J. De CAMP.

BED-BOTTOM.

No. 184,703. Patented Nov. 28, 1876.

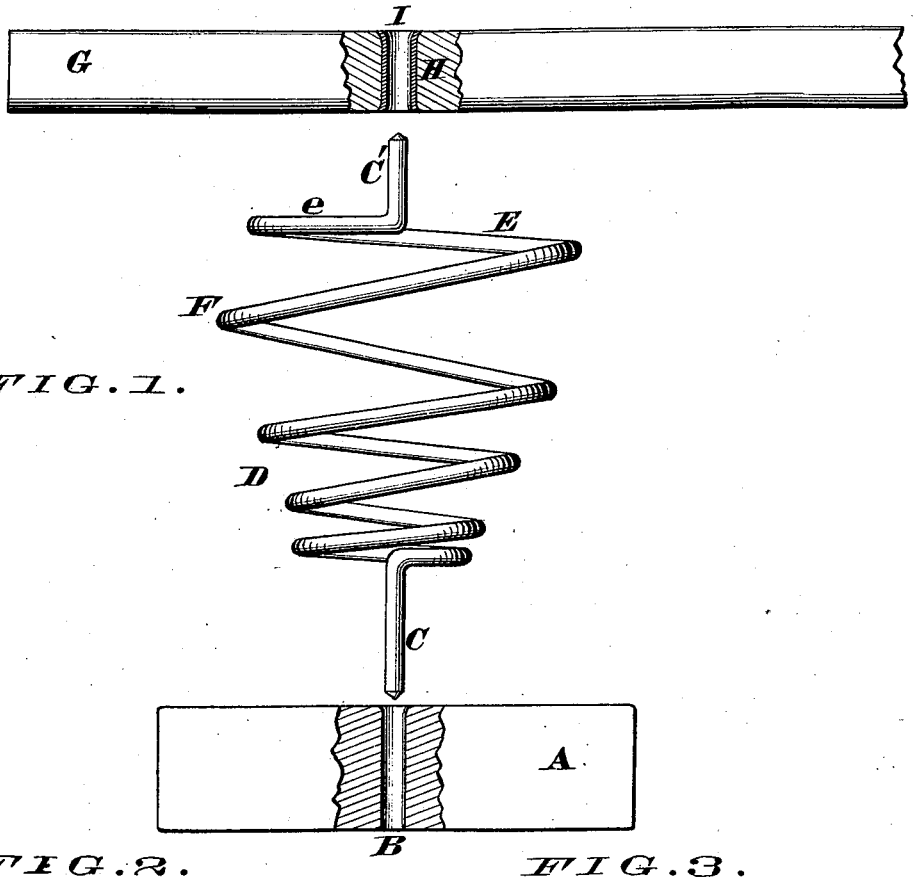


FIG. 1.

FIG. 2.

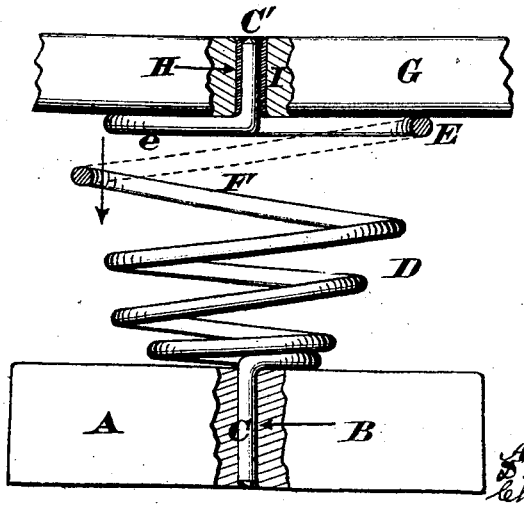
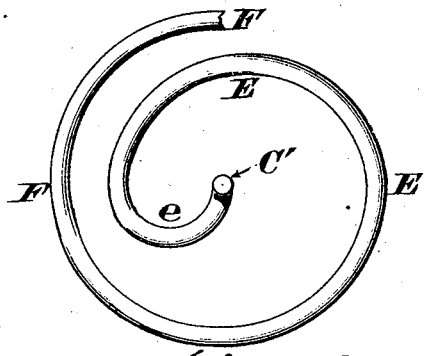


FIG. 3.



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UNITED STATES PATENT OFFICE

JOHN DE CAMP, OF CINCINNATI, OHIO.

IMPROVEMENT IN BED-BOTTOMS.

Specification forming part of Letters Patent No. **184,703**, dated November 28, 1876; application filed February 23, 1876.

