(No Model.) 2 Sheets—Sheet 1.

C. F. PHILLIPS.

SPRING BED BOTTOM.

No. 458,374. Patented Aug. 25, 1891.

Fig. 1.

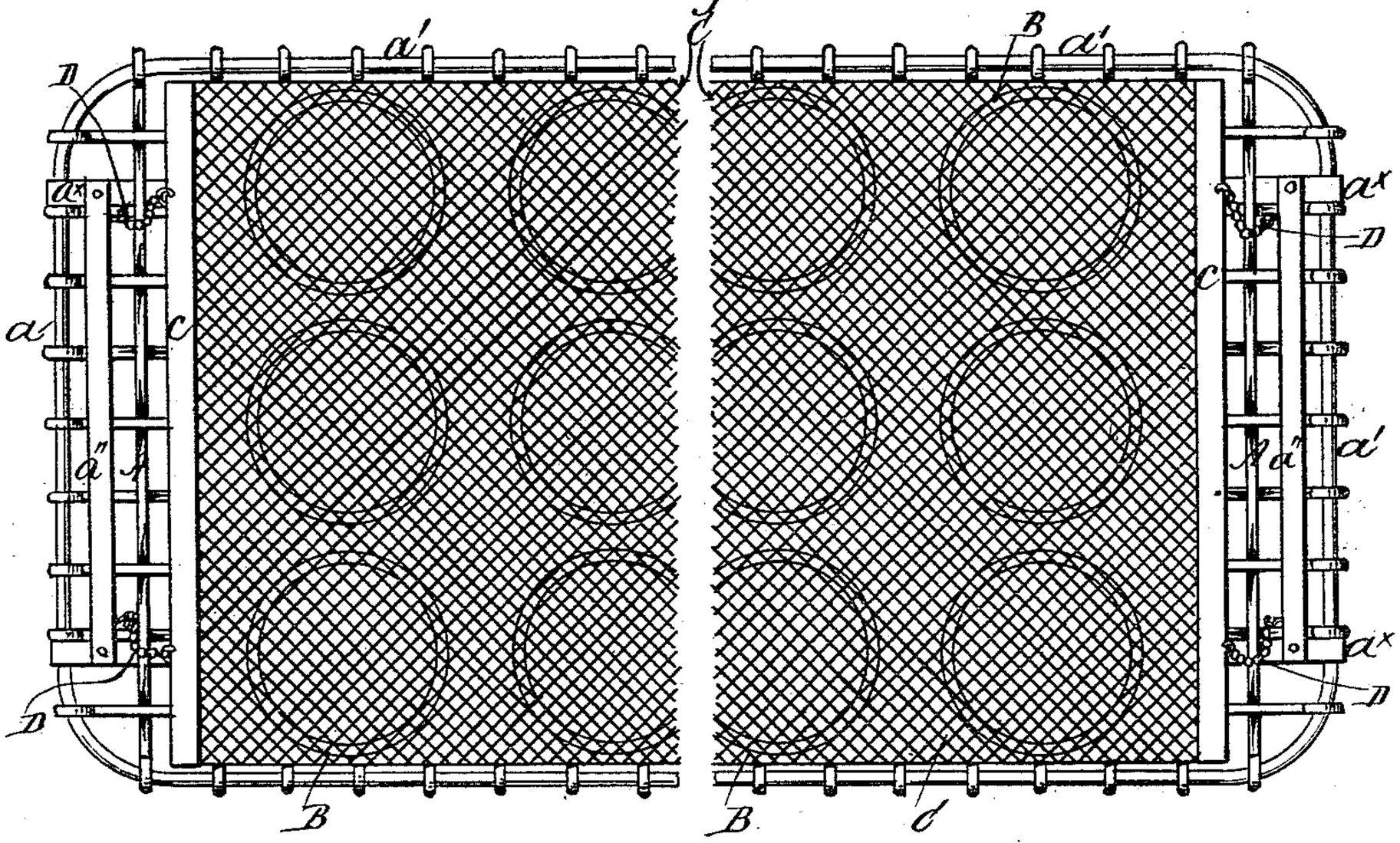
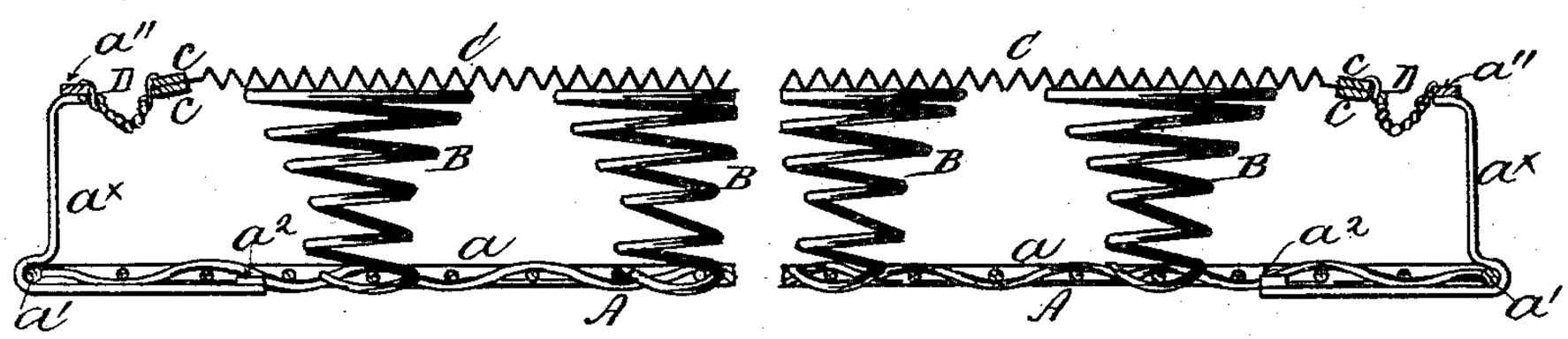


