

A. W. KENDRICK.  
 SPRING-BED BOTTOM.

No. 187,229.

Patented Feb. 13, 1877.

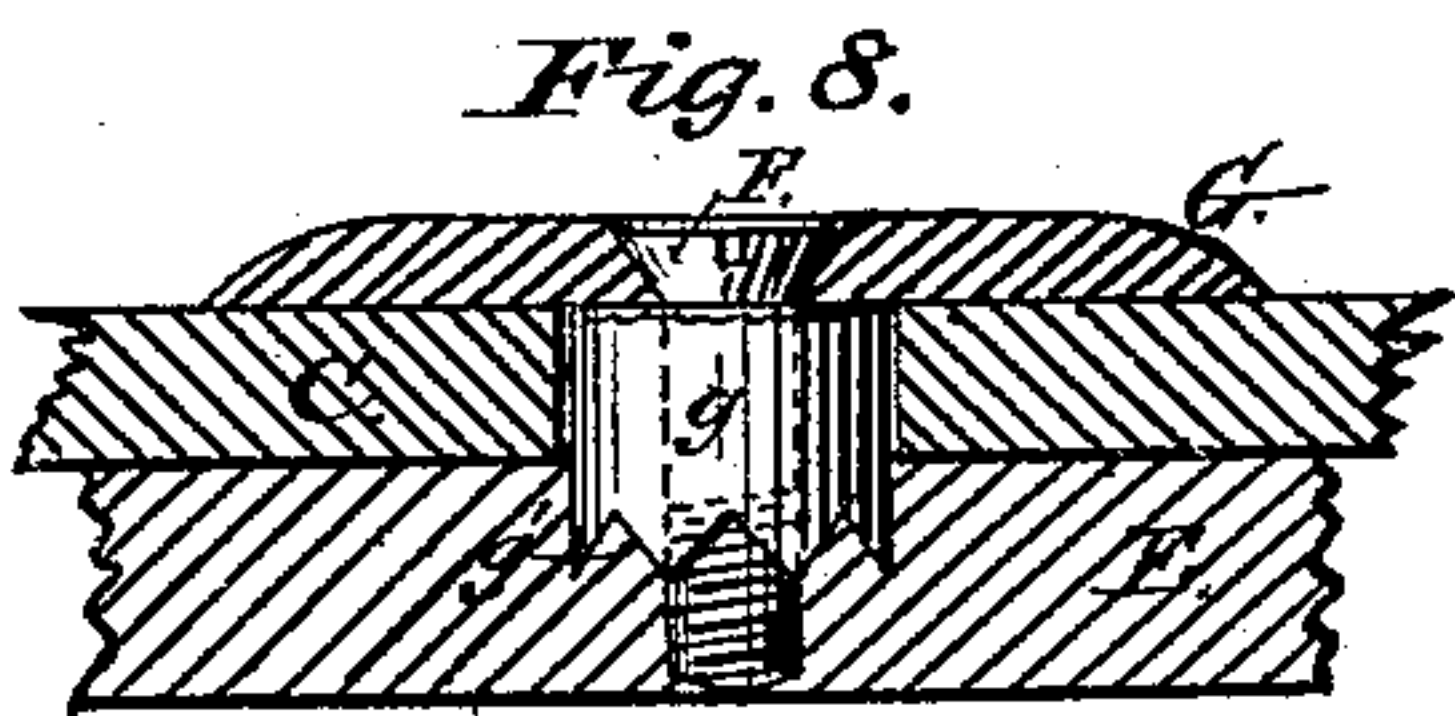
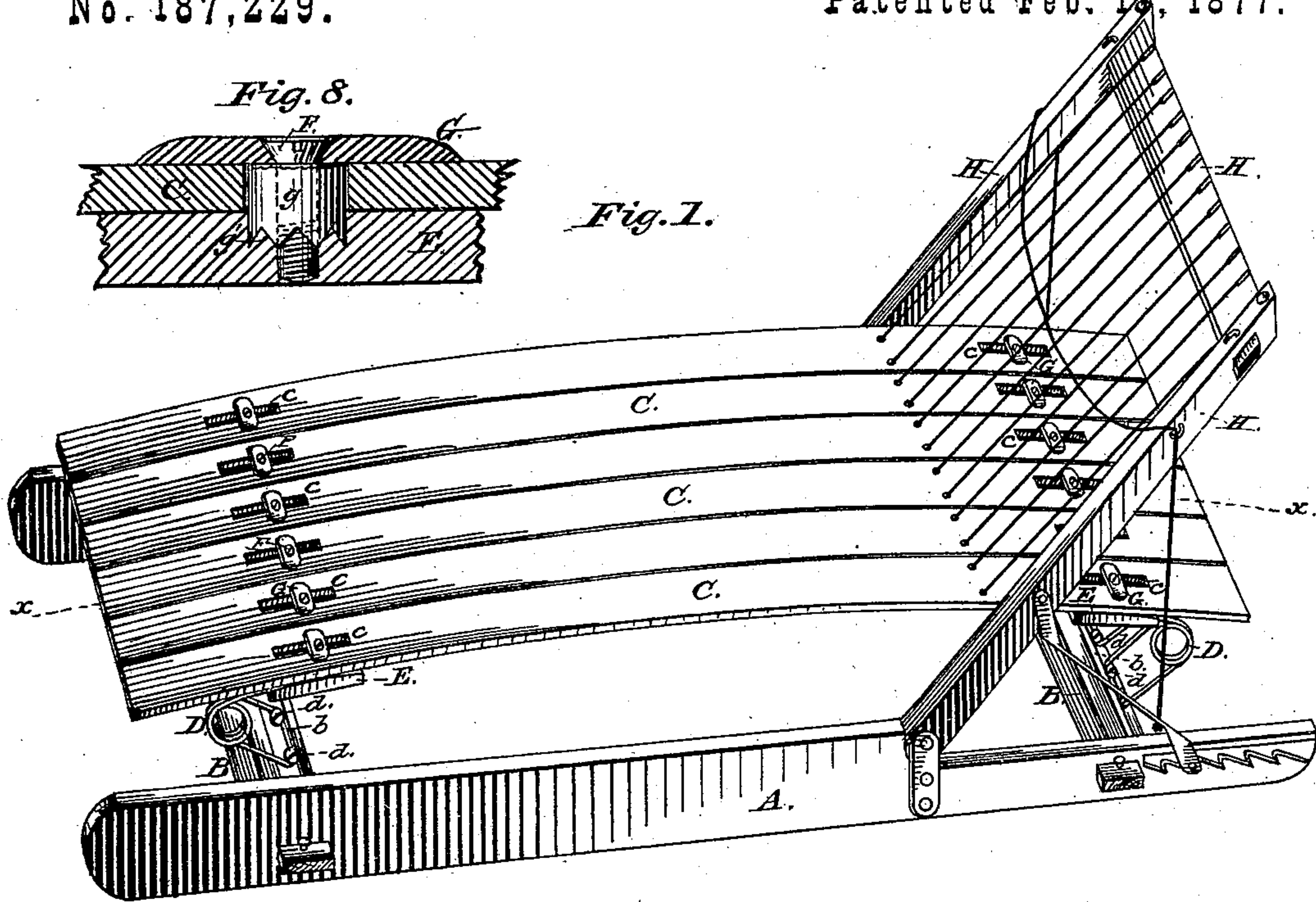


