W. W. VINCENT.

BED SPRING.

APPLICATION FILED MAR. 26, 1908.

908,524.

Patented Jan. 5, 1909.

2 SHEETS—SHEET 1.

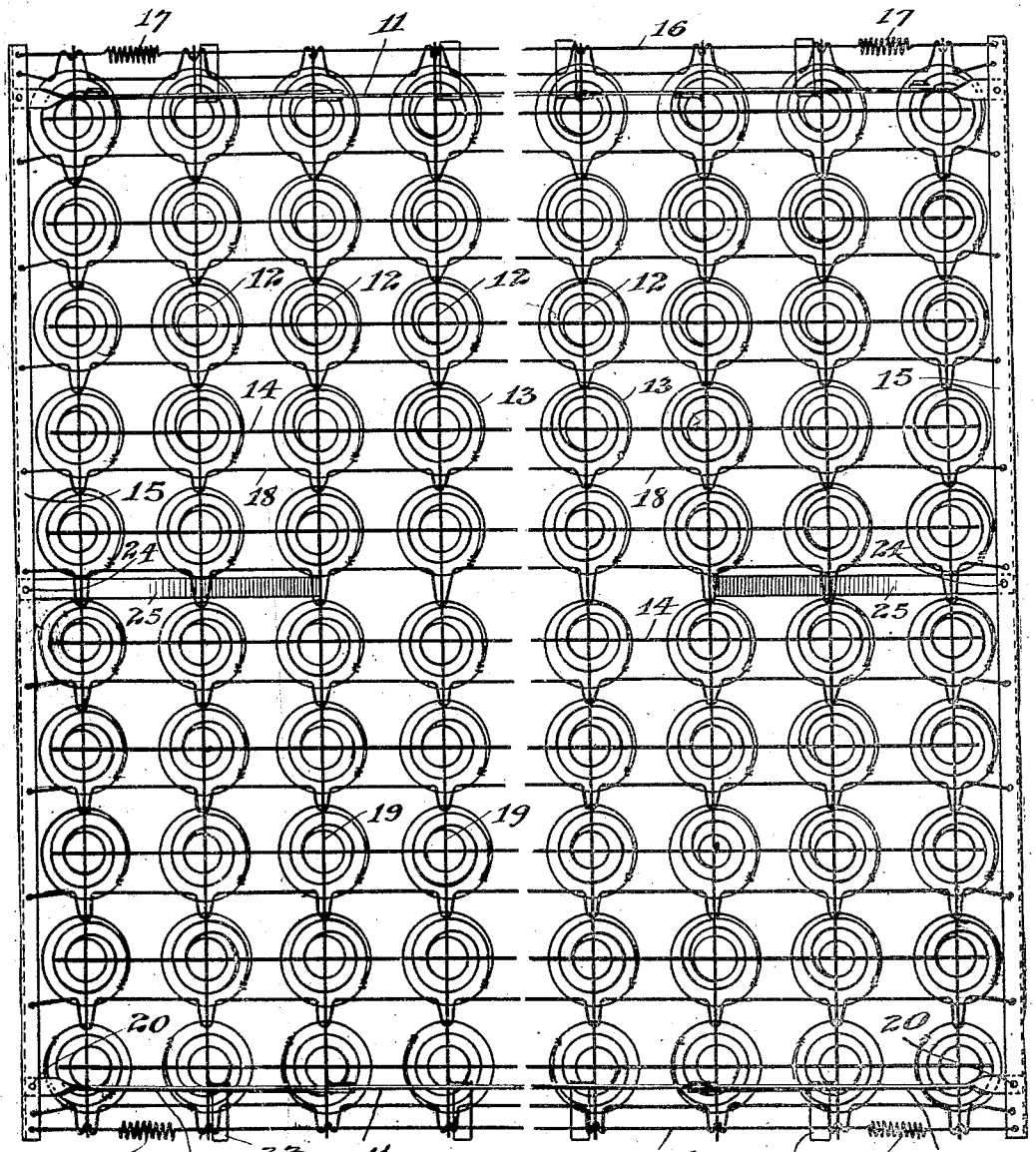


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

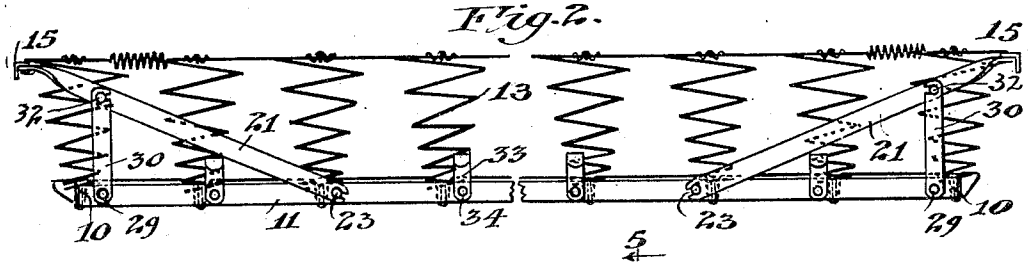


Fig. 4.

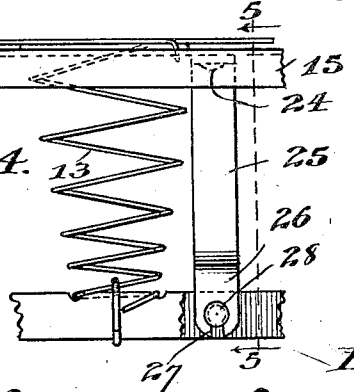


Fig. 3.

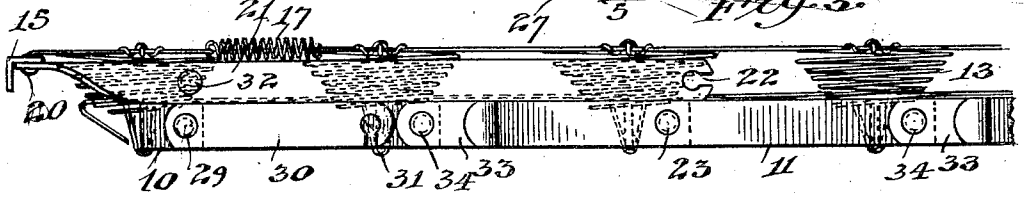
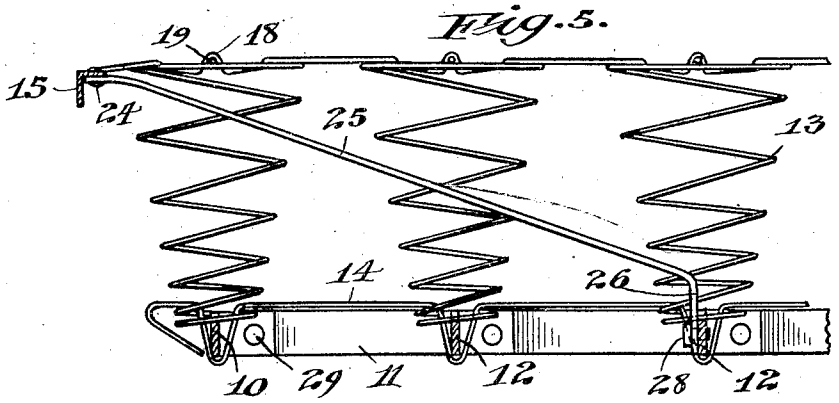


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM W. VINCENT, OF KENOSHA, WISCONSIN, ASSIGNOR TO THE SIMMONS MANUFACTURING COMPANY, OF KENOSHA, WISCONSIN, A CORPORATION OF WISCONSIN.

BED-SPRING.

No. 908,524. Specification of Letters Patent. Patented Jan. 5, 1909.

Application filed March 23, 1908. Serial No. 423,439.

To all whom it may concern:

Be it known that I, WILLIAM W. VINCENT, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Bed-Springs, of which the following is a specification.

My invention relates to springs for beds, its object being to provide a spring of this kind which will have rigid head and foot bars at the top of the upright spiral springs, suitable connections joining the springs to the bars, thereby securely holding the former in place and preventing them from tipping out of their proper positions even after considerable usage. Bed springs without such strengthening and sustaining head and foot bars have been known for years and have been compressed vertically into comparatively small space during transportation, several of such compressed or compacted springs occupying no more space or volume than a single expanded spring, that is, one in normal condition.

The real or main object and purpose of my invention is to combine the good and valuable features of each of these kinds of bed springs in my improved construction.

The preferred or most desirable form of my novel bed spring has rigid and fixed head and foot bars of the character and for the purpose described, held in place by detachable or collapsible braces, the latter when detached or folded eliminating the rigid or fixed features of the bars and permitting the bed spring as a whole to be compressed for shipment. None of the parts of the braces or spring are wholly detached or removed from the structure, consequently there is no danger of the loss of any of the essential parts while in transit.

