

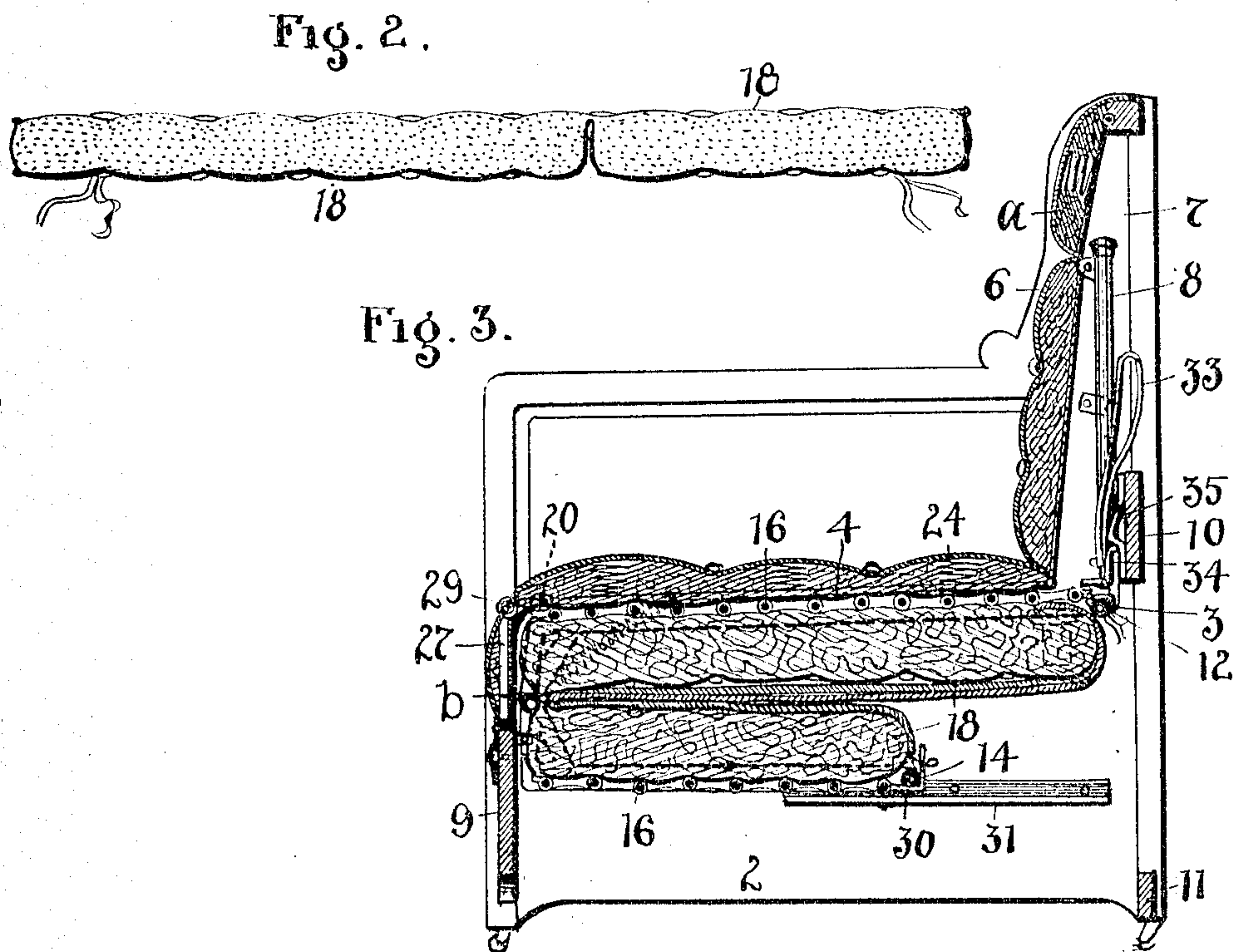
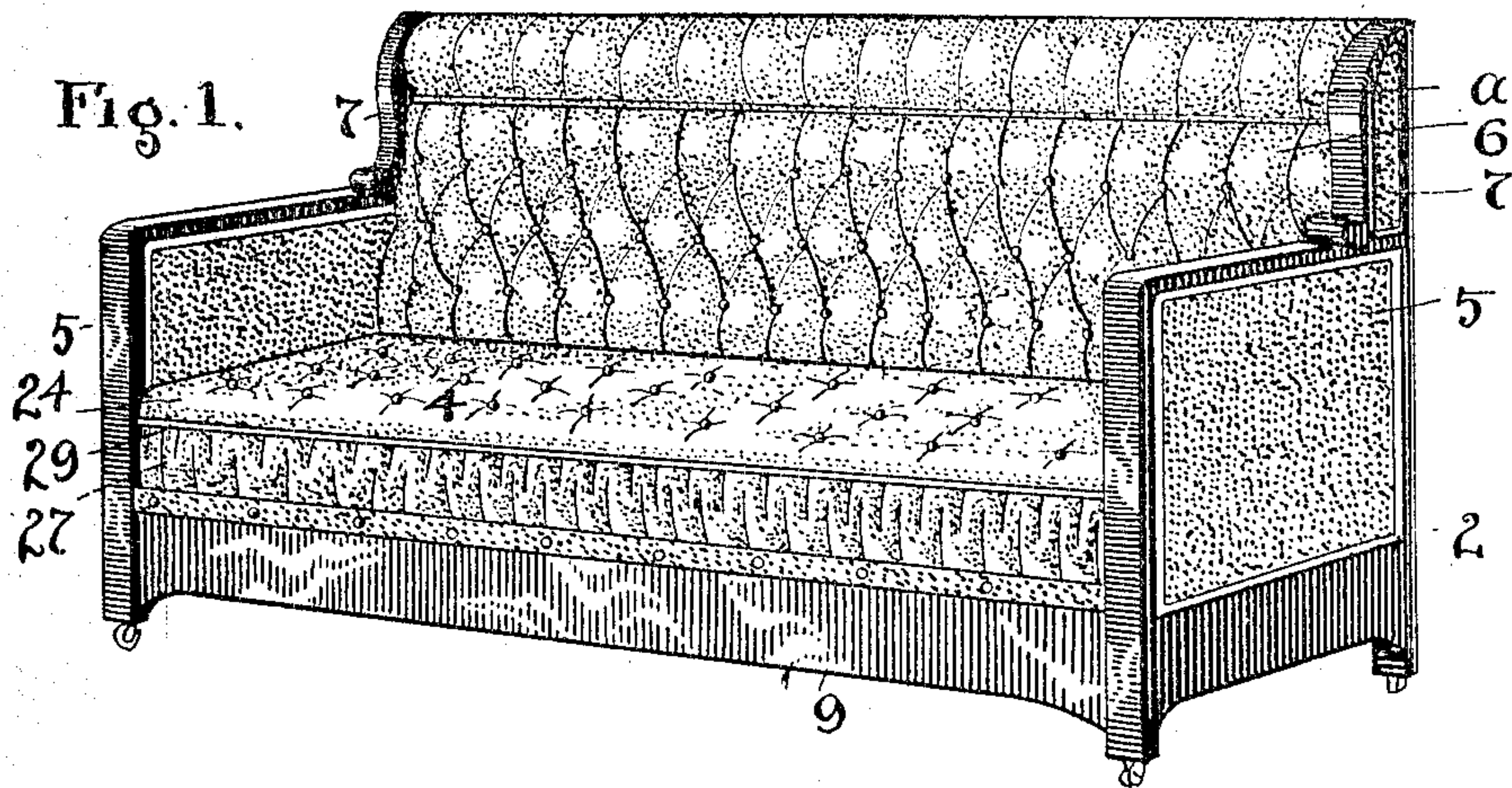
No. 871,181.