Fig. 1.

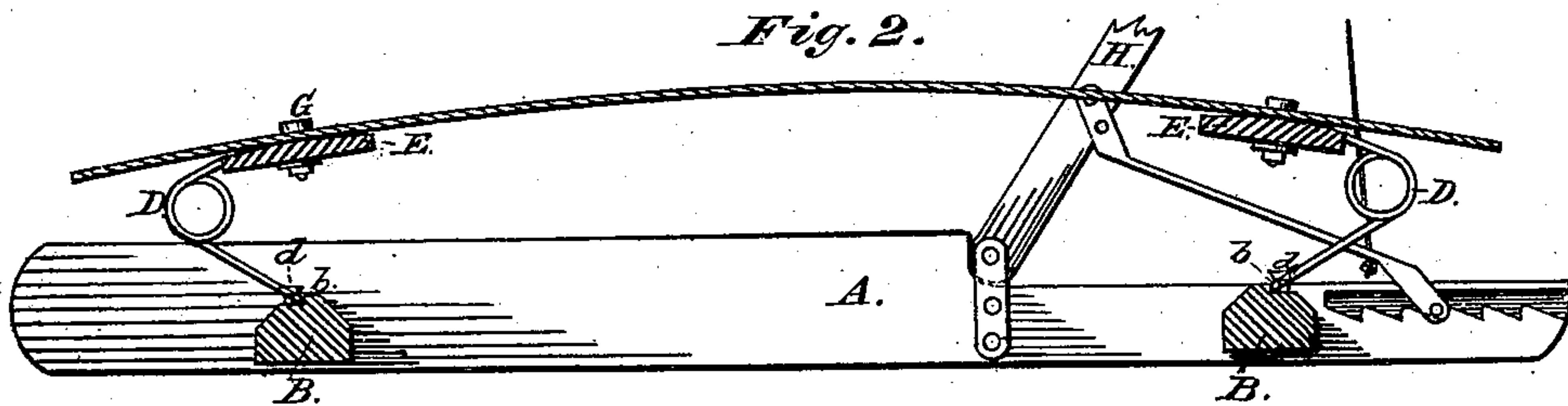


Fig. 2.

