No. 695,607. Patented Mar. 18, 1902.

A. GUAY.

BED SPRING.

(Application filed Nov. 8, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1

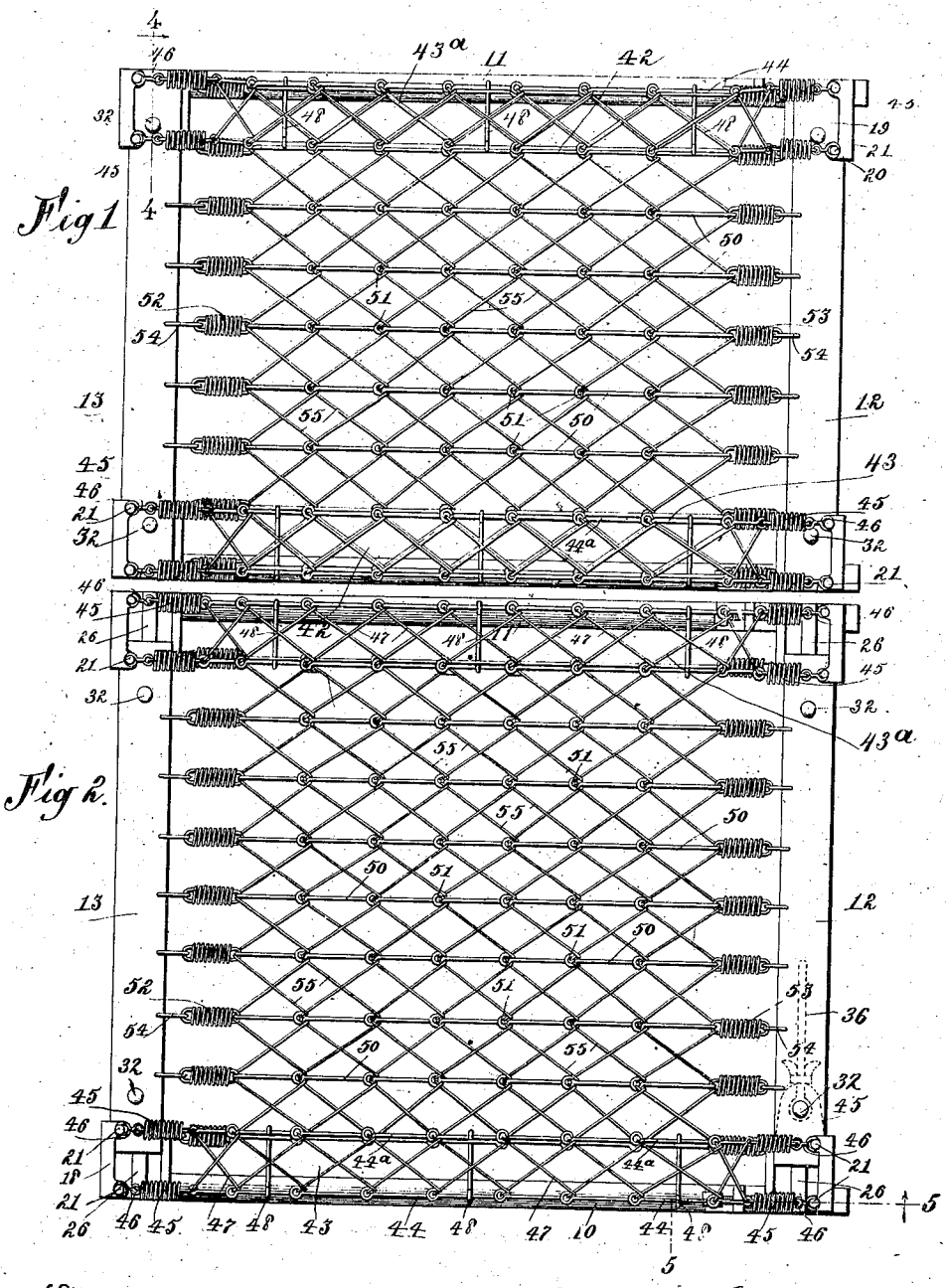

Fig 2.