PATENTED NOV. 19, 1907.

D. T. OWEN.
COMBINED BED AND COUCH.

APPLICATION FILED OCT. 8, 1906.

4 SHEETS—SHEET 1.



ATTEST.
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4 SHEETS—SHEET 2.

Fig. 4.

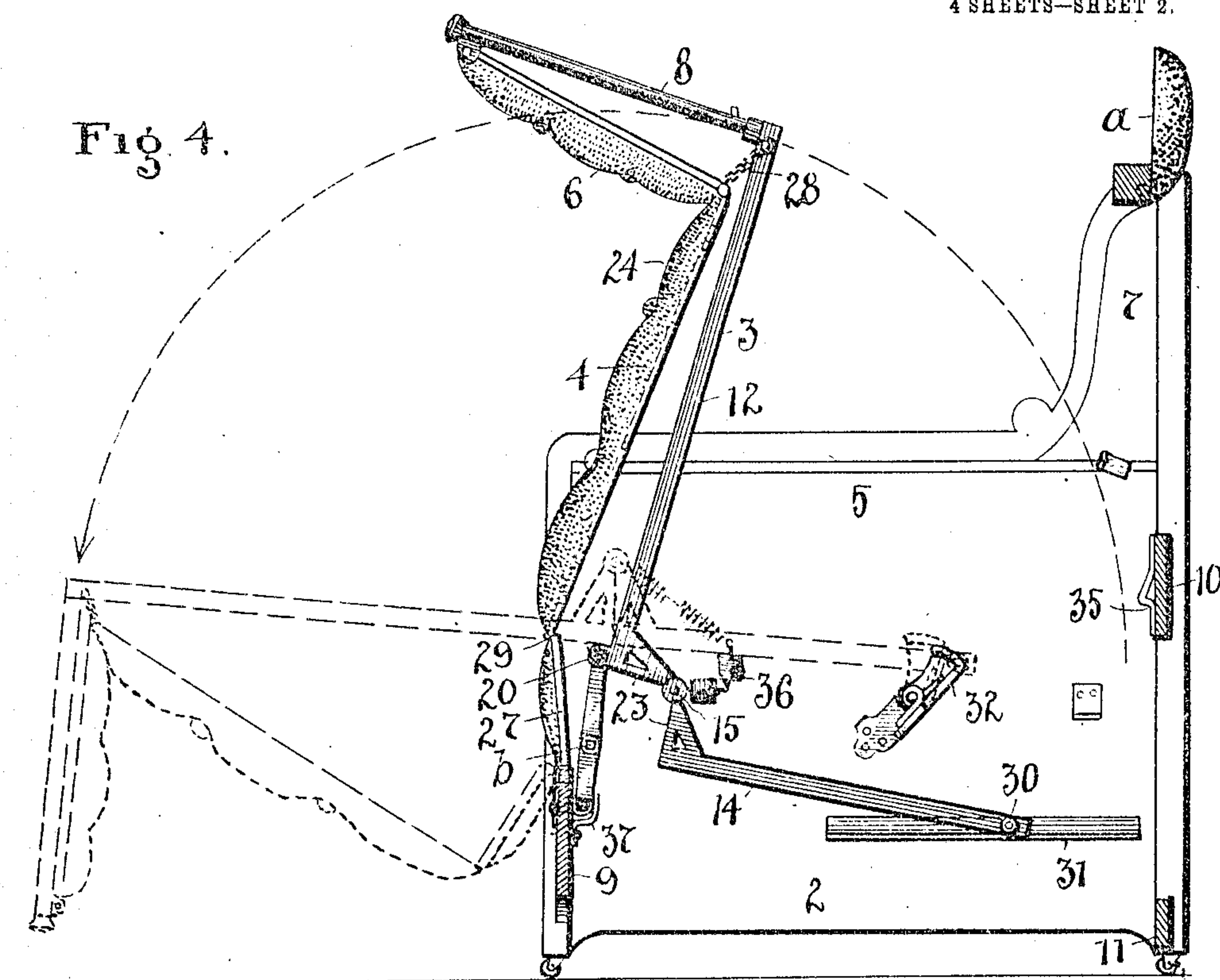
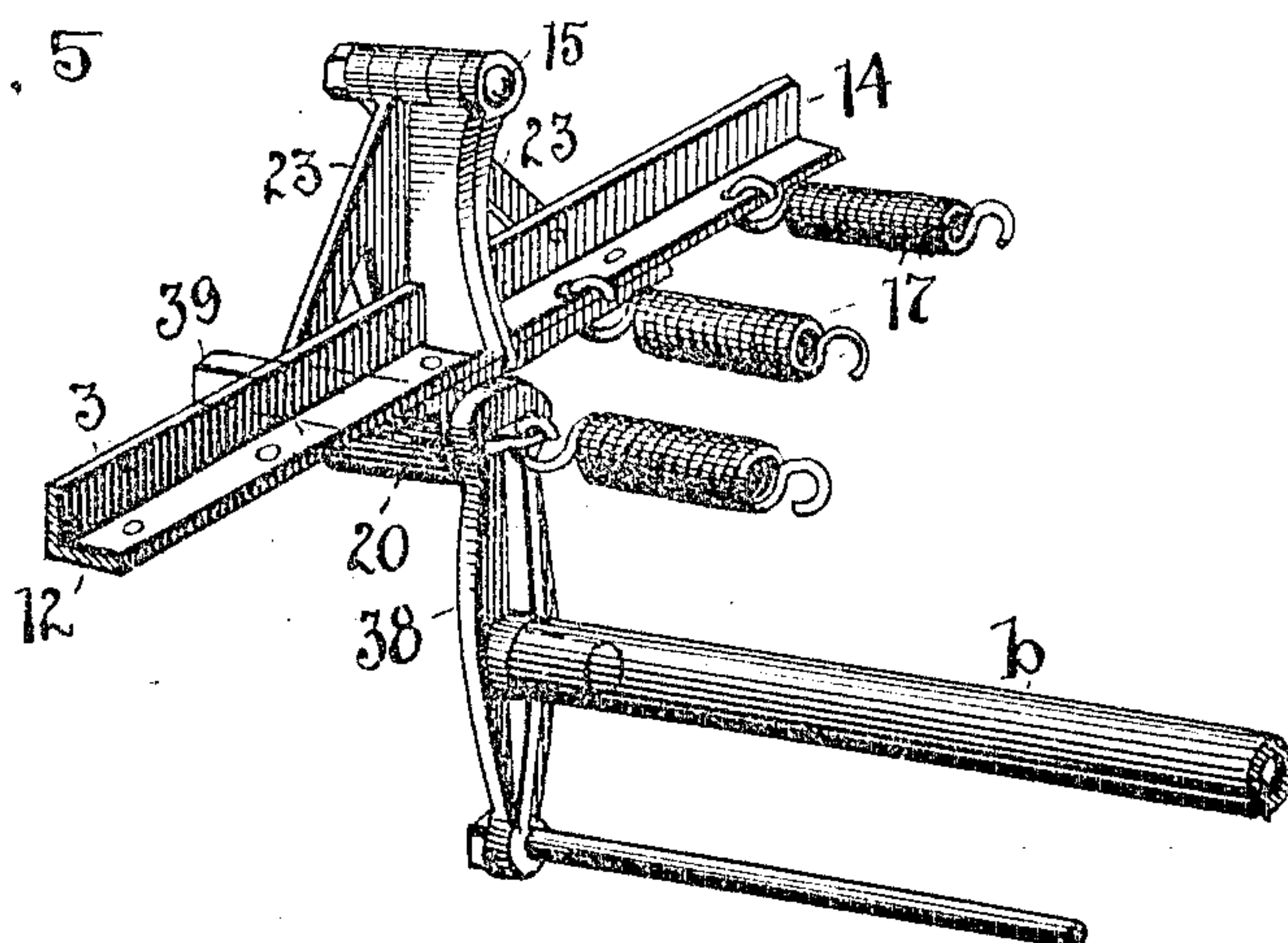


Fig. 5



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4 SHEETS--SHEET 3.

Fig. 6.