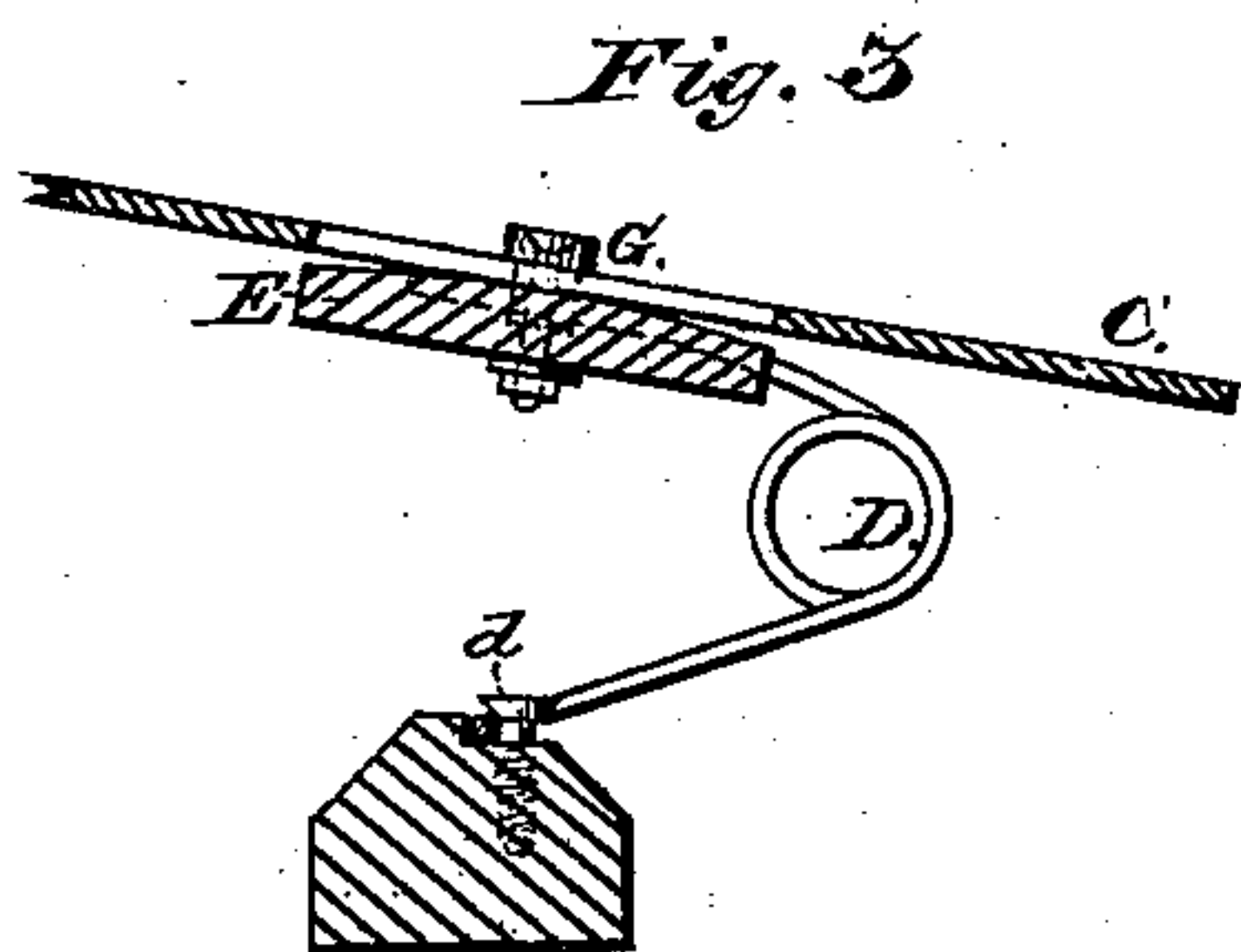


Fig. 3.

