

(No Model.)

3 Sheets—Sheet 1.

J. L. KRABER.
SPRING BED BOTTOM.

No. 465,024.

Patented Dec. 15, 1891.

Fig. 1.

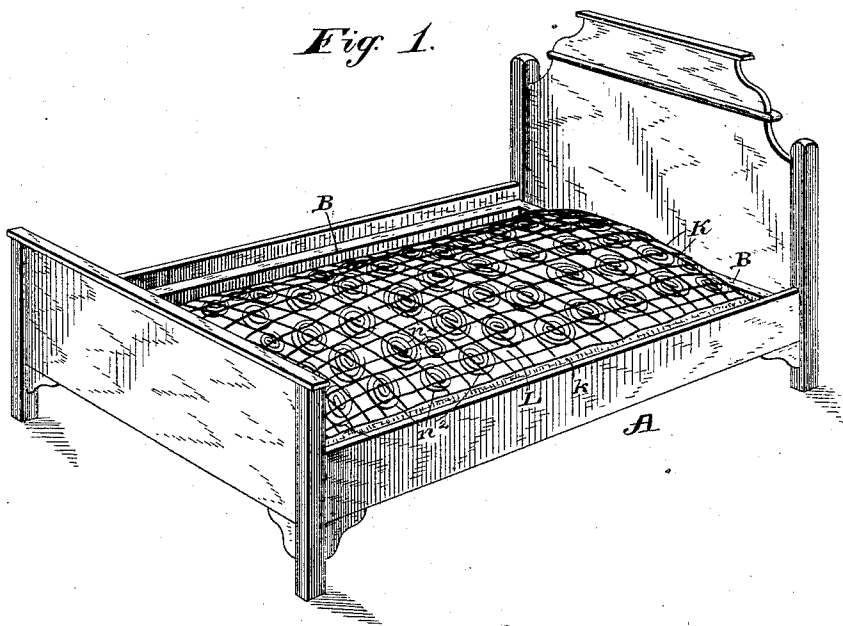
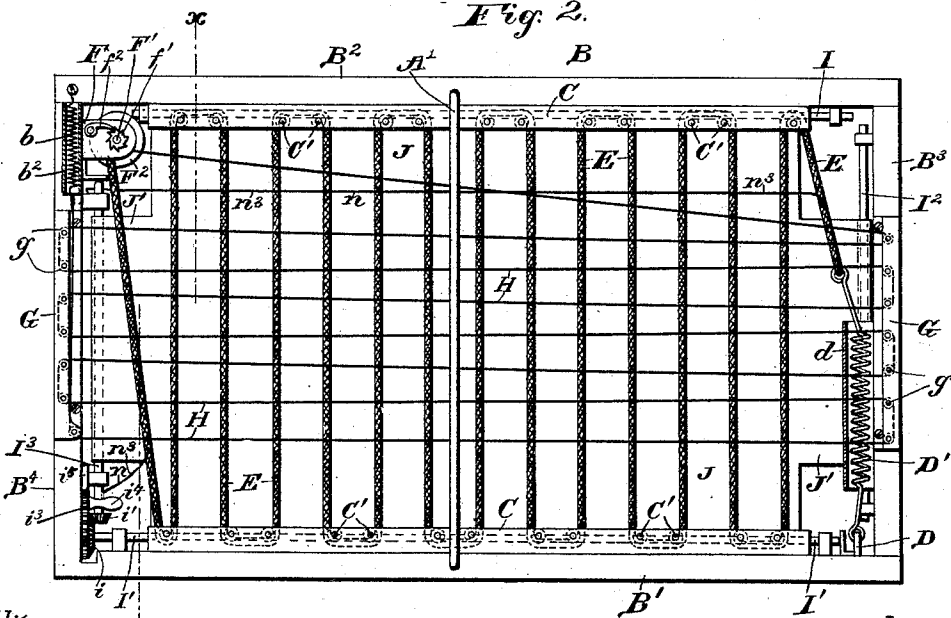


Fig. 2.



Witnesses X

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Fig. 3.