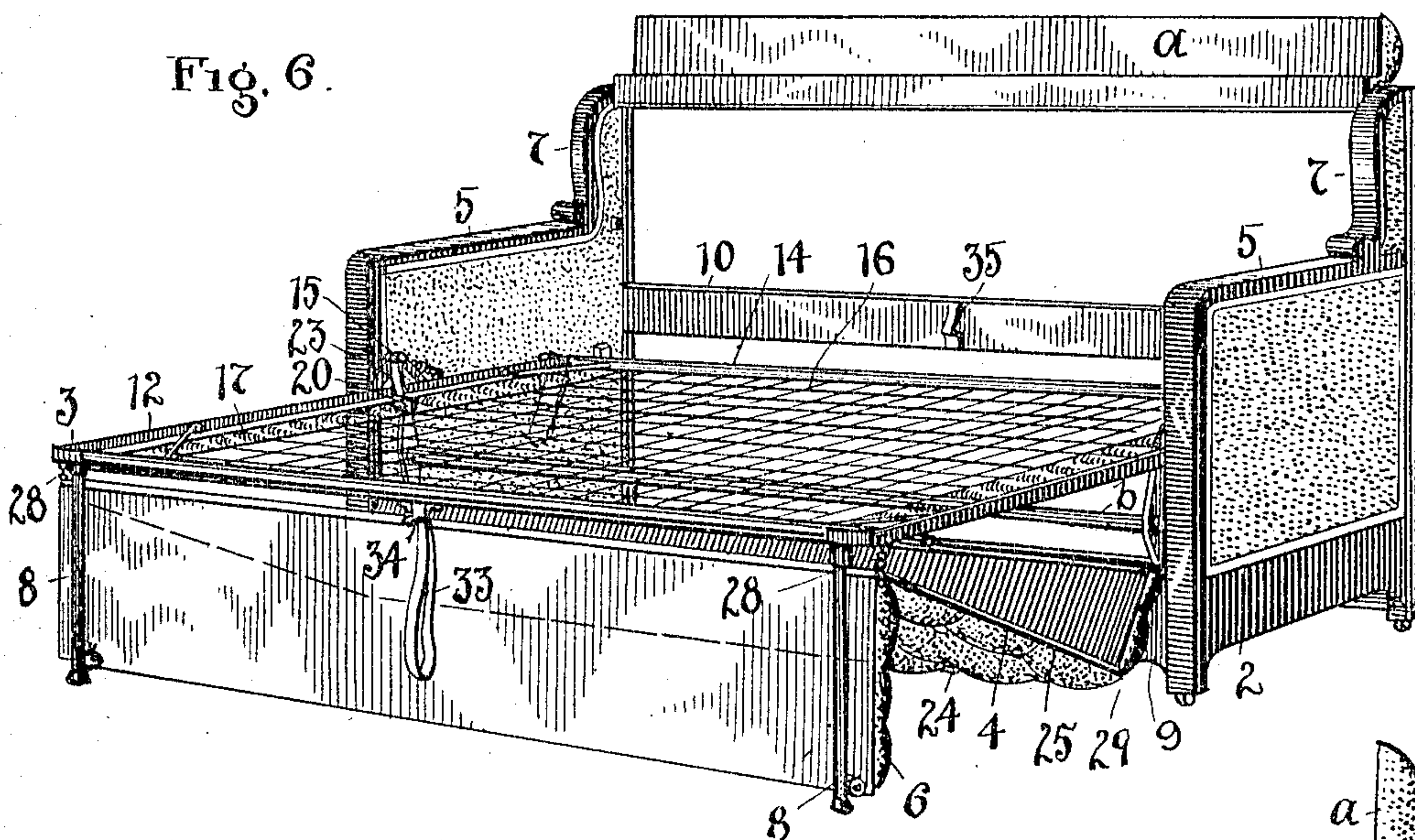
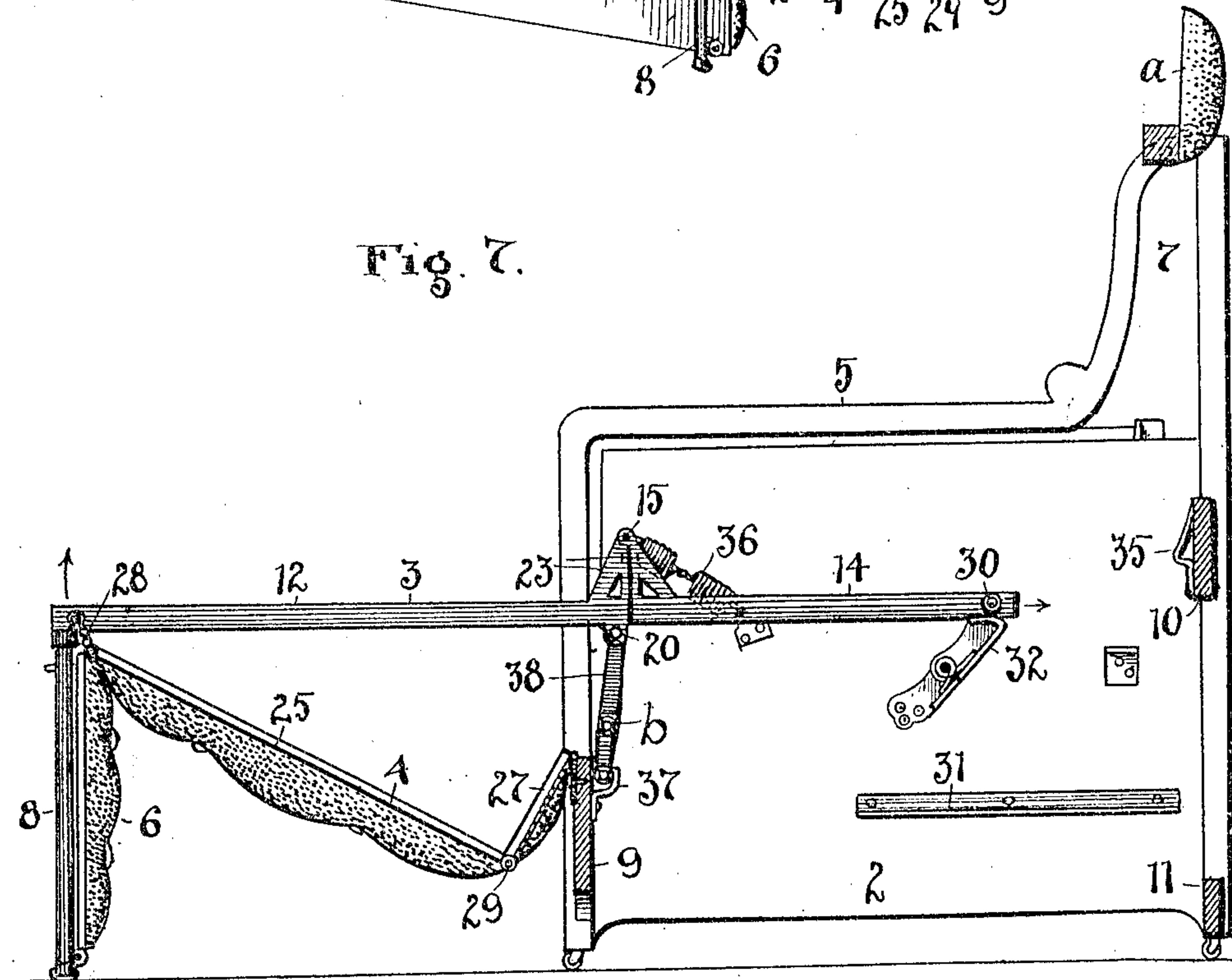


Fig. 7.



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4 SHEETS—SHEET 4.

Fig. 8.

