No. 789,896. PATENTED MAY 16, 1905.

# A. ANDERSON.

## BED SPRING.

APPLICATION FILED SEPT. 30, 1904.

Fig. 1.

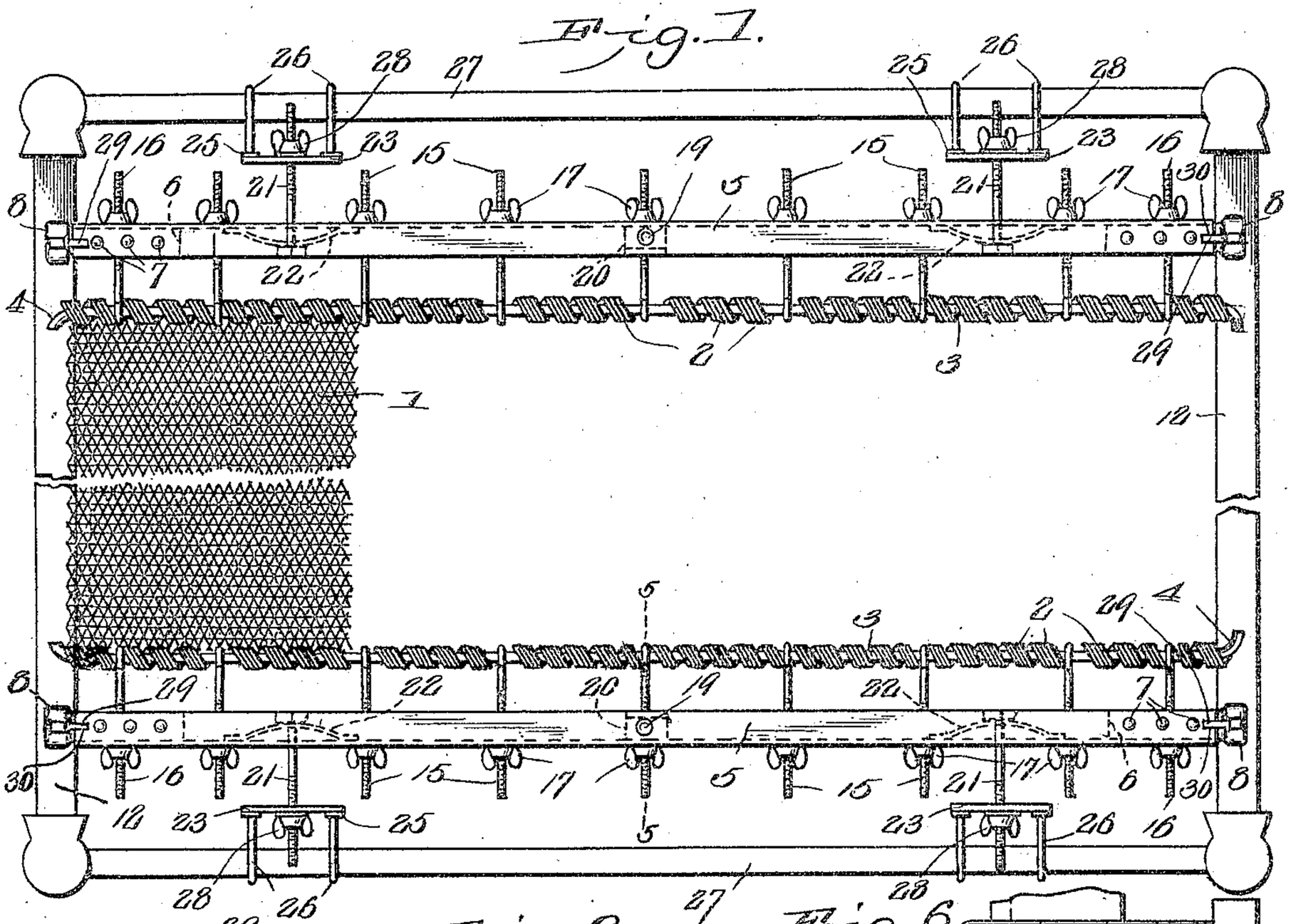



Fig. 3.