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

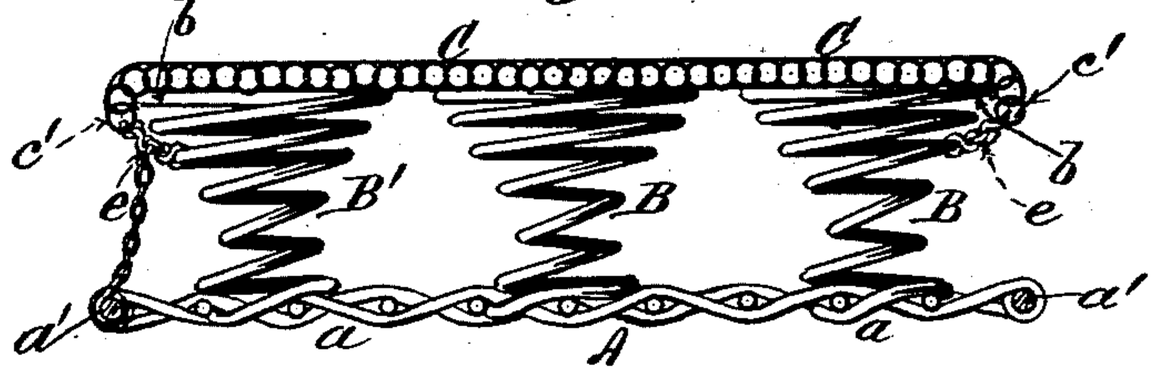


Fig. 4.