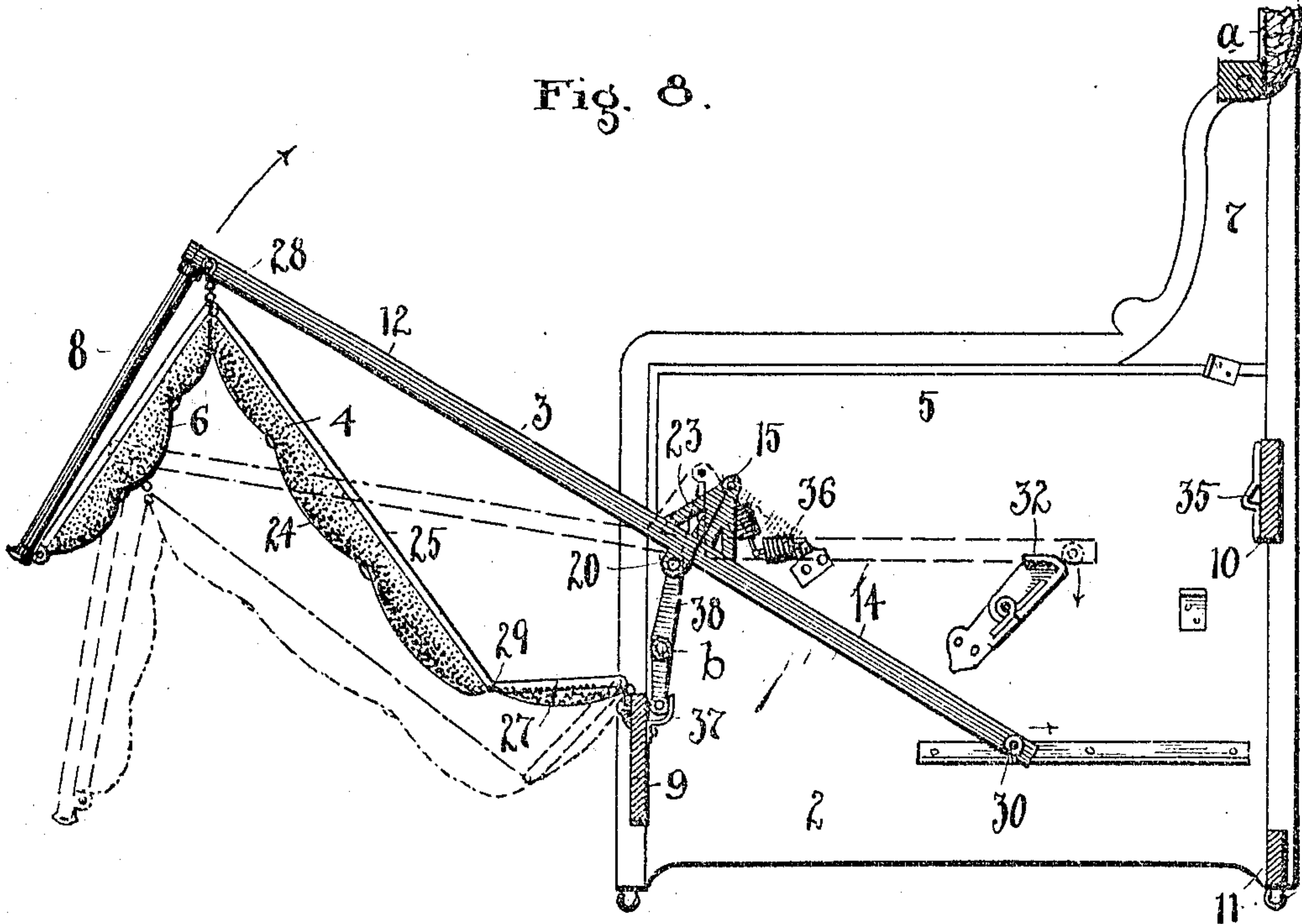
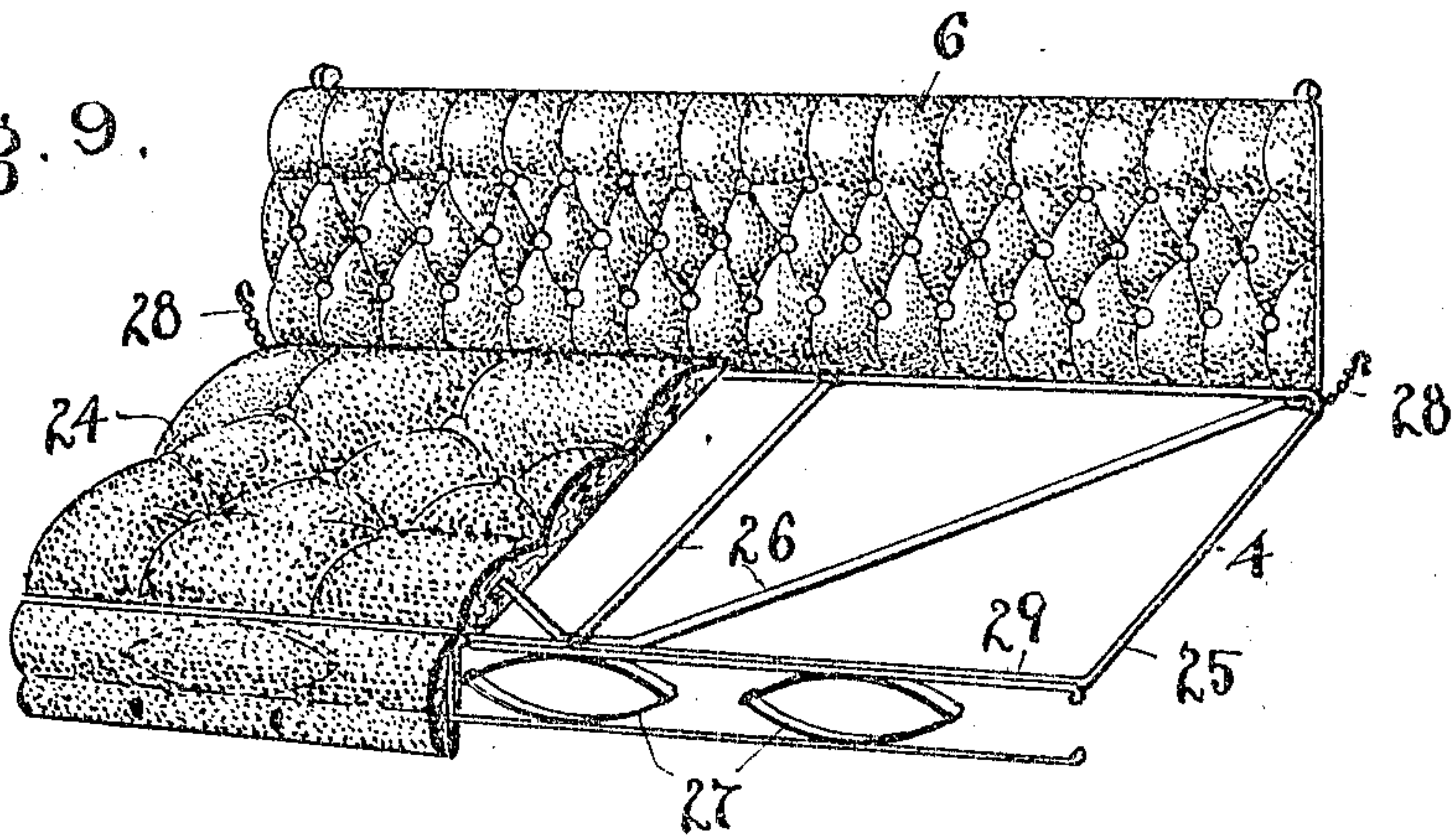


