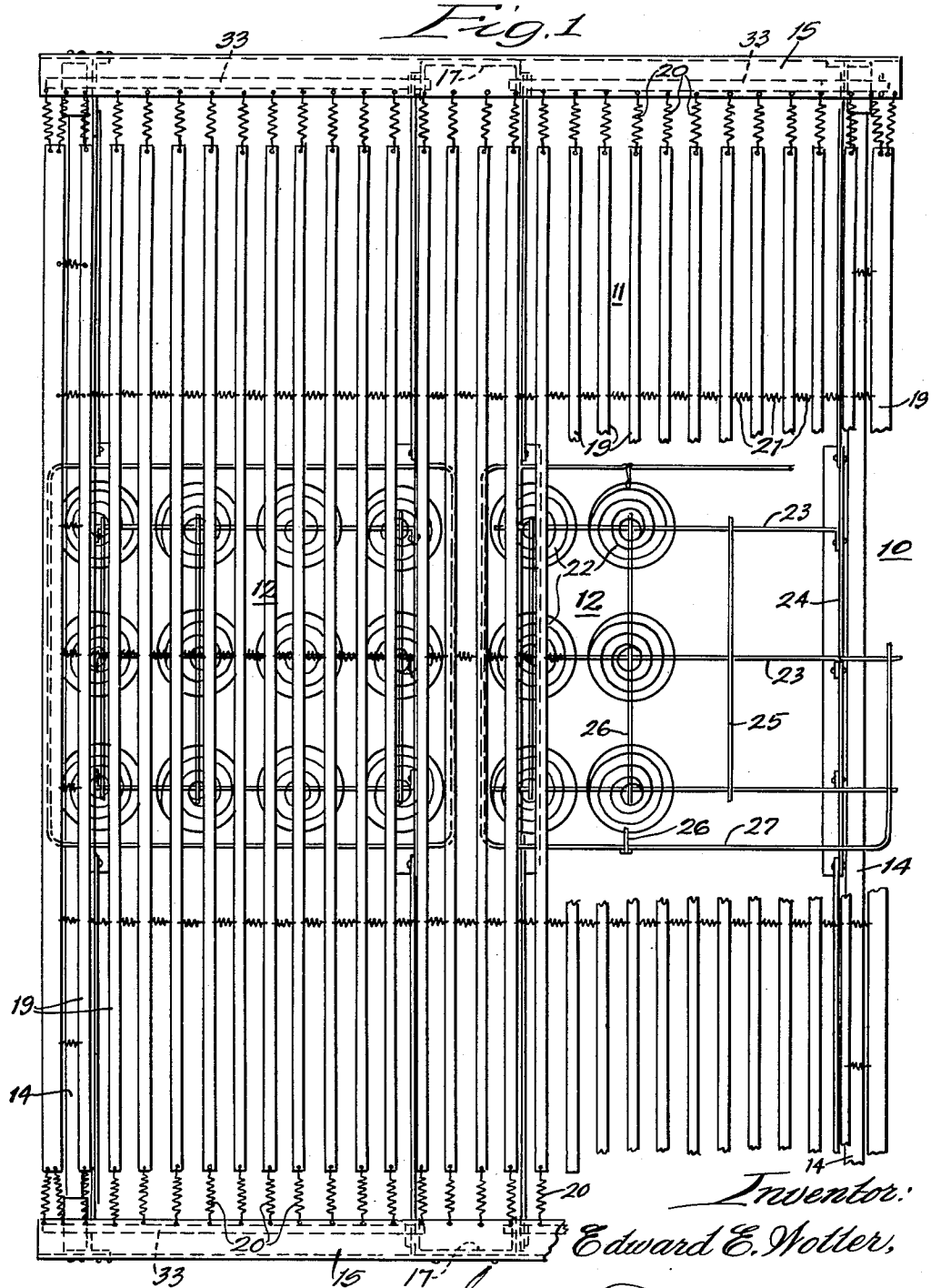
April 29, 1952 E. E. WOLLER 2,595,039

ADJUSTABLE COIL SPRING CENTER SUPPORT

Filed Aug. 3, 1948 2 SHEETS—SHEET 1

Fig. 1



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Fig. 2

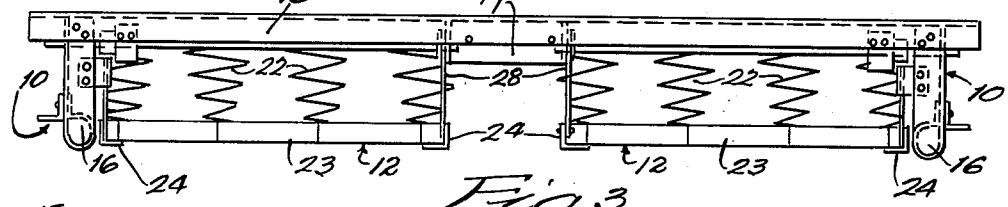


Fig. 3