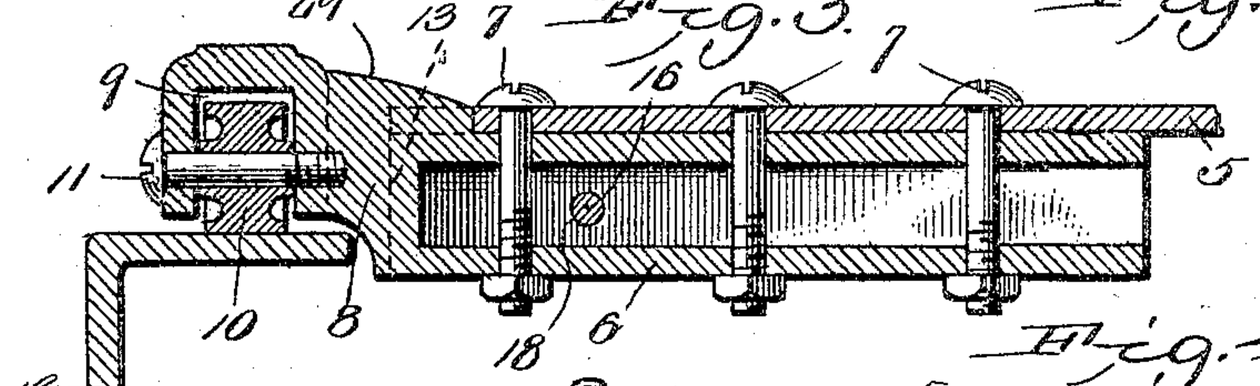



Fig. 6.

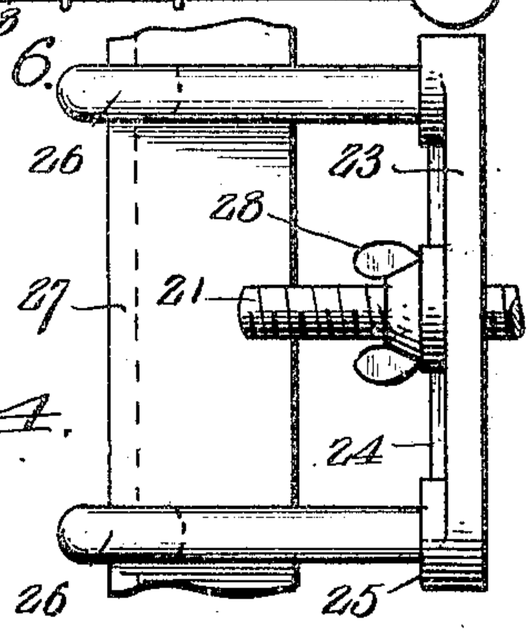



Fig. 4.

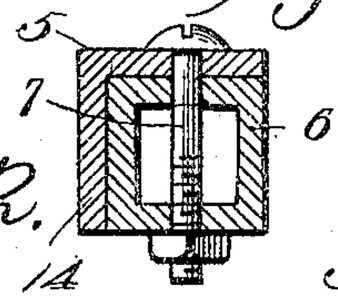



Fig. 2.




Fig. 7.

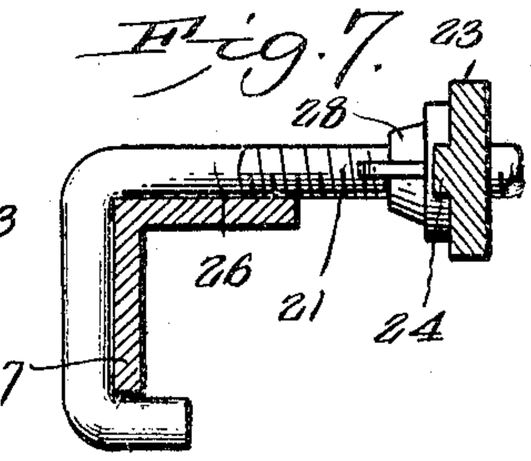
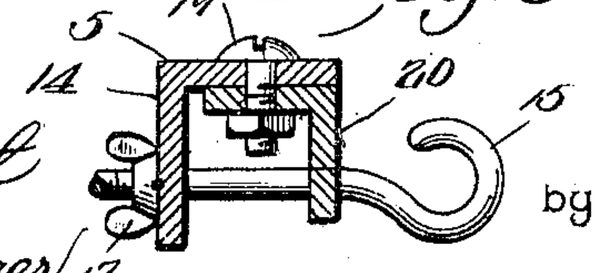



Fig. 5




Witnesses
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No. 789,896. Patented May 16, 1905.

