H. D. FITCH.
Bed-Bottom.

No. 203,023. Patented April 30, 1878.

Fig. 1.

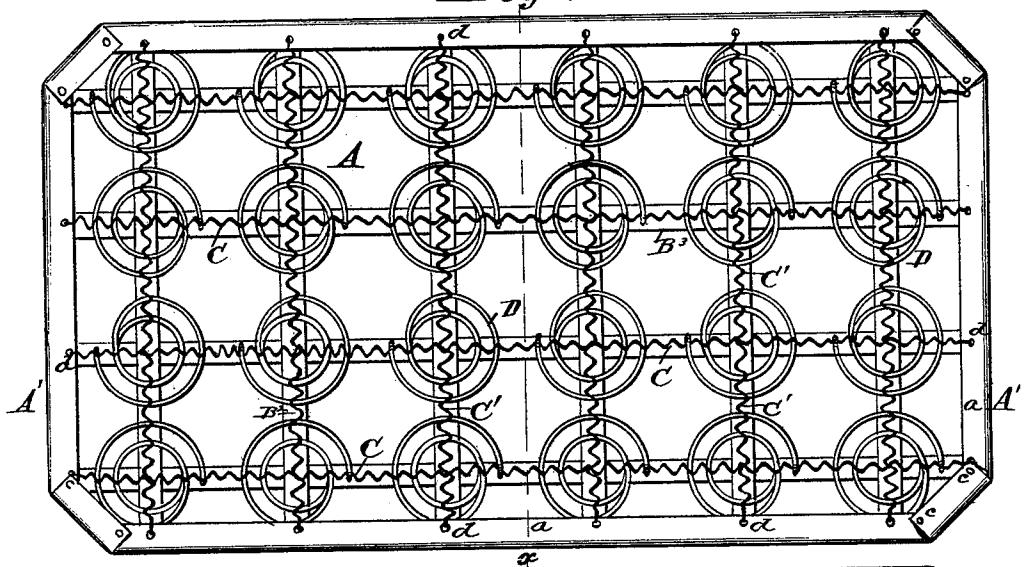


Fig. 2.

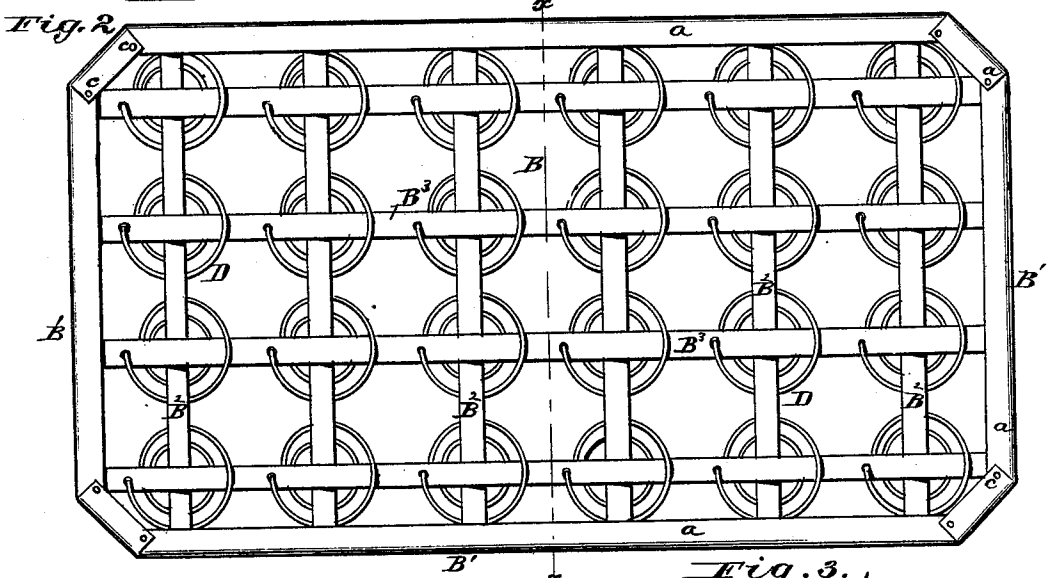


Fig. 3.