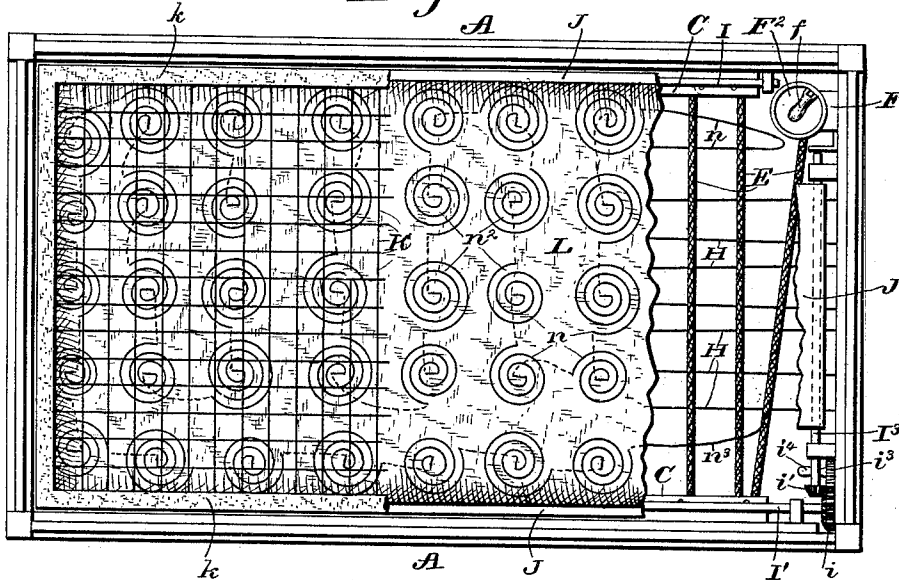


Fig. 4.

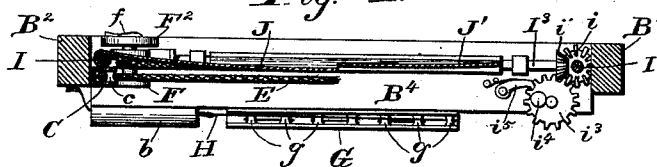
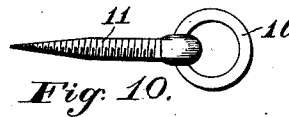
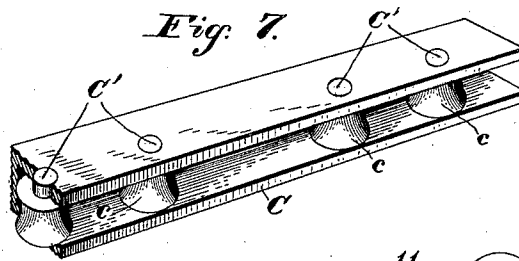


Fig. 7.



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Fig. 5.

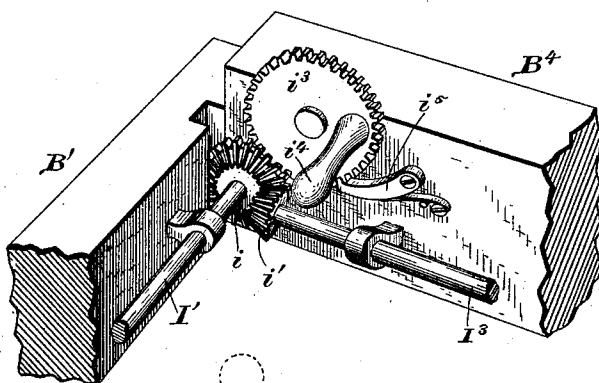


Fig. 8.

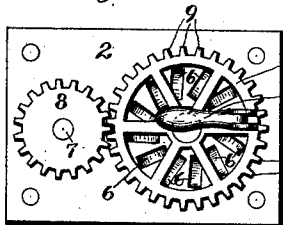


Fig. 6.

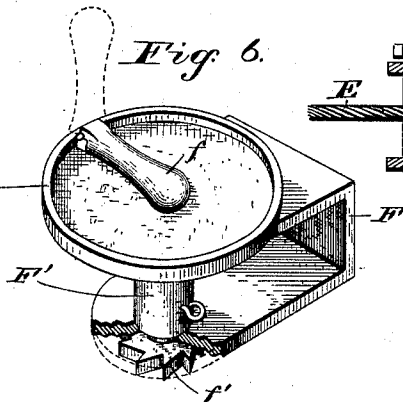
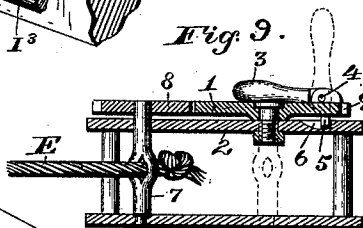


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN LUTHER KRABER, OF HIGH POINT, NORTH CAROLINA.

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 465,024, dated December 15, 1891.

Application filed March 4, 1891. Serial No. 383,743. (No model.)

To all whom it may concern:

Be it known that I, JOHN LUTHER KRABER, a citizen of the United States, residing at High Point, in the county of Guilford and State of North Carolina, have invented a new and useful Spring Bed-Bottom, of which the following is a specification.

