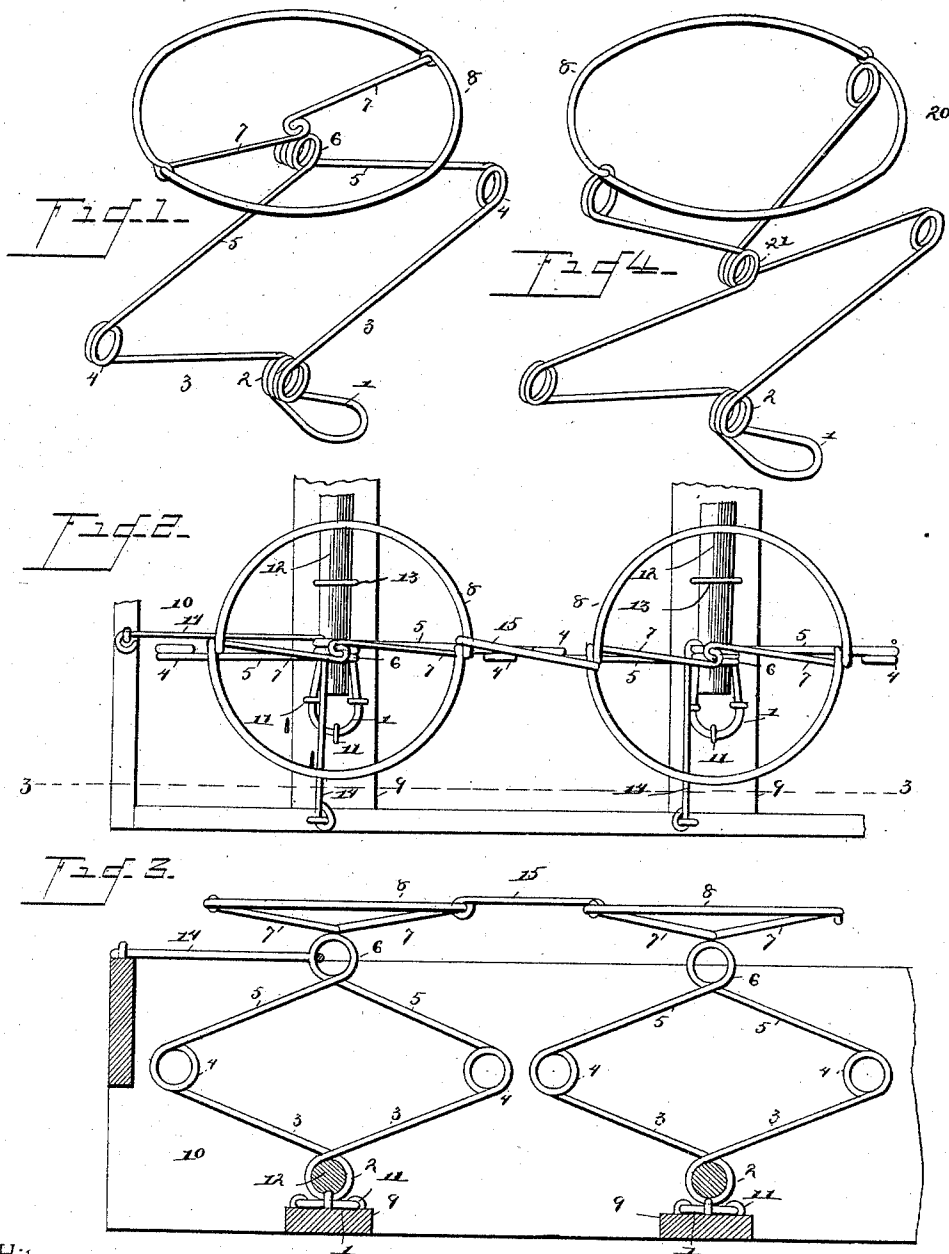


(No Model.)

E. W. LOCKE.
BED SPRING.

No. 442,063.

Patented Dec. 2, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD WARREN LOCKE, OF GRAND RAPIDS, MICHIGAN.

BED-SPRING.

SPECIFICATION forming part of Letters Patent No. 442,063, dated December 2, 1890.

Application filed June 9, 1890. Serial No. 354,779. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WARREN LOCKE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Bed-Spring, of which the following is a specification.

This invention relates to springs for beds and furniture; and it has for its object to construct a spring of this class which shall be simple in construction, durable and efficient, and in the construction of which wire may be to a considerable extent economized.

With these ends in view the invention consists in the improved construction of the said springs and the method of assembling or mounting them for use, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view of one of my improved springs. Fig. 2 is a plan view showing a portion of a frame in which several of my improved springs have been mounted. Fig. 3 is a vertical sectional view taken on the line 3 3 in Fig. 2. Fig. 4 is a perspective view showing a modified form of the spring.

Like numerals of reference indicate like parts in all the figures.