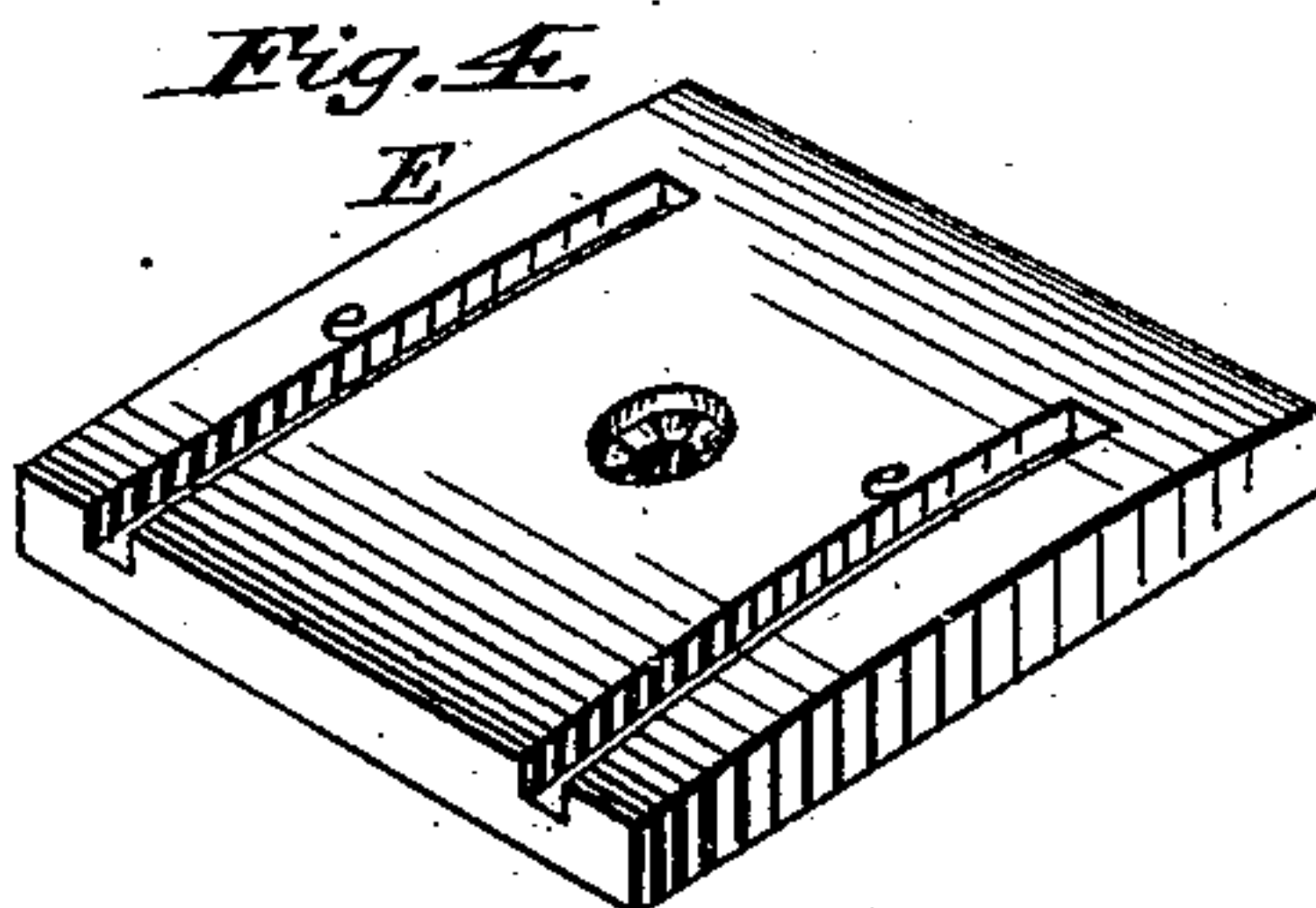


Fig. 4.