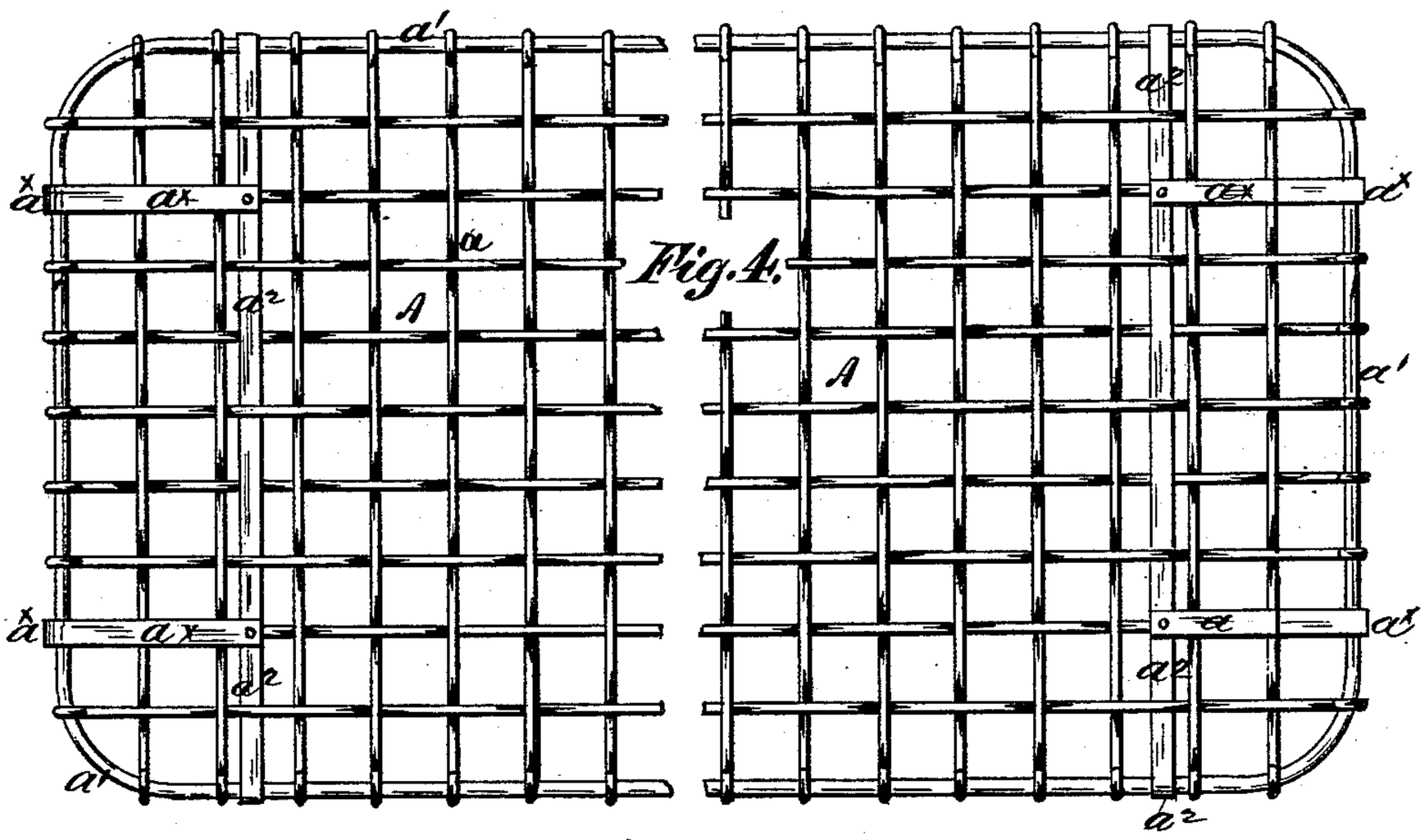
