

No. 641,361.

Patented Jan. 16, 1900.

A. E. BEALL.

BED SPRING.

(Application filed Oct. 27, 1899.)

(No Model.)

Fig. 1.

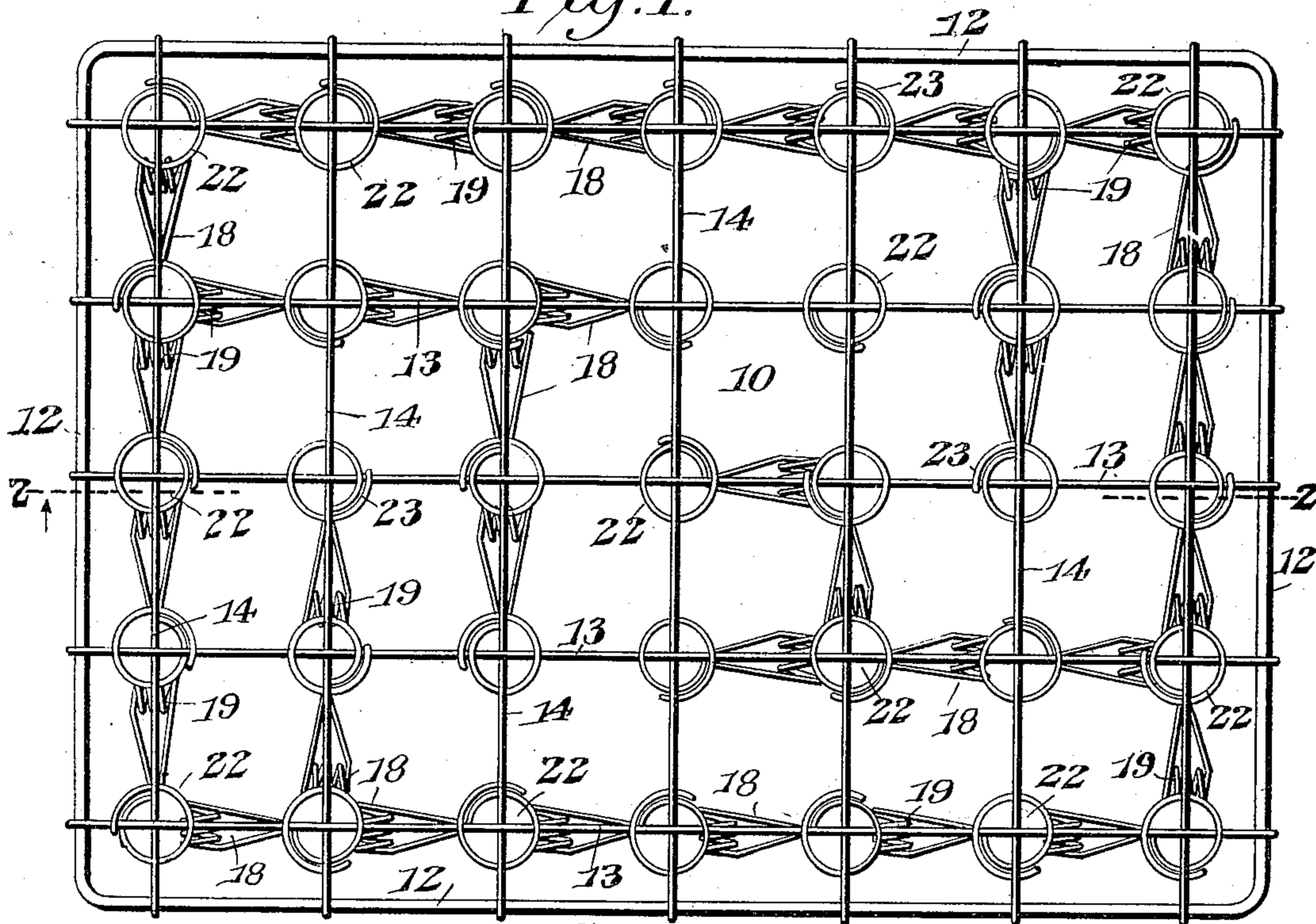


Fig. 2.

