C. H. Hardy,

Bed Bottom,

No. 64,528. Patented May 7, 1867.

Fig: 1.

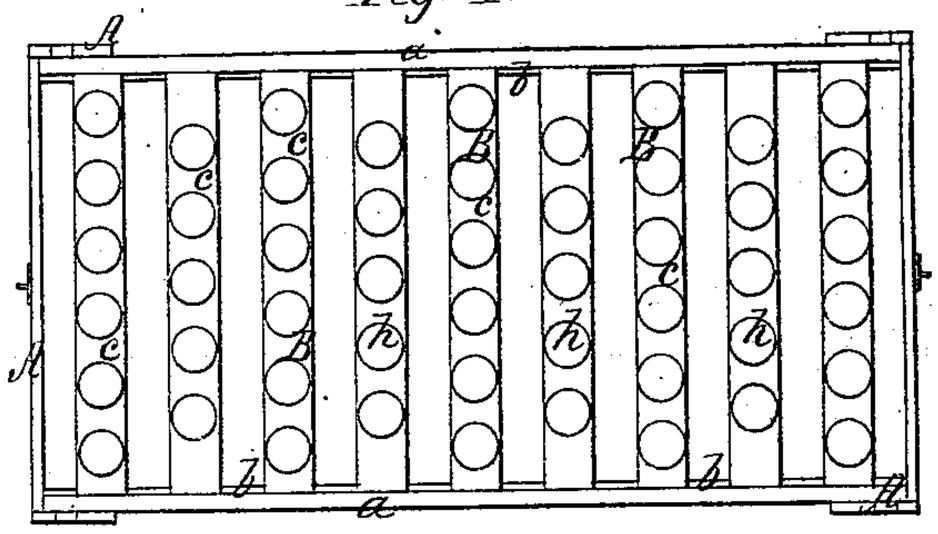


Fig: 2.

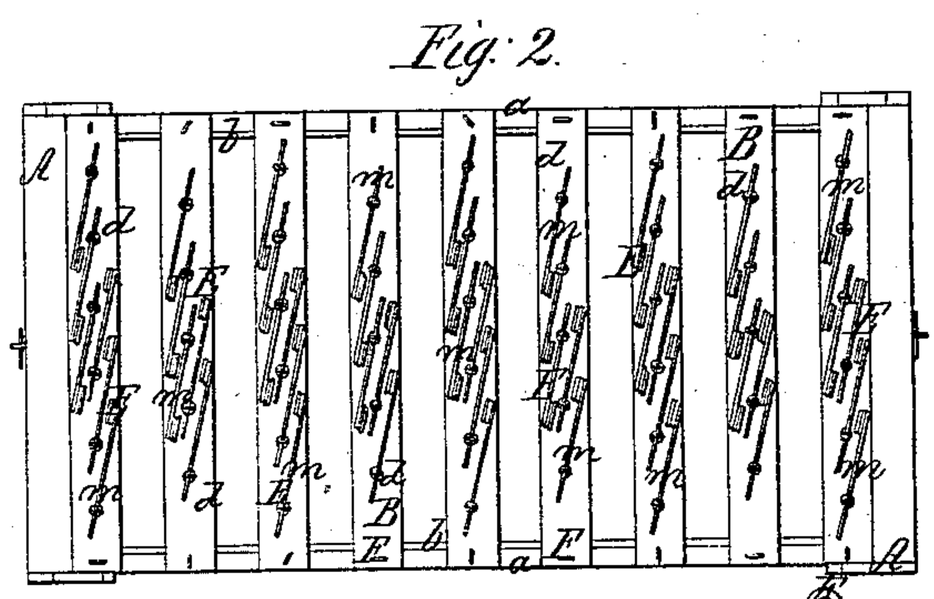


Fig: 3.

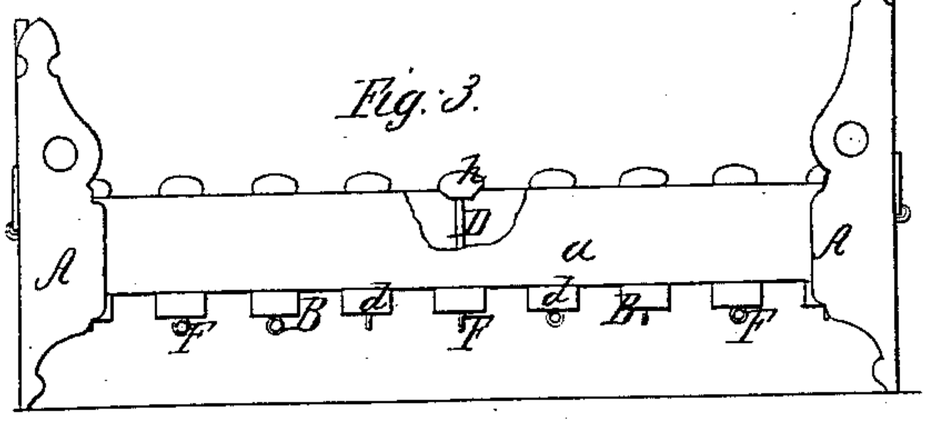


Fig: 4.