# UNITED STATES PATENT OFFICE.

ALBERT ANDERSON, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-THIRD TO LOUIS ULRICH, OF BROOKLYN, NEW YORK.

## BED-SPRING.

SPECIFICATION forming part of Letters Patent No. 789,896, dated May 16, 1905.

Application filed September 30, 1904. Serial No. 226,682.

*To all whom it may concern:*

Be it known that I, ALBERT ANDERSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Bed-Spring, of which the following is a specification.

This invention relates to bed-springs, and has for its object to simplify the construction and incidentally to reduce expense of the same.

Another object of the invention is to so construct the bed-spring that the parts of the same may be disassembled, thus enabling the spring to be folded in small compass for storage or shipment.

Another object of the invention is to enable the spring to be fitted to beds of varying dimensions.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications to which recourse may be had within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a plan view of a bed-spring constructed in accordance with the principles of the invention, showing the same applied to a bed in position for operation and the middle portion being broken away. Fig. 2 is a plan view, enlarged, showing one end of one of the frame-bars. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a sectional view taken on the line 4 4 in Fig. 2. Fig. 5 is a sectional view, enlarged, taken on the line 5 5 in Fig. 1. Fig. 6 is a plan view of one of the clamps for connecting the spring with a bed-frame. Fig. 7 is an end view, partly in section, of one of said clamps.

Corresponding parts are indicated by like characters of reference throughout the several figures.

In carrying out this invention a so-called "woven-wire" spring 1 is employed, the same consisting of a sheet of wire fabric of suitable dimensions provided at the ends thereof with coils 2 2, through which metallic brace-bars 3 3 are inserted, the ends of said brace-rods being bent, as shown at 4, mainly in order to prevent their accidental withdrawal and also to provide a neat and smooth finish.

5 5 represent a pair of angle-bars made of iron or steel and of suitable dimensions, said bars being of a length equal to the width of the sheet of wire fabric. Fitted in the angles of said bars at the ends thereof are rectangular sleeves or castings 6, which are firmly connected with the said angle-bars by means of vertically-disposed bolts 7 or other suitable means. These sleeves or castings are provided at their outer ends with outwardly-extending brackets 8, provided in their under sides with recesses 9, in which small wheels or rollers 10 are journaled upon stud-bolts 11. The under sides of the brackets 8 are curved upwardly for the purpose of clearing the rails of the bed upon which the spring is supported, and the rollers 10 project beyond the recesses 9 a sufficient distance to enable them to travel upon the side rails 12 of a bedstead, said side rails affording tracks for the said rollers. The lower extremities of the brackets 8, which in practice adjoin the inner edges of the bed-rails, are transversely curved, as indicated in dotted lines in Fig. 2 of the drawings at 13, the object of this construction being to make it absolutely impossible for the brackets to bind against the bed-rails in the event of an unequal movement of the ends of the frame-bars 5, as in the event of a heavy person occupying one side of the bed.

Extending through the vertical webs 14 of the angle-bars 5 are a plurality of bolts 15, provided at their inner ends with hooks 16, engaging over the brace-rods 3 at the ends of the wire fabric 1. These hook-bolts are pro-

vided at their outer ends with wing-nuts 17, whereby they may be conveniently tightened without necessitating the use of a wrench or other tool. The bolts 16 at the ends of the frame-bars 5, in addition to extending through the vertical webs of said frame-bars, are extended transversely through the rectangular sleeves or castings 6, which are provided with perforations 18 for the passage of said bolts. Suitably secured, as by means of bolts 19, to the under sides of the horizontal webs of the angle-bars 5, at the middle of said bars, are angle-plates or knee-plates 20, through which the bolts 16 are likewise extended, as will be clearly seen by reference to Fig. 5 of the drawings. The structural features just described are important in order to prevent the angle-bars 5 from tilting under the pressure of weight imposed upon the spring fabric 1.

The vertical webs 14 of the angle-bars 5 are provided with suitably-disposed perforations for the passage of bolts 21, between the heads of which and the adjacent webs 14 are interposed springs 22. These springs in Fig. 1 of the drawings have been represented as bowed leaf-springs; but it is to be understood that no limitation is necessarily made to this particular form of springs.

