

No. 702,699.

Patented June 17, 1902.

G. W. BRITTON.

JOINTED FRAME FOR SOFA BEDS, RECLINING CHAIRS, &c.

(Application filed Nov. 14, 1901.)

(No Model.)

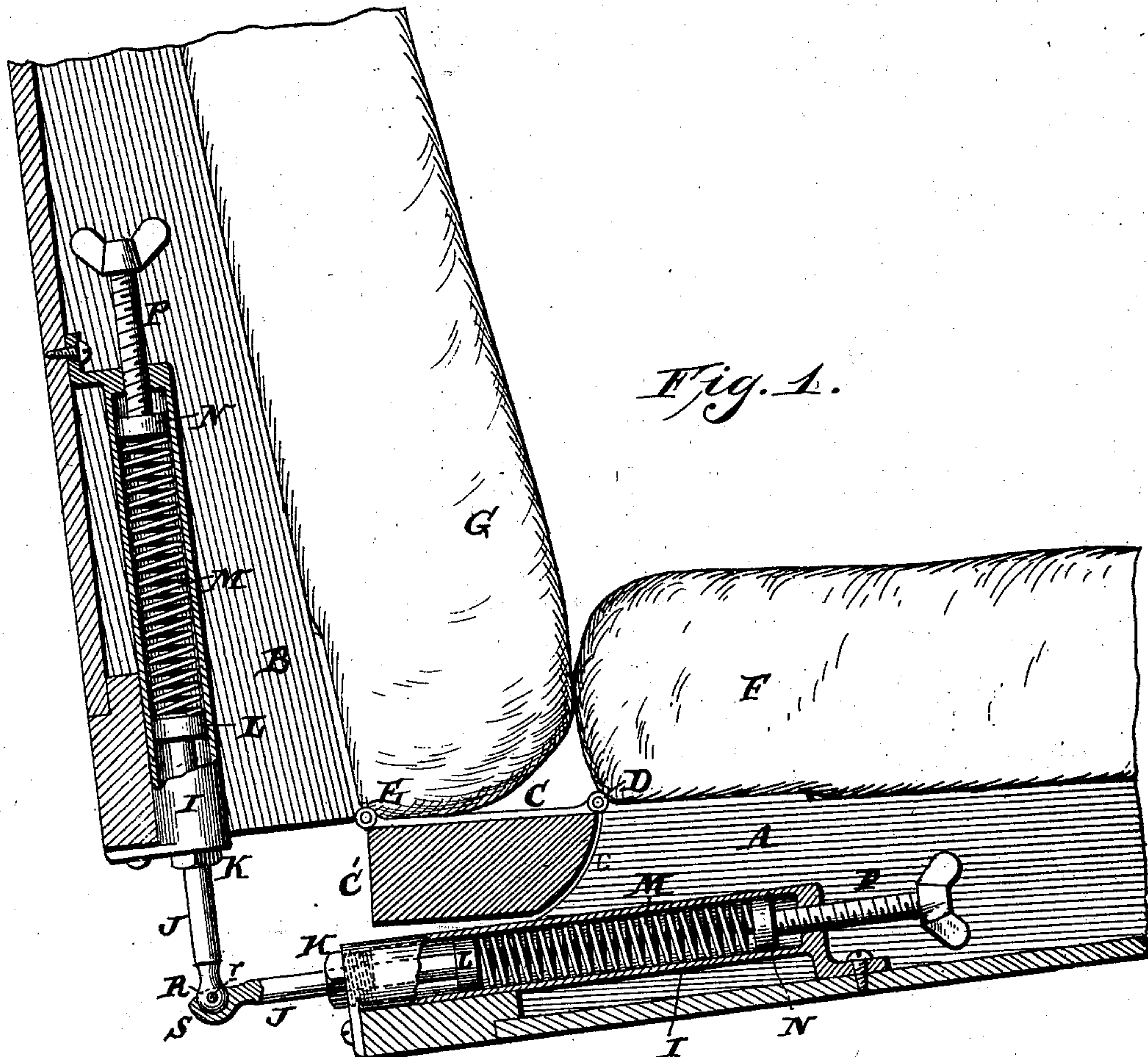
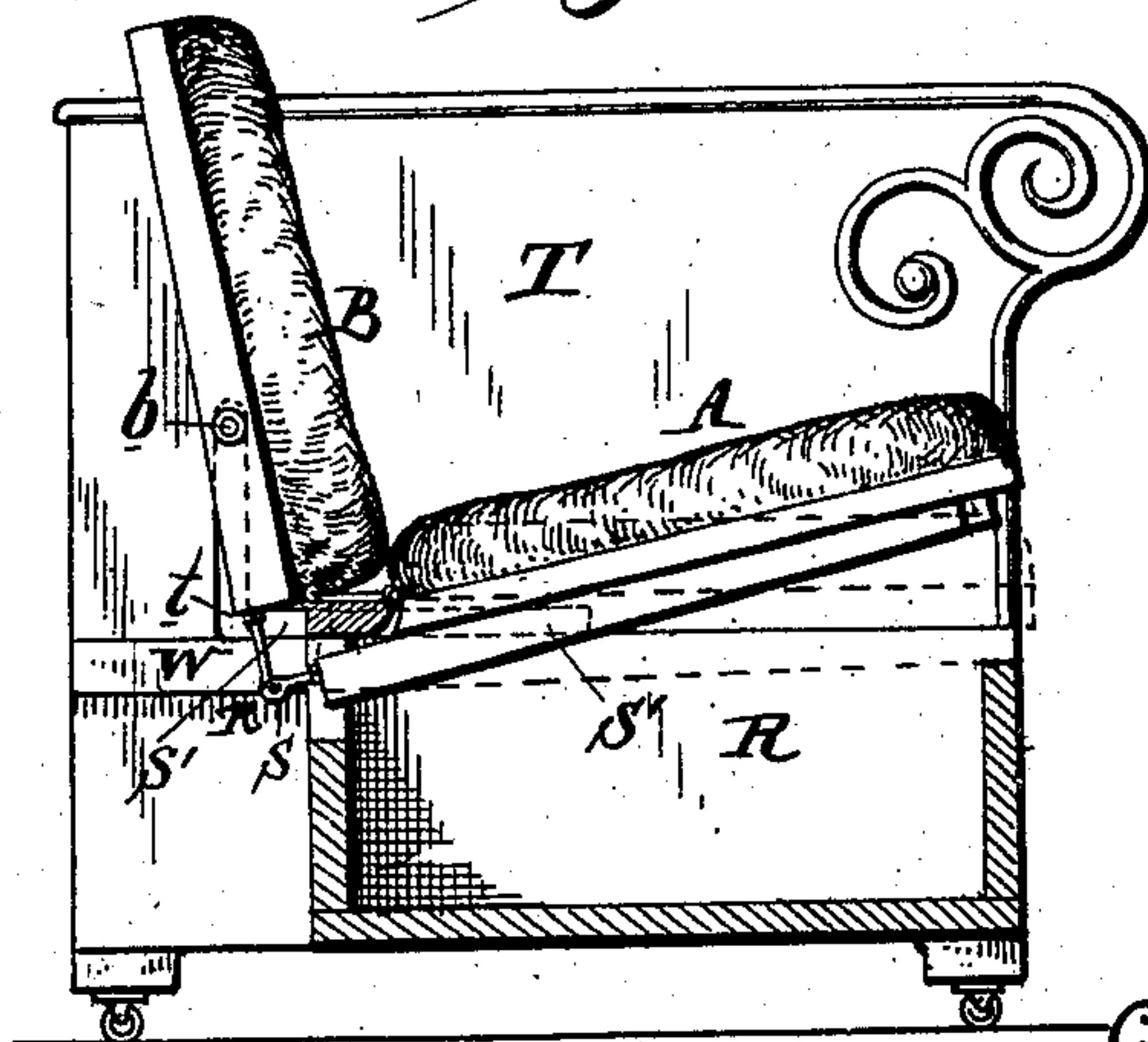


Fig. 1.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

GEORGE W. BRITTON, OF CAMDEN, NEW JERSEY, ASSIGNOR TO THE HALE AND KILBURN MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

## JOINTED FRAME FOR SOFA-BEDS, RECLINING-CHAIRS, &c.

SPECIFICATION forming part of Letters Patent No. 702,699, dated June 17, 1902.