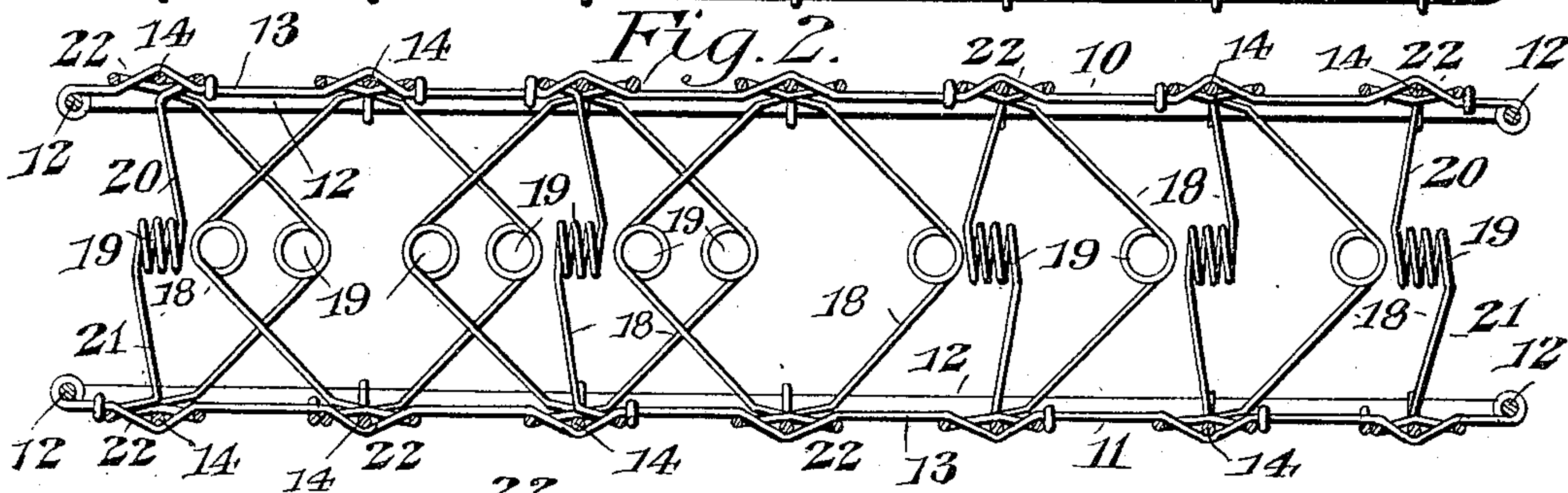


Fig. 3.