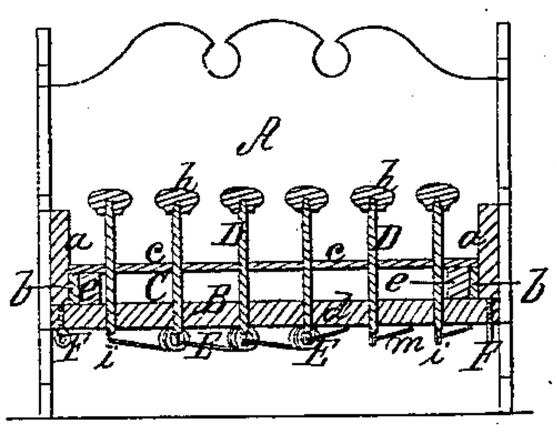


Fig: 6.

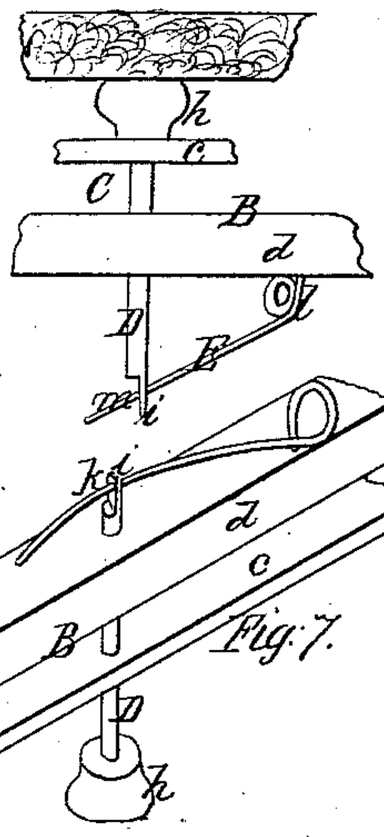
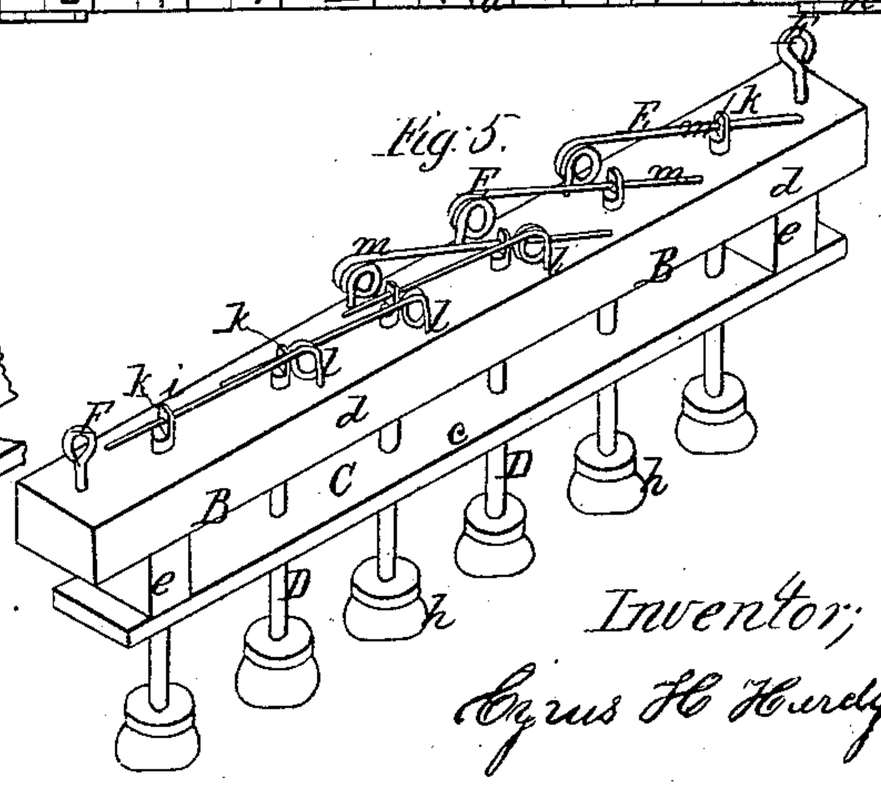


Fig: 7.

Fig: 5.



Witnesses;

P. Fleischmacher

V. W. Stearns

Inventor;

Cyrus H. Hardy

United States Patent Office.

CYRUS H. HARDY, OF CHARLESTOWN, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND GEORGE JAQUES, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 64,528, *dated May* 7, 1867.

IMPROVED BED-BOTTOM.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CYRUS H. HARDY, of Charlestown, in the county of Middlesex, and State of Massachusetts, have invented certain improvements in Spring Bottoms for Beds and other articles of upholstery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a bedstead with my improved spring bottom applied thereto.

Figure 2 is a plan of the under side of the same.

Figure 3 is a side elevation of the same.

Figure 4 is a transverse section on the lines *x x* of figs. 1 and 2.

Figure 5 is a perspective view of one of the sections of my improved spring bottom inverted, to better illustrate its construction.

