

No. 683,360.

Patented Sept. 24, 1901.

O. H. WATKINS.

BED SPRING.

(Application filed Feb. 4, 1901.)

(No Model.)

2 Sheets—Sheet 1.

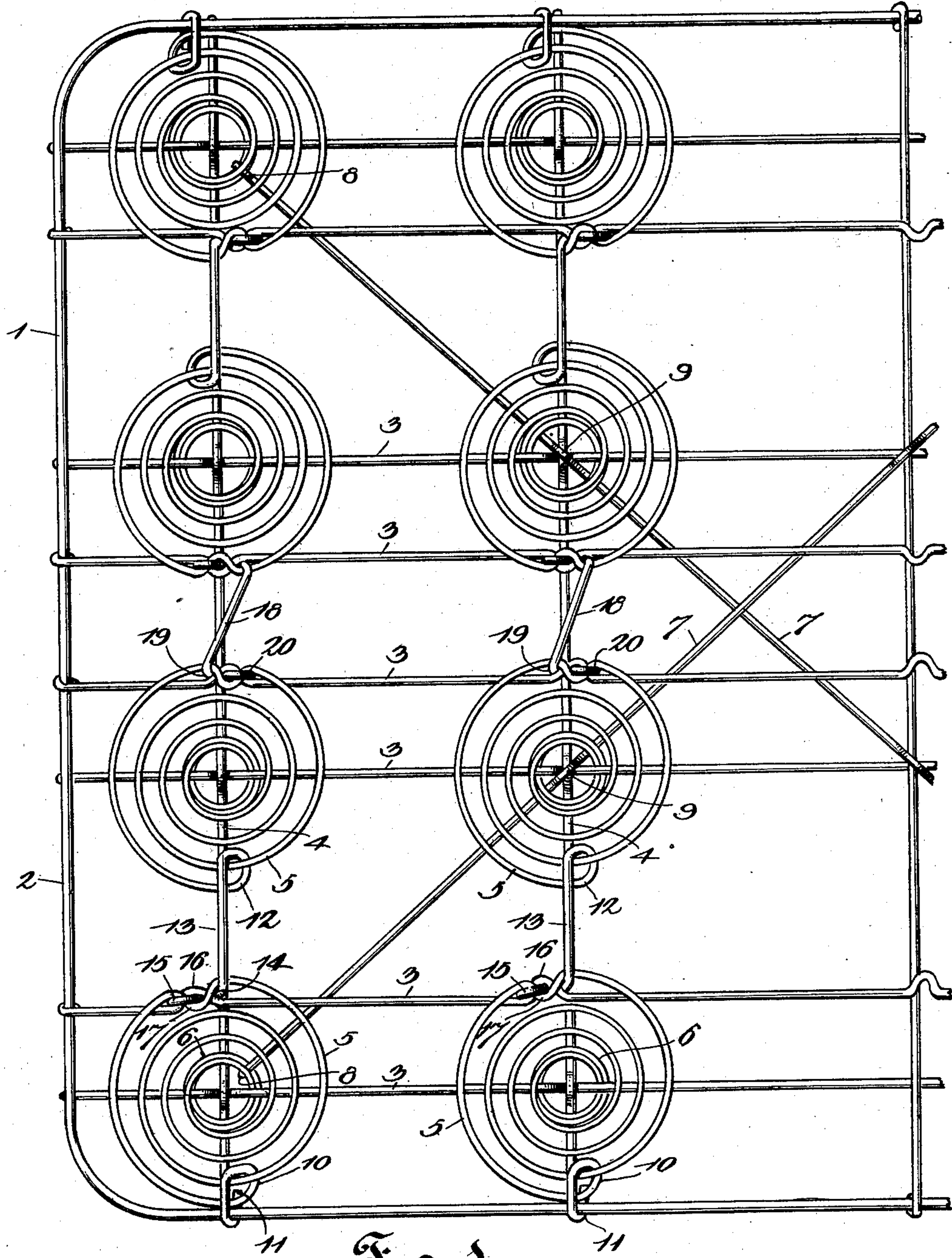


Fig. 1.

