

D. EDGAR.
SPRING BED BOTTOM.

No. 458,655.

Patented Sept. 1, 1891.

Fig. 1.

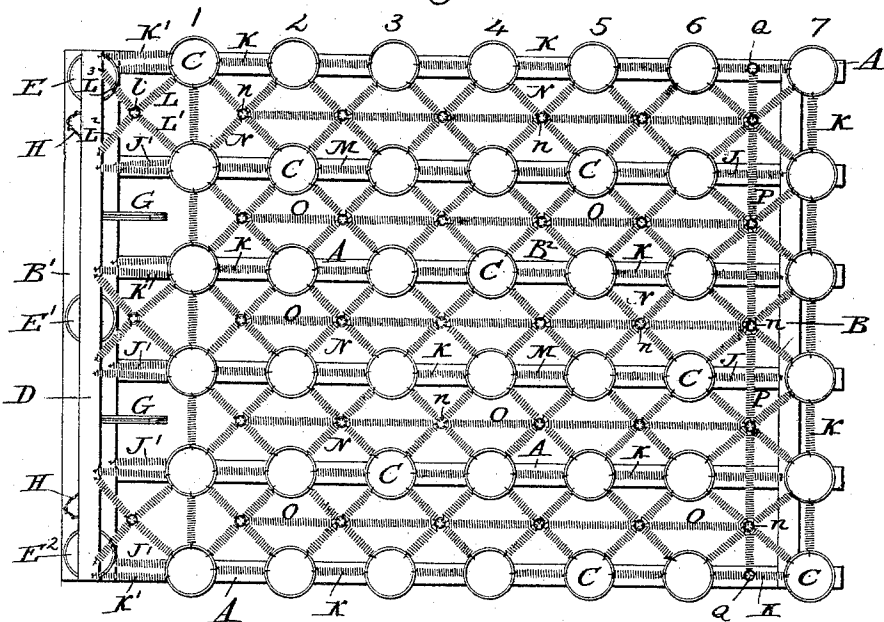


Fig. 2.

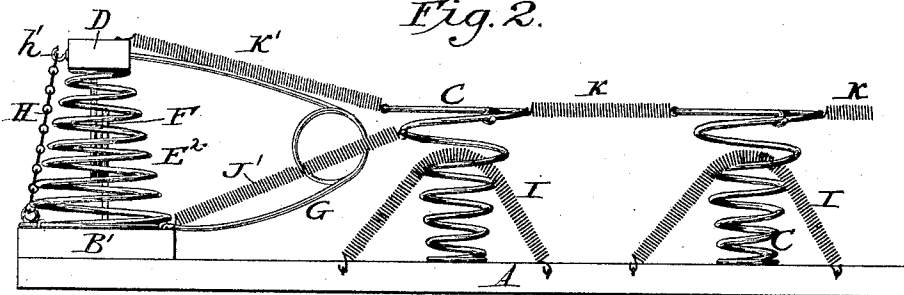
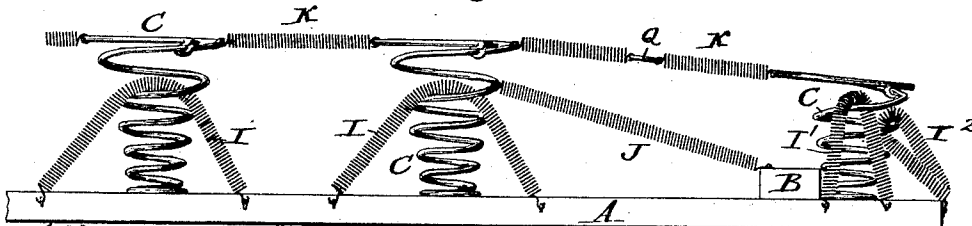


Fig. 3.



Attest.

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Balthus D. Long.

Inventor

DANIEL EDGAR
by his attorneys
Baldern, Davidson & Night

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Fig. 4.

