(No Model.)

O. S. & W. S. FOSTER.

SPRING BED.

No. 493,427. Patented Mar. 14, 1893

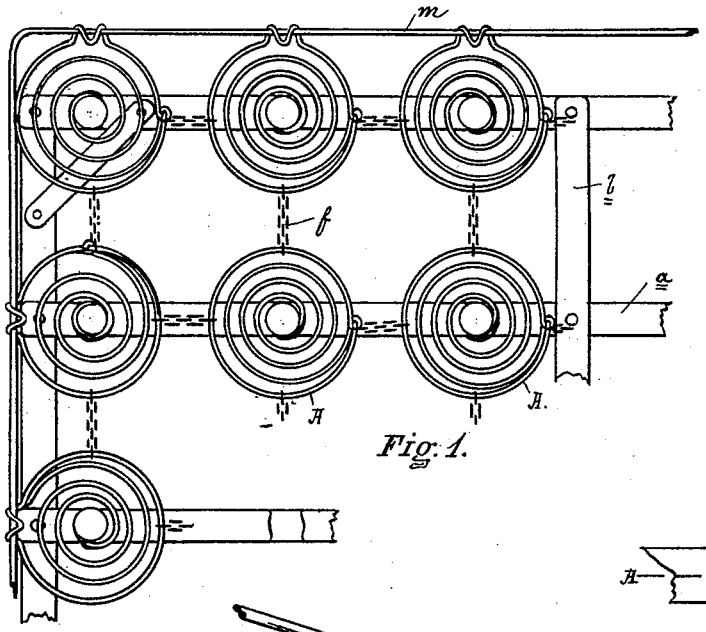

Fig. 1.

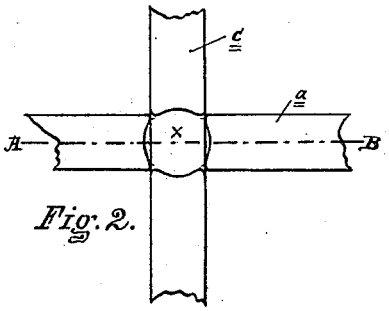

Fig. 2.

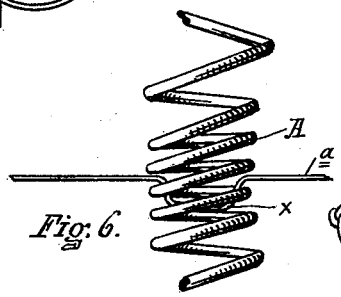

Fig. 6.

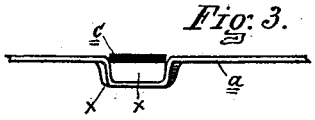

Fig. 3.

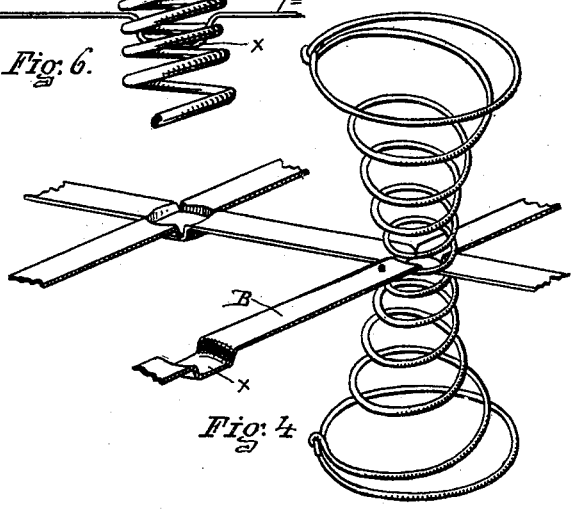

Fig. 4.

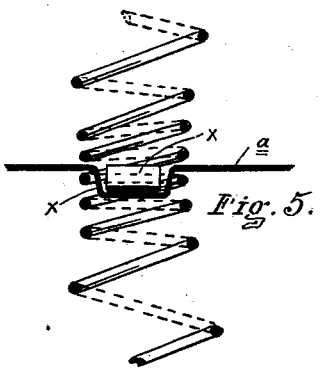

Fig. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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SPRING-BED.

SPECIFICATION forming part of Letters Patent No. 493,427, dated March 14, 1893.

Application filed April 11, 1892. Serial No. 428,580. (No model.)

To all whom it may concern:

Be it known that we, OSCAR S. FOSTER and WILLIAM S. FOSTER, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Spring-Beds; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

Our present invention relates to improvements in spring beds, lounges, car seats and similar devices which improvements tend to facilitate and economize in the construction, both in the use of material and the labor of assembling the parts. The present construction also reduces the number of parts heretofore used, and brings the parts into such position that they perform their functions in a new and better manner.

This invention is an improvement on the devices of Letters Patent No. 391,137, granted to us on October 16, 1888.

