7. In a spring bed-bottom, the combination, with the slats or base-pieces and the springs, of braces having each a V-piece fastened to one of the slats or base-pieces, and a straight piece hinged to the point of the V and fastened beyond the hinge to a second slat or base-piece, substantially as described.

8. In combination with the slats or base-pieces and springs, adjustable connecting-braces or cross-pieces provided with a series of holes or other irregularities, and ties or fasteners each comprising loops embracing a slat or base-piece and a brace or cross-piece at their crossing, and a tongue or similar engaging device for holding the braces in the position to which they may be adjusted, substantially as described.

9. A spring bed-bottom adapted both to be rolled up and to be widened or narrowed, the

same comprising, in combination with the springs, an adjustable or extensible and flexible base, with hinges in the connecting-braces or cross-pieces, and ties or fasteners for retaining said base in its expanded or contracted condition, substantially as described.

10. The herein-described tie or fastener, comprising the loops lying in different planes, so as to receive a slat and connecting-brace at their crossing, and a flexible tongue made in one piece of wire or bent metal strip.

11. In combination with the longitudinal slats or base-pieces, hinged connecting-braces adjustably connected with the slats, substantially as described.

12. In a bed-bottom, braces or cross-pieces permanently fastened, by riveting or similar means, to one of a pair of slats or base-pieces, and adjustably connected with the other, substantially as described.

13. The combination, in a bed-bottom, with the slats or base-pieces, of braces comprising each a V-shaped piece riveted or permanently attached to one slat or base-piece, and a link hinged to the point of the V and adjustably connected with another slat or base-piece, substantially as described.

14. The improved bed-bottom, comprising, in combination, the hoop-iron slats or base-pieces, with bends or elevations, the springs attached thereto, and the hinged and adjustable Y-braces of hoop-iron, substantially as described.

15. In combination with the springs, the metal slats or base-pieces, having at the ends caps or protectors of leather or similar material, substantially as described.

16. The combination, with the supporting-slats and auxiliary slats or base-pieces carrying the springs and resting upon said supporting-slats, of spring-clips for holding the said auxiliary slats or base-pieces in place, substantially as described.

17. The combination, with the springs, of top braces formed of stiff wires, rods, or bars, with horizontal rings or flat enlargements at one or both ends, substantially as described.

18. The combination, with the springs and top braces formed of stiff wires, rods, or bars, of the double hooks for holding them in place, substantially as described.

19. The combination, with springs attached to a flexible or folding base, of top braces formed of stiff wires, rods, or bars connecting the springs and extending across the tops of the same and adapted to be disconnected, substantially as described.

20. The combination of the springs, an extensible and flexible or folding base, and extensible top braces formed of stiff wires, rods, or bars, substantially as described.

21. The combination, with springs having extension-tops formed of a series of flat coils, and braces of wires, rods, or bars extending under said tops, of a flexible or folding base carrying the said springs, substantially as described.

22. The described couplings for the top braces of wires, rods, or bars, in combination with the springs and said braces.

23. The combination of the springs, the longitudinal slats or base-pieces, the jointed cross-pieces or lower braces, the top braces of wires, rods, or bars, and the couplings for said braces, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ADDISON F. PUREFOY.

Witnesses:
GEO. A. ISBELL,
ELIAS PIERPONT.