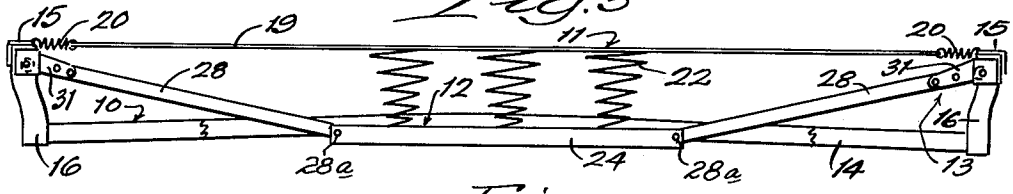


Fig. 4

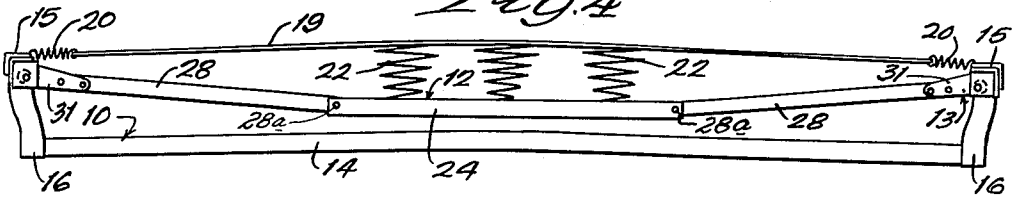


Fig. 5

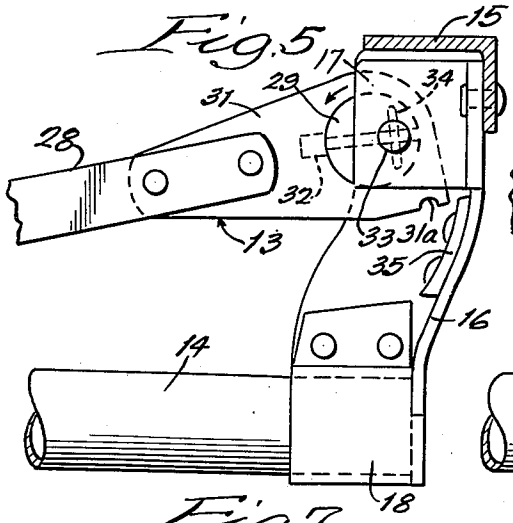


Fig. 6

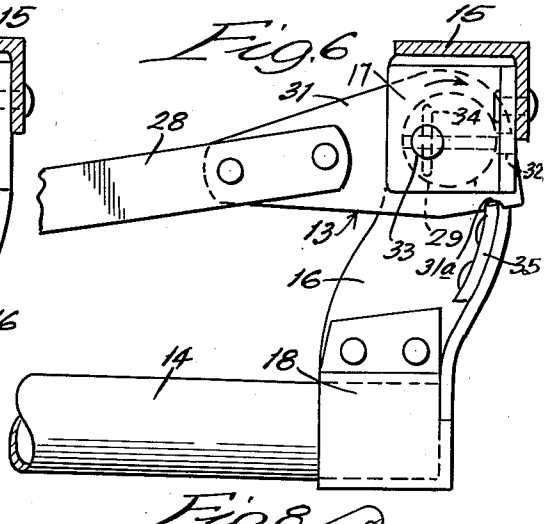


Fig. 7

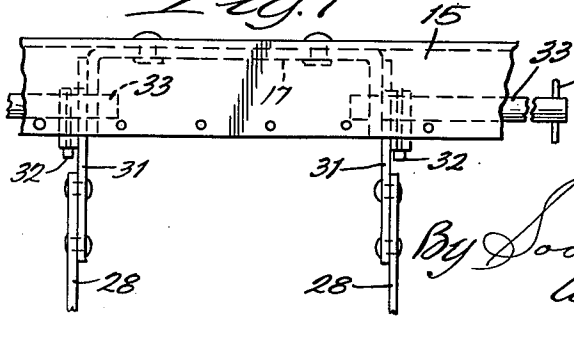
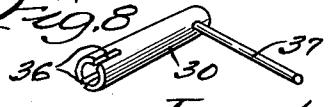


