E. A. JEFFERY.

Spring-Bed or Bed-Bottom.

No. 221,317. Patented Nov. 4, 1879.

FIG. 1.

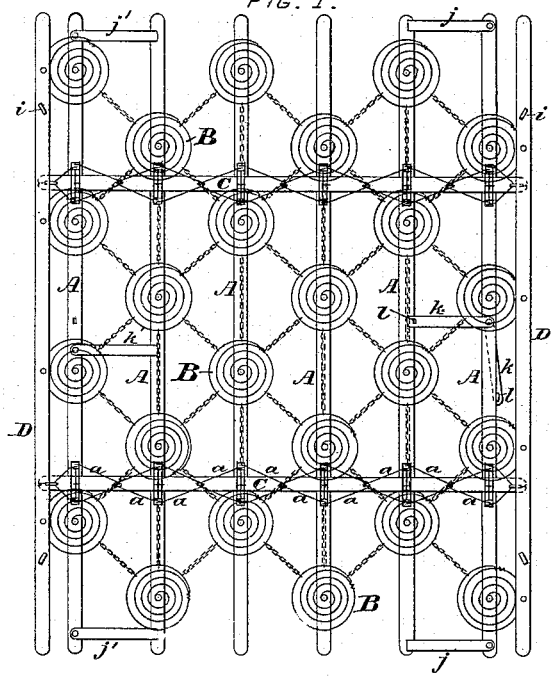

FIG. 2.

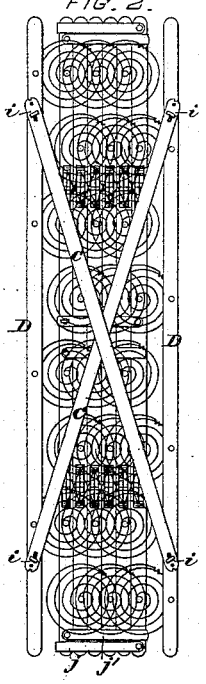

FIG. 4.

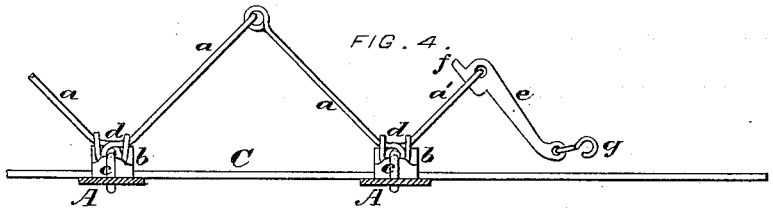

FIG. 5.

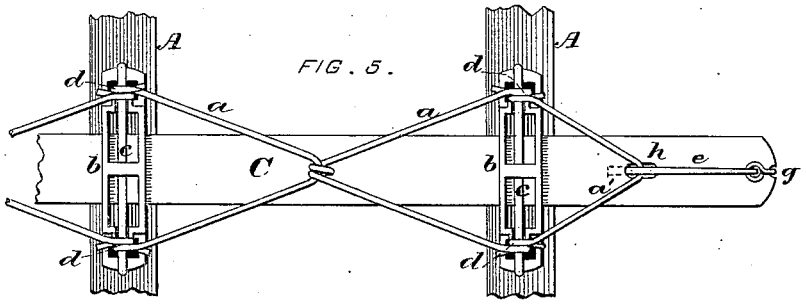

FIG. 6.

ATTEST:

George H. Fraser,

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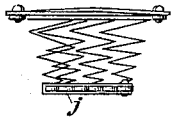
FIG. 3.



INVENTOR:

Edwin A. Jeffery
by his attorneys
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2 Sheets—Sheet 2.

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FIG. 7.

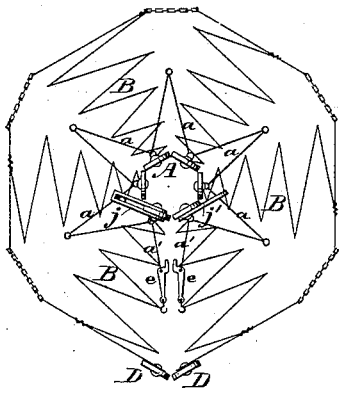


FIG. 8.

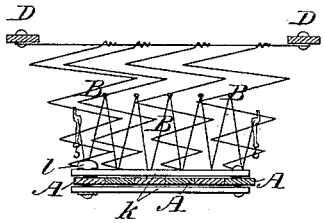
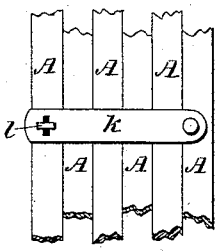


FIG. 9.



ATTEST:

George H. Fraser,

Chas. Eben Brown

INVENTOR:

Edwin A. Jeffery

by his Attorneys

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UNITED STATES PATENT OFFICE.

EDWIN A. JEFFERY, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN SPRING-BEDS OR BED-BOTTOMS.

Specification forming part of Letters Patent No. **221,317**, dated November 4, 1879; application filed May 8, 1879.