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2 Sheets—Sheet 2.

Fig. 3.

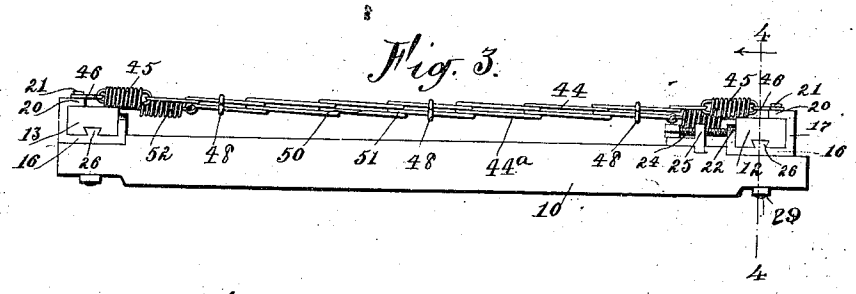

Fig. 4.

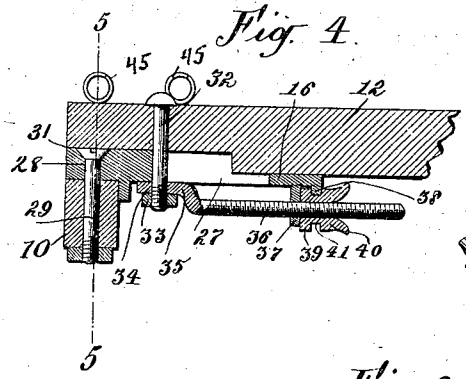

Fig. 5.

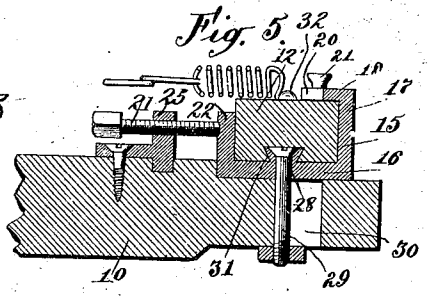

Fig 6.

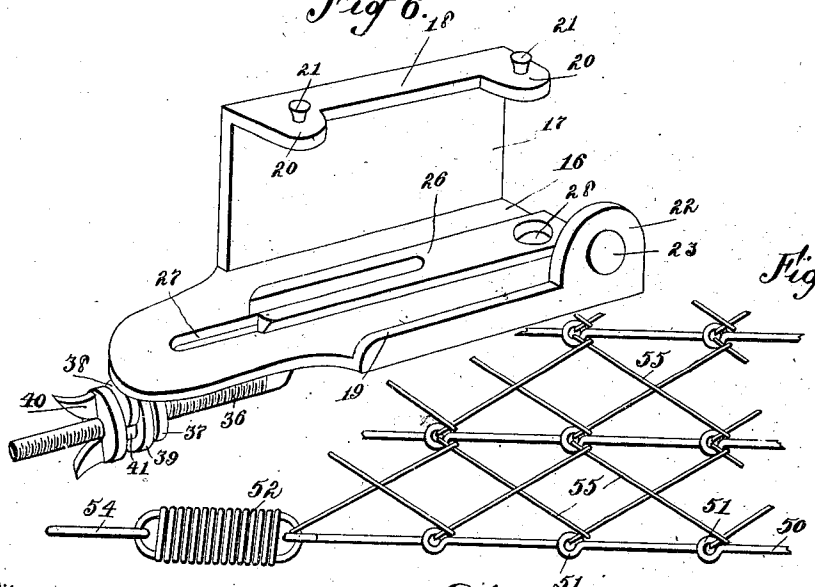

Fig. 7.

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UNITED STATES PATENT OFFICE.

ALFRED GUAY, OF MAXVILLE, CANADA.

BED-SPRING.

SPECIFICATION forming part of Letters Patent No. 695,607, dated March 18, 1902.

Application filed November 8, 1900. Serial No. 35,792. (No model.)