On the accompanying drawings which form a part of this specification, and to which reference should be made in connection with the following detailed description, I have illustrated the preferred embodiment of my invention, and in the various views like reference characters refer to the same parts.

On these drawings,—Figure 1 is a broken plan view of my improved bed springs; Fig. 2 is a side elevation of the structure shown in Fig. 1, showing the spring in expanded or operative condition; Fig. 3 is a side elevation of the end portion of the spring on an enlarged scale, and illustrates the same in compressed condition ready for shipment; Fig. 4 is an end elevation, with parts broken away, of the central portion of the bed spring; and Fig. 5 is a longitudinal section on line 5—5 of Fig. 4, as viewed in the direction indicated by the arrows.

This construction of bed spring has a substantially rectangular base or bottom supporting frame composed of the two end bars 10, 10 and the pair of longitudinal side bars 11, 11 disposed on edge and suitably connected together at their ends. This bottom support or frame is also provided with a plurality of similar transverse bars 12, 12 disposed on edge and connected at their ends to the side bars 11, the lower ends of the considerable number of spiral compression springs 13 resting upon these bars, which are prevented from spreading apart by the longitudinal spacing rods or wires 14. At each end of the structure, and disposed substantially in the plane of the top surfaces of the coil compression springs, is a pair of parallel angle bars 15, the ends of which are connected together by the longitudinal marginal rods or wires 16 each equipped with a pair of coil tension springs 17. Running longitudinally of the bed spring, and connected at their opposite ends to the inwardly-disposed horizontal flanges of the end bars 15, I provide a number of tie or binding wires 18 which assist in maintaining the top ends of the springs 13 in position, being aided in this function by the considerable number of transverse tie wires 19. To each terminal portion of the angle end bars 15 I rivet or otherwise fasten at 20 one end of a brace bar 21 which is bent to an angle of 90 degrees, as is clearly indicated in Fig. 3, its free end having an inwardly-extended open-mouth slot 22 which in the normal condition of the spring receives an outwardly-projected abutment pin 23 on the outer face of the adjacent longitudinal side bar 11 of the bottom frame, as is clearly illustrated in Fig. 2. Near the center or middle portion of each angle end bar 15 I rigidly attach at 24 the upper end of a similar flat inclined brace bar 25, whose lower end 26 is bent downwardly, as indicated in Fig. 5, and provided with an open-mouth slot 27 which accommodates an abutment pin 28 fastened to the face of one of the transverse bars 12. It will be apparent, therefore, that when the braces 21 and 25 are

in the operative position indicated in Figs. 2 and 5, the end angle bars 15 are held in such position that they are prevented from moving inwardly or toward each other. In order to rigidly and fixedly hold these end angle bars 15 in position and prevent their downward movement toward the bottom spring supporting frame, I pivot or hinge at 29 at each end of the side bars 11 a supporting bar 30 notched at its free end on one side at 31 so as to hook over and accommodate a pin 32 on the outer face of the adjacent brace bar 21. These supporting bars 30 when in operative position are disposed substantially-vertically, as indicated in Fig. 2, and they, in conjunction with the braces 21 and 25, secure and hold the end bars 15 immovably in position. Hinged or pivoted at intervals along the outer surfaces of the side bars 11 are a plurality of spring supporting hooks or brackets 33 adapted to hook over or bear upon the side rails of the bedstead, these hooks or brackets being in vertical position, as shown in Fig. 2, when in operative condition.

In order to put this bed spring into such condition that it may be compressed vertically into small space, so that it and a number of others in the same condition may be crated so as to occupy comparatively small volume, the spring supporting hooks 33 are turned on their hinge or pivot pins 34 to bring them alongside the outer faces of the longitudinal side bars 11, as indicated in Fig. 3. The vertical supporting bars 30 are then swung outwardly sufficiently to escape the pins 32 which have previously been fitting in the open-mouth slots 31, and are then swung inwardly so as to lie along the outer faces of the bars 11, the angle bars 15 and inclined braces 31 being lifted sufficiently whereby during this inward turning of the supporting bars 30 their free ends will escape the pins 32. Then the end angle bars 15 are pushed outwardly sufficiently to free the lower ends of the braces 21 from their coöperating pins 23, there being give or elasticity enough in the spring fabric to permit this movement. The central braces 25 are lifted so that their lower notched ends no longer engage the supporting pins 28. When the parts are in this condition the entire bed spring may be compressed to the condition shown in Fig. 3, the outer braces 21 resting upon the top edges of the side bars 11. As is apparent, a number of these bed springs in their compressed condition may be crated and transported and occupy but little if any more volume than that taken up by one of the springs in expanded operative condition.