Application filed November 14, 1901. Serial No. 82,171. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. BRITTON, of Camden, county of Camden, State of New Jersey, have invented an Improvement in  
5 Jointed Frames for Sofa-Beds, Reclining-Chairs, &c., of which the following is a specification.

My invention has reference to jointed frames for sofa-beds, reclining-chairs, &c.; and it  
10 consists of certain improvements which are fully set forth in the following specification, and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a  
15 form of hinge between the frame of the seat and back of a sofa-bed or reclining-chair which shall act to directly counterbalance the back and permit it to be easily raised and lowered or adjusted.

My object is, further, to construct the hinge  
20 in such a manner while maintaining the counterbalanced features that the seat-frame may be lifted to secure access to a compartment under the seat and so as to permit the back  
25 to be provided with thick upholstery.

My invention is excellently adapted for use in the sofa-beds of the character set out in Letters Patent No. 670,073, dated March 19,  
30 1901; but it may in general be adapted to all classes of sofa-beds and reclining-chairs.

In carrying out my invention I connect the seat and back frames by suitable hinges, and to each of these frames I secure spring-actuated rods jointed or hinged together at their  
35 free ends, said rods being respectively in substantial alinement with the plane of the seat and back, so that they may be at right angles to each other or lie in alinement or assume any intermediate angle. The springs  
40 act upon the rods to force them relatively toward each other, and thereby counterbalance the weight of the back or the seat also when hinged, so as to be raised. The free movement of the rods in the direction of their  
45 length also enables the back to be turned down substantially horizontal while putting the springs under the greatest tension.

My invention also comprehends means for

adjusting the tension of the counterbalancing-springs and other details of construction, 50 which will be better understood by reference to the drawings, in which—

Figure 1 is a sectional elevation of the hinge between the seat and back frames of a sofa-bed embodying my invention; and Fig. 2 55 is a similar view of such a sofa-bed, showing the seat somewhat raised.

A is the seat-frame, and B is the back-frame, said frames being made of any construction desired and supported upon a base or main 60 frame and held in relative adjustment in any suitable manner, as is well known in the art. These two frames A B may be hinged directly by hinge E; but I prefer to employ an additional hinge D between the said parts to enable the seat to be lifted upward toward the 65 back and yet allow for the use of thick upholstery, as shown in Fig. 2. The distance between the hinges E D is approximately equal to the thickness of the upholstery of 70 the back, as will be readily understood from Fig. 2. This intermediate bar C of the hinge may be of metal, with or without a wood frame C', and in case of the latter it is preferably made to fit to the frame A, as at c, when in 75 normal position, as shown in Fig. 1.

F is the upholstery of seat, and G the upholstery of the back, and may be of any suitable form or construction adapted to the purpose. 80

To each of the frames A and B, I secure a cylinder I, having a sliding rod J, extending through a guide-cap K at one end and provided with a piston L within the cylinder. Within the cylinders I place coil-springs M, 85 so as to act upon the pistons, and the pressure of said springs is regulated by a hand-screw P, extending through the other ends of the cylinders and pressing upon washers N, resting against the springs M. By this means 90 the counterbalancing action of these springs may be adjusted to any extent desired. These cylinders and their rods J are arranged respectively parallel to the planes of the seat and back, and the free ends of the said rods 95 are hinged or jointed together to one side of



the axis and out of alinement with the hinge E and so as to press one upon the other. The hinging of said rods may be by a simple ball-and-socket joint R S, Fig. 1, permitting adjustment in contact for ninety degrees. In this manner the two rods coact and press upon the springs held in the cylinders. The springs are the active elements for sustaining the weight of the back or seat and operate to counterbalance their weight, so that either or both may be easily raised and lowered. The power of these springs M may be adjusted by means of the adjusting-screws P, which are readily turned by hand.