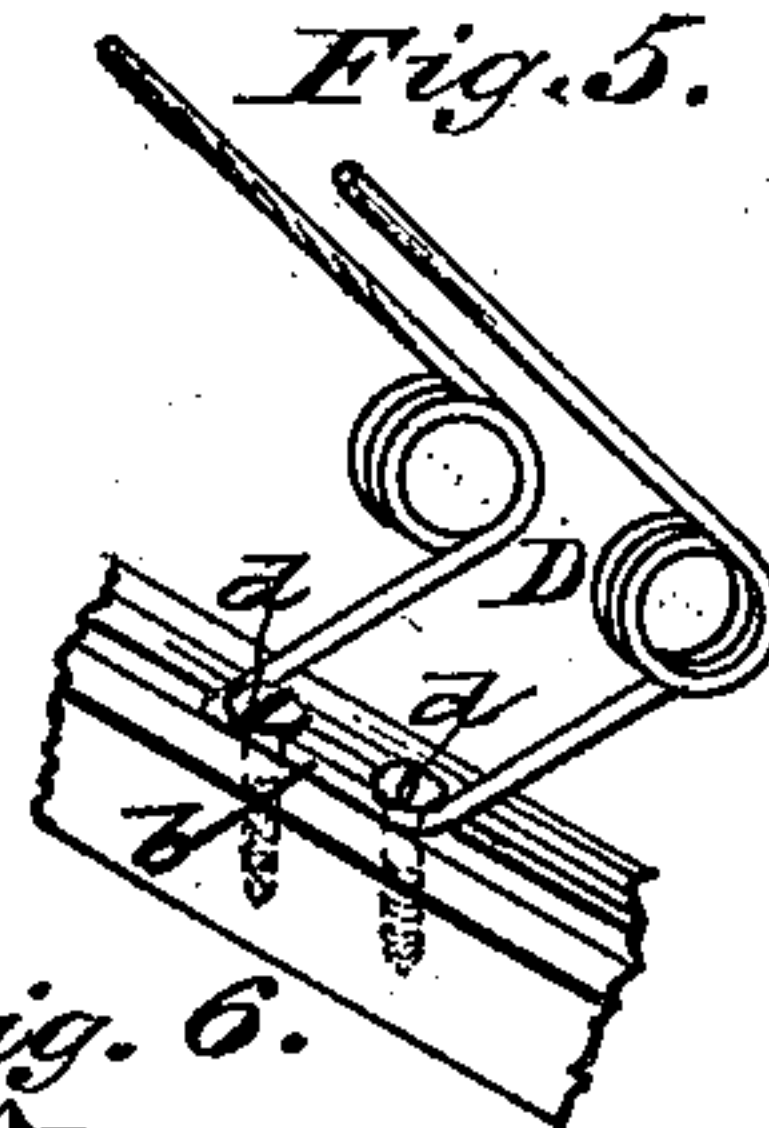


Fig. 5.