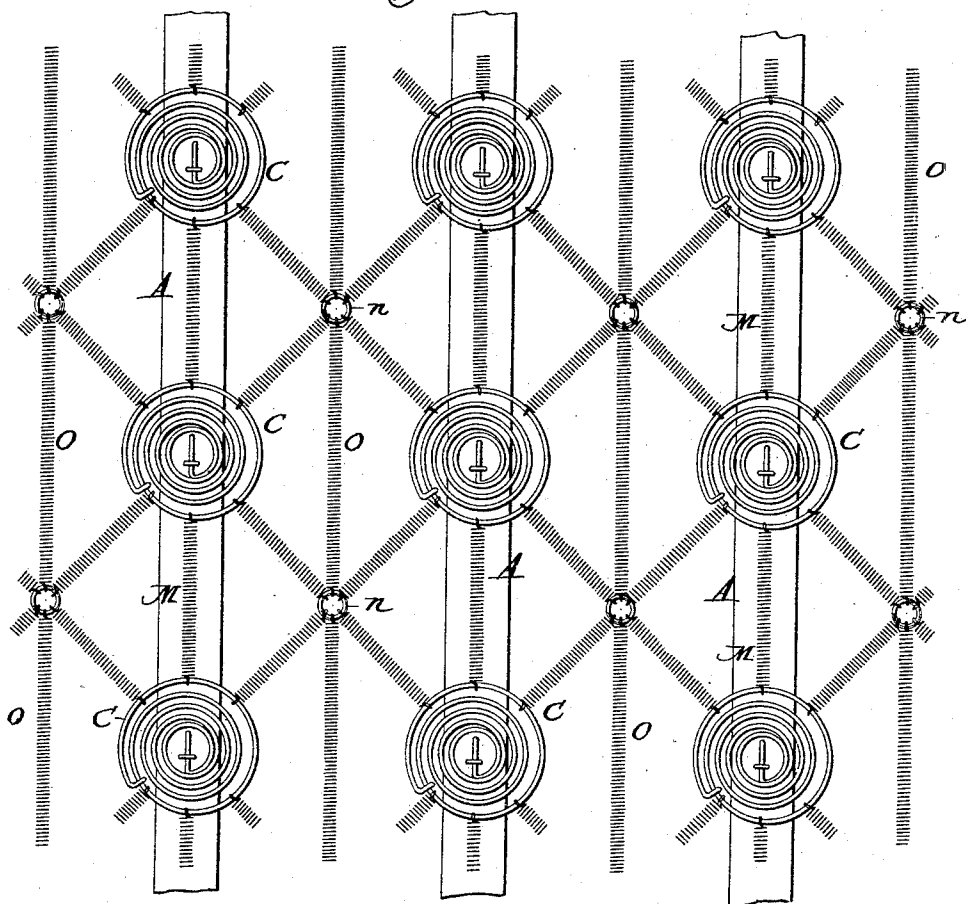
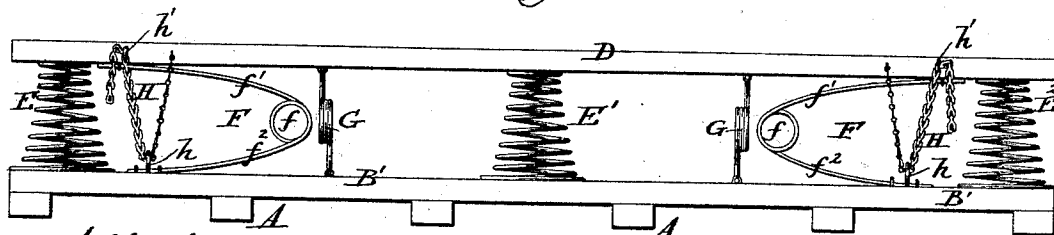


Fig. 5.



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UNITED STATES PATENT OFFICE.

DANIEL EDGAR, OF ADRIAN, MICHIGAN.

SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 458,655, dated September 1, 1891.

Application filed October 29, 1890. Serial No. 369,720. (No model.)

To all whom it may concern:

Be it known that I, DANIEL EDGAR, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Spring Bed-Bottoms, of which the following is a specification.

My invention relates to spring bed-bottoms of the class in which coiled or helical springs are secured vertically on a supporting-frame and connected by horizontal bracing and supporting springs and by inclined bracing-springs. United States Letters Patent No. 237,679, granted to me February 15, 1881, illustrate such an organization.

The objects of my present invention are to secure a spring bed-bottom having a uniformly-elastic surface, firmly to connect and brace the supporting-springs by elastic connections capable of yielding freely vertically and laterally, but preventing excessive lateral displacement of the springs, and a yielding adjustable head-piece strongly braced against lateral displacement. These ends I attain by the novel construction, combination, and organization of instrumentalities hereinafter specified.

The accompanying drawings show a spring bed-bottom embodying the subject-matter claimed. Unless otherwise specified, the parts are of the usual well-known construction.

Figure 1 is a plan or top view of the whole bed-bottom; Fig. 2, a side elevation of the head end of the bed; Fig. 3, a similar view of the foot end; Fig. 4, a top plan of a part of the central portion or body, and Fig. 5 an end elevation of the head end of the bed-bottom. Fig. 1 shows the different parts on a smaller scale than the other figures

The frame is shown as composed of a series of longitudinal parallel slats A, connected at the foot and head by cross bars or slats B B', secured thereon. The slats A protrude slightly beyond the cross-bar or foot-piece B, for a purpose hereinafter explained. Coiled supporting-springs C are shown as mounted symmetrically on the slats A equidistantly from each other. These springs in outline represent inverted frusta of cones of uniform height, which form I now prefer to the hour-glass shape shown in my former patent as being less liable to become centrally and lat-

erally distorted by constant use. Fig. 1 shows thirty-six of these supporting-springs arranged in six transverse rows 1 2 3 4 5 6 in rectangular form between the head and foot pieces or slats B B', with an additional row 7 of such springs mounted on the protruding end of the slats A outside the foot-piece, for a purpose hereinafter described.

A cross-bar D, constituting a head-piece, is shown as mounted on three coiled springs E E' E², interposed between it and the cross-piece B'. These springs are frustum-shaped, their smaller ends being uppermost, one of them supporting each end of the head-piece and the other the center.