Witnesses

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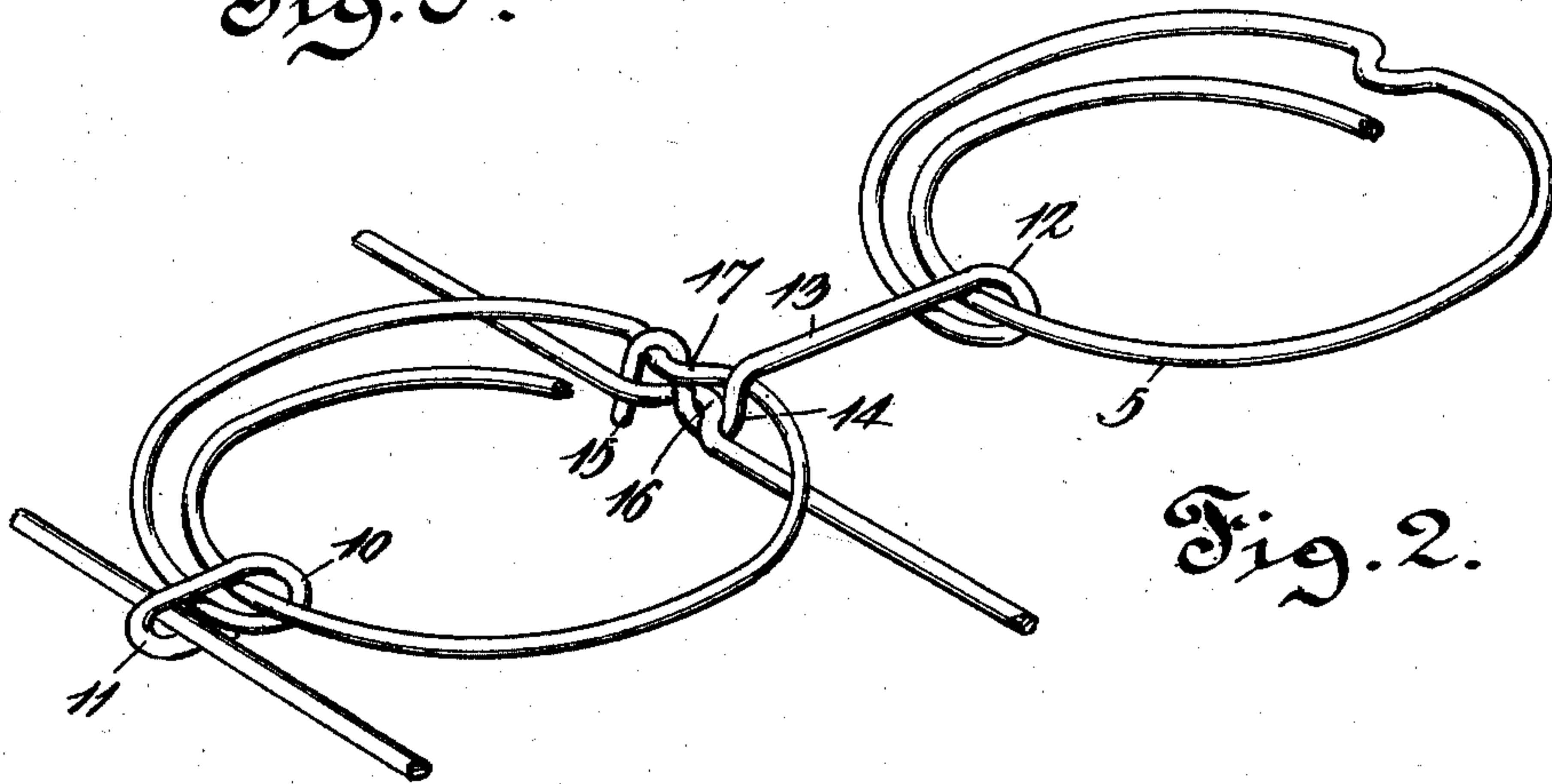
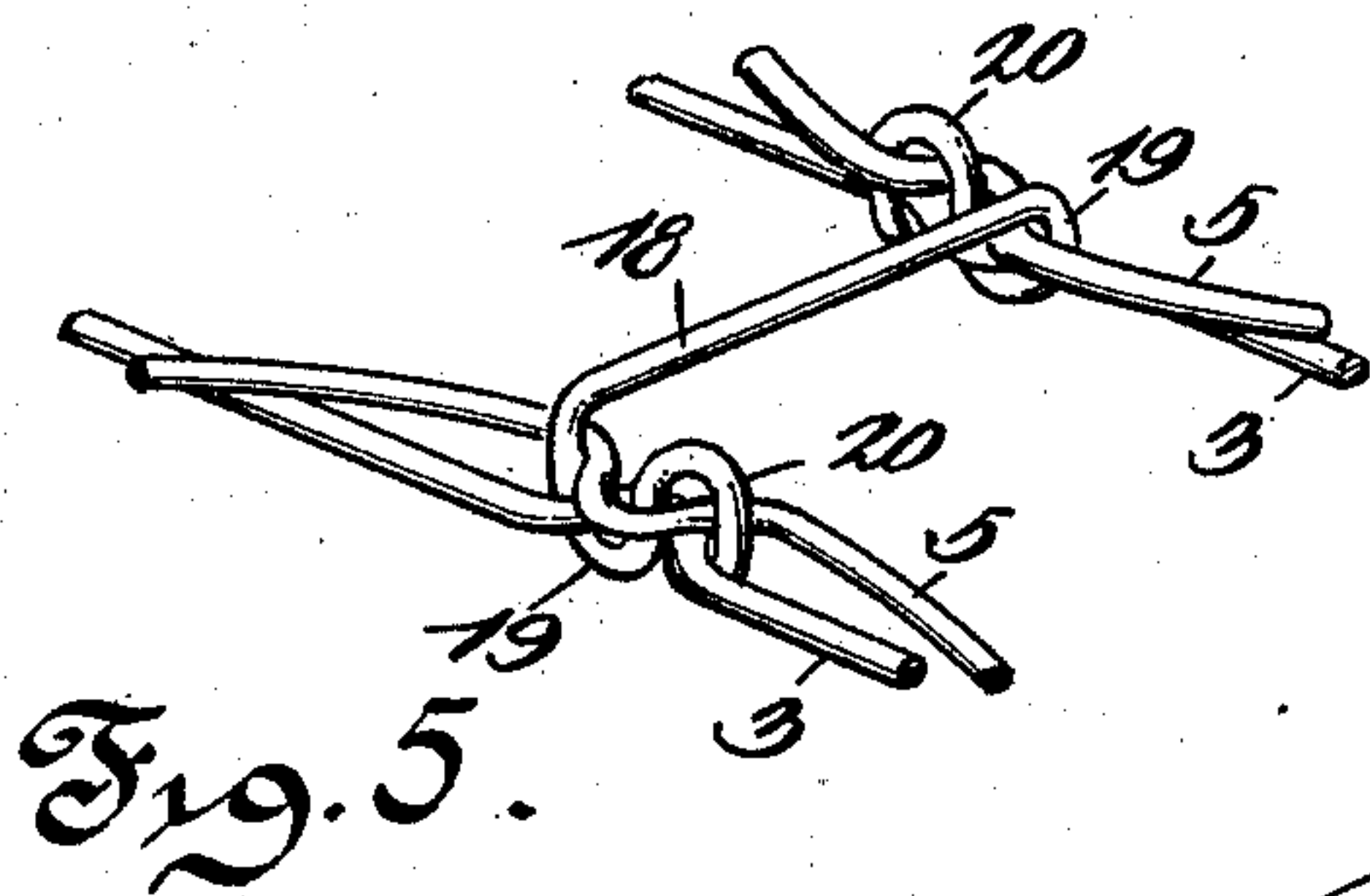
