

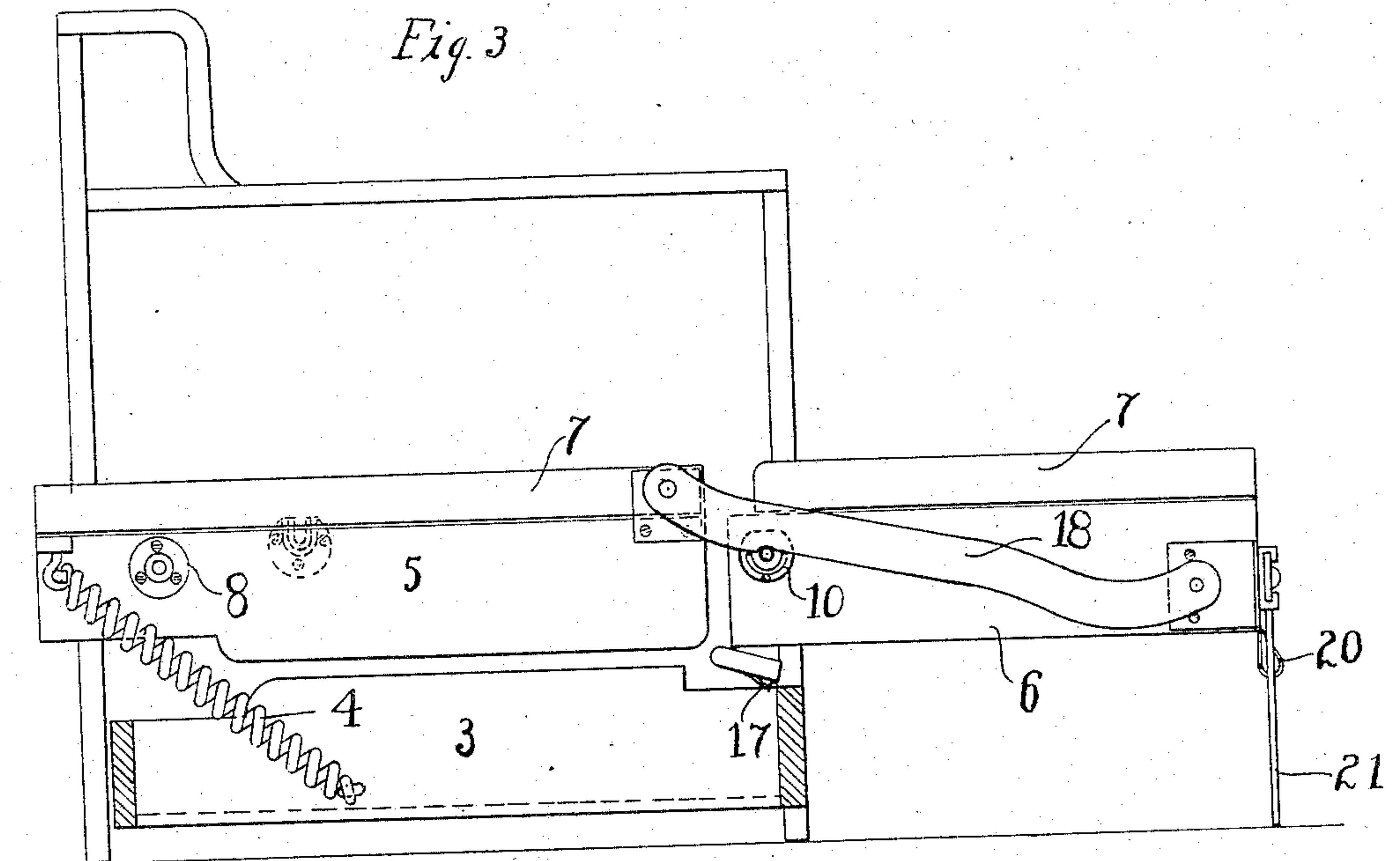