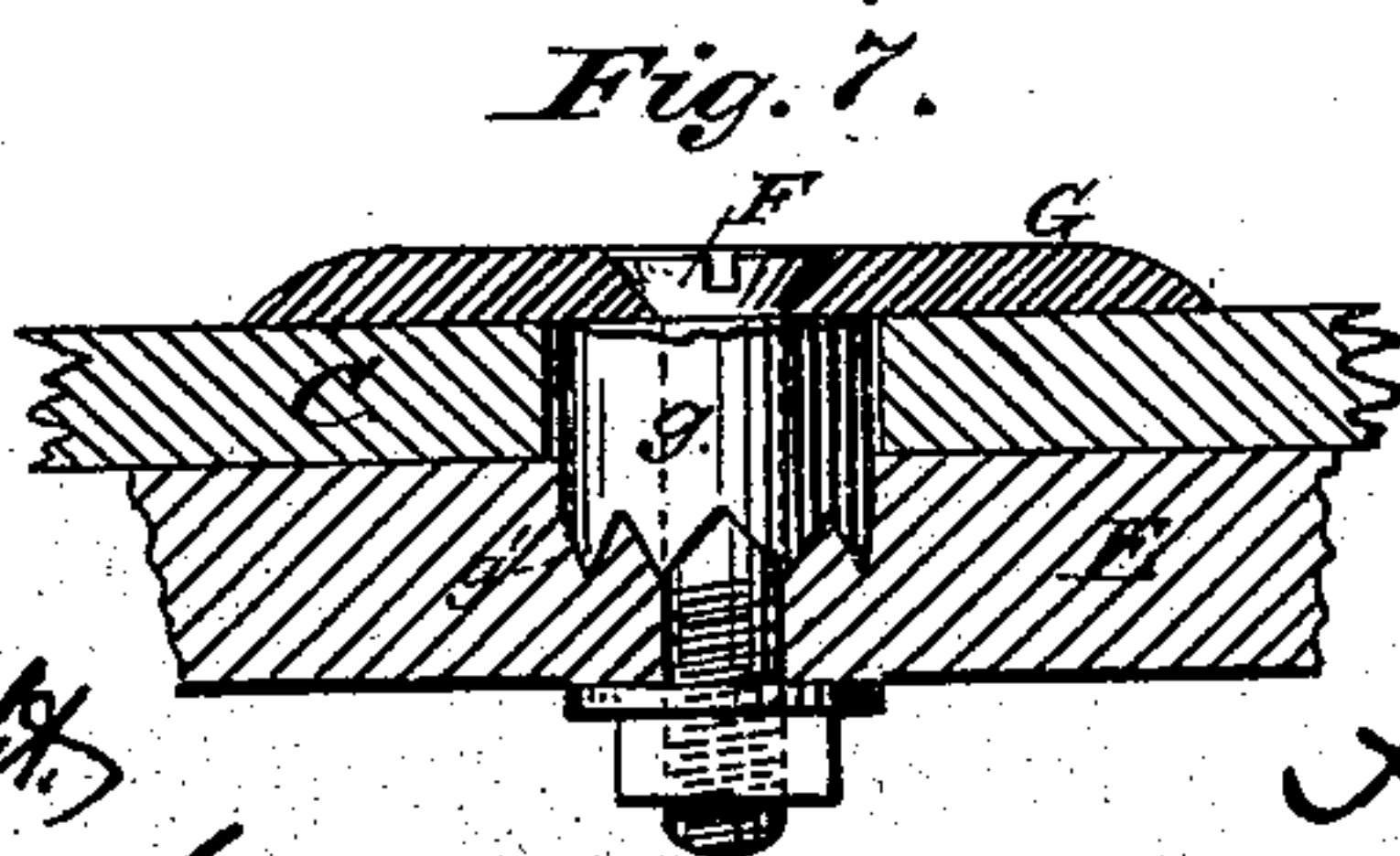


Fig. 7.

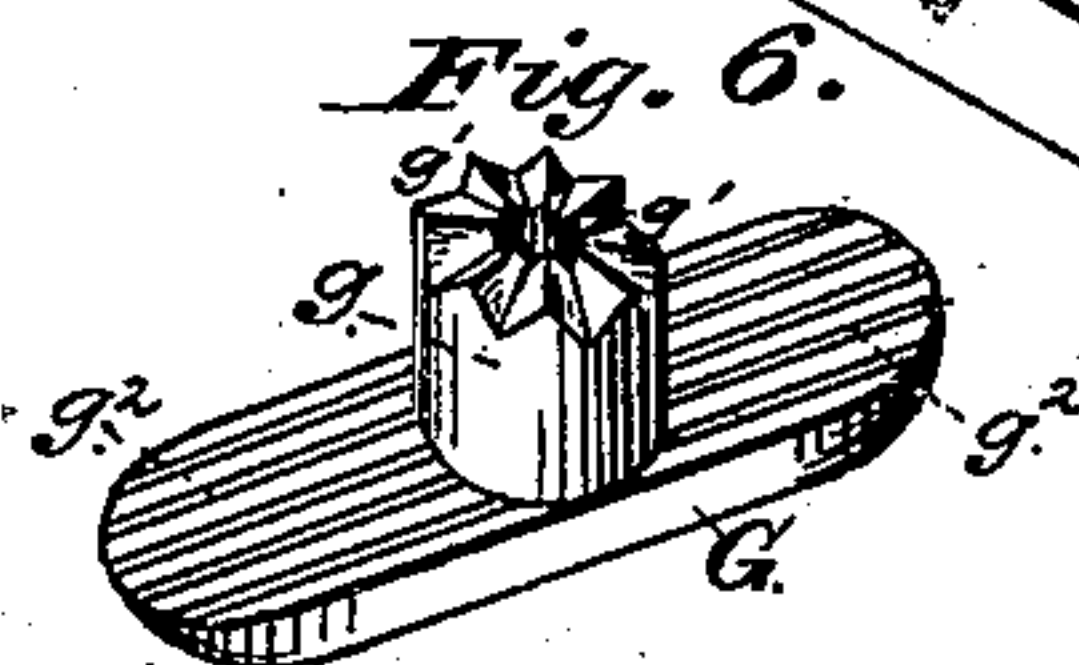


Fig. 6.

Witnesses:

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SPRING BED-BOTTOMS.

Specification forming part of Letters Patent No. 187,229, dated February 13, 1877; application filed January 22, 1877.

*To all whom it may concern:*

Be it known that I, ANDREW W. KENDRICK, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain novel and useful Improvements in Spring Bed-Bottoms, of which the following is a specification:

