

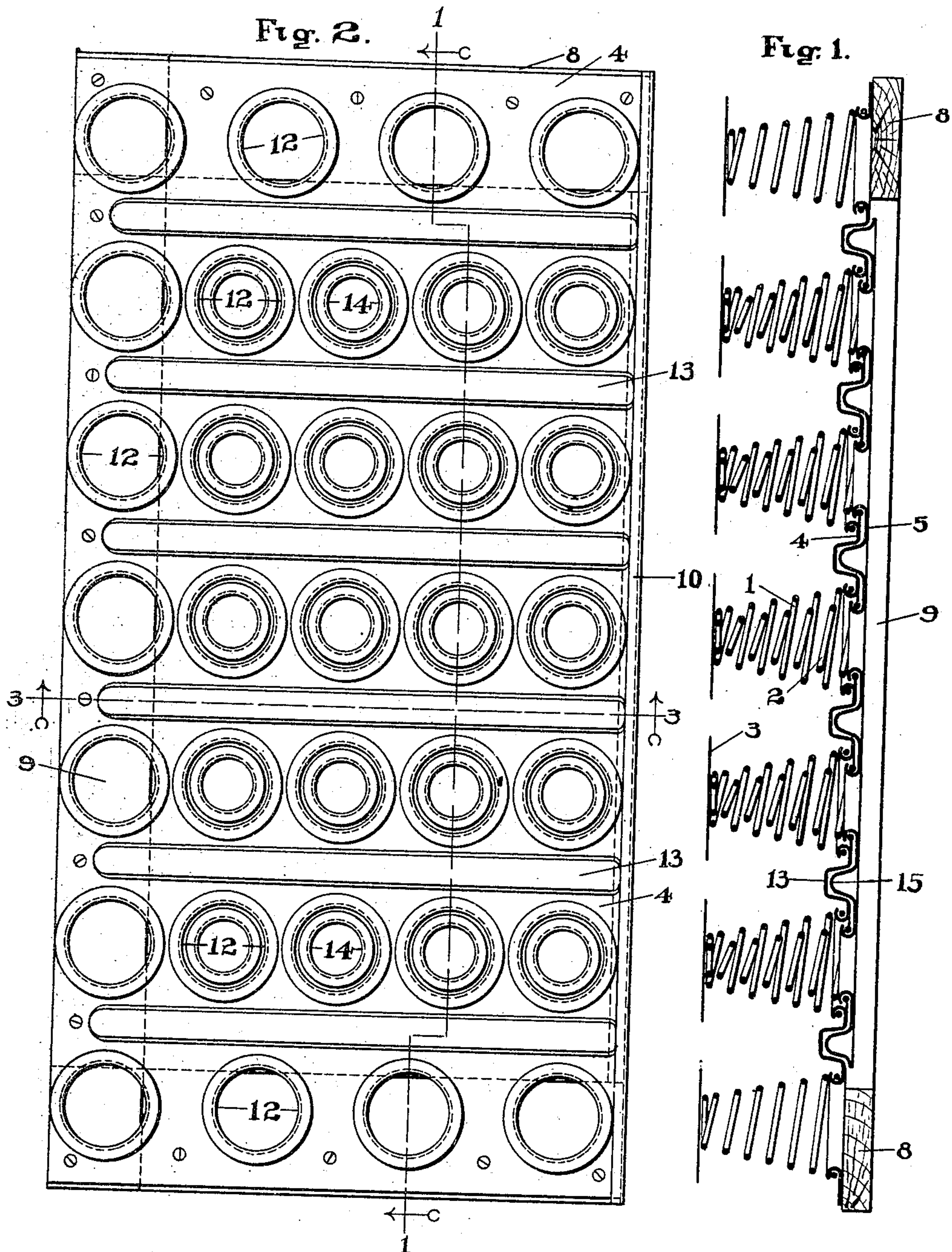
No. 837,751.

PATENTED DEC. 4, 1906.

E. W. SUMMERS.
CONVERTIBLE SPRING SEAT AND BED.

APPLICATION FILED SEPT. 10, 1906.