This invention relates to spring bed-bottoms, and has for its object, first, to provide a bed-bottom which will be simple in construction and at the same time possess all the advantages of a spring-bed, yielding readily to the contour of the person lying thereon and having sufficient elasticity to render it comfortable and luxurious.

These objects and such others as fairly fall within the scope of the invention I attain by means of the mechanism illustrated in the accompanying drawings, the peculiar construction, combination, and arrangements of which will be fully described hereinafter, and the points of novelty particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a bedstead having a bottom and mattress constructed in accordance with my invention. Fig. 2 is a bottom plan view of the bed-bottom in a removable frame, the casing over the springs being shown in section. Fig. 3 is a top plan view of the bed-bottom and mattress arranged in a bedstead, the netting and a part of the mattress and canvas being broken away. Fig. 4 is a sectional view on the line *xx* of Fig. 2, the casing of the spring being broken away. Fig. 5 is an inverted perspective view, on an enlarged scale, of one corner of the frame, showing the mechanism for turning the tightening-rods. Fig. 6 is a perspective view of the winder. Fig. 7 is a similar view of one of the side strips. Figs. 8 and 9 are a plan view and longitudinal section, respectively, of a modified form of winder; and Fig. 10 is a detail view of a supporting-ring and screw adapted to be used in lieu of pulleys.

Similar letters and figures of reference designate corresponding parts in the several views of the drawings, referring to which—

A designates a bedstead of any approved construction, to which my improved bed-bottom is applied. The bed-bottom may be applied directly, as shown in Fig. 3, or it may be

arranged within a removable frame B, and the latter may be located within the bedstead. Hence when reference is hereinafter made to the frame it will be understood that the frame is meant which is immediately exterior to the bed-bottom, whether that frame be the removable frame or the frame of the bedstead. The frame may be braced by a suitable brace A', which extends across from side to side of the said frame about the middle thereof.

For convenient reference I will designate the sides of the frame B as B' and B² and the ends thereof as B³ and B⁴.

Along the side bars of the frame are secured side strips C of U-shaped cross-section, the sides thereof standing in horizontal planes, the bases being secured to the inner faces of the side bars, and the open sides facing inwardly, and through a series of openings in the said sides of these strips C are placed pins C', upon which small pulleys *c* are loosely mounted in the manner best illustrated in Fig. 7.

Secured to a staple or eye D at the corner of the frame, where the side B' and end B³ are joined together, is a helical spring D', and connected to the other end of said spring is a cord E, which passes thence across and around the first pulley *c* in the side strip C opposite the eye D on the side B² of the frame, thence back and around two of the pulleys in the opposite side strip at the side B', thence back again around two other pulleys in the side strip on the side B², and so on throughout the length of the frame.

At the corner of the frame B opposite to the eye D, where the side B² and end B⁴ are joined, is located the winder. (Shown more clearly in Fig. 6.) This winder comprises a U-shaped bracket F, whose base is secured to the inner face of the end bar B⁴ of the frame, and a shaft F', journaled in the free ends of the bracket F, extending a short distance above and below the same, and having upon its upper end a disk F², upon which is a folding handle *f*, by which the shaft F' may be rotated. The lower end of the shaft F' is provided with a ratchet-disk *f*², with which engages a pawl *f*² upon the bracket F to prevent the said shaft from turning back.

Upon the ends B³ and B⁴ of the frame B

are secured U-shaped strips G, similar to the strips C, but somewhat smaller and shorter than the ends of the frame, and small pulleys *g* are mounted therein, similar to the pulleys *c* of the strips C.

Upon the end B¹ of the frame near the side B² is placed a coiled spring *b*, one end of which is secured to the end of the side B² of the frame and to the opposite end of the said spring *b* is secured the end of a steel wire H, which passes thence to and around the pulley *g* in the opposite end of the strip G, from which it passes to the opposite pulley *g* in the end B² around two of the pulleys on the said end, thence back to the end B¹, passing around two of the pulleys in that end, thence again to the opposite end, and so on until it has passed around all of the pulleys in the strips G. The free ends of the cord E, and also of the steel wire H, are secured to the shaft F' of the winder hereinbefore described, from which it will be understood that by turning the handle *f* the said cord and wire may be tightened, and the ratchet-disk *f'* and pawl *f*² are arranged to prevent the shaft F' from turning in the direction to unwind the said cord and wire.

The springs D' and *b* are inclosed in suitable casings *d* and *b*², respectively.