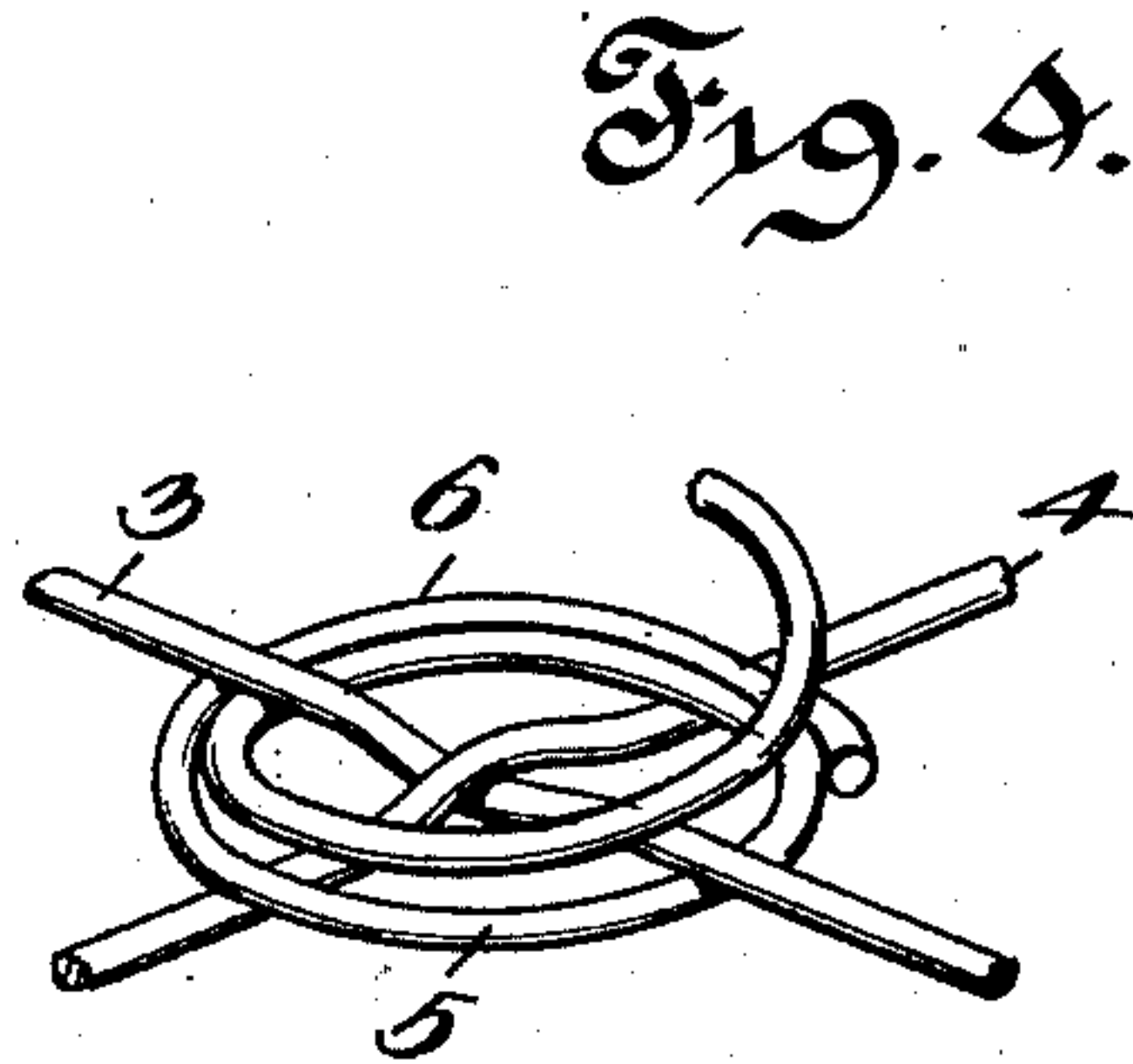
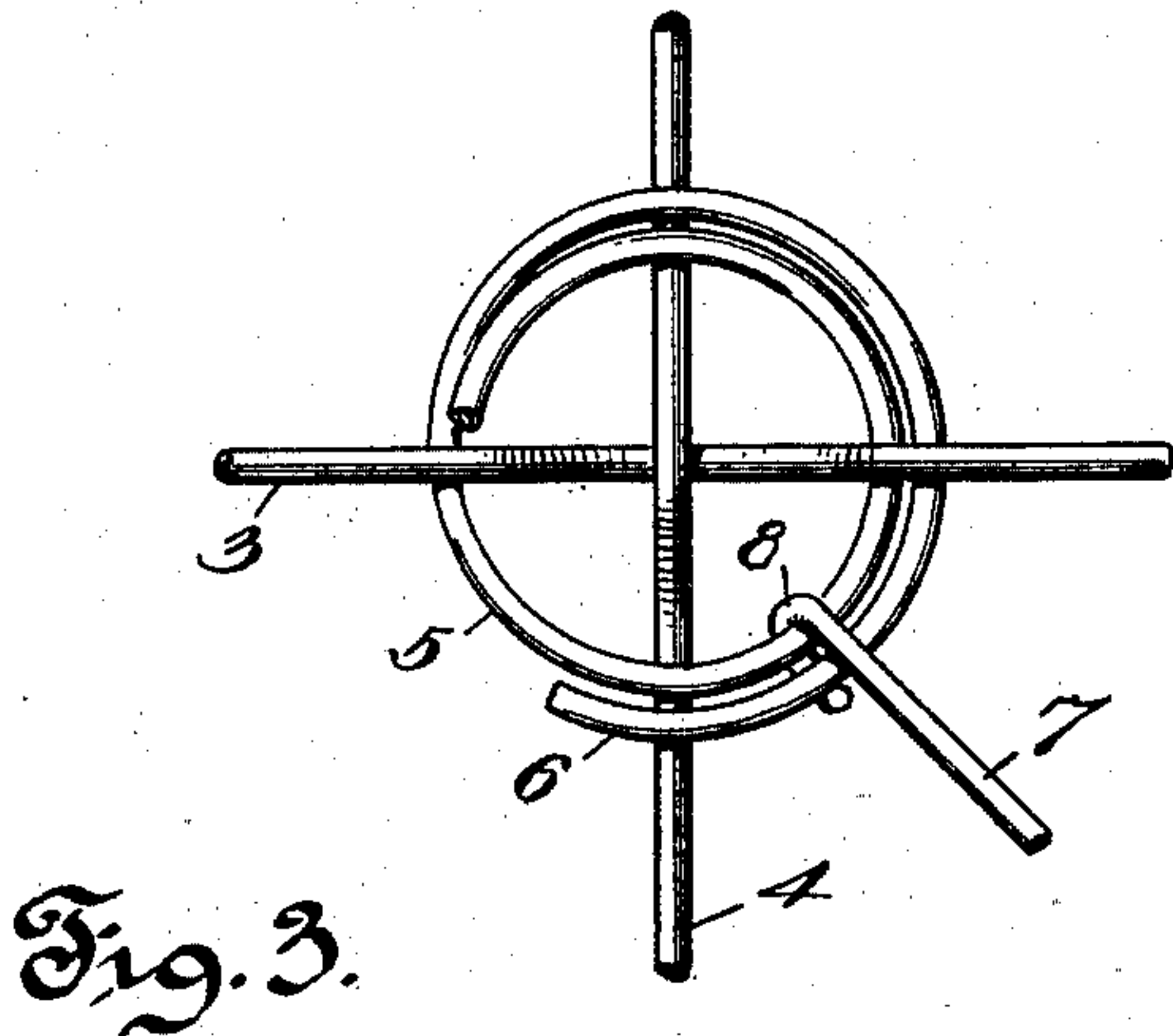
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