2 SHEETS—SHEET 1.



WITNESSES:-

R. N. Lowry.

Charles Barnard

INVENTOR:-

E. W. Summers.

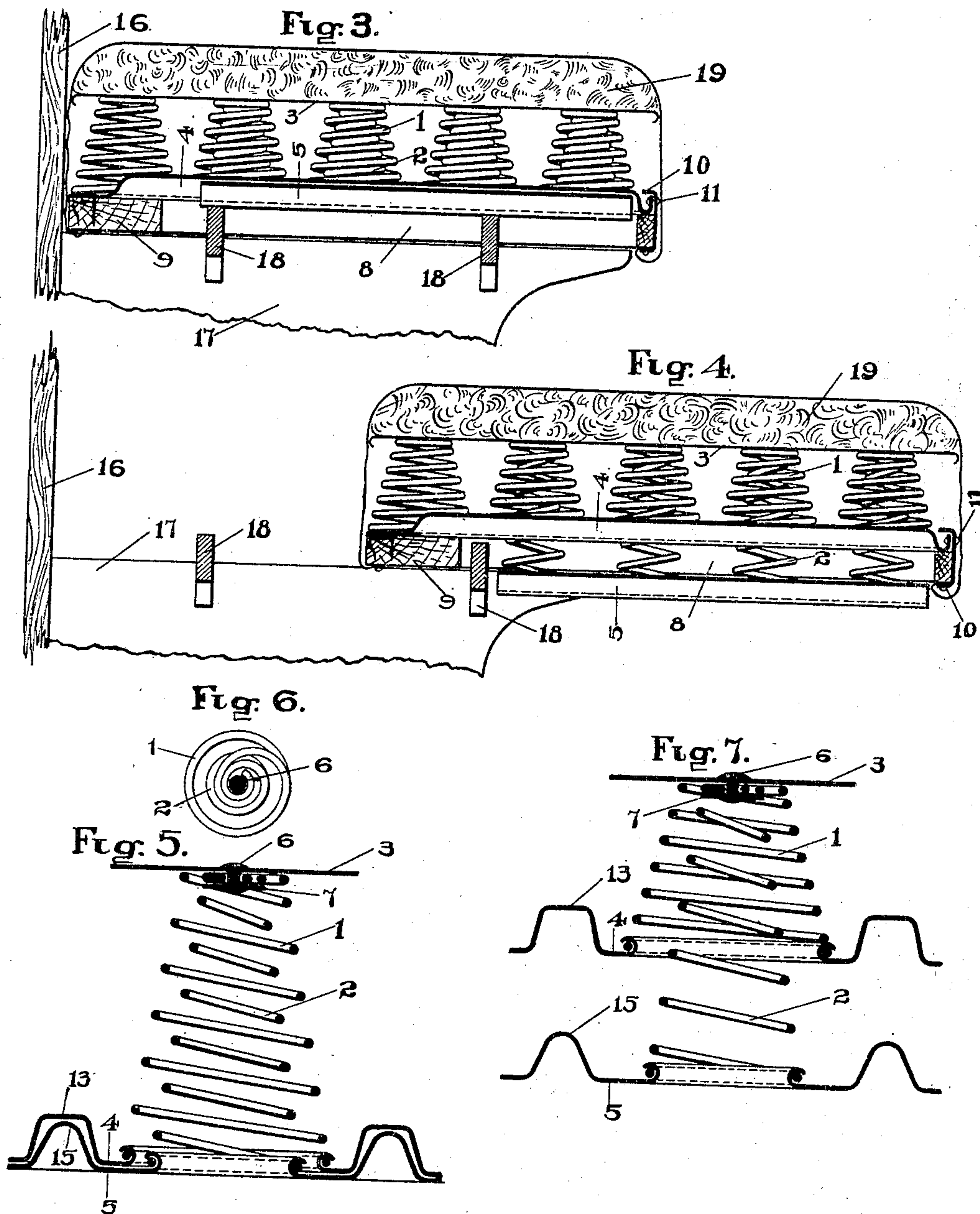
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2 SHEETS—SHEET 2.



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R. N. Lowry.
Charles Barnett

INVENTOR:-
E. W. Summers.

UNITED STATES PATENT OFFICE

EDGAR WEBSTER SUMMERS, OF WILKINSBURG, PENNSYLVANIA.

CONVERTIBLE SPRING SEAT AND BED.

No. 837,751.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed September 10, 1906. Serial No. 333,968.

To all whom it may concern:

Be it known that I, EDGAR WEBSTER SUMMERS, of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Convertible Spring Seats and Beds, of which improvement the following is a specification, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section taken in line 1 1 in Fig. 2, the fabric and padding portion of the seat removed. Fig. 2 is a plan view of the seat, showing the spring-supports and underframing only. Fig. 3 is a vertical section taken in line 3 3 in Fig. 2, showing the springs partially compressed, as when used for a seat in a sleeping-car. Fig. 4 is a vertical section taken in the same line as Fig. 3, but with the support for a part of the springs removed, as when used for a bed in a sleeping-car. Fig. 5 is an enlarged sectional view through one pair of springs, showing an outer spiral spring and an inner spiral spring with metallic cap and base plates. Fig. 6 is a top view of Fig. 5 with the cap-plate removed. Fig. 7 is the same as Fig. 5, except having the outer spring partially compressed and showing how one spring may be compressed independently of the other.

My invention relates to that class of spring-seats used in sleeping-cars, bed-lounges, reclining-chairs, &c., the improvement being mainly in the arrangement of the springs and spring-supports, whereby certain springs have their bottom support removed and become inactive when used as a bed, all of the springs being supported underneath and available when arranged for use as a seat.

In a reclining position a person's weight is distributed over a comparatively large area. Springs having the proper resiliency for ease with a person in this position do not offer sufficient resistance to prevent collapsing when the person's body is in a sitting position and the weight imposed on a comparatively small area.

My invention was devised to give ease to the person when either in a reclining or sitting position.