To all whom it may concern:

Be it known that I, EDWIN A. JEFFERY, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain Improvements in Spring-Beds or Bed-Bottoms, of which the following is a specification.

This invention relates to spring-beds or bed-bottoms adapted to collapse or close together, the springs being mounted upon slats which are connected by hinges or links, and adapted to be distended or separated, and maintained in that position by straining-bars, all as will be more fully hereinafter set forth.

In the drawings, which serve to illustrate my improvements, Figure 1 is a plan of the bed distended and ready for use. Fig. 2 is a plan, and Fig. 3 an end view, showing it collapsed. Figs. 4, 5, and 6 are detached and enlarged views arranged to illustrate the distending mechanism. Fig. 7 illustrates, by an end elevation, the bed rolled up with the springs outward. Fig. 8 is a cross-section, and Fig. 9 is a detail in plan, which serve to illustrate the intermediate brace or clamp for securing and bracing the slats.

The bed here shown is constructed entirely of metal; but I do not wish to confine myself to any particular materials or material, although metal is preferable.

A A represent bottom or foundation slats, on which are mounted the springs B B. These springs may be arranged in any good and convenient way, and may be connected at their tops by means of chains in the usual way.

By referring to Figs. 4, 5, and 6, wherein a larger scale is used, it will be seen that the slats are connected together at two, or it may be more than two, points by means of links *a a*, of triangular form, looped or hinged together at their apexes, midway between the slats. The attachment of these links to the slats is peculiar.

On each slat is mounted a skeleton plate, *b*, which is secured to the slat by means of a wire stirrup or staple, *c*, the ends of which pass through holes in the slat and are clinched on the under side. This wire *c* serves also as a hinging-rod for the links, the eyes *d* of which are bent in the ends of the link wires, and the said eyes being sunk in recesses in the plate *b*, the extremity of the wire forming the eye is brought to bear on the margin of the plate *b* when the strain is brought on the links in distending the bed, thus effectually preventing the wire of the eye from straightening out.

The plate *b* is recessed on its under side so as to leave a mortise or way to receive a distending bar or strip, C; or the mortise may be made directly through the plate, if desired.

As each slat is provided alike with plates *b b*, and as they are all linked together in the same manner, I have deemed it necessary to describe but one.

One or each of the outer slats is provided with a hinged link or piece, *a'*, attached to the slat similarly to the other links, *a*, and to the apex of this link is attached, by an eye, a lever, *e*, provided with a short arm or projection, *f*, and a hook, *g*.

So far as described the distending operation is as follows: The distending-bars C C, which, as shown, are counterparts of each other in all respects and alike at both ends, are passed under or through the plates *b b*, occupying the mortise or way left for their reception. The slats are now separated as far as the links *a a* will permit, and the short arms, *f f*, of the levers *e e* dropped through mortises *h h* in the bars C. The tops or long arms of the levers are now pulled over until the hooks *g g* are made to engage proper notches or recesses in the ends of the bars C, as clearly shown in Figs. 5 and 6. When thus strained or distended the bed is perfectly rectangular and rigid, and is maintained so by means of the triangular braces formed by the links *a a*.

In distending the bed it is best to engage the lever *e* on one side first, then distend the bed and secure the levers and hooks on the opposite side.

The levers might be omitted from one side, and the hooks only be employed, but I prefer levers on both sides, as it enables me to strain up the bed from either side as found most convenient.

The bed is collapsed by disengaging the fastenings on one side and sliding the slats together. The fastenings on the opposite side are then disengaged and the distending-bars drawn out from their keepers or keeper-plates *b*. As the slats are pushed together the links

a a rise at their linked or hinged apexes, (see Fig. 4,) and stand nearly vertical when the bed is collapsed. In this position they occupy no appreciable space, and are housed in and protected by the springs.

After the bed is collapsed I employ the straining-bars C C to secure the same together at the top, as follows: Referring especially to Fig. 2, in the top side slats D D, which are mounted on the margin of the side rows of springs, are studs or keys *i i*, two in each slat, arranged at proper points and adapted to turn freely. These have elongated T-shaped heads, which are passed through longitudinally-arranged slots in the bars C C, (which are laid diagonally across the collapsed bed,) and turned a quarter round, so that they will secure the bars in position.

Other equivalent means of attaching the bars to the rails or slats D D may be substituted for the studs *i i*.

To prevent the outer or marginal slats A from twisting when the weight of the body is thrown upon the springs, I provide hinged bars *j j'*, arranged at the ends of the slats and attached thereto by rivets or studs, or other equivalent means. These bars extend far enough to rest upon the adjacent slats of the bed when it is distended, as in Fig. 1, and serve to brace the slats to which they are attached. In addition to those at the ends, I also provide others at or near the center of the slat, which are lettered *k k'*. These form additional braces for the outer slats.