U-shaped or bow-springs F are interposed between the ends of the cross-bar B' and head-piece D, with their open ends near to and pointing toward the outer coiled springs E E². These bow-springs are made of stout wire, each having central coil *f* and arms *f'* *f*², respectively, secured to the head-piece D and head-slat B'. Similar springs G are likewise interposed between the head-piece and slat B' and between the inner ends of the transverse bow-springs F and the central spiral spring E'. These springs G, however, instead of being arranged parallel with the head-piece, are arranged transversely thereto—that is, parallel with the slats A—their central portion or spring end projecting toward the foot of the bed-bottom. (See Fig. 2.)

A chain H is secured to the head-piece D near each end. Each chain extends through an eye *h* on the cross-slat B', and is then secured on a hook *h'* on the head-piece. As the two ends of each chain are secured to the head-piece at some distance apart and on opposite sides of the eye *h* on the cross-slat, it serves not only to prevent the head-piece being forced too far from the cross-slat by the springs, but also resists its endwise movement laterally or transversely to the bed-bottom. The distance to which the head-piece can rise may readily be adjusted by letting out one or more links of each chain. Under the organization shown the coiled springs tend to raise and support the head-piece. The bow-springs F G not only assist in the performance of this function, but also brace the head-piece, both laterally and longitudinally. I am thus enabled

to adjust the height of the head-piece without interfering with its flexibility and without the use of a hinge, as it simply moves vertically on its supports. The outside longitudinal rows of the supporting-springs inside the slats B B' and the springs on the transverse row 7 between the corner-springs at the foot are braced laterally and restricted as to their vertical movement by spiral springs I, passing through the upper coils of the supporting-springs and having their ends secured on the supporting-slats A. The corner supporting-springs at the foot are braced by similar springs I' I², arranged both longitudinally and transversely on the protruding ends of the slats, (see Fig. 3,) thus bracing these corners in both directions. The transverse rows of springs 6 and 1, respectively, next and inside of the cross-bars B B' are braced by longitudinal inclined coiled springs J J', respectively, secured at one end to the slats and at the other to the springs near their upper ends. These tension-springs serve to counteract inward strains on their supporting-springs to prevent their lateral distortion. The supporting-springs around the edge of the bed-bottom are connected by horizontal coiled springs K. The head row of supporting-springs 1 is not only connected with the head-piece D by similar springs K', but also by three sets of intersecting diagonal springs L L' L² L³, united in each set at their intersecting point by a ring l, each set of springs thus radiating from the central ring to the two supporting-springs and two separate points of attachment on the head-piece. (See Fig. 1.) This figure shows this relative arrangement as applied only to the corner and central squares nearest the head, the spaces of the other squares being occupied by the longitudinal bow-springs G. The springs in the remaining squares afford sufficient bracing-supports for all practical purposes. The supporting-springs C in the inner longitudinal rows are connected with each other by spiral springs M, arranged in longitudinal series. All the supporting-springs are connected in sets of four by sets of diagonal spiral bracing-springs N, the four springs constituting a set radiating from a central ring n. The five rows of sets of spiral springs and rings N and n are united by longitudinal coiled springs O. At the foot of the bed these springs terminate in rings n, connected by transverse coiled springs P; secured at their outer ends to rings Q, with which the longitudinal springs K, con-

necting the outer longitudinal rows of supporting-springs, are united.

My improved organization secures a bed-bottom adapted to yield freely at any desired point and readily to resume its normal position when relieved from pressure, while the supporting-springs are securely braced against lateral strains in any direction. It possesses the strength requisite to durability and elasticity sufficient for comfort.

Having thus fully described the construction, organization, and operation of my improved spring bed-bottom, what I claim therein as new, and as of my own invention, is—

1. The combination, substantially as hereinbefore set forth, of the longitudinal slats, the head and foot cross-bars connecting them, the head-piece D, the coiled springs supporting it and normally holding it above the upper plane or surface of the springs in the bed-bottom, the transverse bow-springs F and the horizontal bow-springs G, both interposed between the head cross-bars and head-piece to enable the latter to be raised and lowered without a hinge, and devices for holding the head-piece against the force of the springs in any desired position.

2. The combination, substantially as hereinbefore set forth, of the longitudinal slats, the head and foot cross-bars connecting them, the head-piece D, adapted to be raised and lowered without a hinge, the coiled springs supporting and normally holding the head-piece above the surface of the springs in the bed-bottom, and devices for holding the head-piece at any desired elevation against the force of the springs.

3. The combination, substantially as hereinbefore set forth, of the longitudinal slats, the head and foot cross-bars connecting them, supporting-springs arranged on the slats, horizontally-arranged springs connecting the supporting-springs at their upper ends, the head-piece adapted to be raised and lowered without a hinge, springs mounted on the head cross-bar and supporting the head-piece and normally holding it above the upper plane or surface of the springs in the bed-bottom, and the adjusting-chains secured to the head cross-bar and the head-piece.

In testimony whereof I have hereunto subscribed my name.

DANIEL EDGAR.

Witnesses:

R. B. ROBBINS,
A. E. BARAGAR.