To all whom it may concern:

Be it known that I, ALFRED GUAY, a subject of Her Majesty the Queen of Great Britain, residing at Maxville, in the county of Glengarry, Province of Ontario, Canada, have invented certain new and useful Improvements in Bed-Springs; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in bed-springs; and the primary object that I have in view is to provide means for securely connecting the side and cross rails to the spring-frame in a manner to hold the parts in operative relation and at the same time make provision for adjustment of the cross-rails relative to the side rails, so as to effect an increase or decrease in the width of the available surface forming the bed-bottom.

A further object of the invention is to improve the construction of the bed-spring in a way to reduce the elasticity and sagging of the active surface while retaining a certain amount of elasticity which will secure the necessary comfort to the occupant of the bed.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty in the combination of devices and in the construction and arrangement of parts will be defined by the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a bed-spring embodying my improvements and showing the parts adjusted within the smallest limit to fit a narrow bedstead. Fig. 2 is a plan view similar to Fig. 1 and showing the bed-spring adjusted to fit wide beds. Fig. 3 is an edge view in elevation of the bed-spring looking at the side edge of Fig. 2. Fig. 4 is a sectional view through the side rail and a portion of a cross-rail to show the means for adjusting the latter with respect to the side rail, the plane of the section being indicated by the dotted line 4 4 on Fig. 1. Fig. 5 is an enlarged sectional elevation in the plane of the dotted line 5 5 on Fig. 2 and taken longitudinally through a portion of the side rail and transversely through a cross-rail. Fig. 6 is a detail perspective of one of the corner-irons employed to unite the side and cross rails adjustably together. Fig. 7 is an enlarged fragmentary view of a portion of the bed-bottom.

The same numerals of reference denote like parts in each of the several figures of the drawings.

The frame of the bed-spring consists of the side rails 10 11 and the cross-rails 12 13. These rails are arranged for the end portions of the cross-rails to overlap the corresponding portions of the side rails, as represented more clearly by Figs. 3 to 5, inclusive, and these rails are united firmly and adjustably together at their meeting ends by employing a series of corner-irons 15. One corner-iron is fastened to a side rail at each end thereof and arranged in a position to receive an end portion of a cross-rail, all of said parts being joined together in a manner to permit the cross-rail and the corner-iron to be adjusted simultaneously for a limited distance in the direction of the length of the side rail, so as to stretch the bed-bottom longitudinally, while at the same time each side rail is capable of a limited lateral adjustment in the direction of the length of the cross-rail, such last-described adjustment being for the purpose of shifting the two side rails laterally and independently with respect to the bed-bottom, and thereby enable one or two supplemental bed-bottom sections to be brought into position for use and effect an increase in the width of the bed-frame, as will hereinafter more fully appear.

Each corner-iron is cast in a single piece of metal in the form shown more clearly by Fig. 6 of the drawings, and said corner-iron consists of a base-plate 16, a back plate 17, an overlapping flange 18, and a front flange 19, all of which are cast in a single piece of metal. The back plate 17 rises vertically from one edge of the base-plate, and from the top edge of said base-plate projects the overhanging flange 18, the latter being furthermore provided with the lugs 20, from which rise the studs 21. The front flange 19 extends upwardly from the front edge of the base-plate 16, so as to lie parallel with the back plate 17, and thereby give to the corner-iron the appearance of a boxing in cross-section, as represented more clearly by Fig. 5, whereby the corner-iron is adapted to