My invention relates to a novel construction of spring-slat bed-bottom; and it consists, first, in a new and improved mode and means of detachably securing each of the slats of the bed-bottom to the springs which serve to support it at either end, and give tension to it, for allowing it to be readily taken apart and reversed; second, in a new and improved mode and means of rendering this fastening adjustable for altering the tension of the springs, as may be required; thirdly, in a novel feature of the confining-nut, by which the fastening-block for the spring is secured from bodily movement laterally; fourthly, in a novel feature of the confining-nut, whereby any pivotal displacement of the fastening-block upon the clamping-screw as a center is prevented; fifthly, in a novel feature of the fastening-blocks for the springs, for allowing the free curvature of the slat under the tension of said springs, and enabling the said blocks, by fitting closely to said slat, to act as a brace and support for said slat at its weakest points; sixthly, in a new and improved mode of detachably securing the lower or "stirrup" ends of the supporting-springs upon the supporting cross-bar of the bed-bottom, for the purpose of preventing the lateral movement of the spring when in position, and the consequent tilting of the slat, and to permit the easy removal of the spring from the cross-bar when it is desired to detach it; seventhly, in the general combination of the parts constituting the fastening for holding the slat firmly and yet elastically in position, and allowing the quick and easy adjustment of the spring, and the taking to pieces the bed-bottom for transportation in a "knock-down" state, and in small compass.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a slat bed-bottom embodying my improvements; Fig. 2, a longitudinal vertical

section on the line *x x*, Fig. 1, showing the supporting-springs and their action upon the slat; Fig. 3, a detail view of one of the springs in position, showing the manner in which the slat is secured to and adjusted upon the spring, as also the mode in which the spring is secured to the supporting cross-bar; Fig. 4, a detail view of one of the fastening-blocks for the upper ends of the springs, exposing its convex upper face, and the blind grooves for receiving and limiting the forward movement of the upper ends of the springs; Fig. 5, a detail view, showing the screws which secure the springs to the supporting cross-bar in position for allowing the removal of the spring; Fig. 6, a detail view of the confining-nut, showing the features by which it is itself held in position, and also secures the fastening-block from lateral, longitudinal, or pivotal displacement. Fig. 7 is a detail sectional view of one way in which I secure the fastening-block and spring to the slat, and Fig. 8 is also a detail sectional view of a modification of the same.

The same letters refer to the same parts throughout.

A A represent the side rails of an ordinary bedstead. B B are the cross-bars for supporting the springs D, carrying the upper and lower ends of slats C. These cross-bars B are each formed at the top with an upwardly-projecting lip or shoulder, *b b*, against which abut the lower ends or stirrups of the springs D. The two cross-bars B are made alike, but are turned in opposite directions, the lips or shoulders *b b* being on or near their adjacent top corners. The stirrup end of each spring is square, and lies in the angle formed by the lip *b* and the flat upper face of the cross-bar B, the spring being secured in position by two screws, *d d*, one placed in each angle of the stirrup in such a manner as, when screwed down, to confine the stirrups firmly against the lip *b*. The screws *d* are of the ordinary form—that is to say, provided with heads broader than the body, so that they overlap and confine the stirrups. The flat top of the cross-bar, in the form shown, forms an extended bearing and support for the stirrup, and the location of the screws at



each corner of the stirrup prevents sidewise movement of the spring and the tilting of the slat.

It is plain the lip or shoulder may project horizontally from the outer sides of the cross-bars—that is, from the sides facing respectively the head and foot of the bed—and the screws *d* applied horizontally above the stirrup, without departing from the spirit of my invention.

When it is desired to detach the stirrup, the screws are unscrewed until their heads project above the plane of the upper edge of lip *b*, as plainly shown in Fig. 5. The stirrup can then be passed upward and outward without removing the screws.

The spring *D* itself is of ordinary and well-known shape, formed with the square loop or stirrup, and one or more coils in each limb, leaving the two portions of each limb angular with respect to each other, their free or upper ends being slightly bent over, and confined between the lower face of the slat *C* and a fastening-block, *E*, of novel form. This block is preferably of wood, the grain running, by preference, transversely to that of the slat *C*, for the greater strength of the parts. The upper face of the block is convex in the line of length of the slat *C*, as shown in Fig. 4, to allow the slat to spring freely into the curved form shown in Figs. 1 and 2, produced by the joint tension of the supporting-springs at each end; and in this upper face, across its convexity, are channeled two blind grooves, *e e*, terminating at any point short of the inner end of the block, so as to prevent the slipping forward of the ends of spring *D*, when introduced therein; and the grooves are of such a depth that the wire of the springs will lie about flush with the face of the block.