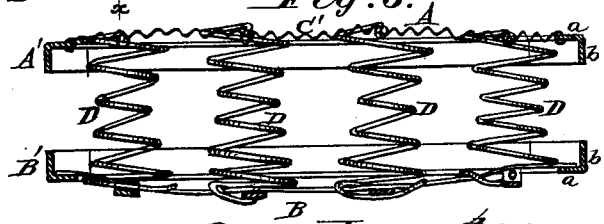


Fig. 4.

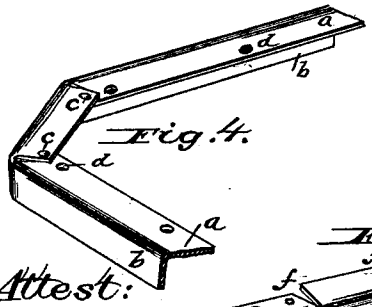
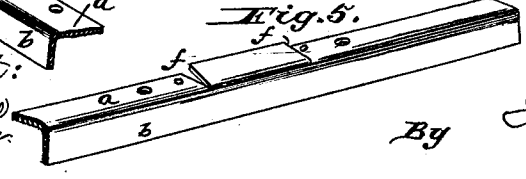


Fig. 5.



Attest:
H. C. Dennis
E. J. Clore

Inventor:
Henry D. Fitch.
By Frank Case Somes
Atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY D. FITCH, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN BED-BOTTOMS.

Specification forming part of Letters Patent No. **203,023**, dated April 30, 1878; application filed March 11, 1878.

To all whom it may concern:

Be it known that I, HENRY D. FITCH, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Spring Bed-Bottoms; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a plan view of the top or upper side of this improved bed-bottom. Fig. 2 is a plan view of the reverse or under side thereof. Fig. 3 is a transverse section on line *x x*. Fig. 4 is a perspective view of a corner-section of the outer frame. Fig. 5 is a perspective view of that portion of the angle-iron designed to form a corner-section of the outer frame, showing the slits cut in the horizontal flange of the angle-iron preparatory to its being bent into shape.

This invention relates to independent metallic spring bed-bottoms, consisting of an upper and an under metallic frame with interposed spiral or helical springs.

Spring bed-bottoms of this character have heretofore been made in which both the upper and the under frame are of the same construction, each consisting of a double series of interlaced longitudinal and transverse metallic straps or slats, and a metallic strip passing around at the sides and ends, and forming a rectangular skeleton-frame, to which the ends of the longitudinal and transverse metallic slats are attached, the springs being interposed between the two frames at the intersections of the said longitudinal and transverse slats.

The defects of this construction are found to be, first, a want of sufficient elasticity, owing to the stiffening effect of the longitudinal and transverse slats or bands in the upper as well as in the under frame; second, the surrounding or skeleton frame, being of strap-iron like the slats, and therefore flexible, yields too readily when pressure is brought directly upon it, as when one sits upon the side of the bed; further, said skeleton-frame becomes permanently bent out of shape, causing the bed to present an irregular uneven surface at the side.

The objects of this invention are, first, to secure greater elasticity of the bed-bottom; second, to secure (without any material increase of weight while preserving the metallic structure of the frame) greater rigidity of the outer or inclosing skeleton-frame, so that the pressure, when concentrated thereon, will be distributed thereby to a greater number of springs, and so that the regular and straight outline of the bed will be preserved. To these ends the upper or top frame is interlaced with coiled-wire or spiral-spring bands, in lieu of the flat metallic straps or bands and other inelastic connections heretofore used, and the inclosing skeleton-frame is made of thin angle-iron, in lieu of the flat strap-iron heretofore used.

A in the drawings represents the upper or top, and B the under or bottom, frame of the bed-bottom or spring-mattress. The under frame B consists of an outer inclosing skeleton-frame, B^1, of thin angle-iron, and a double series of longitudinal and transverse slats or bands, B^2 B^3, respectively, made of strap or hoop iron, interlaced, and riveted at their ends to the angle-iron. The skeleton-frame B^1, together with the corresponding skeleton-frame A′, constitutes the sides and ends of the bed-bottom. These skeleton-frames A′ B^1 consist each of a strip or bar of thin angle-iron, composed of the horizontal arm or flange *a* and the vertical arm or flange *b*, sufficiently long to extend around the bed-bottom, the meeting ends being riveted together.