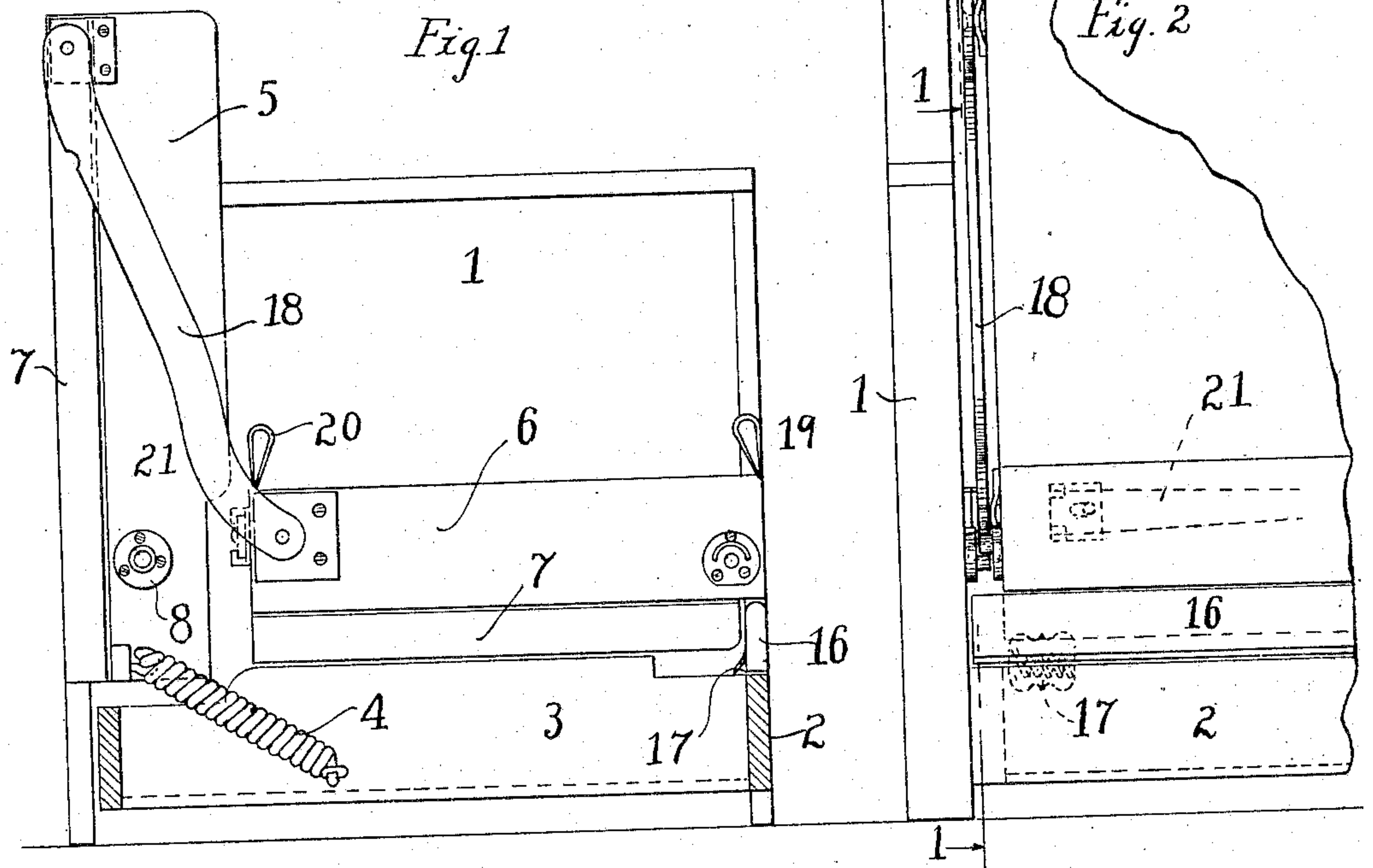
R. DEIMEL.

