

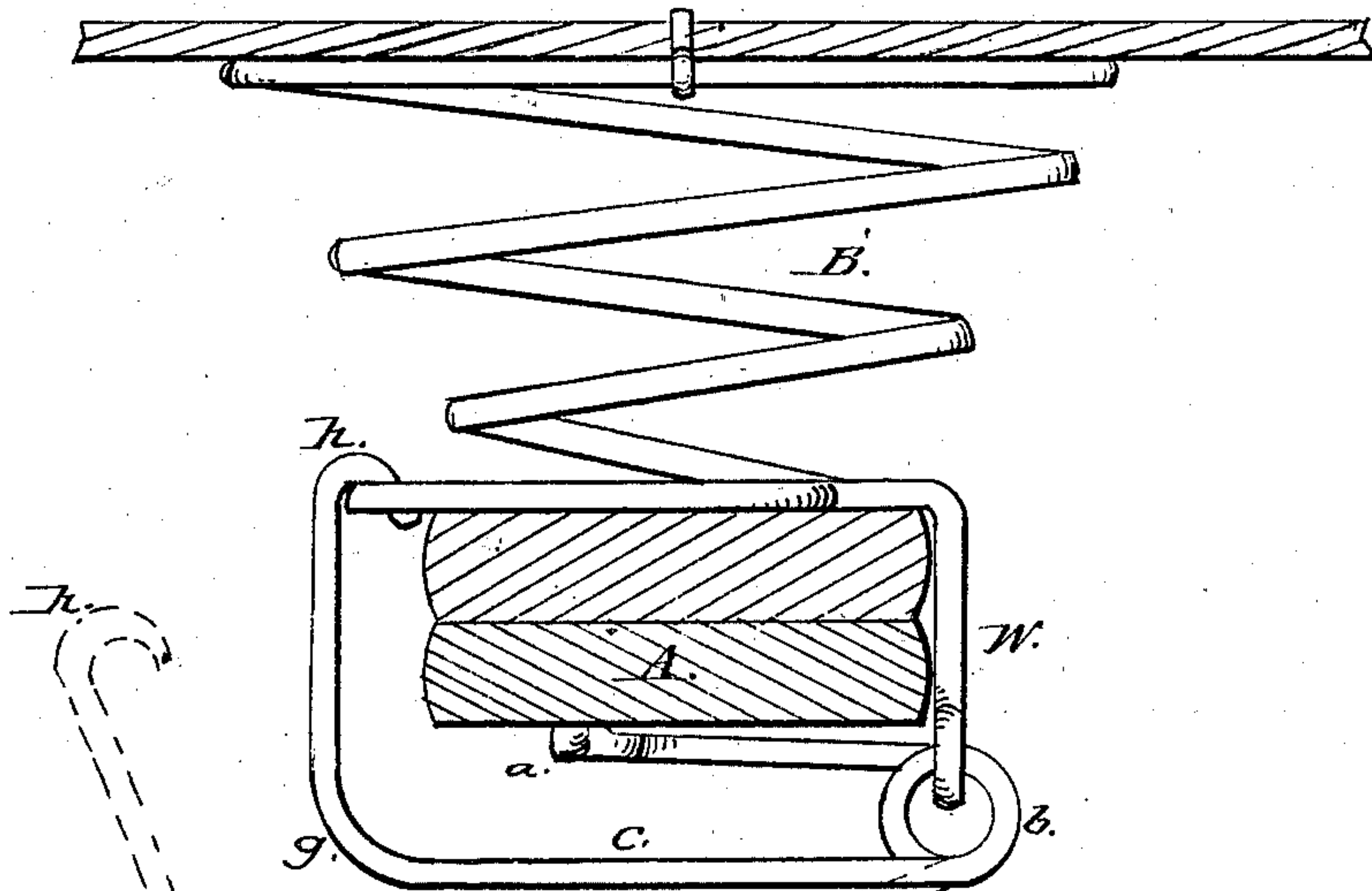
*H.W. & G.F. Ladd,*

*Bed Bottom.*

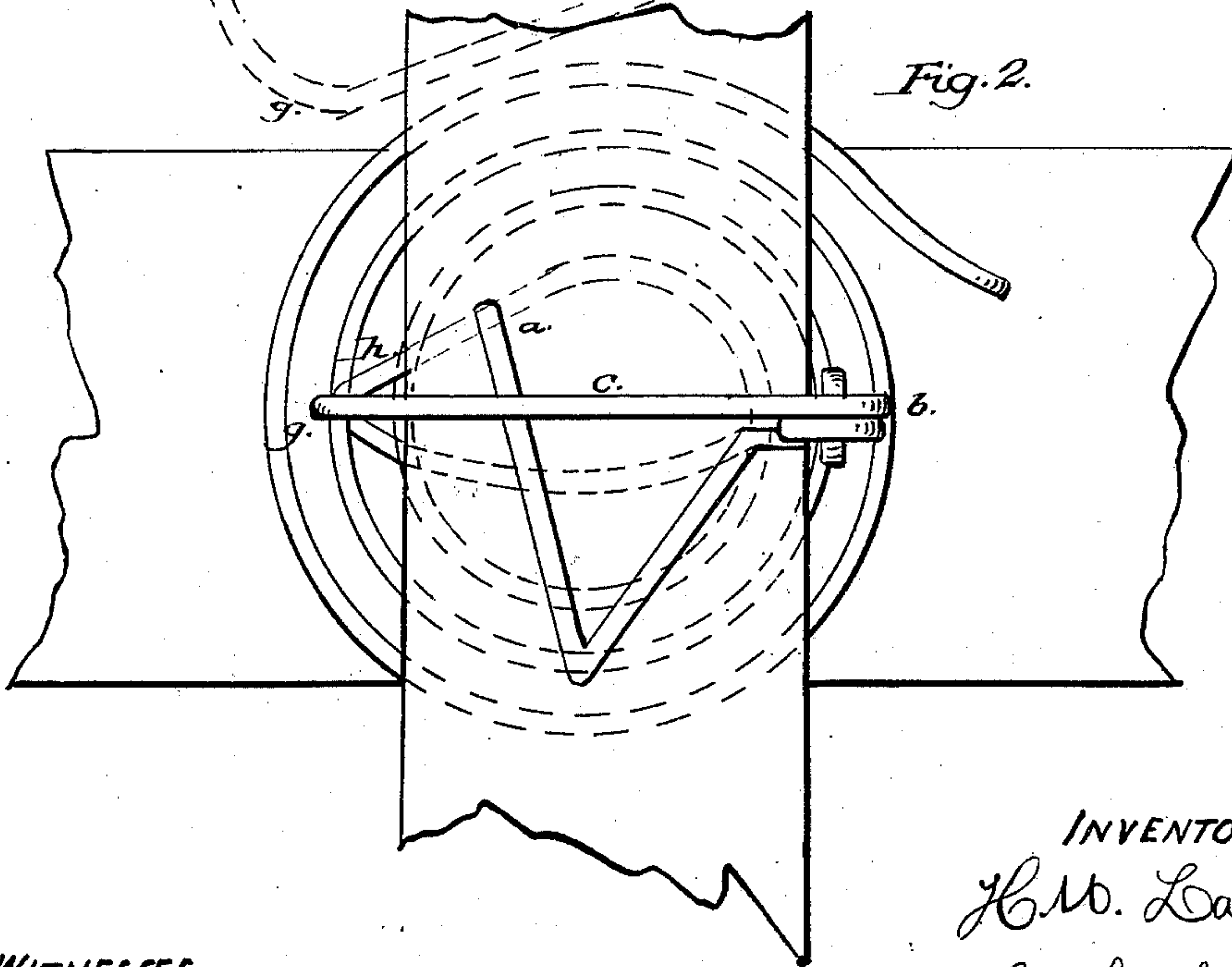
*No. 99,779.*

*Patented Feb. 15. 1870.*

*Fig. 1.*



*Fig. 2.*



*WITNESSES:*

*Phil. F. Lamar*  
*Will. H. Finckel*

*INVENTOR:*

*H.W. Ladd*  
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# United States Patent Office.

HERMON W. LADD AND GEORGE F. LADD, OF CHELSEA, MASSACHUSETTS

Letters Patent No. 99,779, dated February 15, 1870.

## IMPROVEMENT IN SPRING-BEDS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, HERMON W. LADD and GEORGE F. LADD, of Chelsea, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Spring-Beds; and we do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable others skilled in the art to which our invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the device illustrating our invention.

Figure 2 is a bottom view thereof.

The object of this invention is to simplify and reduce the cost of manufacturing spring-beds by dispensing with the frame which ordinarily forms a part of them.

By means of spring-clamps, which will be more fully described hereafter, we are enabled to attach the springs directly to the slats of the bedstead, thus obviating the necessity of a separate frame, the bedstead and the slats answering the same purpose.