Fig. 8



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Patented Apr. 29, 1952

2,595,039

UNITED STATES PATENT OFFICE

2,595,039

ADJUSTABLE COIL SPRING CENTER SUPPORT

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Application August 3, 1948, Serial No. 42,322

2 Claims. (Cl. 5—239)

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The comfort of a bed not infrequently is determined by the relationship of the resiliency of the springs whereon the mattress is supported and the weight of the person or persons using the bed. With persons of somewhat more than average weight the bed springs of normal resiliency often sag too much and lessen the chances of comfortable repose. Moreover, where persons of greatly varying weight occupy the same bed, the resiliency of the springs may be comfortable to the one but less so to the other. The comfort of a bed also may be correlative with the period of time the springs and/or the mattress have been in use. Long extended use may result in either the springs or the mattress or both acquiring somewhat of a sag in the medial portion.

The main objects of this invention, therefore, are to provide an improved form of bed spring wherein the yielding resistance of the transverse medial portion of the spring may be adjusted; to provide an improved bed-spring adjusting-means of this kind wherein such adjustment may be effected at will by the user of the spring without in any way disturbing the bedding; to provide an improved construction and arrangement of spring-adjusting means of this kind whereby the yielding resistance of the transverse medial portion of a spring on opposite sides of a longitudinal median may be independently altered from either end of the spring frame; and to provide an improved spring-adjusting means of this kind particularly adapted for the type of spring wherein the spring-tensioned and spring-supported, longitudinally-disposed slats are reinforced in the transverse medial portion by a group of coil springs.

In the drawings,

Fig. 1 is a plan view of a bed spring equipped with an adjustable coil-spring center support embodying this invention, portions of the mattress-bearing section being broken away to more clearly indicate the construction and arrangement of said adjustable center support;

Fig. 2 is an end elevation of the same;

Fig. 3 is a reduced side elevation showing the adjustable coil-spring center support in its normal, untensioned or retracted position;

Fig. 4 is a view similar to Fig. 3 but showing the coil-spring center support in its tensioned or elevated position;

Fig. 5 is an enlarged fragmentary detail showing one of the cam means in the position which disposes the coil-spring center support in its untensioned position;

Fig. 6 is a similar view but showing the cam

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in the position which disposes the coil-spring center support in its tensioned position;

Fig. 7 is an enlarged, end view of the middle portion of this improved spring construction as it is shown in Fig. 2; and

Fig. 8 is a perspective view of the crank used for operating the spring tensioning mechanism.

A bed spring of the type wherewith an improved, adjustable, coil-spring center support, embodying this invention, as best adapted for use comprises a frame 10 whereon is supported a mattress-bearing section or fabric 11 below the transverse medial portion of which a pair of coil-spring center supports 12 are adjustably suspended by tensioning mechanism 13.

The frame 10 of the bed spring is a conventional construction, embodying a pair of side rails 14, a pair of end rails 15, and corner risers 16, and whereon is supported the mattress-bearing section 11.

The side rails 14 are preferably of tubular form. They are bowed slightly as most clearly shown in Figs. 3 and 4 in order to provide greater strength. The end rails 15 are in the form of angle bars and are riveted or otherwise anchored to the upper ends of the risers 16 in a plane above the side rails 14. Intermediate the ends of each of the side rails is secured a depending bracket 17 which co-acts with the risers 16 in providing support for the tensioning means 13, as will appear more fully hereinafter. The risers 16 are likewise of angle bar construction, being formed with sockets 18 at their lower ends to receive the ends of the side rails 14.

The mattress-bearing section 11 comprises a plurality of steel slats or bands 19 secured to the end rails by helical springs 20. Intermediate the helical springs 20 and transversely of their length the slats are connected together by other small helical springs 21.

The coil-spring center support units 12 are a common supplement to a mattress-bearing section 11 of the form herein shown. Each such support unit 12 comprises a group of coil springs 22 supported on a plurality of vertically-disposed transversely-extending bars 23 secured at their ends to vertically-disposed, longitudinally-extending bars 24. The springs 22 are vertically retained in proper spaced relationship by spacing wires 25, spanning the transverse bars 23, and by links 26, connecting the coils at their upper convolutions with each other and with a retaining border-wire 27.