Fig. 9.



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UNITED STATES PATENT OFFICE.

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COMBINED BED AND COUCH.

No. 871,181.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed October 8, 1906. Serial No. 337,861.

To all whom it may concern:

Be it known that I, DAVID T. OWEN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Combined Beds and Couches; and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to combined beds and couches, and the invention is an improvement on the combined bed and couch shown and described in my application for Letters Patent of the United States, Serial No. 320,328.

An important object in the present invention is embodied in the arrangement of the bed-frame and its springs whereby adequate room is afforded for the mattress and bedding and whereby the mattress and springs combined provide for a comfortable couch seat.

Another novel feature of the invention rests in the separate upholstered spring to finish the couch seat and which is free from the bed-frame and is adapted to drop away therefrom when the parts are unfolded for use as a bed.

Other objects are embodied in other details of construction as will fully appear in the following detailed description of the invention.

In the accompanying drawings Figure 1 is a perspective view of my improved bed and couch as folded for use as a couch. Fig. 2 is an edge view of a stuffed mattress especially adapted for use with my invention. Fig. 3 is a central cross section of the invention folded as shown in Fig. 1. Fig. 4 is a cross section of the main frame and a side elevation of the bed frame showing the latter as partly unfolded and in full lines and as more completely unfolded in dotted lines and without the mattress. Fig. 5 is a perspective view of a portion of the bed-frame showing the details of construction of the primary and secondary pivots and cross brace. Fig. 6 is a perspective view of the invention unfolded for use as a bed but with the mattress removed. Fig. 7 is a cross section and end elevation of the parts unfolded as in Fig. 6.

Fig. 8 is a similar view to Figs. 4 and 6 except that the parts are shown in full and dotted lines in the positions assumed when folding the same from bed to couch. Fig. 9 is a perspective view partly sectioned away of the upholstered spring frame for the couch seat.

The main elements of this invention comprise main frame 2, folding bed frame 3, and the separate upholstered spring frame 4 for the couch set at. Main frame 2 may be variously modified from the design or form shown, but as shown and upholstered the design is of the so-called davenport type of couch having arm rest ends 5 and a cushioned back 6 with head rest *a*. In this instance, head rest *a* is pivotally mounted on upright portions 7 of ends 5 and is adapted to be raised as seen in Fig. 6 to permit unfolding of the bed-frame, especially as respects fixed legs 8 thereon which project upward behind back—6—and are concealed thereby when the parts are all folded for use as a couch. Front and rear rails 9, 10 and 11, respectively, connect ends 5 and all together make a rigid support and inclosing frame for the bed and seat frames.

Bed-frame 3 is made up of two metal sections 12 and 14, respectively, hinged together at 15 at each end side of the bed proper, and said bed frame is open throughout except for the spring-mesh bottom 16 which is stretched between its ends. Any suitable spring bed-bottom may be employed but preferably one of no appreciable thickness, such as a wire mesh having helical springs 17 at its ends which are adapted to connect with the end rails of the bed frame 3 as shown. In view of the fact that bed frame 3 is comprised of two foldable sections adapted to be spaced apart from each other when folded it follows that the spring bed bottom is also made in two sections, one for each bed-frame section. A separate bed-mattress 18 also formed of two parts and preferably united by a hinge like connection, although not necessarily so, is adapted to rest upon bed spring bottom 16 as a whole when bed-frame 3 is unfolded and is also adapted to fold one part upon the other between the two sections of the spring bottom when bed frame 3 is folded. The usual bed linen and covers may also be folded in be-

tween the mattress sections when the bed is made up in the morning and the bed is converted into a couch.

Bed frame 3 and the parts carried thereby are adapted to fold and unfold as described, by reason of certain details of construction embodying a primary pivot support 20 for bed-frame 3 and the secondary pivot or hinge connection 15 between the two bed-frame sections, 12 and 14, respectively. Thus, each of said bed-frame sections has a hinge member 23 projecting at right angles to the plane of the bed-frame and pivot connection 15 is made at their meeting extremities, thereby permitting said members to abut when the bed-frame is unfolded and thus alining both of said sections on the same plane. When said bed-frame sections are folded one upon the other, the location of their pivot connections necessarily spaces them apart to lie on different planes.