ORLA H. WATKINS, OF CLINTON, IOWA, ASSIGNOR TO JOSEPH K. MILNER,
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BED-SPRING.

SPECIFICATION forming part of Letters Patent No. 683,360, dated September 24, 1901.

Application filed February 4, 1901. Serial No. 45,981. (No model.)

To all whom it may concern:

Be it known that I, ORLA H. WATKINS, a citizen of the United States, residing at Clinton, in the county of Clinton and State of Iowa, have invented a new and useful Bed-Spring, of which the following is a specification.

This invention relates to springs for beds, furniture, and the like, and the object of the same is to strengthen and generally improve spring structures by interlocking and staying the several components, so that they will conjointly contribute to produce a sensitive resilient operation without the liability of breaking down or distorting any portion of the improved device.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a top plan view of a portion of a bed-spring embodying the features of the improvement. Fig. 2 is a detail perspective view of the top portions of two of the springs, showing the means of tying the same. Fig. 3 is a top plan view of the bottom coils of one of the spring components, showing the manner of applying the same and also showing the manner of connecting a bottom cross-brace thereto. Fig. 4 is a detail perspective view of the bottom coils as shown by Fig. 3 and portions of the parts with which they connect. Fig. 5 is a detail perspective view showing portions of the uppermost coils of the central springs and means for connecting the same.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a surrounding or marginal wire frame, two of these frames being used and located at the bottom and top of the complete spring and having dimensions corresponding to that of the spring structure. The end bars 2 of each of these frames are connected by longitudinally-extending stringers 3, arranged at regular intervals and parallel, the stringers of the lower frame being located in planes to one side of the planes of the stringers of the upper frame. In the bottom frame are cross-wires 4, which are ar-

ranged at regular intervals and parallel, the stringers and cross-wires of the said lower frame closely crossing each other in planes at right angles and kinked or bent in reverse directions at points of intersection, the cross-wires being on top, as clearly shown by Fig. 4. A plurality of ordinary conical wire springs 5 are included in the improved device and are inverted, as usual, to bring the reduced extremities thereof down to the bottom frame. The bottom coil 6 of each of these springs is larger or greater in diameter than the one next above it and is caused to engage the stringers and cross-wires of the lower frame at their point of intersection in each instance, as clearly shown by Figs. 3 and 4. The purpose of this construction is that when applying the said reduced extremities of the coils they can be screwed onto the crossed wires set forth, and when so disposed will tighten or draw the two crossed wires closely together, and thus not only provide a stable base-support for the springs, but also strongly interlock the said cross-wires. By this means, also, the spring action of the several springs is not in the least retarded at their lower extremities, as there is no depletion of the coils thereof.

In connection with the bottom frame of the improved device two cross-brace wires 7 are used and have their ends formed with hooks 8, that are caught over the coils 6 of the outer corner-springs of the improved device and extend over the kinked crossed portions of the stringers and cross-wires of the said bottom frame at two points on each side of the center, the said wires 7 at the points of intersection with the stringers and cross-wires being also formed with kinks 9. These cross-brace wires 7 afford means for producing a stable base structure by diagonally tying the opposite extremities of the entire spring structure.