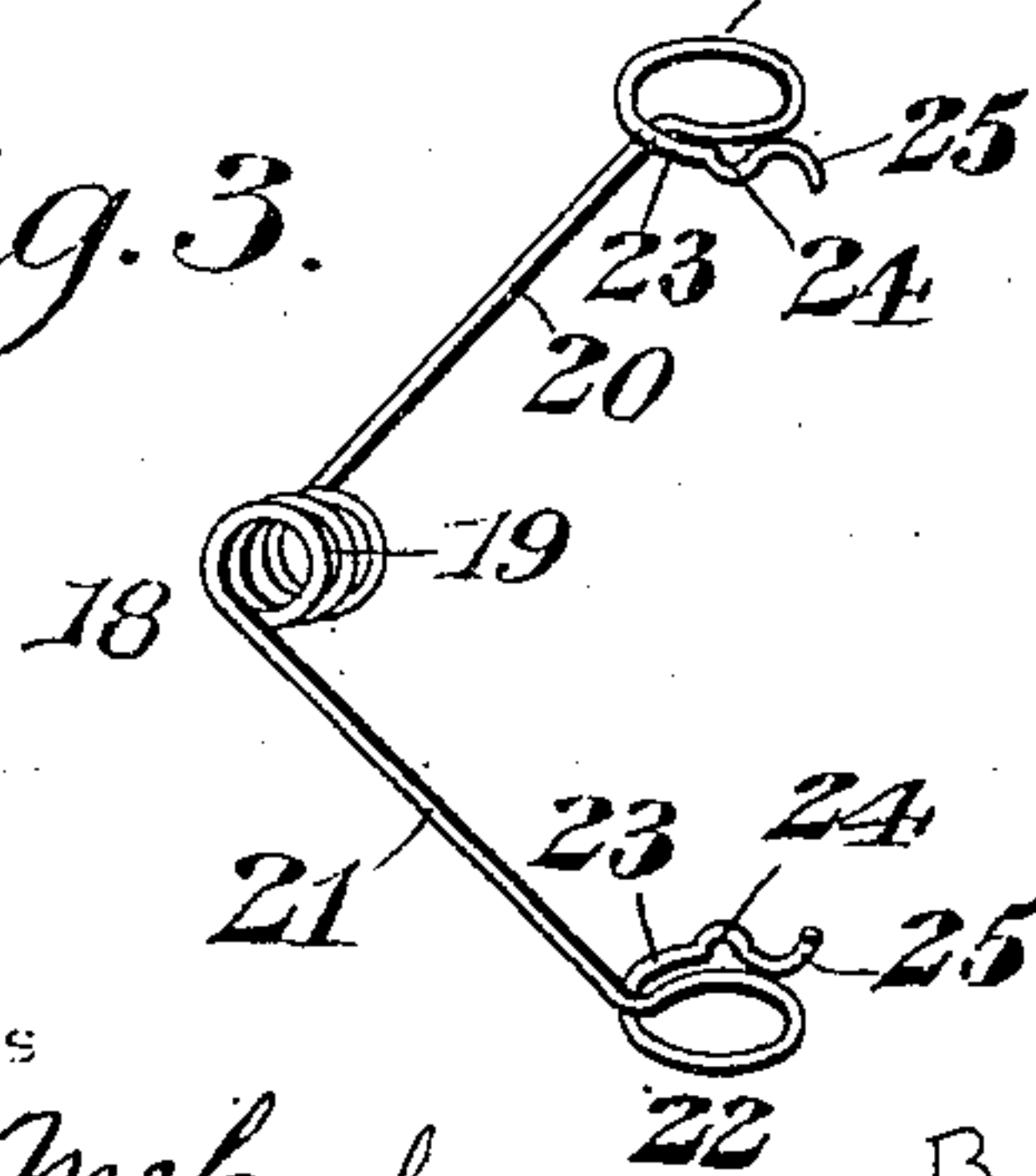


Fig. 4.