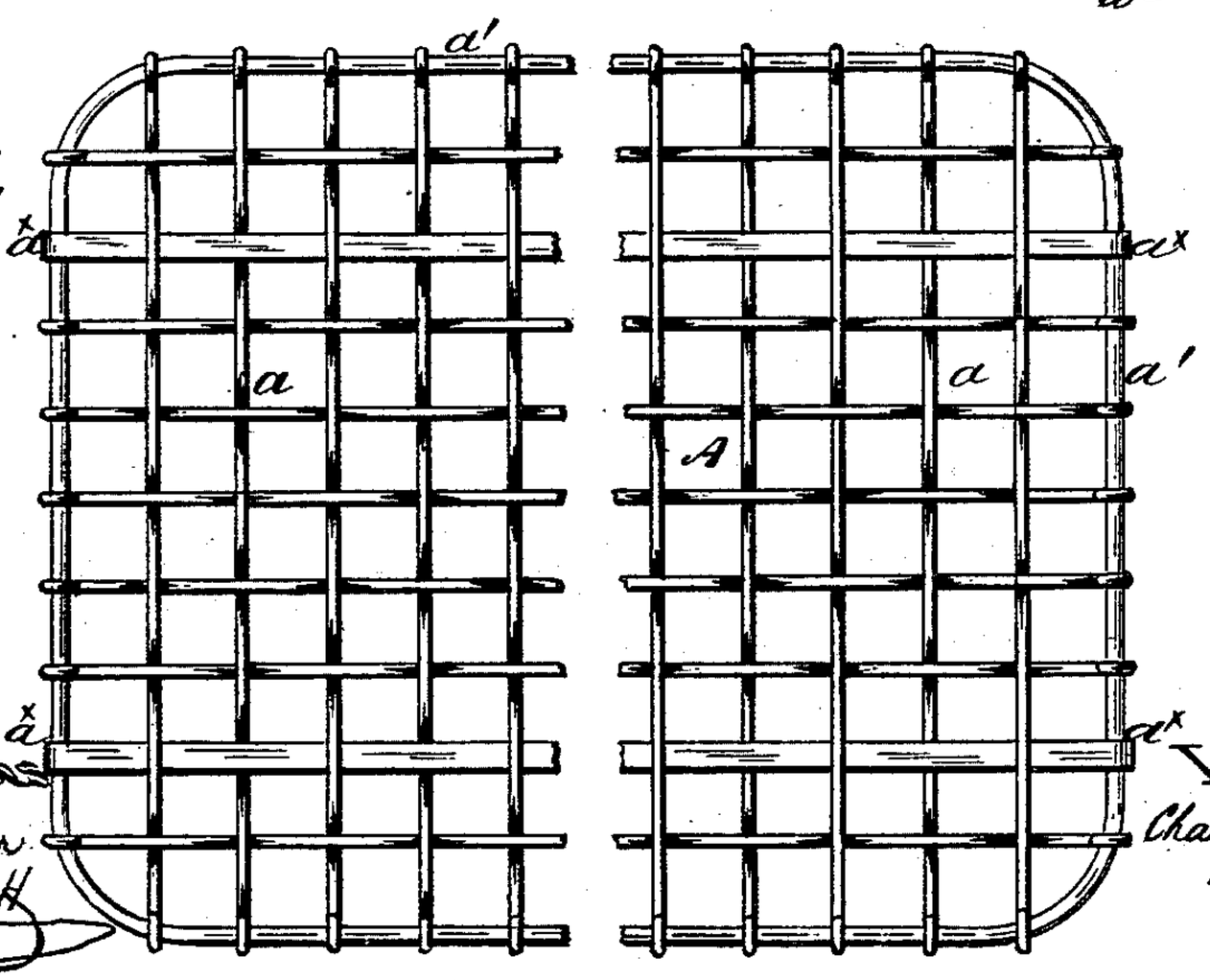


