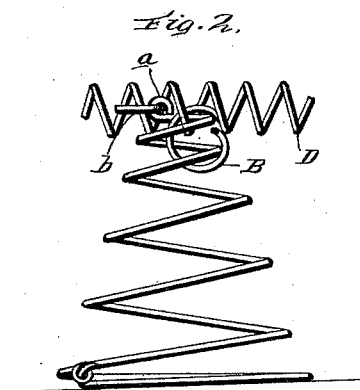
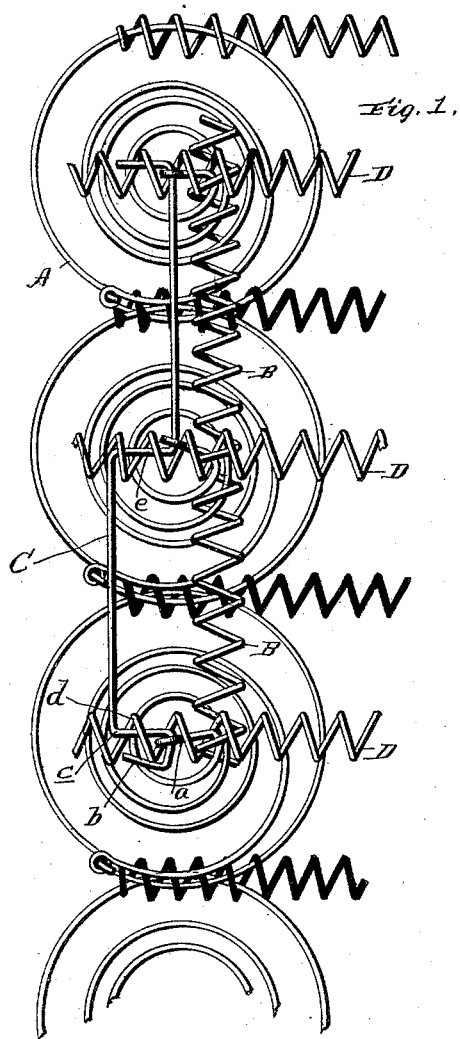


(No Model.)

E. M. BONNELL & J. S. LAMBING.  
BED BOTTOM.

No. 457,041.

Patented Aug. 4, 1891.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

ELLIOTT M. BONNELL AND JOHN S. LAMBING, OF CORRY, PENNSYLVANIA.

## BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 457,041, dated August 4, 1891.

Application filed March 13, 1891. Serial No. 384,891. (No model.)

*To all whom it may concern:*

Be it known that we, ELLIOTT M. BONNELL and JOHN S. LAMBING, citizens of the United States, residing at Corry, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Bed-Bottoms; and we do declare the following to be 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.

This invention relates to an improvement in spring bed-bottoms, and the novelty will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a plan view of a series of conical springs with our improvements applied. Fig. 2 is a side view of one of the springs, showing the improvement in connection therewith.

Referring by letter to said drawings, A indicates conical springs. These springs, which may be of the ordinary construction, have the base or largest whirl connected by a marginal spiral wire and parallel longitudinal spiral wires arranged on two opposite sides in a manner similar to that shown in our Letters Patent, dated June 25, 1889, and numbered 405,821, and the bottom is preferably made so as to hinge in the sections similar to that in the patent referred to.

B indicates a spiral wire, there being one employed transversely of the bed-bottom at the small end of each set of conical springs A, and C indicates a transverse brace-wire, which also connects the small ends of the conical springs.

D indicates the longitudinal spiral wires arranged at the top or small end of the conical springs and also connecting said springs. In connecting these parts together we first form an eye or loop *a* on the small end of the conical spring A. We then pass said eyes up between the spirals of the wire D, so as to be disposed in about the center of one of the spirals. We then secure said eyes within the spirals of the wires by means of a hook *b*, formed on opposite ends of the transverse brace-rods C. When these conical springs and longitudinal spiral wires are thus connected by the transverse locking and brace

rods or wires, we further secure the conical springs to the longitudinal spiral wires D by carrying one or more of the spirals of said transverse wires through the whirl at the top of said conical springs and one or more coils of the longitudinal spiral wires D.

It will be observed and better seen by reference to Fig. 2 of the drawings that the end of the conical springs having the eyes *a* are not carried between the spirals or coils of the springs D, but pass horizontally through one or more of the coils of said springs before being secured in such position by the locking and brace rods, and in order to secure a more firm fastening to the parts and prevent lateral displacement or casual separation one of the connecting ends of said brace-rods is bent, as shown at *c*, and passed through a coil *d* in the springs D before engaging the eye in the springs A, the free end of said rod passing on the outer side of said coil *d*, as shown.

The transverse rods C are bent about midway of their length in a transverse position, as shown at *e*, and this bent portion receives and secures the eye on the end of the intermediate conical springs, and also passes through two of the coils of the longitudinal springs D, so as to secure the parts and connect them in a manner substantially the same as at the opposite ends of said rods, and the transverse spiral wires B connect the top whirl of the conical springs A to the longitudinal spiral wires D. By this construction the conical springs are positively prevented from disconnecting during use, and while the springs are allowed to yield with respect to each other they are firmly secured together and must move in sets transversely, so as to always preserve as near as possible a uniform top surface to the bed-bottom.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a spring bed-bottom, the combination, with conical springs, of longitudinal spiral wires receiving within one or more of the spirals an eye on one end of the conical springs, a transverse rod passing through one or more of the spirals of said wires and also the eye of the conical springs, and a transverse spiral wire receiving within one or more of its spirals one or more of the whirls of the

conical springs and one or more of the coils of the longitudinal spiral wires, substantially as specified.

2. A bed-bottom having conical springs  
5 connected at their small ends by longitudinal spiral wires and the connected portions connected in turn by transverse spiral wires and a transverse brace-rod connecting the longitudinal spiral wires and one end of the conical springs at the interlocked portions, sub-  
10 stantially as described.

3. A bed-bottom having a series of conical springs and transverse and longitudinally-ar-

anged spiral wires connecting the small ends of the said springs, in combination with the 15 bracing-wire C, secured midway of its length to one spring and spiral wire and also at its opposite ends to other springs and spiral wires, substantially as specified.

In testimony whereof we affix our signatures 20 in presence of two witnesses.

ELLIOTT M. BONNELL.  
JOHN S. LAMBING.

Witnesses:

C. S. WILSON,  
I. B. POTTER.