In the drawings which accompany and form part of this specification and in which similar letters of reference refer to the same parts in the several views, Figure 1 shows a plan view of a portion of a bed or similar device containing our improvements. Fig. 2 shows a plan view of a section of a frame without springs showing a section of a transverse bar or strip in connection with a section of a longitudinal bar or strip. Fig. 3 shows a side or edge view of a section of frame without springs showing a portion of a longitudinal strip and a transverse bar or strip. Fig. 4 shows in perspective, a section of frame, in modified form from that shown in Fig. 1, in connection with one spring applied thereto. Fig. 5 shows a section of the longitudinal and transverse strips, and spring taken on a line substantially with A—B of Fig. 2. Fig. 6 shows in enlarged detail, the manner of mounting the springs on one of the strips in the frame, and being the same construction shown in Fig. 1.

The spring A used to illustrate these improvements is known as a double-cone spring having large convolutions at each end and tapering to convolutions of smaller diameter between the ends. The larger and tapering convolutions are open and apart to allow the spring to be compressed, while the smallest convolutions lie close to each other and are adapted to receive the fastening as hereinafter stated. This precise form of spring is not essential, however, as it will be easily seen by a skilled person that a large portion of the double cone spring could be omitted and still retain a working mechanism.

The frame B shown is one that engages the springs by their middles but by omitting the portions of the several springs to one side of the frame it would become one of the faces of the bed and similar to a well-known class of spring beds. The frame B is composed of longitudinal, flexible metal strips *a* and either transverse metal flexible strips *b* as shown in Fig. 1 which are riveted to the longitudinal strips, or transverse flexible metal strips *c*, as shown in Figs. 2, 3, 4 and 5 or both kinds of such transverse strips, as desired. In the strips of the frame is provided a spring holding off-set *x* which may be given a partial cylindrical form to adapt it to conform more nicely to the convolutions of the spring. By providing the off-set *x* in the strip itself, the flexibility of the strip is still retained in the portion to which the spring is attached; as well as in the portion between the springs, and the strip is not weakened by punching a hole to secure plates to the sides of the strip as in other constructions. The springs are secured upon the single strip by simply turning them on until the off-set *x* is brought into the cylindrical portion of the spring formed by the smaller and contiguous convolutions.

The whole frame may be formed and held together without rivets or other parts or fastenings than the springs by providing the off-sets as *x* in both the transverse and longitudinal strips and bringing the off-set of the one into the off-set of the other as shown in Figs. 2, 3, 4 and 5 and applying the spring in the same way as to the single off-set in which case the spring will hold the two strips secure. In this manner of construction it is found desirable to make the transverse strips of "stock," a little narrower than that of the longitudinal strips, as the off-sets will then fit to each other better.

The surfaces of the bed in the construction

shown are formed by the end convolutions of the several springs, which all lie in the same plane and which are preferably connected by flexible connections as *f* and around the edge is provided a border wire *m*. When weight is placed upon the bed and is unequally distributed over the surface the several springs become compressed unequally, and the strips forming the frames being flexible, allow a yielding and still distribute a portion of the weight onto the lower parts of several adjacent springs, and not being limpsy maintain the frame in shape.

What we claim as new, and desire to secure by Letters Patent, is—

1. A spring bed consisting, essentially, of the middle or main frame composed solely of transverse and longitudinal flexible metallic strips, each having spring holding off-sets formed therein and brought into engagement with each other and double-cone springs secured to said middle or main frame, substantially as set forth.

2. The combination in a spring bed of a frame composed of transverse and longitudinal bars or strips each having an indented spring holding off-set, the off-set of one strip being brought into engagement with the off-set of the other and a spiral spring having contiguous convolutions applied to the engaged off-sets and secure the strips together, substantially as set forth.

3. The combination of a frame bar or strip having a single spring-holding offset *x* formed by a double bend in the strip, and a spiral spring having convolutions closely embracing the offset and engaging on both sides of the strip, substantially as set forth.

4. The combination of a frame bar or strip having a single spring-holding offset formed by bending the strip to one side of a direct line and back again, and a spring having contiguous cylinder-like convolutions, some of which closely embrace the offset at one side of the strip and others engaging upon the opposite side of the strip, substantially as set forth.

5. The combination of a spring having contiguous cylindrical convolutions and a frame bar or strip having an offset *x* formed on one side by bending or indenting the strip, the offset being received within the contiguous convolutions of the spring and the adjacent portions of the strip to the offset passing between contiguous portions of the spring, substantially as set forth.

6. The combination of a frame, bar or strip having a single offset *x* formed therein and a spring having contiguous cylinder-like convolutions removably secured upon the strip by having the offset placed within the convolutions and the contiguous convolutions gripping the strip, substantially as set forth.

7. The combination of a frame bar or strip having a spring holding offset formed by bending or indenting the entire body of the strip, and a spiral spring having contiguous convolutions removably secured upon the strip by the contiguous convolutions gripping the strip, the spring being secured from lateral displacement by the offset being received within the convolutions of the spring, substantially as set forth.

8. The combination of intersecting, flexible metal strips forming a frame, each strip having spring holding offsets at the intersection, and a spring having contiguous convolutions gripping the strips and engaging the offsets and being secured thereby from displacement, substantially as set forth.

In witness whereof we have affixed our signatures in presence of two witnesses.

OSCAR S. FOSTER.
WILLIAM S. FOSTER.

Witnesses:
GEORGE C. CARTER,
M. A. KELLER.