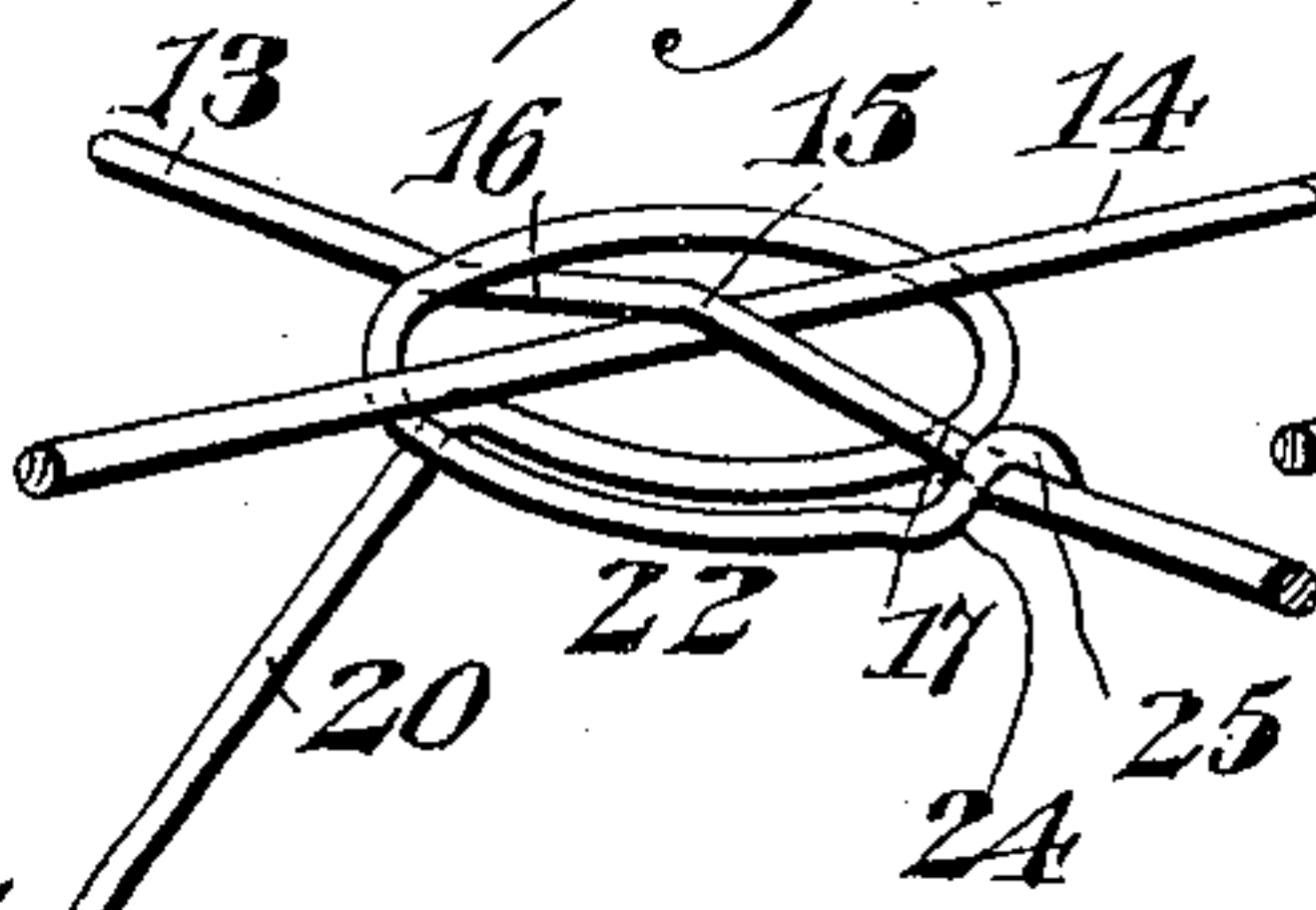
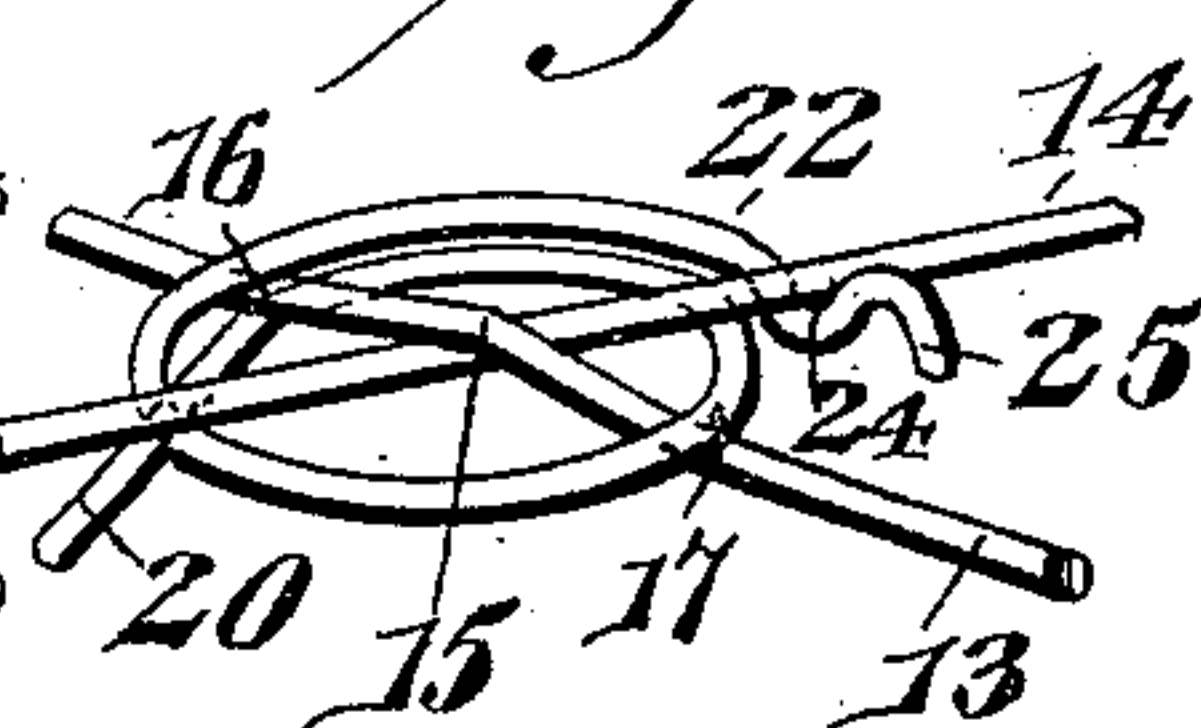


Fig. 5.