SOFA BED.

APPLICATION FILED MAY 20, 1908.

Patented Jan. 25, 1910.

947,298.



Witnesses:

Edwin Phelps.  
Mary M. Hillman

Inventor:

Rudolph Deimel,  
By Rummel & Rummel,  
Attys.





# UNITED STATES PATENT OFFICE.

RUDOLPH DEIMEL, OF CHICAGO, ILLINOIS.

SOFA-BED.

947,298.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed May 20, 1908. Serial No. 433,863.

*To all whom it may concern:*

Be it known that I, RUDOLPH DEIMEL, a citizen of the United States of America, and a resident of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Sofa-Beds, of which the following is a specification.

The main objects of this invention are to provide certain improvements to the type of sofa bed shown in the copending application of Theodore G. Weyer, filed February 3, 1908, Serial No. 414,051, whereby more convenient access to the bedding box may be had and whereby the seat section may be pivoted at a lower point so as to occupy a lower position when in its position for use as a bed; and to provide an improved form of trunnion and bearing therefor particularly adapted for use in devices of this class, where at times the trunnions are lifted transversely out of their bearings. These objects are accomplished by the device shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a sofa bed embodying this invention, the nearer upright being removed to illustrate the method of mounting the sofa sections and the connection between them. Fig. 2 is a front elevation of the sofa bed partly broken away, the line 1—1 indicating the plane from which the parts are viewed in Fig. 1. Fig. 3 is a view corresponding to Fig. 1, but showing the parts in their position for use as a bed. Fig. 4 is a view corresponding to Fig. 1, but showing the seat section lifted to permit of access to the bedding box below. Fig. 5 is a detail of the trunnion bearing at the front end of the seat section. Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 is a detail of the trunnion bearing at the rearward edge of the seat section. Fig. 8 is a section on the line 8—8 of Fig. 7.

In the construction shown, the supporting frame comprises a pair of upright end members 1 and a horizontally disposed bedding box 2 extending between them at their lower part. The bedding box 2 preferably has end walls or partitions 3 near and adjacent to each of the upright members 1 to prevent the contents of the bedding box from coming into contact with the springs 4, whose function will be hereinafter described.

The back section 5 and the seat section 6

are each provided with the usual upholstered surface (not shown), which is outward when said sections are in the sofa position, as in Figs. 1, 2 and 4, and said sections are provided with mattresses 7 on their reverse faces, which are upward when the device is in position for use as a bed. The back section 5 is provided with headed trunnions 8 located in alinement with each other near the lower part of said section. These trunnions are seated in bearings 9 which are preferably in the form of Y's opening upward, as illustrated in Fig. 7, and provided with an enlarged inner recess for receiving the head of the trunnion 8. The seat section 6, when in its normal position, is supported by two pairs of trunnions 10 and 11 located respectively near the front and rearward edges of said seat section. Each of the trunnions 10 and 11 is also seated in a Y bearing, so that it may be lifted from its bearing to permit the seat section to turn upon the other pair of trunnions. The trunnions 11 and their bearings are similar in construction to the trunnions 8 and the bearings 9. The detailed construction of the trunnions 10 and their bearings 12 is illustrated in Figs. 5 and 6.

The pads 13 which carry the trunnions 10 are provided with annular lips or flanges 14 concentric with the trunnions 10. Similarly, the bearings 12 are provided with annular lips or flanges 15 which loosely fit within flanges 14. Said flanges 14 and 15 are so disposed with respect to each other that the trunnions may be lifted from their bearings when the seat section is in its normal position, so as to permit of access to the bedding box as in Fig. 4, but said flanges are adapted to engage each other and prevent the possibility of accidental disengagement of the trunnions 10 from their bearings when the seat section 6 is in its forwardly extended position.

The front wall of the bedding box 2 is provided with a hinged flap 16 at its upper edge, which is normally urged to an upright position by its spring hinges 17 (Fig. 2), but which is adapted to swing back when engaged by the seat section when the latter is swung to its forwardly extended position, as in Fig. 3. This arrangement permits of mounting the trunnions 10 at a lower point on the seat section, since the seat section does not have to clear the upper edge of the bedding box when in its extended position.



In order to swing the back section to its lowered position through the movement of the seat section, the two are connected together by links 18, one at each end of the sofa. These are pivotally connected to the seat and back sections and are located within the space between the sofa sections and the end members 1. Said links are also preferably so formed as to lie entirely within the sofa space, so as to be hidden as much as possible by the upholstery. In the form shown, the links are connected to the trunnions 11 of the seat section and to suitably located pivots on the back section. In order to counterbalance the weight of the back section so that it will offer a minimum of resistance to the operation of converting the device from a sofa to a bed, and vice versa, the springs 4 are provided, whose function is apparent from the drawings.