The bolts 21 are extended through clamp-plates 23, which have been shown as being provided with reinforcing-ribs 24 and annular flanges 25. These clamp-plates are provided with outwardly-extending hooks 26, adapted to clamp over the end rails 27 of the bed to which the device is applied. The bolts 21 are provided with wing-nuts 28 or other suitable tightening devices having sufficient leverage to enable them to be readily manufactured, said tightening devices bearing against the flanged outer surfaces of the plates 23.

The necks or upper surfaces of the brackets 8, extending from the sleeves or castings 6, have been shown as provided with strengthening-ribs 29, for the reception of which notches 30 are formed in the ends of the horizontal webs of the angle-bars 5.

In operation the clamping-hooks 26 are engaged with the end rails of the bed to which the spring is to be applied, as will be seen in Fig. 1 of the drawings, after which by tightening the wing-nuts 28 and 17 the woven spring fabric may be drawn to any desired degree of tension. The angle-bars 5, which constitute the frame-bars of the spring, will be supported upon the side rails of the bed by means of the rollers 10 and will thus be free to move longitudinally of the bed to such an extent as may be necessary, such movement being free from creaking or unpleasant noises, owing to the presence of the rollers. A limited longitudinal movement of said frame-bars 5 is obviously rendered possible, owing to the presence of the springs 22.

The bolts 15 and 21 are to be preferably made of sufficient length to enable the improved bed-spring to be applied to and properly adjusted upon beds of varying lengths.

It is evident that by simply loosening the nuts upon several bolts 21 the spring may be readily detached from the bed and rolled or folded in small compass for storage or shipment.

This improved bed-spring may be constructed at a very moderate expense. It is light, durable, cleanly, and may be readily fitted or adjusted in position for operation upon beds of various dimensions longitudinally.

While in the foregoing description a woven-wire fabric has been referred to as forming the body of the improved spring, it is by no means absolutely necessary that the kind of material which is generally known as "woven wire" should be employed, inasmuch as a linked or other fabric may be substituted with equally satisfactory results, the changes involved by such substitution being within the limits of the skill of the ordinary mechanic. I also desire to have it specially understood that where in the foregoing description wing-nuts have been referred to as the tightening means to be used in connection with the bolts the exigencies of the practical manufacturer of the device may make it necessary to use tightening devices upon which greater leverage may be exerted than upon ordinary wing-nuts or thumb-nuts in order that the device may be successively operated without the strain upon the fingers necessary to tighten the wing-nuts. This and other changes are to be distinctly understood to be within the scope of the invention.

Having thus described the invention, what is claimed is—

1. In a bed-spring, a flexible foldable sheet of wire fabric provided at the ends thereof with rigid brace-rods loosely connected therewith and having bent or inturned ends; rigid bars spaced from the brace-rods and having supporting devices at the ends thereof; and connecting members, connected with the rigid bars and adapted for detachable engagement with the brace-rods.

2. A sheet of wire fabric, brace-rods at the ends thereof, hook-bolts engaging said brace-rods, angle-bars supporting said bolts, sleeves or castings fitted in the angles at the ends of the angle-bars and having curved brackets provided with recesses in their under sides, and supporting-rollers in said recesses.

3. Angle-irons constituting frame-bars, sleeves or castings fitted in the angles at the ends of said angle-bars and having supporting wheels or rollers, knee-plates connected with the angle-bars intermediate of their ends, hook-bolts extending through the vertical webs of said angle-bars and through the knee-plates and the castings at the ends of the

angle-bars, and a sheet of wire fabric provided at the ends thereof with transverse brace-rods engaged by the hook-bolts.

4. In a bed-spring, angle-bars constituting end frame-bars, sleeves or castings fitted in the angles at the ends of said angle-bars and having outwardly and upwardly extending brackets and transversely-curved ends, supporting-rollers journaled in recesses in said brackets, a sheet of wire fabric having brace-rods at the ends thereof, and hook-bolts engaging said brace-rods and connected with the frame-bars.

5. A sheet of wire fabric, brace-rods at the ends thereof, angle-bars constituting end frame-bars, hook-bolts engaging the brace-bars and extending through the vertical webs of the angle-bars, bolts extending through the vertical webs of said bars, springs interposed between the heads of the posts and said vertical webs, clamp-plates engaging said spring-supported bolts, tightening means upon the latter, and hooks extending from said clamp-plates.

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

ALBERT ANDERSON.

Witnesses:
JOHN E. SULLIVAN,
LOUIS ULRICH.