Witnesses

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# UNITED STATES PATENT OFFICE

ALBERT E. BEALL, OF ELDORA, IOWA.

## BED-SPRING.

SPECIFICATION forming part of Letters Patent No. 641,361, dated January 16, 1900.

Application filed October 27, 1899. Serial No. 734,942. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT E. BEALL, a citizen of the United States, residing at Eldora, in the county of Hardin and State of Iowa, have invented a new and useful Bed-Spring, of which the following is a specification.

My invention relates to improvements in bed-springs of the nature disclosed in prior Letters Patent Nos. 514,898 and 536,123, granted to me February 20, 1894, and March 19, 1895, respectively, wherein the top and bottom of the spring structure are joined together by intermediate spring-connectors, each of which has arms or members diverging from a common coil.

The object of the present invention is to provide an improved form or type of spring wherein each end thereof is constructed for interlocking connection with the top or bottom in a manner to unite the longitudinal and transverse filling-wires to the spring and also make such interlocking spring connection multiply the area of the surfaces of the bed-spring top and bottom, which are formed primarily by the filling-wires.

The spring-connectors of my invention are adapted to be expeditiously secured to the filling-wires in a way to effectually prevent displacement of the wires at their points of intersection, and the improved spring-connectors thus simplify and cheapen the manufacture of the spring-bed as an entirety, because they dispense with the use of separate fasteners for tying the filling-wires together.

With these ends in view the invention consists in the construction of the improved spring-connector and in the combination and arrangement of the spring-connectors with relation to the filling-wires forming parts of an improved bed-spring, as will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of an improved bed-spring having its top and bottom united together by spring-connectors constructed in accordance with this invention. Fig. 2 is a

longitudinal sectional elevation thereof, taken in the plane indicated by the dotted line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of one of the spring-connectors detached from the top and bottom of the spring-bed. Figs. 4 and 5 are enlarged detail perspective views illustrating different ways by which a spring-connector may be interlocked with intersecting filling-wires at the top or bottom of a spring-bed structure.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

As is usual in the art, the spring-bed structure consists of a top 10 and a bottom 11, which are united together by a plurality of intermediate spring-connectors 18. The top and the bottom each consist of a marginal or boundary frame 12, a series of longitudinal filling-wires 13 and a series of transverse filling-wires 14. It is customary to make the marginal or boundary frame of heavy wire or rod-metal, the diameter of which quite materially exceeds that of the filling-wires, each filling-wire having its ends coiled around or otherwise united to the marginal frame. The longitudinal and transverse filling-wires cross or intersect one with the other at right angles, and at the intersecting-points I prefer to bend or crimp the longitudinal wires, as at 15, thereby enabling me to use straight wires as the transverse filling, it being understood that each longitudinal filling-wire has a series of crimps spaced according to the intervals between the transverse filling-wires. This construction facilitates the assemblage of the wires and promotes the manufacture of the structure, because it is necessary to only crimp the longitudinal wires, thus leaving the transverse filling-wires in straight lengths, and, furthermore, all of the filling-wires may be said to lie in the same plane with the boundary frame, inasmuch as the transverse wires pass the longitudinal wires in the spaces formed by the crimps 15 thereof. Although I have described the longitudinal wires as having crimps, while the transverse wires are straight, it is evident that this relation of the wires may be reversed. According to my invention, wherein the spring-connectors are constructed for interlocking engagement with



the filling-wires at their points of intersection, I prefer to provide the longitudinal wires with additional crimped portions 16 17 on opposite sides of the crimp 15 therein, for  
5 a purpose which will hereinafter appear.