In order to readily effect the bending of the angle-iron, the horizontal flange *a* is slit transversely in two places near each corner, as shown at *f f*, Fig. 5. The angle-iron is then bent to an angle of forty-five degrees at the points where the slits occur, that portion of the flange between the two slits being at the same time slightly raised or depressed. The respective abutting edges of the cut swing past each other, and an overlapping of the metal of the flange *a* takes place at the several points where the slits have been made. Rivets *c* are then passed through the overlaps, and a firm,

strong, light frame is the result. The frame, being thus turned at the corners, is adapted to round as well as square cornered bedsteads.

The ends of the longitudinal and transverse metallic straps or bands B^2 B^3 rest upon and are riveted to the flange *a* of the skeleton inclosing frame B^1 at the sides and ends thereof. The bed-springs D are placed at the intersections of the bands B^2 B^3. Said springs are spiral or helical, or, as shown, of the double helical or "hour-glass" pattern. They are fastened to the under or bottom frame B by passing the lower coil of the spring over one of the intersecting metallic slats or bands of said frame, and under the other intersecting slat or band, the wire end being hooked into or around one of said bands.

The upper or top frame A is provided with longitudinal coiled-wire or spiral-spring bands C and transverse coiled-wire spiral-spring bands C′, corresponding to the flat metallic strap-bands B^2 B^3 of frame B. These spiral-spring bands are so placed as to intersect at points opposite the intersections of the bands B^2 B^3. The upper ends of the bed-springs D are held in place by these spiral-spring bands. The longitudinal series of spiral-spring bands C are shown as passing over the transverse series C′ and under the upper coils of the bed-springs D, while the transverse series pass over said upper coils and under the longitudinal series, the intersecting spring-bands being, by this means, locked at each spring.

The hooked upper ends of the wire of the bed-springs hook over the longitudinal spiral-spring bands. The upper coils of the bed-springs rest in the curves or loops of the spiral-spring bands, and sliding of the springs out of position is thereby prevented. The ends of the spring-bands are hooked into holes *d* in the outer frame, or otherwise fastened thereto. This system of elastic spiral-spring connections between the bed-springs, in lieu of the inelastic and simply flexible connections heretofore used, adds greatly to the elasticity, while preserving the simplicity and durability, of the bed-bottom.

Instead of single strips or bands of coiled wire extending from side to side and end to end of the bed-bottom, each bed-spring may be connected to those adjacent to it, and, in case of those on the outer row, also to the outer frame by short pieces of coiled-wire or spiral springs, having one of their ends hooked over or otherwise fastened to the upper coil of one of the bed-springs, and the other end likewise fastened to the upper coil of one of the adjacent springs, or to the outer frame, as the case may be.

What is claimed as the invention is—

1. In a bed-bottom, the combination of a metallic frame and a series of bed-springs, the outer rim of said frame being composed of angle-iron, substantially as described.

2. In a bed-bottom, an inclosing skeleton-frame consisting of a strip of angle-iron having its horizontal arm or flange cut and overlapped at the several points, forming the corners of the bed-bottom, the overlaps being riveted together, substantially as described.

3. In a bed-bottom, the combination of an inclosing skeleton-frame, a series of bed-springs, and two or more intersecting series of spiral-spring bands, one of the intersecting bands at each bed-spring passing under the upper coil of said spring, and the other intersecting band passing over said upper coil and under the former band, the upper coil of the bed-spring resting in the loops or bands of the spirals, substantially as described, whereby the said bands are locked at each bed-spring and said springs held in place.

4. An independent metallic spring bed-bottom, consisting of an under frame composed of intersecting flat metallic straps or bands attached to an inclosing skeleton-frame, an upper frame composed of an inclosing skeleton angle-iron frame, with intersecting spiral-spring bands attached thereto, and a series of bed-springs interposed between said frames at the points of intersection of the said bands, substantially as described.

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

H. D. FITCH.

Witnesses:

LEWIS H. BOND,

W. A. DUCKWALL.