The tensioning mechanism 13, whereby the supplemental sections 12 are suspended below

the medial portion of the mattress-bearing section 11 transversely thereof, comprises links 28 and eccentric cams 29 rotatably mounted on the frame ends 15 and operable by a crank 30.

Each of the supplemental coil-spring center units 12 is supported at each end by a pair of links 28 hinged at 28a to the bars 24. At their opposite ends each link is provided with an enlarged extension 31 in each of which is journaled one of the cams 29.

The cams 29 for each pair of links 28 are keyed by pins 32 to a shaft 33 journaled at one end on a riser 16 and at the other end on the bracket 17. The outer end of each shaft 33 extends through a riser 16 and is provided with a pin or key 34 with which the crank 30 cooperates in rotating the shaft 33 to adjust the respective coil-spring center support 12.

A stop 35 is fixed on each riser 16 below the axis of the shaft 33 so as to be engaged by the adjacent link extension 31, said extension having a notch 31a which seats itself on the stop. The stop 35 is so positioned that it arrests rotation of the cams 29 when the journal axis of the respective cams and link extensions 31 has passed below the plane of the axes of the shaft 33 and the hinge connection 28a of the links 28 to the bars 24. Each pair of links and their cams thus constitutes a toggle whereby each tensioning mechanism 13 is automatically locked in the position to which it is shifted for elevating the bars 23 and 24 and increasing the pressure of the springs 22 against the under side of the mattress-bearing section 11.

The operating crank 30 comprises a tube with a recess 36 at one end to fit the pins 34 on the cam shafts 33. An angularly-disposed handle 37 is secured to the opposite end of the tube.

When conditions are more or less normal, and there is no need for increasing the yielding resistance of the transverse medial portion of the mattress-bearing section 11, each coil-spring center support 12 would be allowed to occupy its normal untensioned position, as shown in Figs. 2 and 3. The spring-supporting bars 23 and 24 would be disposed in a position approximating the plane of the side rails 14. For such a positioning of the center support 12, the cams 29 would be shifted to the positions shown in Figs. 3 and 5. However, if for any of the reasons hereinbefore indicated it were desired to increase the yielding resistance to a transverse medial portion of the mattress-bearing section 11 the pair of cams at one or both ends of the frame 10 would be rotated so as to bring the cams into the position shown in Figs. 4 and 6. Thereupon the spring-supporting bars 23 and 24 would be elevated to the position shown in Fig. 4. This elevation of the bars 23 and 24 will increase the pressure of the springs 22 against the slats 19 and arch them into a crown as indicated in Fig. 4. Obviously that increases the yielding resistance of the medial portion of the mattress-bearing section 11 to any weight to which it might be subjected, or it might compensate for any sag or depression formed in the mattress-bearing section 11 or a mattress which had long been used thereon.

Variations and modifications in the details of structure and arrangement of the parts may be resorted to within the spirit and coverage of the appended claims.

I claim:

1. In a bed of the class described which includes a main frame, a yieldable bed fabric supported upon said frame and an auxiliary resilient support unit positioned beneath said fabric between the ends of said frame, said support unit being shiftable upwardly into reinforcing engagement with said fabric; suspension means for said support unit at each end thereof comprising a transverse shaft journalled on the adjacent frame end, a plurality of spaced-apart eccentrics mounted on said shaft for rotation therewith, a plurality of upwardly-extending spaced-apart links disposed longitudinally of said bed, said links being hingedly connected at their lower ends to said support unit, said links being journalled at their upper ends on said eccentrics, means for rotating said shafts to raise or lower said links thereby to shift said support unit into or out of engagement with said fabric, and means for locking said links in raised position.

2. In a bed of the class described which includes a main frame, a yieldable bed fabric supported upon said frame and an auxiliary resilient support unit positioned beneath said fabric between the ends of said frame, said support unit being shiftable upwardly into reinforcing engagement with said fabric; suspension means for said support unit at each end thereof comprising a transverse shaft journalled on the adjacent frame end, a plurality of spaced-apart eccentrics mounted on said shaft for rotation therewith, a plurality of upwardly-extending spaced-apart links disposed longitudinally of said bed, said links being hingedly connected at their lower ends to said support unit, said links being journalled at their upper ends on said eccentrics, means for rotating said shafts to raise or lower said links thereby to shift said support unit into or out of engagement with said fabric, said links and associated eccentrics at each end of said frame having an unstable over-center position corresponding to the extreme raised position of said links, and an abutment on said main frame engageable by said links adjacent said over-center position on one side thereof to lock said support unit in reinforcing engagement with said fabric.

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