embrace the cross-rail on all of its sides. The corner is furthermore provided at one end of the front flange with an upstanding bearing-lug 22, the latter having in one face thereof a cavity 23, adapted to receive one end of an adjusting screw-spindle 24. The spindle finds a threaded bearing in a bracket 25, which is secured by any approved means to one side rail at a point adjacent to the cross-rail, said bracket being arranged on the side rail in a manner to support the screw-spindle 24 in such a position that its longitudinal axis will lie parallel to the corresponding axis of the side rail, whereby the screw-spindle is mounted so as to effect the adjustment of the corner-iron in the direction of the length of the side rail. (See Fig. 5.) This corner-iron is furthermore provided with a longitudinal dovetailed rib 26, and said rib and the base-plate of said iron have the longitudinal slot 27 formed therein. The base-plate of the corner-iron or the dovetailed rib 26 thereon is pierced by a bolt-hole 28, through which passes a bolt 29, having at its upper end a head which is countersunk in the bolt-hole, so as to lie flush with the rib. Said bolt passes through a longitudinal slot 30, which is formed in the side rail 10 or 11 near one end portion thereof, whereby the bolt serves to attach the corner-iron 15 to the slotted portion of the side rail in a manner for said corner-iron to be adjusted a limited distance on the rotation of the screw-spindle. This adjustment of the two corner-irons connected to the opposite end portions of the cross-rail 12 provides means by which said corner-irons and the cross-rail may be shifted lengthwise on the side rails 10 11, and thus the bed-bottom may be stretched longitudinally, so as to take up undesirable slack and restore the bed-bottom to a taut condition.

Each cross-rail 12 or 13 is provided in the under side of each end portion thereof with a dovetailed groove 31, the latter arranged to receive the dovetailed rib 26 on the base-plate of one corner-iron, whereby the corner-iron is adapted to have firm engagement with the cross-rail to hold the same in position against edgewise displacement under the strain of the bed-bottom. At the same time the dovetailed rib 26 is as long as the slot 27 to enable the side rail to be moved laterally with relation to the cross-rail and the bed-bottom. I will now proceed to describe one embodiment of means by which this lateral adjustment of the two side rails may be obtained independently with respect to the cross-rails and the bed-bottom, reference being had more particularly to Figs. 4 and 6. A vertical bolt 32 passes through an opening of the cross-rail and through the slot 27 of the corner-iron, the lower end of said bolt having a nut 33. Said bolt 32 passes through an eye 34, which is formed in the flattened and bent end 35 of an adjusting-screw 36, the latter being arranged in a horizontal position below the cross-rail and parallel therewith. The base-plate 16 of the corner-iron extends for a suitable distance inwardly from the side rail, and near its inner end said base-plate 16 is formed with the bearing-lug 37 and the lip 38, said lug 37 having a suitable opening through which the adjusting-spindle 36 is loosely passed. The lip 38 is parallel with the lug 37, so as to form an intervening space in which is received a collar 39 of a thumb-nut 40, the latter having an annular groove 41, adapted to receive the lip 38 of the corner-iron. This thumb-nut has a swiveled connection with the corner-iron by reason of the lip 38 fitting loosely in the groove 41 of the nut, and said nut has threaded engagement with the spindle 36 and it abuts against the lug 37, the latter serving as a bearing for the nut when it is rotated for adjusting the spindle. It is to be understood that the bolts 32 are fastened to each cross-rail in a manner to connect the screws or spindles 36 with said cross-rail, while the bolts are free to move in the slots 27 of the corner-iron. By rotating the thumb-nut of the adjusting devices associated with one side rail the screws or spindles 36 may be actuated to move the bolts 32, and thereby shift the side rail laterally with respect to the cross-rail and the bed-bottom, each side rail being shiftable independently of the other. This movement of the side rail at each side of the bed-frame operates to shift the position of the rail relative to the bed-bottom, and in this connection it is to be observed that the thumb nuts and screws provide means by which the desired adjustments may be easily secured. This shifting of the side rails independently or collectively serves to materially widen the frame of the bed-spring, as represented by Fig. 2; but such adjustment allows vacant spaces to exist at one or both sides of the bed-frame. To fill up said vacant space or spaces and to provide a practically-continuous spring-surface, I contemplate the employment of two auxiliary bed-bottom sections arranged at opposite side edges of the spring-bed, as shown by Figs. 1, 2, and 3. The main portion or body of the bed-spring is represented in its entirety by the numeral 42, and the auxiliary bed-bottom sections are indicated at 43 43^a. Each auxiliary section consists of the longitudinal strands 44 44^a, the coiled springs 45, having the hooks 46, and the weaving or filling wires 47. The coiled springs of each auxiliary section are attached to the ends of the longitudinal strands, so that the hooks 46 may engage with the studs 21 on two of the corner-irons, and the weaving or filling wires connect the strands 44 44^a, so as to make a complete section, the width of the latter being but a fragment of the width of the spring-bottom 42. The filling-wires of each section are arranged to partially close the space between the strands, the latter being bent upon themselves to form the eyes 51, and each filling-wire crosses diagonally between two adjacent strands, so that each filling-wire may