The improved spring-connector of my invention is shown very clearly by the detailed view, Fig. 3 of the drawings, and in its applied position by Figs. 1 and 2. This spring-connector 18 is bent entirely from a single piece  
10 of wire to form the coil 19 and the diverging arms 20 21. The terminal of each inclined arm is bent to form the locking device 22, which may be of the annular or ring form  
15 shown by the drawings, or it may be given any other desired configuration. The end of the wire after having been bent to form the locking device is extended into a yieldable arm 23, and this arm is preferably bent into  
20 the oppositely-facing crimps 24 25. The generic feature of this part of my invention is a spring-connector having the terminal locking devices engaged with the filling-wires near their points of intersection in order to make  
25 the locking device increase the area of the surface provided by the filling-wires and to hold the filling-wires and the spring-connector mutually against displacement relatively one to the other. The terminal locking devices  
30 are connected with the filling-wires in different ways, according to the position of the spring-connector to said wires. In some instances the annular lock may pass below the transverse filling-wire on opposite sides of its  
35 point of intersection with the longitudinal wire in such a manner that one part of the annular lock may rest in the crimps 16 of the longitudinal wire, while another part of the lock may pass below the crimps 17 in said  
40 longitudinal wire, the arm 22 of the lock having its crimp 25 fitting in the crimps 17 of the longitudinal wire, as shown by Fig. 4 of the drawings. In another case the annular lock at one terminal of the spring-connector is  
45 passed beneath the cross filling-wire 14 to have opposite portions of said annular lock rest in the crimps 16 17 on the upper side of the longitudinal wire 13, the arm 22 of said lock fitting underneath the cross-wire 14 for  
50 the crimp 24 thereof to engage with the cross filling-wire, as clearly shown by Fig. 5. The construction of the annular locks at the terminals of the spring-connector enables the latter to be assembled in any desired relation  
55 to the filling-wires, so that the terminal locks may be properly connected with the filling-wires, and thus the spring-connectors are constructed to enable them to in a measure facilitate the assemblage and coupling of the  
60 several parts, whereby the manufacture of the spring structure as an entirety is promoted.

The spring-connectors may be arbitrarily assembled with relation to the filling-wires in the top and bottom of the spring-bed structure, so that the spring-connectors may be  
65 arranged in different ways for the purpose of

making the bed sustain the weight which may be imposed thereon. I prefer, however, to arrange the spring-connectors in series along the edges of the spring-bed, substantially as indicated by Figs. 1 and 2, and these  
70 spring-connectors may be arranged in different ways within the series of connectors at the edges of the bed, as may be found most desirable and convenient. 75

From the foregoing description, taken in connection with the drawings, it will be seen that I have provided an improved construction of the spring-connector wherein its terminal has interlocking connection with the  
80 top and bottom in a manner to hold the connector in place on the filling-wires, and at the same time the transverse and longitudinal wires are interlocked together to hold them from displacement relatively one to the other  
85 and to the spring-connectors. A further advantage of my construction resides in the terminal locking devices increasing the area of the surface afforded by the filling-wires of the top and bottom of the spring-bed structure,  
90 because it will be seen that the locking devices lie in the plane of the filling-wires, whereby a mattress laid on the top of the spring-bed is supported to very good advantage. 95

Changes may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention embodied. Hence I do not desire to be limited to the precise form of all the  
100 parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

1. In a spring-bed, a spring-connector comprising a central coil, the diverging arms, and the open locks each having a yieldable terminal arm which is provided near its free extremity with upwardly and downwardly facing crimps, 24, 25, the entire spring-connector  
105 being bent from a single length of wire, substantially as described. 110

2. In a spring-mattress, a spring-connector provided with an open lock having an extended yieldable arm provided near its free extremity with the oppositely-bent crimps, 24, 25, arranged contiguous to each other and forming locking-recesses which face in upward and downward directions respectively,  
115 substantially as described. 120

3. A spring-mattress comprising the series of intersecting longitudinal and filling wires, each wire of one series having the wire-intersecting crimps, 15, and the lock-crimps, 16, 17, disposed on opposite sides of the intersecting crimp, and a plurality of spring-connectors each having a central coil and the diverging arms, the latter terminating in open locks, each lock having an extended yieldable arm provided with oppositely-facing  
125 crimps, 24, 25, each lock engaging with one wire at the crimped portions, 16, 17, thereof 130



and said lock also having engagement with  
the other wire, the yieldable arm of the lock  
having one of its crimps interlocked with the  
last-named wire at a point opposite to the en-  
5 gagement of the lock therewith, substantially  
as described.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in  
the presence of two witnesses.

ALBERT E. BEALL.

Witnesses:

C. E. BEALL,

CHARLES F. SKELLENGER.