Primary pivot 20 is preferably located at the front of main frame 2 on ends 5 and may be a trunnion connection, as shown, or some other suitable pivot arrangement, which will adapt bed-frame section 12 to swing upward and outward from the main frame when unfolded. The location of primary pivot 20 in bed-frame section 12 is preferably at a point approximately opposite pivot connection 15 near the joint line of the bed-frame sections, and also at a point near the plane line of bed-frame 3. One advantage of this pivot arrangement is that both the seat and the bed bottom are brought to the proper planes for their respective uses. Another advantage is that the folding and unfolding of the parts is accomplished by swinging only one section, no mechanism being required to jointly operate both sections to and from their two positions of rest. A further advantage is that both bed springs sections when folded come into play and combine with the mattress to form a spring cushioned couch seat, and on the other hand when the bed-frame is unfolded the bed spring bottom is perfectly free and unobstructed to play as usual under load. This latter feature is further provided for by the construction and arrangement of upholstered seat frame 4. Thus, said frame 4 comprises a spring wire border portion 25 trussed by spring rods 26 centrally between its ends, and a further spring frame 27 at the bottom front edge of frame 4 completes said structure, especially when all said parts are flexibly united by a covering of fabric 24 or the like which may be padded to give the necessary upholstered finish to the top and front of the couch seat. When bed-frame 3 is folded it is inclosed top and front by upholstered frame 4 which is adapted to rest free thereon and upon one section of the bed spring bottom 16. Detachable connections

28, preferably flexible, are provided at the rear of frame 4 to secure the same to the rear end of bed frame 3, and the bottom edge of the upholstering on the front spring frame 27 is also preferably buttoned or detachably connected with the front rail 9 of main frame 2.

It will be understood that one of the essential requisites of a couch seat is to have a comfortably yielding front edge which when free from load will always come to a straight line from end to end of the couch. A perfect upholstered seat requires that the fabric be drawn tightly on its frame and this tends to draw front edge 29 inward or out of line, and also causes it to sag down at its center. Truss 26 effectually prevents the inward movement without nullifying the desired downward yield to the front edge, and springs 27 yieldingly maintain said edge upward on a straight line and prevent it from sagging. The flexible and hinge like connections between main frame 2 and bed-frame 3 and seat frame 4 permit said upholstered seat frame to drop away from the bed-frame and bed-bottom when unfolded. The seat frame 4 may also be bodily removed to dust and clean it whenever needed.

Now, referring more particularly to the means for supporting bed-frame 3 in its two positions, it will be seen that when said bed-frame is folded upon itself, primary pivot 20 on main frame 2 is its support at the front, and a set of rollers 30, one upon each end rail of rear bed frame section 14 serve to support it at the rear because said rollers are adapted to rest and ride on a track or ledge 31 upon the inside of each main frame end 5. These same rollers 30 also support rear section 14 of bed frame 3 when unfolded as they are adapted to engage and lie upon pivotal spring pressed rest members 32 which are fastened, one at each side, to ends 5 on a higher plane than tracks 31.

Now, assuming that the couch is folded as seen in Fig. 1, and it is desired to convert the same into a bed, the first step is to swing head rest 6 up and out of the way. This being done, the operator grasps strap 33 attached to a pivoted spring lock 34 on bed-frame section 12 and which lock is adapted to engage a shoulder piece 35 on rear rail 10, to hold the bed-frame down and folded as against the upward pressure of the mattress and bedding which is presumably compressed to a greater or less extent. This upward pressure is also produced to a somewhat greater extent by a pair of connected helical springs 36 attached to ends 5 and bed-frame 3 at pivot 15 and which help to raise and unfold said parts and relieves the pulling strain upon the operator.

A pull upon strap 33 first releases lock 34 from shoulder piece 5 and then raises the free end of bed-frame section 12 which swings on

primary pivot 20, the full movement covering an arc of 180 degrees before legs 8 rest upon the floor. During the first part of this movement bed section 14 is carried rearward within frame 2, its rollers 30 riding on tracks 31 and this action is caused by the crank like relation between pivot 15 and primary pivot 20. As unfolding of bed frame 3 progresses say from the position shown in Fig. 4, pivot 15 travels on an arc upward and forward, thus raising one portion of bed-frame section 14 and causing it to reverse its previous movement until members 23 abut, as in Fig. 8. When this occurs, the two bed frame sections and spring bottom sections carried thereby as well as the mattress thereon are on the same plane and form a complete full sized bed, and all move together uniformly on primary pivot 20 until level with the floor. During the latter part of this unfolding movement, rollers 30 engage and press back pivoted spring rests 32 and ride to the top or above the same, and then said rests spring back beneath the rollers at the completion of the movement. The bed is now completely unfolded as seen in Figs. 6 and 7, and the couch seat frame 4 has dropped away, and a perfect bed bottom is disclosed which is supported at the front on fixed legs and at the center on its primary and secondary pivot connections and at the rear rests on the main frame.

The reverse of the movements above described necessarily follow in converting the bed back to the couch form but with one notable exception. Thus, when bed-frame section 12 is first raised pivot 15 travels rearward and downward thereby separating the bed-frame sections at their joint or meeting line and this movement rides rollers 30 on section 14 free of rests 32 thereby permitting section 14 to drop at its free end until hinge members 23 abut again and as seen in full and dotted lines, Fig. 8. Then, when said rollers strike tracks 31 the folding together of said bed-frame sections is automatically brought about by merely swinging section 12 back to an inverted position within couch frame 2. I also show a trussed brace *b* pivotally connecting bed-frame 3 between its opposite primary pivots 20, and this brace guards against excessive inward strain upon the bed-frame especially at its pivoted ends. Said brace remains substantially in the same position throughout the folding and unfolding of the bed-frame, a clip 37 on front rail 9 holding it practically stationary.

