

(No Model.)

E. R. LEIGHTON.
INTERCONVERTIBLE BED OR COUCH.

No. 584,375.

Patented June 15, 1897.

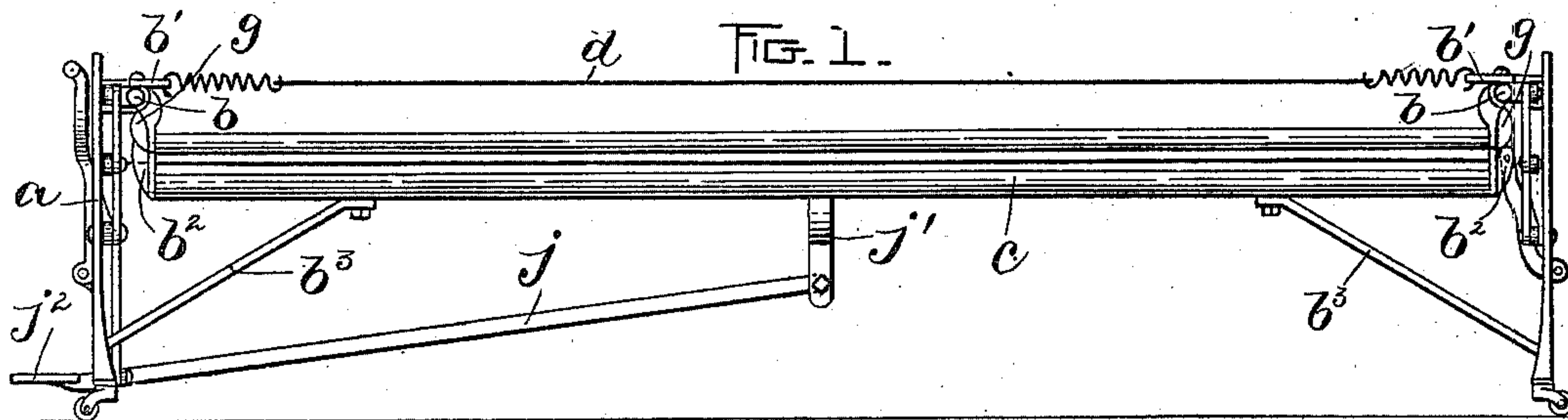


FIG. 2.