Each of my improved springs is constructed of a single piece of wire, which is first bent or twisted so as to form a horizontal loop 1 at the center thereof, said loop forming the base of my improved spring. The ends of the wire are extended upwardly and bent to form a spring-coil 2 at right angles to the loop 1. The ends of the wire are then extended outwardly in opposite directions, as shown at 3 3, and each end is bent to form a spring-coil 4. The ends 5 5 are then again brought together and bent to form the spring-coil 6, from the upper side of which the ends 7 7 of the wire are extended in opposite directions. The two ends of the wire are finally bent in a horizontal plane to form the circular top coil 8, the ends of which are attached to the outer ends of the radial arms 7.

My improved spring-frame, as will be seen from the foregoing description, comprises a horizontal base-loop 1, a diamond-shaped frame composed of the arms 3 3 and 5 5, and

provided at its four corners with the spring-coils 2, 4 4, and 6, and a circular horizontal top coil 8, which is connected with the uppermost spring-coil of the vertical plane by means of the radial arms 7. The spring proper is composed of the diamond-shaped frame with the spring-coils at its four corners, the base-loop 1 serving merely for the attachment of the spring to the slats of the frame in which it is to be used, and the top coil 8, with the radial arms 7, being for the purpose of supporting the mattress or upholstery.

In practice the springs are mounted upon the slats 9 of a suitably-constructed frame 10 by means of the base-loops 1, which may be secured to the said slats by means of staples 11. Suitable brace-rods 12 are mounted in the bottom spring-coils 2 of the several series of springs, which are thereby braced and secured in a vertical or upright position. The brace-rods 12 may be secured to the slats 9 by means of staples 13, and the upper spring-coils 6 of the individual springs located nearest the sides and ends of the frame are connected with said sides and ends by means of the links 14. Links 15 are also used to connect the top coils 8 of adjacent individual springs.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my improved springs will be readily understood.

The construction is exceedingly simple and inexpensive, and a comparatively small quantity of wire is consumed in the manufacture thereof. When the springs are compressed, the strength is equally divided upon the arms and spring-coils of the vertical frames, and the latter will sustain a very considerable weight before they are fully compressed. The circular coils 8 at the upper ends of the springs afford a considerable supporting-surface for the mattress or upholstery that is to be supported thereon, and the radial arms 7, which connect the said coils with the vertical spring-frames, serve to prevent the material supported by the springs from sagging in the circular coils 8. The method of mounting the springs is simple and convenient, and the base-loops 1, in connection with the brace-

rods 12, will effectually prevent the springs from tipping or tilting. Each of the springs, as has already been stated, is made of a single piece of wire, and the manufacture of the said springs may be very easily and inexpensively carried out without necessity for complicated machinery of any kind. It will be particularly observed that in mounting the springs the brace-rods 12 extend through the bottom spring-coils 2 and directly over the base-loops 1, on which latter the said brace-rods practically rest, thereby preventing the said brace-rods from getting out of position.

I desire it to be understood that I do not wish to confine myself to the precise construction of the spring described in the foregoing and shown in the drawings hereto annexed. The frame of my improved spring is not necessarily diamond-shaped, but might be, for instance, triangular, the coils being located at the three corners; or the said spring-frame might be composed of two separate frames, as will be seen in Fig. 4 of the drawings hereto annexed, the upper frame 20 being formed with the supporting-coil 21, and each of the frames being formed with spring-coils at its corners. I reserve the right to all such modifications as properly fall within the scope of my invention, which consists, broadly, in a spring composed of a series of coils so arranged that when weight is placed upon the spring the pressure will serve to close all of the spring-coils closer, so that the greater the weight the greater will be the resistance. By this general structure of the spring I am also enabled to utilize finer wire than heretofore used in the manufacture of springs.

Having thus described my invention, what I claim is—

1. A bed and furniture spring comprising a horizontal base-loop, a vertical spring-frame, and a horizontal supporting-coil, both ends of

which are extended upwardly to form the said vertical spring-frame and supporting-coil, substantially as set forth.

2. A bed and furniture spring comprising a horizontal base-loop, a vertical spring-frame formed by the two upwardly-extended ends of the base-loop, a horizontal supporting-coil, and arms connecting opposite sides of the latter with the upper end of the spring-frame, substantially as set forth.

3. A bed and furniture spring comprising a horizontal base-loop, a vertical spring-frame having spring-coils formed at the four corners thereof, and a horizontal spring-coil connected with the upper end of said spring-coil by radial arms, substantially as set forth.

4. A bed and furniture spring composed of a single piece of wire bent to form a horizontal base-loop, a diamond-shaped frame at right angles to said base-loop and having spring-coils at the four corners thereof, arms extending horizontally in opposite directions from the uppermost spring-coil, and the circular supporting-loop, the end of which is attached to the outer ends of the said horizontal radial arms, substantially as set forth.

5. The combination of the springs having the base-loops, the vertical spring-frames, and the horizontal supporting-coils, the supporting-slats, and the brace-rods extending through the bottom coils of said springs, above the base-loops, and secured to the said supporting-slats, substantially as and for the purpose set forth.

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

EDWARD WARREN LOCKE.

Witnesses:

L. S. PROVIN,

ESTELLE H. PROVIN.