Primary pivots 20 are in reality round trunnions which project outwardly from end pieces 38 of brace *b* and which have squared or flattened ends 39 adapted to rest in openings in ends 5 of couch frame 2 or in suitable keepers fastened on the inside of said frame ends.

In some types of davenport couches I pre-

fer to support back 6 upon legs 8, as shown, and in this event said back will swing and unfold with section 12 and seat frame 4.

What I claim is:—

1. In a combined bed and couch, a couch seat cover comprising an upholstered spring frame with a front spring edge braced against inward movement at its center and spring pressed from below to maintain a straight horizontal line.

2. In a combined bed and couch, a main support and a bed-frame in two parts pivotally engaged therewith, said bed-frame parts pivotally connected to unfold on the same plane and to fold upon each other on different planes, a spring bottom for each bed-frame part, a mattress adapted to rest upon said bed bottom and to fold therewith, and rests for the free ends of said bed-frame when in folded and unfolded positions.

3. In a combined bed and couch, a main support and a two part bed frame having primary pivot connections with said support and secondary pivot connections with each other whereby said bed-frame parts are adapted to unfold to the same horizontal plane and also to fold upon each other with a space between for a mattress and bedding, spring bottom sections for said bed frame, a mattress for said spring bottom, rests for the free ends of said bed-frame when in folded and unfolded positions, and a separate couch seat cover adapted to be freed from said bed-frame when unfolded.

4. In a combined couch and bed, a two part frame having a shouldered hinge connection and a pivot support for said frame adapting one of said parts to be inverted and whereby the other part is folded and unfolded, a spring bottom for said parts combining to make a spring seat for the couch and a spring bottom for the bed, rests for said frame when folded and unfolded, and a separate couch seat cover adapted to be removed from said spring bottom.

5. In a combined bed and couch, a main support and a two part bed-frame having a primary pivot connection with said support and secondary pivot connections with each other located at one side of the said primary pivot, a spring bottom for said bed-frame and a brace centrally between the ends of said bed-frame adapted to take up the strain of said spring bottom at said pivot connections.

6. A main support and a combined seat and bed frame comprising a pair of three sided sections hinged together at their meeting ends and having one of said sections pivotally mounted on said support and the other free to move therein during folding and unfolding, a brace member pivotally engaged with said sections at their hinged ends, and a spring bottom mounted within said frame.

7. A main frame and a combined seat and bed frame pivotally mounted thereon and adapted to be bodily moved therefrom, said bed frame comprising a pair of sections fold-
 5 ably connected and having bracing means between their connections adapted to lie on a lower plane than said sections when unfolded, and a flat spring bottom stretched within the borders of said bed frame.

10 8. In a combined bed and couch, a main frame, and a foldable bed frame comprising two sections hinged together and having a spring bed bottom stretched within its borders, in combination with a brace member
 15 between the ends of said bed frame having trunnions at its end adapted to rotatably support said bed frame upon the main frame.

9. In a combined bed and couch, a main frame, and a foldable bed frame comprising
 20 two sections having right angled ends and hinge connections therefor adapting said sections to be unfolded from two different planes to the same plane, in combination with a truss member having rotatable engagement with
 25 said sections and having projecting ends adapted to be mounted upon the main frame.

10. In a combined bed and couch, a main frame having a set of rests, and a bed frame bottom comprising foldable sections provided
 30 with a central depending truss member having its ends engaged with said rests and adapted to rotatably support said bed frame.

11. In a combined bed and couch, a main frame, and a bed frame bottom comprising a
 35 pair of foldable sections hinged together at their meeting ends, in combination with a truss member having end pieces with projecting trunnions rotatably engaged with one of said sections and said trunnions having
 40 angular ends adapted to be engaged with said main frame.

12. In a combined bed and couch, a main frame and a two part bed frame having one
 45 part pivotally engaged with said main frame and the other part free to move in respect thereto and hinged to the first part for joint folding and unfolding, a spring bottom for said bed frame adapted to fold and unfold
 50 therewith, a separate mattress adapted to fold upon itself between said spring bottom when the same is folded together, and a separate spring seat adapted to rest upon said parts when folded, said spring seat combining with the doubled spring and doubled mattress

therein to provide a soft couch seat with a 55 yielding and compactly formed front seating edge the full length and depth of said parts.

13. In a combined couch and bed, a main frame, a combined seat and bed frame having a flat spring mesh bottom and comprising
 60 two sections pivotally connected at one side of the planes of their bottoms and one of said sections pivotally mounted upon said main frame and both said sections jointly operative and free to swing within said main frame,
 65 rests on said main frame for both said sections, legs for one of said sections, and a separate couch seat adapted to rest upon said bed frame when folded and having a yielding front edge portion depending there-
 70 from and secured to said main frame.

14. In a combined bed and couch, a main frame, and a foldable combined seat and bed frame having a spring bottom, in combina-
 75 tion with an upholstered spring seat removably mounted upon said bed frame and having a detachable hinged connection at one edge with said bed frame and a hinged at-
 80 tachment with said main frame at its other edge.

15. In a combined bed and couch, a main frame and a foldable bed frame having a spring bottom, in combination with an up-
 85 holstered seat removably mounted upon said bed frame, and flexible connections detachably securing said seat at its rear edge to the bed frame, and said seat having a front portion hinged thereto and to said main frame.

16. A main frame, and a combined seat 90 and open bed frame comprising a pair of similar rail sections having end meeting rails provided with projecting members having pivot connections at their outer ends, a spring bottom for said bed frame, a pivot
 95 connection for one of said sections engaged with said main frame, a set of folding springs engaged with said main frame and bed frame, rollers upon one of said sections, and a set of rests at different elevations upon said
 100 main frame for said rollers.

In testimony whereof I sign this specification in the presence of two witnesses.

DAVID T. OWEN.

Witnesses:

R. B. MOSER,
 C. A. SELL.