pass through an eye 51 on one strand, then across to a similar eye on an adjacent strand, then back to another eye on the first strand, and so on throughout the length of the section. When two filling-wires are employed, they cross each other, because they are reversely arranged. It is to be observed that each auxiliary section 43 or 43ª has its end portions connected with the studs on the overhanging flanges of two corner-irons, and thus each auxiliary section is made somewhat longer than the bed-bottom 42, and is also arranged on a slightly-higher horizontal plane than said bed-bottom 42. I employ the links 48 to connect the strands 44 44ª of each auxiliary bed-bottom section, so as to make the latter retain its shape when the parts are adjusted, so as to bring one or both of the auxiliary sections into positions for service as a part of the spring-bed, as shown by Fig. 2. Each auxiliary section is intended to be applied to two of the corner-irons 15 between the side rail 10 and the two cross-rails, so that in the narrow adjustment of the bed-spring this auxiliary section 42 will lie over one side edge of the bed-bottom 42. It is my practice to make the bed-spring when adjusted as shown by Fig. 1 of such a width as to fit a narrow bedstead, which is now ordinarily made three feet and eleven inches wide. It is common at this date to make bedsteads which vary in width from three feet eleven inches up to four feet four inches, and we thus find on the market different or various makes of bedsteads, so that there is a difference of five inches between the narrowest and widest bedsteads. My construction provides for adjustment of the bed-frame to fit the widest as well as the narrowest bedsteads, and to fill up the space between one or both side rails and the edge of the bed-bottom 42 when the bed-spring is adjusted to fit the widest bedstead (four feet four inches in width) I employ the two auxiliary sections 43 43ª. It is to be observed that these auxiliary sections remain attached to the bed-spring frame, so as to overlap the edges of the bottom 42, and they are thus always in a position to occupy the unfilled spaces between the side rails and the bed-bottom's edges when the parts are adjusted more or less to fit bedsteads of different widths. I also contemplate a construction of the bed-bottom 42 which will overcome the undue sagging of the bottom after continued use as well as excessive elasticity in the structure of the bottom. I employ a plurality of stout longitudinal wires 50, each having a series of loops or eyes 51 formed at regular intervals therein. The coiled springs 52 53 are connected to opposite end portions of each looped strand 50, and each spring has a link 54 attached thereto, which link is secured to one of the cross-rails. The longitudinal strands 50 are arranged parallel to each other at proper distances apart and so as to bring the loops or eyes 51 of one strand in a corresponding position to the eyes of an adjacent strand or strands. (See Fig. 7.) The spaces between the series of looped strands are partly occupied by a wire filling, which consists of the wires 55, that cross each other between two adjacent strands and are threaded through the loops or eyes 51 of said strands.

The bed-bottom of my invention has an effective surface formed by the strands, the filling-wires, and the springs which affords a proper support for a hair or other mattress. The desired elasticity of the bed is attained by the provision of the springs between the strands and the rail-attaching links; but these springs are made quite stiff for the purpose of overcoming undue sagging of the bottom.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described my invention, what I claim as new is—

1. A spring-bed comprising a frame having its side and cross members slidable with relation one to the other, corner-irons connecting the members of said frame, means for adjusting some of the members of the frame with respect to other members of the same frame, and a sectional bed-bottom having one portion thereof carried by non-adjustable members of the frame, and its other portions connected to the corner-irons, substantially as described.