In the drawings I show the outer spiral spring 1, the inner spiral spring 2, their common metallic cap-plate 3, the fixed base-plate 4, which supports the outer spring, the floating base-plate 5, which with the inner spring is suspended from the common cap-plate 3

by means of the common rivet 6, and washer 7, which joins the inner and outer springs to the cap-plate through the common center of the springs 1 and 2, as shown in Fig. 6.

I show the base-plate 4 in Figs. 1 and 2, the wooden end piece 8 of the underframing, and rear piece 9, attached thereto with screws.

The front channel-beam 10 is shown in Figs. 2, 3, and 4. This channel extending along the front of the seat-base is attached at its ends to the wooden end pieces 8 and along its upper edge to the front edge of base-plate 4 by means of rivets 11. Under the front edge of base-plate 4 and above the lower flange of channel 10 I show a wooden nailing-strip. Base-plate 4 has perforations 12 at each position of a spring 1, and the metal at the outer edge of said perforation is beaded or rolled outwardly over the lower coil of the said spring 1, thereby locking each spring 1 in position. Between the rows of springs and extending from front to rear of base-plate 4 are pressed ribs 13, which serve to stiffen the thin metallic base-plate and transmit the spring load to the front and rear rails of the seat-frame. The base-plate 5 has perforations 14, which perforations 14 are located at each position of an inner spring 2, and the metal at the outer edge of said perforations 14 is beaded or rolled outwardly over the lower coil of the said springs 2, thereby locking each spring 2 in its position.

It will be noted in Fig. 1 that base-plate 5 does not extend to the wooden end pieces 8 and in Figs. 3 and 4 that it does not extend to the front and rear beams 9 and 10, but is suspended from the springs 2 and has pressed ribs 15, which register with ribs 13 in base-plate 4. In Figs. 3 and 4 I show a portion of the ordinary sleeping-car framing as the wooden partition 16 with its upper and lower portions broken away. This partition is that portion of the car-framing which is between the berths of the ordinary sleeping-car or between the backs of the seats when made up as a day-coach. I also show a portion of the frame 17, which serves as a support for the spring-seats when used as a seat in Fig. 3 and when used as a bed with the spring-seat drawn out in Fig. 4. I show cross-bars 18, which are fixed on supports 17 and serve to hold up base-plate 5 when used as a seat. When the seat is drawn out, as in Fig. 4, the base-plate 5 has no under support and is carried by means of the attachment of

the inner springs to the cap-plates 3. Fig. 3 shows both the inner and outer springs partially compressed, while Fig. 4 shows the outer springs partially compressed with the inner ones full extended, the outer springs carrying all of the load in Fig. 4, while in Fig. 3 both the inner and outer springs offer resistance to the load. It will be noticed that only the outer springs are required at the rear of the seat and along each end. In Fig. 5 both springs are shown in extended position, and in Fig. 7 the outer spring is shown compressed, as when in use as a bed. In Figs. 3 and 4 I show the ordinary upholstering materials 19, which are immaterial to the purposes of this invention.

For convenience I have shown the invention as applied to a sleeping-car seat and bed. The portion of the spring-back in the car-seat which is usually lowered and used as a part of the bed may have light-weight springs to correspond with the outer springs 1, making a uniform support for the body when the seats are made up as a bed. The principle will be the same when applied to a bed-lounge, reclining-chair, &c.

Many changes may be made in the form and arrangement of springs, spring-supports, and general construction without departing from my invention.

I claim—

1. A spring-seat, having a plurality of springs and means whereby a part of the said springs may be rendered inoperative independently of the load; for the purpose set forth.

2. A spring-seat, having a plurality of springs and means whereby the spring-resisting power may be increased or diminished independently of the load; for the purpose set forth.

3. A spring-seat, having a plurality of metallic springs and means whereby the spring-

resisting power may be increased or diminished independently of the load; for the purpose set forth.

4. The combination with a spring-seat, of a pair of spiral springs, one within the other, the outer spring having a fixed bottom support, the inner one having a releasable support.

5. A spring-seat of a box-like form having a plurality of spiral springs supported on a fixed bottom in the seat, and a plurality of spiral springs having a releasable bottom support; for the purpose set forth.

6. A spring-seat of a box-like form, having a series of spiral springs nested in pairs of two each, one within the other, the tops of the springs being attached to the ordinary metallic spring-cap, the bottom of the inner springs being attached to a floating metallic spring-base, and the bottom of the outer springs having attachment to a fixed metallic spring-base; for the purpose set forth.

7. The combination with a spring-seat, of a thin metallic base-plate for supporting the springs, the said metallic base-plate having strengthening-ribs between the springs, and perforations within the spring-base through which auxiliary springs may project.

8. The combination with a spring-seat, having two sets of springs, of fixed members in a sleeping-car, which are in position for supporting the bottoms of both sets of springs when the said spring-seat is in position for use as a seat, and which fixed members furnish bottom support for one set of springs only when the said spring-seat is in position to be used as a bed.

In testimony whereof I have hereunto set my hand.

EDGAR WEBSTER SUMMERS.

Witnesses:

CHARLES BARNETT,
R. N. LOWRY.