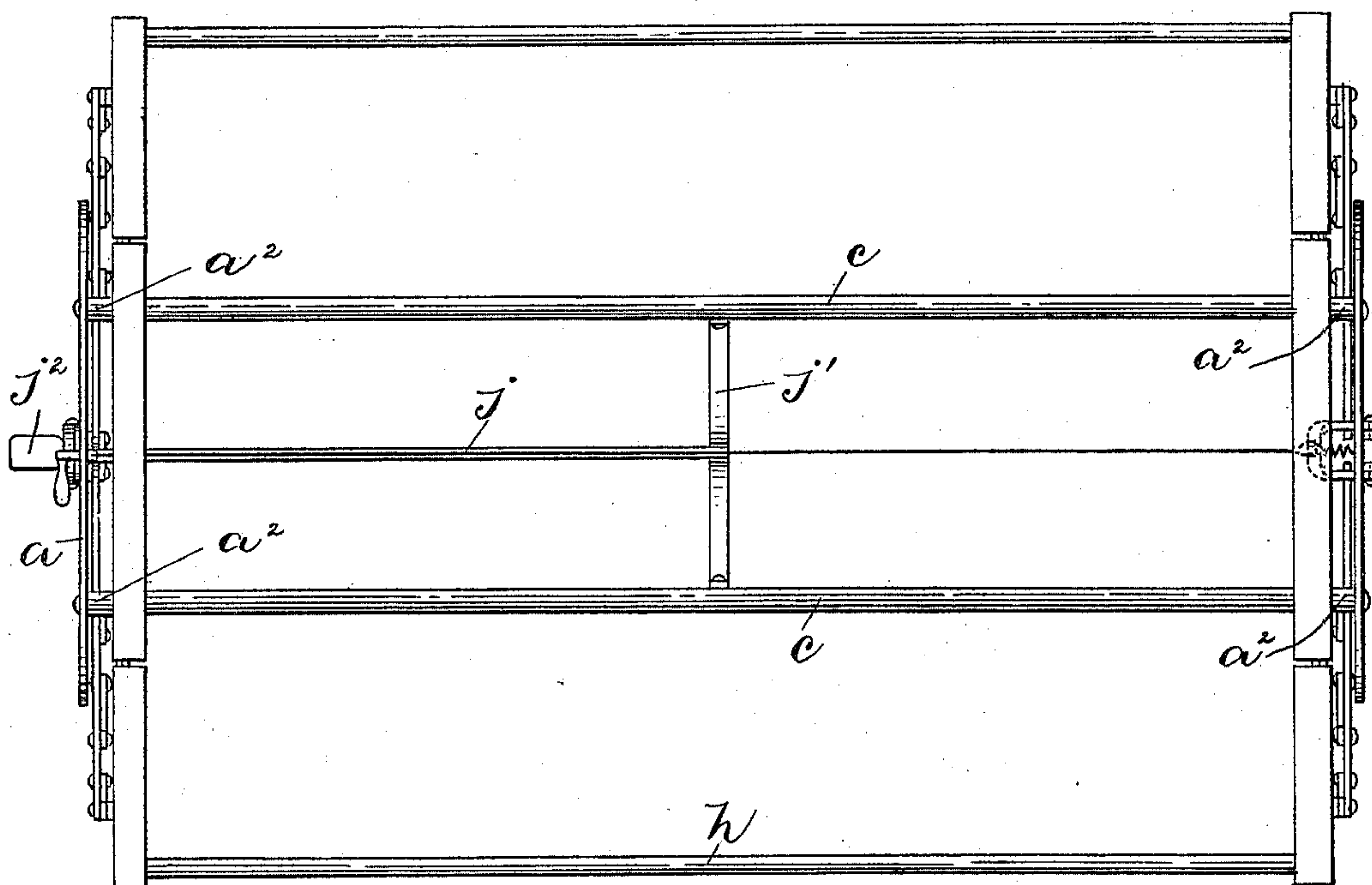


FIG. 3.

FIG. 4.

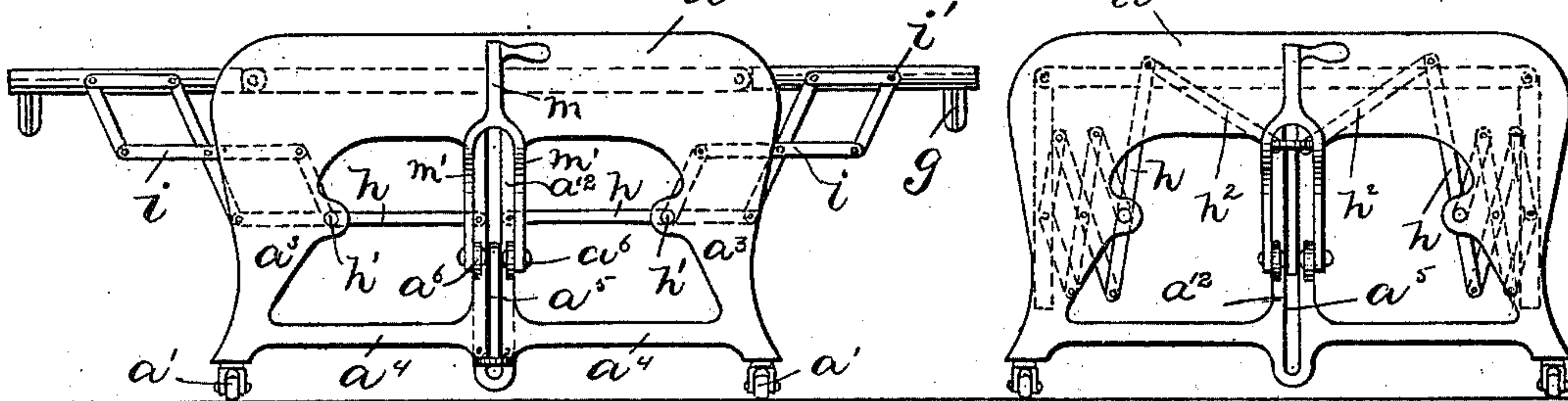


FIG. 6.

FIG. 7.

FIG. 5.

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INTERCONVERTIBLE BED OR COUCH.

SPECIFICATION forming part of Letters Patent No. 584,375, dated June 15, 1897.

Application filed November 27, 1896. Serial No. 613,659. (No model.)

To all whom it may concern:

Be it known that I, EUGENE R. LEIGHTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Interconvertible Beds or Couches, of which the following is a specification.

This invention has relation to interconvertible beds and couches—that is, to beds which are capable of being folded into the form of a couch and of being converted from the latter form into a bed, as shown in Patent No. 564,565, dated July 21, 1896, granted to me.

It is the object of the present invention to provide improved means for locking the side frames of the bed in their elevated or raised positions and to add such other improvements as will simplify its construction and render it more efficient and ready for use and manipulation than heretofore.

To these ends the invention consists in the improvements which I have illustrated upon the drawings, and which I shall now proceed to describe in detail, and then point out in the claims hereto annexed.