Within the frame B, above the U-shaped strips C and G and parallel with the sides and ends of the said frame, are arranged rods I, I', I², and I³, the rods I and I² being secured to the inner sides of the side B² and end B³ of the frame, and the rods I' and I³ being journaled in suitable bearings upon the inner sides of the side B' and the end B⁴.

A piece of canvas, bed-ticking, or other suitable material J is secured at its side edges to the rods I and I', and extends across the frame over the cord E, and is extended at its ends, as at J' and J', and secured to the end rods I² and I³.

The side rod I' and end rod I³, which are journaled to the frame, are provided at their meeting ends with a bevel gear-wheel *i* and pinion *i'*, meshing with each other. The gear-wheel *i* is provided with spur-teeth around its periphery in addition to the bevel-teeth, which mesh with the pinion *i'*, and the said spur-teeth are arranged to mesh with a gear-wheel *i*³, mounted upon a stud upon the inner side near the end of the end B⁴. A handle *i*⁴ is provided upon the gear-wheel *i*³, by means of which the said wheel may be turned to rotate the rods I' and I³ through the medium of the bevel-gears *i* and *i'*, and so tighten the canvas J. A pawl *i*⁵ is pivoted upon the end B⁴ of the frame and arranged to engage the teeth of the gear-wheel *i*³ to hold the canvas at the proper tension.

A netting K, having a border *k* of canvas or ticking, is secured in any suitable manner to the edges of the canvas J, and the mattress L is placed upon the said canvas J beneath the netting K and held in place by the latter. The mattress may be stitched with a thread

n, formed of very fine wires and waxed, so as to sew through the ticking easily, or, if found desirable, the metallic thread may be galvanized. The stitches may be placed upon the mattress so as to form fancy figures, a very good form being a spiral, as shown at *n*² in Fig. 3.

It will be understood that this invention may be applied to sofas, easy-chairs, and similar articles of furniture, and also that I do not wish to limit myself to the precise details of construction herein described, as many modifications may be made therein without departing from the spirit of the invention—as, for instance, in lieu of the winder herein described and shown in Fig. 6 of the drawings I may use a winder constructed substantially as shown in Figs. 8 and 9, consisting of a wheel or disk 1, journaled upon a plate 2 and having a handle 3 pivoted thereto, as at 4. The lower end 5 of the handle 3 is formed at right angles to the handle proper, and when the handle is folded down upon the wheel 1 the end 5 thereof passes through the said wheel and engages depression 6, formed in the plate 2, thus locking the wheel 1 from movement. When the handle is raised to turn the wheel 1, the lower end 5 thereof will be raised out of the depression 6 and allow the wheel to be rotated by said handle. The spindle 7, to which the cord or wire E is attached, may be geared to the wheel 1 by a spur-pinion 8, arranged to mesh with teeth 9, formed around the periphery of the wheel 1, or it may be attached directly to the center of the wheel 1, as shown in dotted lines in Fig. 9.

I do not wish to confine myself to the form of pulley herein described and shown, as it will be obvious that any form of pulley may be used, or I may use instead a ring 10, as shown in Fig. 10, suitably connected to a screw 11 or other device through which the cord will run easily.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a spring-bed bottom, U-shaped strips secured at their bases to the inner faces of the opposite side rails and end bars of a bed-frame, pulleys journaled vertically within said strips and inclosed thereby, helical springs inclosed within casings located at opposite ends of the frame, a cord secured at one end to one of said springs and passed therefrom alternately around pairs of pulleys upon the opposite side rails, a wire secured to the other spring and similarly wound around the inclosed pulleys of the end bars and beneath said cording, and a winder secured to one end of said frame and receiving the free ends of said cord and wire, said winder comprising a U-shaped bracket, a winding-shaft journaled therein and carrying a disk upon one end, a folding handle or lever pivoted to one edge of said disk and adapted to be folded thereover, and a pawl-and-

ratchet device connected to the other end of said shaft without said bracket, substantially as set forth.

2. In a spring bed-bottom, the combination,
5 with the bed-frame, of the cord alternately connected with the opposite side rails, a wire arranged at right angles to said cord beneath the same and alternately connected with the
10 opposite end bars, both cord and wire being connected to the same winder and to opposite tension-springs, winding-rods journaled along the inner sides and ends of the frame, a supplemental bottom cover arranged above said cord and connected with said rods which wind

and regulate the tension of said bottom cover, 15
a top cover or netting having an encircling border secured to the edge of said bottom cover, a mattress interposed and held between said top and bottom covers, and suitable gearing connected with the ends of said rods for 20
rotating the same, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN LUTHER KRABER.

Witnesses:

J. H. MILLIS,

A. A. BARKER.