The operation of the device shown is as follows:—To remove the clothes from the bedding box, the seat section 6 is lifted by means of the strap 19, as in Fig. 4. It is then lowered to its normal position and may afterward be swung forward to its extended position by means of the strap 20 at the rearward edge. As the links 18 are connected to the fulcrums 11, the back section is not affected by lifting the front edge of the seat section by means of the strap 19. When the seat section is swung forward by means of the strap 20, the back section is caused to swing on its trunnions 8, first slightly backward and then forward to its horizontally disposed position, as in Fig. 3. Folding legs 21, which may be of any usual construction, support the front edge of the seat section 6 when in its forward position. The flanges 14 and 15 prevent any possibility of the trunnions of the seat section being accidentally lifted from their bearings when said section is in its extended position. When the parts are in the bed position, as in Fig. 3, the springs 4 are extended and tend to return the back section 5 to its vertical position. These springs, however, are adjusted so as to be slightly overbalanced by the weight of the back section 5 when in its lowered position. As soon as the operator lifts the seat section to swing it back to its normal or sofa position, the springs 4, assisted by the thrust on the links 18, return the back section 5 to its vertical position. The swinging front rail permits the trunnions at the front of the seat section to be placed much lower than would be the case where the front rail is not movable. When the sections are in position for use as a bed, the links 18 rest upon a part of the respective trunnions 10, and said parts serve as stops for limiting the movement of said links. When in its horizontal position, the front part of the back section is supported by the links 18.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination of a supporting frame comprising a bedding box, a seat section mounted above said bedding box and forming a closure therefor, means supporting the rearward part of said seat section and adapted to permit the front thereof to be tilted upward for the purpose of getting access to said bedding box, and pivotal supporting means near the front of said seat section adapted to permit said seat section to be swung to an inverted forwardly extended position, said pivotal supporting means comprising parts adapted to interlock when said seat section is swung forward and thereby prevent accidental displacement of said seat section when in its forwardly extended position.

2. The combination of a supporting frame, comprising a bedding box, a seat section mounted above said bedding box and forming a closure therefor, means supporting the rearward part of said seat section and adapted to permit the front thereof to be tilted upward for the purpose of getting access to said bedding box, and pivotal supporting means near the front of said seat section adapted to permit said seat section to be swung to an inverted forwardly extended position, said pivotal supporting means comprising trunnions and bearings therefor, said bearings being open at one side to permit the trunnions to pass in and out in a direction transverse to the axis thereof, and said trunnions and bearings being provided with coacting shoulders adapted to prevent the trunnions from being disengaged from their bearings when said seat section is out of its normal position.

3. In a sofa bed, the combination of a supporting frame, a back section fulcrumed thereon near its lower edge and adapted to be shifted to a substantially horizontal position, a seat section fulcrumed near its front edge and adapted to be swung on its fulcrum to a forwardly extended position, a link pivotally connected to said back section and to said seat section, whereby the shifting of one of said sections will cause a corresponding shifting of said other section, and a stop on one of said sections adapted to engage said link when said sections are in their horizontally extended positions and thereby support the end of said back section which is distant from the fulcrum thereof.

4. The combination of a frame, a seat section fulcrumed thereon on a horizontal axis adjacent to its front edge and adapted to be turned to a forwardly extended position, a rail extending along said front edge, being hinged to the frame independently of the hinge connection of said seat section and adapted to swing inward when engaged by



said seat section, and means for returning said rail to its normal position when said seat section is turned back to its normal position.

5 5. The combination of a frame, a seat section fulcrumed thereon on a horizontal axis adjacent to its front edge and adapted to be turned to a forwardly extended position, a rail extending along said front edge, being  
10 hinged to the frame independently of the hinge connection of said seat section and adapted to swing inward when engaged by said seat section, and a spring normally urging said rail to its normal position.

15 6. A hinge for sofa beds, comprising a part provided with a trunnion, a second

part having therein a bearing for said trunnion, said bearing being open at one side to permit said trunnion to be withdrawn transversely therefrom when in a certain relative position, lips on said parts concentric with said trunnion adapted to engage each other and prevent the accidental separation of said trunnion and bearing when said parts are in different relative positions. 20 25

Signed at Chicago this 12th day of May, 1908.

RUDOLPH DEIMEL.

Witnesses:

E. A. RUMMLER,  
THEODORE G. WEYER.