Figure 6 is a detail, representing one of my improved springs, and the rod or pin by which it is operated.

Figure 7 is a modification of the same.

Spring bed-bottoms, as heretofore constructed, only approximately perform the office for which they are designed. Those provided with slats extending longitudinally and transversely across the frame are objectionable on account of their rigidity, and also because they sink away in the centre, whatever be the position assumed by the occupant; and spiral springs enclosed within a covering or canvas are objectionable because the pressure occasioned by the weight of the occupant is communicated to the entire bed, and he is inclined to roll to one side of the centre, while, when two occupy the same bed, neither one can change position without moving the other; and in consequence of the shape of the double-cone or "hour-glass" springs, being small in the middle and large at their ends, they are weak and liable to be bent over.

My invention has for its object to obviate the above-mentioned difficulties, and consists in a series of separate and independent coiled lever springs secured to sectional frames, forming the bottom of the bedstead or other article to which they are applied, each spring being operated by a vertical rod or pin, upon the top or head of which the mattress is placed, the arm or lever end of the spring moving freely in a slot or recess in the bottom of its pin, by which construction, when pressure is applied upon the mattress and the pin thereby depressed more and more, the length of the leverage is increased and the spring rendered more light and sensitive, thus successfully accomplishing the desideratum heretofore unattained by the employment of any other description of spring.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is the bedstead, along the inside of each of the longitudinal pieces *a* of which extends a projecting strip or flange, *b*, which supports the upper rails *c* of sectional frames B. *d* are the lower rails of these frames, between which and the upper rails *c* are placed rectangular blocks *e*, by which a space, C, is formed between the rails, which are secured together in any suitable manner. Through the centre of the upper and lower rails *c d*, and at short intervals apart, are formed circular holes, the position of the holes in one sectional frame being opposite to points half way between two contiguous holes in the adjoining sectional frame. Through these holes pass vertical rods or pins D, upon the upper ends of which are secured caps or buttons *h*; the lower ends of these pins being somewhat flattened, as seen at *i*, figs. 5, 6, and 7, and provided with circular holes *k*, for a purpose now to be explained. E are coiled lever springs, of brass, wire, or other suitable material, and of the form seen in figs. 5 and 6, the inner ends *l* of which are secured to the under side of the rails *d*, while their outer ends *m*, which are straight, or nearly so, extend diagonally across them, and pass through the holes *k* in the lower ends of the pins D, the size of these holes being sufficient to allow the straight portions *m* of the springs to move freely therein when the pins D are depressed. When the pins are in their normal position, the tops of the caps or buttons are all in the same horizontal plane, as seen in figs. 3 and 4, but when the bed is occupied, the pins immediately under and around the occupant commence to be depressed unequally, the degree of depression corresponding to the pressure imparted thereto by the unequal weight of the respective portions of the body, while the pins in nearly all the remaining portion of the bed not covered by the occupant are depressed but very slightly if at all.

The manner in which the springs are operated by the pins, and the effect produced and position occupied by them when submitted to different degrees of pressure, will now be described. As each pin D commences to be depressed, the straight portion *m* of the spring E connected with its lower end, is presed down from the under side of the lower rail *d*, and slides freely through the hole *k*, in such manner that the length of the leverage of the spring is increased, and when the pin is depressed at its lowest point, in the position indicated by fig. 6, the effectual length of the lever is greatest, the bed becoming more and more elastic as the leverage is increased; whereas, with every other spring, the contrary effect is produced. The pins stand erect under pressure, and the strength of the parts is not in the least impaired, whatever be the weight of the party occupying the bed, and they immediately return to their original position on being liberated therefrom. F are screw clamps, by means of which the sectional frames are secured in place after being adjusted at the required distance from each other by sliding them along the projecting rails *b*.

Among the advantages which the above-described bed-bottom possesses over those of the ordinary construction may be enumerated the following, viz: On account of its being made in removable sections a hard bed may be almost instantly changed into a soft one, or *vice versa*, by increasing or reducing the number of sections, or by placing them nearer together or farther apart. The amount of play or compass of my improved springs is greater than that of any other spring, and it is also exceedingly durable, and not liable to derangement, and for transportation is peculiarly convenient, as the several parts may be readily removed, and packed so as to occupy but little space. It is free from noise and dust, and offers but slight resistance to pressure, and as the action of each spring is independent of the other, the position of the pins forms a series of undulating curves, which yield and support the occupant from head to foot as buoyantly as a cork upon water, irrespective of weight, form, or position. Owing to the extreme sensibility of the spring but one mattress is required, thereby rendering the bed cooler in warm weather, and I am enabled to furnish a more luxurious bed than those now made, and at a less cost. Instead of a spring constructed as above described, in which the coil is unwound by depressing the pin D, a spring arranged as shown in fig. 7 may be employed, in which the coil is wound up by depressing the pin, without departing from the spirit of my invention.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

The series of coiled lever springs E, operated by pins D, or their equivalent, substantially in the manner and for the purpose set forth.

CYRUS H. HARDY.

Witnesses:

P. E. TESCHEMACHER,

N. W. STEARNS.