The upper ends of the springs 5, located adjacent to the side bars of the top frame, have the terminal portions of the upper coils formed with loops 10, loosely embracing the next coils below and then extended transversely and hooked over and bent up under the side bars, as at 11. This secured extremity of the top coil of each spring 5 to the side bar adjacent thereto provides against

irregular distortion of the same, but at the same time permits freedom of movement sufficient to unretardingly preserve the resilient action desired, and the position of this fastening means is diametric of each coil. The difference of construction between the inner coils and those just set forth is that those next to the outer ones have the extremities of the top coils first formed into loops 12 similar to the loops 11 and passed around the coil next below the top one in each instance, and from the said loops 12 the extremities are continued in straight lines transversely over the top coils in the form of extensions 13 and to the outer springs. These extensions project over the top coil of the outer springs, and each is formed with a depending right-angular seat-bend 14 and a terminal hook 15, the bend and hook being both below the plane of the extension and in a plane laterally at a right angle to the direction of the same, as clearly shown by Fig. 2. The inner portions of the top coils of the several springs are located above and project over the stringers, and the latter immediately under the top coils, where the extensions cross the same, are formed with lateral bends 16 to interlock with the seat-bends 14. The adjacent portions of the top coils of the outer springs have entrant bends 17 for engagement with the terminal hooks 15, the end portions of the latter depending vertically and bearing against the inner portions of the stringers, as shown. By this means the springs are braced and prevented from tilting in either direction. The central springs have their top coils connected at the inner opposing portions in the same manner, and the central stringers are arranged in closer relation for this purpose. There being no extensions possible on the inner opposing portions of the central spring, for obvious reasons, it is necessary to introduce the tie-links 18, having at opposite ends seat-bends 19 and terminal hook 20 of the same form as those on the extensions, but reversely arranged at opposite ends or projecting laterally in reverse directions, as shown by Fig. 5. The inner portions of the top coils of the central springs and the adjacent portions of the stringers are arranged as heretofore explained and the parts are all strongly united for conjoint operation and to prevent distortion or irregular position, no matter how regularly or irregularly the compressing force may be applied and whether delivered directly on the top of the complete structure or at one side.

The entire arrangement is simple and the several parts can be easily assembled to produce a strong structure.

Having thus described the invention, what is claimed as new is—

1. In a device of the class set forth, the combination of upper and lower frames, the latter both having stringers and the lower frame exclusively in addition provided with cross-wires intersecting the stringers thereof, and a plurality of single springs of inverted conical form having their lower reduced portions located adjacent to the stringers and cross-wires of the lower frame, the said lower reduced portions of the springs being provided with single enlarged coils immediately next to the lowermost smallest coils thereof, said enlarged coils being close to the said smallest coils and having the extremities free for screwing the same into place on the lower intersecting stringers and cross-wires, the enlarged coils forming an integral part of the springs, the latter being also secured to the upper frame.

2. In a device of the class set forth, the combination of upper and lower frames, the latter both having stringers and the lower one provided in addition with cross-wires, a plurality of inverted conical springs connected to the frames, and a pair of lower diagonal braces secured at their coils to the lower ends of the springs at the corners of the device and passing over portions of the points of intersection of the stringers and cross-wires of the bottom frame, the said braces crossing each other at the center of the bottom portion of the complete device.

3. In a device of the class set forth, the combination of upper and lower frames having stringers, a plurality of inverted spring-coils vertically interposed between said frames and secured to the bottom one of the latter, the top coils of the said springs being above the plane of and extending in part over the stringers of the upper frame, the contiguous overlapped portions of the said top coils and the stringers having reversely-extending horizontal bends, the said top coils also having integral extensions at points diametrically opposite the location of the bends therein, the said extensions being first looped around the top coils and then projected away from the latter and provided at their projected terminals with right-angular deflected portions formed with seat-bends 14 and terminal hooks 15, said latter bends and terminals respectively engaging the bends of the stringers and the top coils of the springs, the extensions being projected over the top coils.

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

ORLA H. WATKINS.

Witnesses:

FANNIE SKELLENGER,
NELS LAURITSEN.