2. A spring-bed comprising a frame having its cross and side rails slidable with relation one to the other, corner-irons connecting cross and side rails, means for adjusting the side rails relative to the cross-rails, a main bed-bottom section carried by the cross-rails of the frame, and the independent auxiliary bed-bottom sections each supported by a pair of the corner-irons and arranged to fill the space between one side rail and the adjacent edge of the main bed-bottom section, substantially as described.

3. A spring-bed comprising a main bed-bottom fabric, a frame having side and cross rails, said cross-rails arranged to project beyond the main bed-bottom fabric, means for shifting the cross-rails of the frame relative to the side rails thereof and thereby leave a space or spaces between the main bed-bottom fabric and the side rail or rails when the frame is increased in width by adjustment of one or both side rails, corner-irons connecting the side and cross rails of the frame together, and auxiliary bed-bottom sections each supported by a pair of the corner-irons and arranged to fill the before-mentioned space between an edge of the main bed-bottom fabric and the side rail adjacent thereto, as set forth.

4. A spring-bed comprising the side rails, the cross-rails, corner-irons connecting said

side and cross rails together adjustably, means for shifting the side rails with respect to the cross-rails, a main bed-bottom section carried by the cross-rails, and auxiliary bed-bottom sections each supported by a pair of corner-irons and shiftable therewith and with the side rails, substantially as described.

5. A spring-bed comprising side rails, the cross-rails, the corner-irons connecting said side and cross rails, means for shifting the corner-irons and the side rails with respect to the cross-rails, a main bed-bottom section on the cross-rails, and auxiliary bed-bottom sections each attached to a pair of the corner-irons and supported thereby in shiftable relation to the main bed-bottom section, substantially as described.

6. In a spring-bed, corner-irons each comprising a slotted base-plate, a back plate, and a front flange, combined with side rails to which the corner-irons are secured, cross-rails shiftably fitted in the corner-irons, a bed-bottom section connected to the cross-rails, and auxiliary bed-bottom sections connected to the corner-irons, substantially as described.

7. In a spring-bed, a corner-iron fashioned to embrace a cross-rail and provided with a dovetailed rib, and a cross-rail having a recess arranged to receive said rib, combined with means for securing the corner-iron upon a side rail, and means for adjusting one rail relative to the other, substantially as described.

8. In a spring-bed, the combination of corner-irons each provided with a slotted base-plate, the side rails, the cross-rails slidably fitted in the base-plates, a bolt attached to each cross-rail and arranged to play in the slotted base-plate of one corner-iron, an adjusting-spindle connected to said bolt, and a nut held against endwise movement by the corner-iron and having threaded engagement with the spindle, substantially as described.

9. In a bed-spring, the combination of the side and cross rails, the corner-irons attached to the side rails a bed-bottom attached to the cross-rails, means for shifting the side rails laterally with respect to the cross-rails, and auxiliary bed-bottom sections each attached to two of the corner-irons and comprising the longitudinal strands, the springs attached to the strands, links connecting the strands, and a filling or weaving crossing the strands and attached to the latter, substantially as described.

10. In a bed-spring, an elastic bed-bottom comprising a main section and two side sections, each of said sections having longitudinal strands, springs attached to the ends of said strands, and diagonal filling or weaving wires crossing one another between the strands and attached to the latter; in combination with a frame having side and cross rails; means for connecting the main bed-bottom section to the cross-rails; and adjustable means substantially as described connected with the adjustable bed-bottom sections and also joining the side and cross rails of the frame together, whereby the side bed-bottom sections may be adjusted with the side rails of the frame.

11. In a spring-bed, an elastic bed-bottom comprising a main section and the adjustable sections, each of said sections having the longitudinal strands each having a plurality of loops or eyes arranged in positions corresponding to the loops of adjacent strands, the coiled springs attached to opposite ends of each strand, and the filling-wires crossing each other between the strands and threaded through the loops or eyes thereof to form a weaving which gives an increased effective area to the bed-bottom, in combination with a sectional frame having means for adjusting the side rails relative to the cross-rails, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALFRED GUAY.

Witnesses:
THOS. W. MUNRO,
J. G. SABOURIN.