The end bars, *j j'*, serve also another useful purpose, as will be seen by reference to Figs. 2 and 3. The bars *j j* are made in the form of flattened loops by bending the metallic strip in the center, the free ends clasping the marginal slat and receiving a common hinging-stud. These loops are slipped over the slats when closed together, and embrace their extremities, as shown. The bars *j j''* are secured to the opposite marginal slat, and farther in from the end than the last mentioned. These may or may not turn on their studs. The bars *j'*, when the bed is collapsed, prevent the bars *j* from slipping too far back on the slats, and the two jointly serve to protect the ends of the slats from being bent up or otherwise injured in transporting the bed.

The bar *k* is essentially double, as will be readily seen by reference to Figs. 8 and 9, one plate being under the slats and the other above, but both pivoted and arranged to turn independently on a common stud. The under plate bears a T-headed stud, *l*, and the upper plate is perforated to permit the head of the stud to pass through. The side slat is also perforated, so that when the bed is collapsed the swiveled stud will pass through all three, and hold them securely together.

When the bed is distended the under plate, bearing the stud *l*, may be turned to one side, as in Fig. 1, the stud dropping down through, so as to present only so much obstruction as will be offered by the thickness of its head.

This device serves to bind the slats firmly at the center when the bed is collapsed.

It will be understood that the distending-bars C may be made of round, flat, or any shaped material having the requisite strength or stiffness. These bars do not directly assist in maintaining the rectangularity of the bed, this being effected by the angular links *a a*, which serve as cross-braces and give great rigidity to the bed. These links *a a* may be hinged directly to the slats A A, if desired; but I prefer to connect them by means of the plates *d* and staples *c*, as described.

Although I have shown the links made from wire, and prefer this material, other metallic material may be employed, as sheet metal or light castings.

By reference to Fig. 7 it will be seen that this bed is especially arranged and adapted to be rolled up, with the springs outward. To do this, I first collapse the bed and remove the straining-bars. I then turn the bed over, with the slats uppermost, and, taking hold of the slats D D, bring them round together, as shown. The slats A A form a central core, and the links *a a* prevent any appreciable amount of longitudinal movement of the slats past each other. I employ this method of rolling up the beds when they are to be moved short distances only, as in changing residence or cleaning house.

I am aware that spring-beds are made to roll up with the springs inside; but such beds cannot be rolled up with the springs outside, as the slats cannot be brought together.

I claim—

1. In a collapsible spring-bed, the links *a a* of triangular form, connected together at their apexes between the slats, and hinged to the slats, so as to form diagonal braces when the slats are separated, substantially as set forth.

2. In a collapsible spring-bed, the plates *b b*, having ways or mortises through or under them, in combination with the stirrups or staples *c c*, for securing them to the slats, the links *a a*, and the slats A A, substantially as set forth.

3. The wire link *a*, of triangular form, provided with eyes *d d*, bent in its extremities, the recessed or mortised plate *b*, and a wire or rod arranged to hinge the link to the bed-slat, the said parts being combined and arranged, as shown, in such a manner that when the link lies flat the wire of the eyes will bear upon the plate *b*, and prevent the straightening out of the same, as set forth.

4. The combination, with a collapsible spring-bed or bed-bottom, of the link *a'*, the lever *e*, a suitable hook or fastening, *g*, and the distending-bar C, all arranged to operate substantially as set forth.

5. In a spring-bed, slats A A, provided with mortised or other suitable keeper-plates, and connecting-links to permit of their being separated to a limited extent, in combination with distending-bars adapted to pass through or under the keeper-plates, so as to guide the

slats in distending and collapsing the bed, substantially as set forth.

6. The combination, with the slats A A, of two or more triangular bracing-links, *a a*, hinged or connected thereto, and suitable distending-bars arranged to pass through or under keepers on the slats, and to be connected to the outer or marginal slats when the bed is distended, substantially as set forth.

7. In a collapsible spring-bed having side slats D D, the said side slats provided with studs *i i*, or other similar keys or projections, in combination with slats or bars C C, provided with suitable perforations or recesses to engage said studs or keys when the bed is collapsed, the bars being then arranged diagonally across each other in X shape, substantially as shown in Fig. 2, and as described.

8. A collapsible bed or bed-bottom consisting of the spring-bearing slats A A connected together by links to permit of their being separated to a limited extent, and provided with straining-levers *e e*, in combination with distending bars C C, substantially as set forth.

9. The combination, with the slats of a bed, of a looped clamp and brace, *j*, pivoted to the marginal slat, and arranged to slip over and embrace the ends of the slats when closed together, substantially as set forth.

10. The combination, with the slats of a collapsible bed, of the looped clamp and brace *j*, pivoted to one of the marginal slats, and arranged to project over and rest upon the next adjoining slat when the bed is distended, so as to brace the marginal slat, the said clamp or brace being also adapted to embrace and confine the ends of the slats when the bed is collapsed, substantially as set forth.

11. A collapsible bed, composed of slats A A, springs B B, and folding triangular bracing-links *a a*, connecting the slats, adapted to be rolled up with the springs outward, as shown in Fig. 7, and as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWIN A. JEFFERY.

Witnesses:

HENRY CONNETT,

WALTER W. SCOTT.