To all whom it may concern:

Be it known that I, JOHN DE CAMP, a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Bed-Bottoms, of which the following is a specification:

This invention relates to that class of bed-bottoms which consists of a series of yielding slats elastically supported upon coiled or volute springs; and the first part of my improvements comprises a novel form and arrangement of springs, whereby it is noiseless in action, and not liable to sag down on either side, the peculiar construction of this supporting-member of the bed-bottom being hereinafter fully described. The second part of my invention consists in bushing the apertures in the slats, so as to prevent any enlargement of the apertures or splitting of the slats when the upper axial shank of a spring is inserted into said aperture.

In the accompanying drawings, forming part of this specification, Figure 1 is a representation of the various parts of my improved bed-bottom detached from each other, the spring being shown in its distended condition, and the slat and rail in partial section. Fig. 2 represents the various members united together and the spring compressed, one of the coils of said spring being shown in section. Fig. 3 is a plan of the uppermost coils of the spring.

A represents one of the customary transverse rails of a bed-bottom, and B is a vertical aperture in said rail for the reception of shank C of a coiled or volute spring, D, of any suitable size. This spring may be composed of as many coils as desired, the outline of said spring being that of a cone with its base presented upwardly. The extreme upper coil E is somewhat less in diameter than the coil F beneath it, and said coil E terminates in a vertical shank, C′, which, like the lower one C, is situated in the axis of the spring. The aforesaid coil is united to its shank C′ by a gradual bend or curve, *e*, as more clearly indicated in Fig. 3. G represents one of the yielding slats, whose aperture H is lined with a tube or bushing, I, preferably of metal. Then the bed-bottom is fitted together. The shank C is driven into the aperture B until the lowermost and smallest coil of spring D rests upon the uppermost face of rail A. The upwardly-projecting shank C′ is then inserted in the bushing I of slat G, which act completes the manufacture of the bed-bottom as far as one spring is concerned. When the various parts are thus united together the bend *e* receives the ordinary pressure of the slats, bedding, &c., but the moment any material weight is brought to bear upon the bed-bottom the spring D is compressed thereby, causing the upper coil E to assist the bend *e* in supporting the load, as shown in Fig. 2. By this means the slat has an extended bearing upon the spring, which arrangement causes the latter to be compressed in a uniform and perfectly level manner, and, consequently, the spring is not sagged down on either side, but it always maintains an erect position. Furthermore, in case an unusual weight should be brought to bear upon the bed, the spring will be still further compressed, and at times the uppermost coil E may be forced down as low as the next coil F. Evidently such a depression would cause these two coils to interfere with each other, provided they were constructed in the usual manner; but by diminishing the diameter of coil E it passes within the one F, and without coming in contact with the latter, as indicated by arrow in Fig. 2. The interference of these two coils being thus avoided, it is apparent there can be no disagreeable noise produced by the action of the spring either when it is compressed or when it is allowed to distend.

The bushing I also performs an important function in my bed-bottom, as it prevents the shank C′ enlarging the aperture H or splitting the slat G. On this account the slat G is maintained more accurately in its proper position upon the spring. This bushing prevents the slat cracking, and it adds to the appearance of the bed-bottom without materially increasing the price of production.

The tube I may be secured in position by expanding or upsetting both of its ends, as shown.

The gradual curvature of the bend *e* of the upper coil renders the spring more durable than it would be if said coil joined the shank C′ with a straight or right-angled joint.

I understand that a spring provided with

axial shanks is not new with me. It is also true that, before the date of my invention, a coiled spring had been described and patented, in the construction of which the upper coil E was of less diameter than the connecting-coil F′. Neither do I claim the bend *e* by itself; but heretofore no one has constructed a coiled spring so as to combine the axial shanks and the upper coil E, of less diameter than its coil F (connecting coil E with the remainder of the volute coil) in one and the same spring. Neither has the bend *e* been embodied in a spring such as I have herein described.

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

1. The volute conical spring D, having two axial shanks, C C′, and an upper coil, E, of less diameter than its connecting-coil F, as and for the purpose specified.

2. A bed-spring, having the axial shanks C C′, coils E F, of unequal diameters, and bend *e*, as and for the object stated.

3. The combination of the rail A, having the hole B, supporting-spring D C C′ E *e* F, and slat G, having the hole H, substantially as herein described.

4. In a spring bed-bottom, the slat G, having an aperture, H, lined with the metal bushing I, adapted to receive the axial point C′ of the spiral spring supporting said slat, substantially as and for the purpose described.

JOHN DE CAMP.

Attest:
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