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES F. PHILLIPS, OF BROOKLYN, NEW YORK.

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 458,374, dated August 25, 1891.

Application filed May 16, 1890. Serial No. 352,106. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. PHILLIPS, a citizen of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Spring Bed-Bottoms, of which the following is a description sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My improvements relate to the class of bed-bottoms set forth in Patents Nos. 258,595 and 381,948, to which reference may be had for a general understanding of the advantages of this form of bed-bottom. In the latter patent a distinguishing feature is the use of a loose covering or mat for the series of spiral springs attached to the woven-wire base of the first patent named, the result being the production of a highly-sensitive but evenly-distributed support, which renders a thick mattress or other heavy cushion above unnecessary, a simple covering of comparatively slight thickness being sufficient to afford a comfortable resting-place.

In Patent No. 381,948 the loose mat or covering, which consists usually of the well-known spiral woven-wire cloth to prevent its total displacement, is nominally attached to an independent frame, upon which the woven-wire base for the spiral springs rests. Said patent also sets forth the use of loose guard-wires at the sides, which run through or are otherwise connected to the longitudinal edges of the loose covering or mat to act as stiffeners to prevent undue distortion or derangement laterally, said loose guard-wires being also attached to the independent frame. It will thus be seen that the woven-wire or other covering for the spiral springs, although practically loose and free as far as the requirements of use are concerned, is, nevertheless, for the sake of preserving the relative arrangement of the parts during the transportation or handling of the bed-bottom as a whole, attached on all sides to the independent frame-work referred to, said frame-work serving mainly as a means of combining the three essential elements of the combination disclosed in the patent—namely, the woven-wire base, the spiral springs attached thereto, and the loose covering or mat resting upon the spiral springs.

The main object of my present invention is to simplify and cheapen the construction of the bed-bottom, rendering it lighter, more compact, and more convenient in transportation and handling, while retaining all the advantages appertaining to the use of this particular form of bed-bottom, as set forth in Patent No. 381,948. This I accomplish by dispensing entirely with the independent supporting-frame and the loose side guards, the invention consisting, primarily, in loosely coupling the woven-wire cloth or other covering which rests upon the spiral springs directly to the woven-wire base at the ends, and, secondarily, in preserving the alignment of the longitudinal edges of the woven-wire cloth or other covering by attaching said edges to the outer rows of spiral springs, which are arranged upon either side of the woven-wire base, or to the base itself in such manner as to afford a yielding but practically continuous support for the said edges of the cover or mat.

In the accompanying drawings, Figure 1 is a top view of my improved bed-bottom; Fig. 2, a longitudinal vertical section; Fig. 3, a transverse section; Figs. 4 and 5, views of the under side of the woven-wire base, illustrating different ways of combining the re-enforcing strips which support the standards with the woven-wire base.

The bed is shown as broken away centrally.

The base A is preferably, though not necessarily, made of woven wire *a*, secured to a rigid frame *a'*, as described in Patent No. 258,595. The lower convolutions of the spiral springs B are secured to the base A in any suitable manner.

C is a mat or covering, of any suitable material, usually consisting of the requisite length of woven-wire cloth, which is preferably, though not necessarily, bound at the ends to prevent unraveling by strips *c* or other equivalent means. This mat C rests

loosely upon the spiral springs B, being practically unsupported and unrestrained at the edges, so that it is free to conform to and follow the depression of the springs B in any direction, the couplings or links D which connect it to the woven-wire base A, being used simply to prevent the total displacement of the cover, while allowing it all the requisite freedom of movement, the essential feature in this connection being the use of a loose covering which is free to adapt itself to all the circumstances of use without interfering with or controlling the action of the spiral springs, excepting only in so far as it extends their area of influence. It is obvious, however, that if desired, where the covering or mat consists of woven-wire cloth or other equivalent material having a high degree of elasticity and resilience, the upper ends of the spiral springs B may be loosely attached to the cover C in any appropriate manner without interfering materially with the freedom of action and adaptability of the supporting-surfaces under the ordinary variations of pressure in actual use, so that I do not limit myself herein to the absence of actual connection between the spiral springs B and the cover C, since the distinguishing features of the present invention relate to the method of loosely coupling the covering C to the other parts of the bed-bottom, substantially as herein set forth.

It is obvious that the couplings may be arranged to connect the cover C to any desired portion of the base other than at the edges with substantially the same result, but the method herein shown of connecting the two parts at their edges is ordinarily preferable.