Reference is to be had to the annexed drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a side elevation of my invention, it being illustrated in the form of a bed. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation of the same. Fig. 4 is an end elevation showing the invention in the form of a couch with the side frames depending from the main frame. Fig. 5 is a partially-longitudinal section through the device to illustrate more particularly my improved means for locking the side frames in their elevated position. Figs. 6 and 7 show in detail the manner of jointing or hinging the said frames to the main frame.

Of the drawings, a indicate the end standards, which are of the shape shown in Figs. 3 and 4 and rest upon rollers or casters a' . Projecting inward from each of the standards are two studs a^2 , riveted or otherwise secured to a tubular cross-bar b , upon the upper periphery of which a flat strip b' , as shown in Fig. 1, is secured. Depending from each

cross-bar b which projects at the ends beyond the studs a^2 are hangers b^2 , supporting the ends of longitudinal tubular bars c , which form the side bars of the main frame of the bed.

b^3 are inclined braces extending from the lower portions of each end standard upward and inward and bolted or otherwise secured to the side bars c .

The end standards, the cross-bars b , the side bars c , and the braces b^3 all form the main frame of the bed or couch, and to it are hinged the side frames, which are adapted to be elevated by means of lazy-tongs, actuated by a foot-lever, as I shall now describe. Into the ends of the tubular cross-bars b are inserted plugs e , as shown in Fig. 6, each plug being formed with an ear or lug e' , to which is hinged by a pintle e^2 an ear or lug e' of another plug e , driven into a tubular bar f , constituting the end cross-bar of one of the side frames.

Depending from the end of each of the bars f is a hanger g , to which is secured the end of each of the tubular side bars h . Hence it will be seen that by raising the side frames, composed of the end cross-bars f and the longitudinal bars h , to a horizontal position I provide a bed such as shown in Figs. 1 to 3, and by allowing the side frame to hang horizontally I form a couch such as pictured in Fig. 4.

The tubular cross-bars b and ff , which are jointed together, may be considered as a single bar having the ends hinged to the main portion, and upon the said bars are secured, by means of rivets, bolts, or otherwise, a flat strip b' , formed in three parts. To the strips are secured the ends of the wire-supporting mattress d , which may be of any approved style, provided that it allows of the side frames swinging to vertical position.

The tubular side bars c and h are dropped below the horizontal plane of the mattress to allow of the mattress yielding when a person is upon it, and preferably I drop the bars c slightly below the horizontal plane of the bars f , for the reason that the greatest weight comes on the mattress near the central longitudinal line thereof.

The means for elevating the side frames consists of two levers h , each pivoted at h' in

ears in the end standards, and lazy-tongs, (indicated as a whole by $i i$), of which the outer projecting portion of each lever h forms a part, the outer pivot i' of each set of lazy-tongs being attached to the outer end of the end bars on the said frames.

When the levers h are lying in a substantially vertical position, the side frames are allowed to drop, but when the said levers are swung down into a horizontal position, as shown in Fig. 3, they extend the lazy-tongs and elevate the said frames into horizontal position.

Each of the end standards is formed with a central portion a^{12} , connected to the lower ends of the legs a^3 by horizontal braces a^4 for a purpose to be described. Preferably each of the end standards is formed integrally of metal of a minimum lightness consistent with the element of safety. Through a slot a^5 in the central portion a^{12} of one of the standards projects a foot-lever j , pivoted at its rear end to a V-shaped brace j' , riveted to the side bars $c c$, intermediate of the standards. The projecting end of the lever is formed with a flat treadle j^2 to receive the foot, by means of which the lever is depressed, and the body portion of the lever is formed with two ears j^3 , connected by links h^2 to the ends of the levers h , the said ears j^3 being on the inner sides of the standards. Thus it will be seen that when the side frames are in their vertical or inoperative position the treadle j^2 of the foot-lever is in its highest position, as shown in Fig. 4, and by placing the foot upon the treadle and depressing it the links h^2 draw upon the levers h to extend the lazy-tongs and raise the side frames to a horizontal position to convert the couch into a bed. Lazy-tongs are provided at each end of the bed, but only those at one end are employed for raising the side frames. The foot-lever slides in the slot, the edges of which form vertical guides therefor, so that it is held against lateral or sidewise movement, to which it is liable because of the tendency of the side frames to move upward unevenly. For the purpose of locking the said side frames in their elevated position so as to dispense with the employment of supplemental legs attached to them and without the necessity of touching the side frames themselves I employ latches mounted upon the standards acting to engage the levers h of the lazy-tongs at both ends of the bed and hold them in their horizontal position.

The latch for the lever end of the bed is indicated by m and is forked, as at $m' m'$, to allow for the play of the foot-lever and is also pivoted at its lower end to lugs or ears $a^6 a^6$, projecting outward from the central portion a^{12} of the standards. Each fork $m' m'$ is bent inward so as to lie on either side of the central portion a^{12} of the standard and is provided with a projection m^2 for the end of one of the levers h .