By dispensing with a frame we avoid many inconveniences. When a frame is used it must be of a size corresponding to that of the bedstead to which it is to be applied, for if it is too large the bedstead will not admit, and if too small the bedding is not properly supported at its sides or edges. For this reason dealers usually keep a supply of various sizes in stock, to supply the demand for the many different sizes of bedsteads.

The cost of transportation is also lessened, by reason of there being less stock and weight.

We use longitudinal slats, with two or more springs attached thereto in any desirable manner, and at proper distances apart.

We prefer spiral or conoidal springs, but other springs may be used.

We now attach these springs to cross-bars or supports. The slats ordinarily used and sold with bedsteads will answer every purpose; and when a single slat would be insufficient to support the weight, we place two or more together by means of the spring-clamps attached to the slats. By placing the slats in this manner, they answer every practical purpose of a single bar and utilize the slats belonging to the bedstead, and save the expense of bars manufactured expressly for the purpose.

The spring-clamps can be made of various forms, shapes, and materials, producing the same result, and operating substantially the same.

We prefer to have them of spring-wire, of the same or corresponding form shown in the drawing W. We take a piece of wire of the proper length, and turn

one end at right angles to the other, as shown at *a*. This point is intended to bear against the under surface of the slat or bar *A'*. We then make one or more coils, as shown at *b*. These coils serve as an eye or loop to connect with the springs, (this connection may be permanent or temporary,) and they also act as a spring in the clamp. The wire is then bent, as shown at *g*, and the end turned so as to form a catch or hook, *h*, to connect with the other side of the spring *B*.

The application is as follows, viz:

The spring *B* is placed upon the supporting bars or slats *A*, and the spring clamp connected to the spring at *b*. The end of the clamp *a* is then placed against the under surface of the bar *A*; the part of the clamp represented by *b g h* is then raised until the hook *h* catches upon the other side of the spring *B*, as shown at *B h*.

Before the part of the clamp *b g h* is raised to *B h*, it is in the position shown by the dotted lines *b g h*; but when it is raised and connected to the spring at *B h*, the spring of the clamp is obtained, and holds the spring *B* firmly to the bar *A*. These spring-clamps are no part of the spring, but may be permanently attached thereto when desired, as shown in drawings accompanying this specification. We do not confine ourselves to any particular shape or materials for these clamps; neither do we claim a spring of itself having its lower coil extended so as to form a spring-clamp, such a spring having been used and patented by one John Flynn, but not in combination with a spring-slat.

A spring made in this manner is objectionable for our purpose in many respects; among which are that the clamps being a part of the spring and of the same size, wire is too rigid and difficult to apply; but ours, being made separate, can be of any desired strength and stiffness, and to be of such form as to be easily and readily applied.

By using a sufficient number of springs attached to the ordinary slats of a bedstead, by means of our spring-clamps a good spring-bed, similar in appearance and action to the ordinary upholstered spring-bed, is produced, and can be made without the use of spring-slats by simply placing the bedding directly on the upper surface of the springs *B*.

In applying the springs to a bedstead, we first attach them to the spring-slats, although it may be done after the spring is attached to the cross-bars *A*, but for convenience we prefer that it be done first. We then place the springs *B* on the cross-bars *A* at the proper place, and hold them there by means of the spring-clamps. It is better to first arrange the outside spring-slats at proper distances from the side rails of the bedstead, and then place the remainder at regular distances from each other. The number of spring-slats required will vary according to the width of the



bedstead and the amount of spring desired. It will be readily seen that a given number of slats can be used for bedsteads varying several inches in width.

It will thus be seen that by using longitudinal spring-slats in combination with springs having clamps, either forming a part of them or detachable therefrom, the object of which is to readily connect them to cross-bars A, thus uniting spring-slats, springs, and cross-bars together, we are enabled to produce a spring-bed having many advantages over those where a frame is used, and also at a much less cost.

Having thus described our invention,

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

1. The detachable spring-clamp W, substantially as and for the purpose described.
2. The combination with the spiral springs and lon-

gitudinal spring-slats of the spring-clamps, when made separate from the springs, for the purpose described.

3. The combination of spring-clamps, either separate or part of the springs, for the purpose described, with the spiral springs and longitudinal spring-slats, when the springs and slats are united by means of metal or other suitable material passing over the top surfaces of the spring-slats, and connected with the coils of the springs.

The above signed by us this 11th day of August, 1869.

HERMON W. LADD.  
GEORGE F. LADD.

Witnesses:

SAML. JENNISON,  
ALBERT CARTER.