When the bed spring is uncrated it is permitted to expand, the end bars 15 are sprung outwardly sufficiently to permit the lower ends of the braces 21 and 25 to engage their corresponding supporting pins 23 and 28, and then the supporting bars 30 are swung up and hooked on to the pins 32 of the braces 21, that is, the slots in their supporting ends receive these pins. Before the spring can be placed upon a bed, however, it is necessary to turn the supporting hooks or brackets 33 on their hinge pins 34 into vertical and operative position.

To those skilled in this art it will be apparent that by my improved construction I secure all the advantages inherent to a bed spring with rigid end bars, and at the same time my improved spring possesses the benefit of being capable of compression for shipment. It will be observed that none of the parts of the collapsible or folding braces for the end bars are wholly detachable from the spring, whereby there is no possibility of their being lost or misplaced during transportation.

To those skilled in this art it will be apparent and obvious that this invention is not restricted to the precise structural features shown and described, but that the latter may be modified within wide limits without departure from the substance and essence of my invention, and without sacrificing any of its benefits and advantages.

I claim:

1. In a bed-spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed-spring connected to said upright springs, braces between said end bars and frame, and lock bars co-acting with said braces to lock said end bars rigidly in position in the normal condition of the bed-spring, the latter being capable of compression for shipment when the braces are unlocked, substantially as described.

2. In a bed-spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed-spring connected to said upright springs, braces between said end bars and frame having detachable connections with one of them, and lock bars co-acting with said braces to lock said end bars rigidly in position in the normal condition of the bed-spring, the latter being capable of compression for shipment when the braces are unlocked, substantially as described.

3. In a bed-spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed-spring connected to said upright springs, braces between said end bars and frame, and lock bars for locking said braces to said frame and having detachable connections with one of them and hinge or pivotal connections with the other, whereby said end bars may be locked rigidly in position in the normal condition of the spring, the latter being capable of compres-

sion for shipment when the braces are unlocked, substantially as described.

4. In a bed-spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed spring connected to said upright springs, braces between said end bars and frames having detachable connections with one of them, and lock bars for locking said braces to said frame and having detachable connections with one of them and hinge or pivotal connections with the other, whereby the end bars may be rigidly locked in position in the normal condition of the bed-spring, the latter being capable of compression for shipment when the braces are unlocked, substantially as described.

5. In a bed-spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed-spring connected to said upright spring, pins on said bottom frame, braces secured to said end bars and having slots to receive said pins of the bottom frame against which the braces are adapted to bear, a pin on each of said braces, and a lock bar for each of said braces pivoted to said frame and having a portion adapted to hook over the pin on the corresponding brace, whereby the end bars may be rigidly locked in position in the normal condition of the bed-spring, the latter being capable of compression for shipment when the braces are unlocked, substantially as described.

6. In a bed-spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed-spring connected to said upright spring, pins on said bottom frame, braces rigidly fastened to said end bars and having slots adapted to receive said pins against which the braces are intended to bear, a pin on each of said braces, a lock bar for each of said braces pivoted on said frame and having a portion adapted to hook over the pin on the corresponding brace, whereby the end bars may be rigidly locked in position in the normal condition of the bed-spring, the latter being capable of compression for shipment when the braces are unlocked, said braces resting on said frame in the compressed condition of the spring, substantially as described.

7. In a bed spring, the combination of a bottom frame, a plurality of upright springs mounted on said frame, a transverse top bar at each end of the bed spring connected with said upright springs, inclined braces secured to said top end bars and having at their lower ends open-end slots, and pins on said frame adapted to be received in said slots, the braces bearing against said pins, said braces being adapted to rest on said frame in the compressed condition of the bed-spring, substantially as described.

As evidence that I claim the foregoing as my invention, I have signed the same this 20th day of March, A. D., 1908, in the presence of two witnesses.

WILLIAM W. VINCENT.

Witnesses:

J. H. CANTWELL, Jr.,

GUS JACOB.