If desired, the ball-and-socket joint R S may be a permanent connection between the rods; but instead of relying upon the ball-and-socket feature they may be hinged by a pin *r*. If desired, the joint may be an ordinary knuckle-joint when the pin *r* is employed.

I have not shown any special means for sustaining the back in position relatively to the seat-cushion, as any of the means well known in the art may be employed. However, in Fig. 2 is illustrated the general outline of a sofa-bed embodying my improvements. In this figure T is the main frame and is provided with the compartment R under the seat. It is also provided on its end frames with horizontal supporting parts W, upon which the seat and back may rest when extended into the same plane for a bed, and with oblique guide-grooves *t* for rollers or pins *b* on the ends of the back. In this case the shifting of the seat will raise or lower the back and also change its angle, as set out in Patent No. 670,073 hereinbefore referred to. The bar or frame C' may also be guided in horizontal guide-grooves S' in the end frames. This construction is only given as an example and I do not limit myself to any means of sustaining the seat and back in position. It is also to be understood that the seat need not be hinged and the hinge-joint D may be dispensed with.

It is evident that any desired number of the spring counterbalancing devices and hinges may be employed, the same being within the fancy or ideas of the designer and work to be performed.

In many cases, such as reclining-chairs, the back is not required to be turned backward and downward to alinement with the seat; but in some types of sofa-beds this is necessary, and where it is desired the cylinder-castings I and caps K should be attached to the seat and back, or at least one of them, sufficiently far back so as not to strike when the back is turned down to a horizontal position.

While I prefer the construction shown as being excellently adapted to the purposes of my invention, I do not limit myself to the details thereof, as they may be varied without departing from the spirit of the invention.

Having now described my invention, what

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

1. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, and an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint consisting of two rods hinged together and springs carried by the seat-back and seat-frame for respectively pressing the rods toward each other.

2. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint consisting of two rods hinged together and springs carried by the seat-back and seat-frame for respectively pressing the rods toward each other, and means for adjusting the power of the spring-hinge.

3. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint and consisting of two rods jointed together, springs acting to force the rods toward each other and casings or cylinders for holding the springs attached respectively to the two frames.

4. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint and consisting of two rods adjusted together, springs acting to force the rods toward each other, casings or cylinders for holding the springs attached respectively to the two frames, and adjusting-screws carried by the cylinders to adjust the tension of the springs.

5. The combination in a sofa-bed or reclining-chair of the seat-frame and back-frame hinged together, a spring counterbalancing device secured to each frame and coacting and consisting of a sliding rod J, a cylinder I secured to the frame and through the end of which the rod moves, a spring M within the cylinder acting upon the rod, and an adjusting-screw P extending through the cylinder and acting upon the spring to adjust its tension, the sliding rods of the two devices being hinged together at their free ends to one side of the axis of the hinge between the frames.

6. In a counterbalanced sofa-bed or chair, the combination of a seat-frame, a back-frame, a double hinge D E between the said frames, and an adjustable spring-hinge also between the said frames to one side of the axis of the double hinge D E.

7. In a counterbalanced sofa-bed or chair,



the combination of a seat-frame, a back-  
frame, a double hinge D E between the said  
frames, and an adjustable spring-hinge also  
between the said frames to one side of the axis  
5 of the double hinge D E and consisting of a  
spring-actuated rod on each frame detach-  
ably jointed together at their free ends.

In testimony of which invention I have  
hereunto set my hand.

GEORGE W. BRITTON.

Witnesses:

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C. J. WIDMYER.