The form and arrangement of the couplings D, which attach the ends of the cover C loosely to the base A, may be varied materially without departing from the spirit and intent of my invention in this respect. Ordinary chains or links or cord or wire may be used, as may be preferred. I form the base A with standards or projections $a^{\times}$, extending above the upper side of the base A a sufficient distance to afford a convenient means for the attachment of the couplings D to the base A, of which the said standards $a^{\times}$ are practically a part. The base A is provided with two of these standards $a^{\times}$ $a^{\times}$ at each end. The couplings D are attached at one end to the binding-strips *c* and at the other either directly to the main body of the base A, as before stated, or directly to the standards $a^{\times}$ $a^{\times}$ or to a transverse bar a', extending between and securing the upper ends of the standards $a^{\times}$ $a^{\times}$ together. These transverse bars a', though not indispensable, are desirable, in that they not only strengthen base A and insure the stability of the standards $a^{\times}$ $a^{\times}$ and ends of the device as a whole, at the same time affording convenient means of handling the bed-bottom, but also furnish a desirable support for the ends of the mattress when superposed on the bed-bottom.

It is obvious that the standards $a^{\times}$ may be formed with or incorporated into the base A in various ways, as by means of clamps, rivets, or other well-known mechanical contrivances.

The standards $a^{\times}$, as shown in the drawings, consist of flat metal strips of a proper degree of stiffness projecting up from the under side of the base A, under which they extend either the whole length of the base A, as shown in Fig. 5, or as far as transverse strips a^2, to which their inner ends are riveted. The strips a^2 thus formed re-enforce and strengthen the bed-bottom as a whole, although it is obvious the form and attachment of the standards $a^{\times}$ are of secondary importance as far as their relation to the cover C is concerned. The outer rows B′ B′ of the spiral springs B are arranged so that the outer sides of their upper convolutions *b b* come just within the line of the longitudinal edges *c′ c′* of the cover C, when the latter is in its proper normal position. In order to prevent the edges *c′ c′* from passing inward over the tops of the springs under the natural tendency of the cover C, especially when made of woven-wire cloth, to contract more or less centrally between the binding-strips *c c*, I connect the said edges *c′ c′* to the upper portions of the said outer rows of spiral springs. This is preferably done by means of comparatively loose coupling-chains *e e*, extending downward to one of the convolutions of the springs B′ or to the base, if preferred, and the edges *c′ c′* of the cover are also preferably carried over the outer edges of the upper convolutions of the said springs for the purpose of securing a more perfect alignment of the edges. Thus if the edges *c′ c′* were simply secured to the outer edges of the upper convolutions of the springs the edges of the cover would be drawn inward, more or less, between the springs, creating a wavy irregular outline. By turning over the edges *c′ c′* slightly, however, as indicated in Fig. 3, this tendency to distortion is counteracted and a higher degree of symmetry of appearance than heretofore attained.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a spring bed-bottom substantially such as described, the combination of the rigid woven-wire base A, formed with the standards $a^{\times}$ $a^{\times}$ at each end, the lower portions of said standards extending longitudinally with relation to the bed and being secured to transverse strips a^2 a^2, a series of spiral springs B, secured to the said base A, and a cover C, loosely attached to the standards $a^{\times}$ $a^{\times}$ by flexible couplings D, the whole arranged and operating substantially in the manner and for the purpose set forth.

2. In a spring bed-bottom substantially such as described, the combination of the

rigid woven-wire base A, formed with the standards $a^{\times}$ $a^{\times}$ at each end, the lower portions of said standards extending longitudinally with relation to the bed and being secured to transverse strips a^2 a^2, a series of spiral springs B, secured to the said base A, and a cover C, loosely attached to the standards $a^{\times}$ $a^{\times}$ by flexible couplings D and to the springs B by flexible couplings *e e*, the whole arranged and operating substantially in the manner and for the purpose described.

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Witnesses:
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