The upper end of the latch m is provided

with a handle m^3 , which may be grasped for the purpose of drawing it forward to disengage the catches m^2 from the levers h , irrespective of any movement of the side frames.

The latch n for the lazy-tongs at the rear end of the bed is pivoted at n' to the standard and has a catch n^2 for each of the levers h . Its upper end is held toward the standard by a strong spiral spring o , one end of which is attached to the standard and the other to the end of the latch, and a link p , consisting of a slender rod or wire, connects the upper end of the latch n with the latch m , whereby both of the latches are held in position to automatically engage the ends of the levers h when the side frames are elevated by the foot-lever, and by drawing upon the handle m^3 of the latch m both latches may be simultaneously disengaged from the levers h , so as to allow the side frames to drop.

For the purpose of holding the side frames against vibration the end bars f are connected to the cross-bars b by springs p , as shown in Fig. 7.

Preferably every part of the interconvertible bed or couch above described is formed of metal, the bars being constructed of metallic tubing, so as to render the frames strong and durable.

While the lazy-tongs at only one end of the bed are utilized for the purpose of elevating the side frames, yet they are employed at both ends for the purpose of supporting the side frames, and hence they perform two functions and obviate the necessity of additional means for supporting the frames after they are elevated.

Preferably the latches are operated at the end of the bed where the lever is located, but this is not essential, as the two devices may be arranged at opposite ends of the bed.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is—

1. An interconvertible bed or couch comprising a main frame, a swinging side frame, devices located below the plane of the main frame for maintaining the side frame in a horizontal position, means for locking said devices in their operative positions, and means for operating said devices for raising said side frame to its horizontal position, where it is held by said locking means.

2. An interconvertible bed or couch comprising a main frame, one or more swinging side frames, lazy-tongs for elevating said side frames, a lever for operating said lazy-tongs, and a latch for engaging said lazy-tongs to hold the said frames in a horizontal position.

3. An interconvertible bed or couch, comprising a main frame having a standard at each end, one or more swinging side frames, lazy-tongs located at each end of the bed and pivoted to said side frame and to said stand-

ards, and means at each end of the bed for engaging the said lazy-tongs to lock whereby the side frame is maintained in a horizontal position by said lazy-tongs.

5 4. An interconvertible bed or couch comprising a main frame, two swinging side frames, two pairs of lazy-tongs at each end of the bed, one pair for each end of the swinging side frames, means for actuating said lazy-tongs to raise said side frames to horizontal
10 position, and means for engaging each pair of lazy-tongs to lock them, and cause them to maintain said side frames in said horizontal position.

15 5. An interconvertible bed or couch comprising a main frame having end standards, a swinging side frame, levers for elevating said side frame to a horizontal position, a pivoted lever for actuating the first-mentioned
20 levers, vertical guides on said standard for holding said last-mentioned lever against lateral vibration and a latch for locking the side frames in an elevated position.

25 6. An interconvertible bed or couch, comprising a main frame, swinging side frames, lazy-tongs for elevating said side frames, a pivoted foot-lever connected to said lazy-tongs for extending them to raise said side frames to a horizontal position, and a vertical guide
30 on one of the end standards to guide said foot-lever in its movements, and hold it against lateral vibration.

35 7. An end standard for an interconvertible bed or couch of the type having a main frame and swinging side standards, said end standard being provided with a central slotted portion, legs each having a lug to receive a lever-pivot, and braces extending from said legs to said central portion, substantially as described.
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8. An interconvertible bed or couch, comprising a main frame, two swinging side frames, a latch at each end of the main frame for holding said side frames in horizontal position, and means connecting said latches together for simultaneously disengaging them
45 irrespective of any movement of the said frames to allow said side frame to drop into vertical position.

9. An interconvertible bed or couch comprising a main frame, swinging side frames, lazy-tongs for each of said side frames, each of said lazy-tongs having a lever *h* extending in toward the central line of the main frame, means for extending said lazy-tongs to elevate
50 said side frames to a horizontal position, and a pivoted forked latch having a catch to engage each of said levers *h*. 55

10. An interconvertible bed or couch comprising a main frame, one or more swinging
60 side frames, lazy-tongs at each end of the frame, means connected with said lazy-tongs for elevating said side frame, a latch at each end of the frame for engaging said lazy-tongs to lock the latter when the said swinging side
65 frame is elevated whereby the weight of said side frame is sustained by the said lazy-tongs and means operated from one end of the bed for releasing said latches simultaneously independently of any movement of said side
70 frame.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 23d day of November, A. D. 1896.

EUGENE R. LEIGHTON.

Witnesses:

A. D. HARRISON,
P. W. PEZZETTI.