The fastening-block *E* is confined upon the under face of slat *C* in the following manner: The slat *C* has, near each end, a slot, *c*, of (say) about the length of the block *E*, made in it longitudinally. Were it not desired to adjust the spring, a simple perforation in the slat for the admission of a clamping set-screw, *F*, would answer. This screw passes downward through a confining-nut, *G*, on top of the slat *C*, and through slot *c*, and is screwed into the fastening-block *E*. This confining-nut *G* is of the form shown in Fig. 6, being oblong, and of a width and length which will permit it, when turned to the proper position, to push through the slot *c*, and in detaching the spring *D* from the slat, obviate the necessity of entirely detaching screw *F* from block *E*. The head of screw-bolt *F* is countersunk in the confining-nut *G*, to secure a smooth surface. The confining-nut *G* is, moreover, formed with a downwardly-projecting collar, *g*, fitting accurately, as to width, in the slot *c*, so as to prevent lateral displacement of the block *E*. Through this collar passes the screw-bolt *F*. This collar is, besides, armed at the bottom

with spurs, teeth, or corrugations, *g*<sup>1</sup>, which bite into the fastening-block *E* on either side of screw-bolt *F*, fastening the confining-nut and the block *E* rigidly together. The body of the confining-nut *G* is also provided on its under face, at either side of the collar *g*, with spurs, teeth, or corrugations, *g*<sup>2</sup>, or it may be merely roughened, so that it bites the wood of the slat on either side of the screw-bolt *F*, so that when the screw-bolt is tightened the block *E* is rigidly clamped to slat *C*, and prevented from being displaced in any direction.

I have shown in Figs. 2, 3, and 5, the clamping-nut, slat, and block secured together by an ordinary screw bolt and nut, and in Fig. 8 I have shown them fastened together by an ordinary wood-screw. I contemplate using either form as I prefer.

The peculiar form of fastening-block *E* causes it to aid, when tightly clamped and the slat is curved, in bracing and strengthening the slat at the point of greatest weakness and strain. (It will be observed that the upper portions of confining-nut *G* are beveled or rounded off, so as to present no point on which bed-clothes, &c., may be caught and torn.)

To remove the slat *C* with the springs *D* attached, it is only necessary to unscrew the screws *d* until their heads are above the plane of lip *b*, when the stirrup may be slipped out over the lips.

To increase the tension of spring *D*, the screw *F* is loosened, and the confining-nut and fastening-block moved out toward the end of the slot, and again tightened; and to decrease the tension, the nut and block are moved in the opposite direction; while detaching the spring from the slat, for reversing it, or for transportation, is easily effected by loosening the screw *F* and turning the confining-nut *G* in line with slot *c*, when it will slip through. The convex upper face of the block *E* and the curvature of the slat act to retain said block in position. The curvature of the slat is produced by the upward and outward thrust of the springs *D*, and renders needless the employment of a middle supporting-spring, although the nature of my invention does not preclude its use.

Some of the advantages of my invention, briefly stated, are as follows:

While firmly securing the slat in position, and giving it a buoyant and upward curve, it allows ready adjustment, or the detaching of the slats for reversal when weakened by use, or for packing the bed-bottom, for transportation, in small compass. It permits the said adjustment of the springs to be made without actually detaching any of the parts; and it furnishes a simple and compact fastening, not liable to become loose by the oscillations of the spring, or to annoy by unpleasant creaking or otherwise. When the occupants are of unusual weight, the adjustment of the slats to increase their curvature imparts to them, also, greater stiffness and buoyancy;



and the independent adjustability of the slats enables either side of the bed-bottom to be adjusted to the weight of the person.

H represents an adjustable "invalid" head-rest, to which I will not more particularly refer, as I intend making it the subject of a separate application hereafter.

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

1. The combination, in a spring bed-bottom, of the perforated slat, the supporting cross-bar, the spring, the fastening-block having the blind grooves, the confining-nut, and the clamping-screw, substantially as and for the purpose set forth.

2. The combination of the slotted slat, the supporting-spring, the grooved fastening-block, the oblong confining-nut, of a width and length less than the slot, and the clamping-screw, substantially as and for the purpose set forth.

3. The combination, with the fastening-block, the slotted slat, and the clamping-screw, of the confining-nut, formed with a projecting collar, fitting in the width of the slat, substantially as and for the purpose set forth.

4. The combination, with the slotted slat, the fastening-block, and the clamping-screw, of the oblong confining-nut, formed with the projecting collar armed with spurs or corrugations, and the under surface of the nut proper roughened or corrugated, substantially as set forth.

5. The combination, with the supporting-spring, the slotted slat, the confining-nut, and the clamping-screw, of the fastening-block having the curved upper face, substantially as and for the purpose set forth.

6. The combination, with the supporting-spring, and the supporting cross-bar, having the upwardly-projecting lip, of the adjustable fastening-screws, substantially as and for the purpose set forth.

7. The combination, in a spring bed-bottom, of a slotted slat, the oblong nut formed with collar and corrugations, the fastening-block formed with convex upper face, and the blind grooves, the springs, and the supporting cross-bar, all substantially as and for the purpose set forth.

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Attest:

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