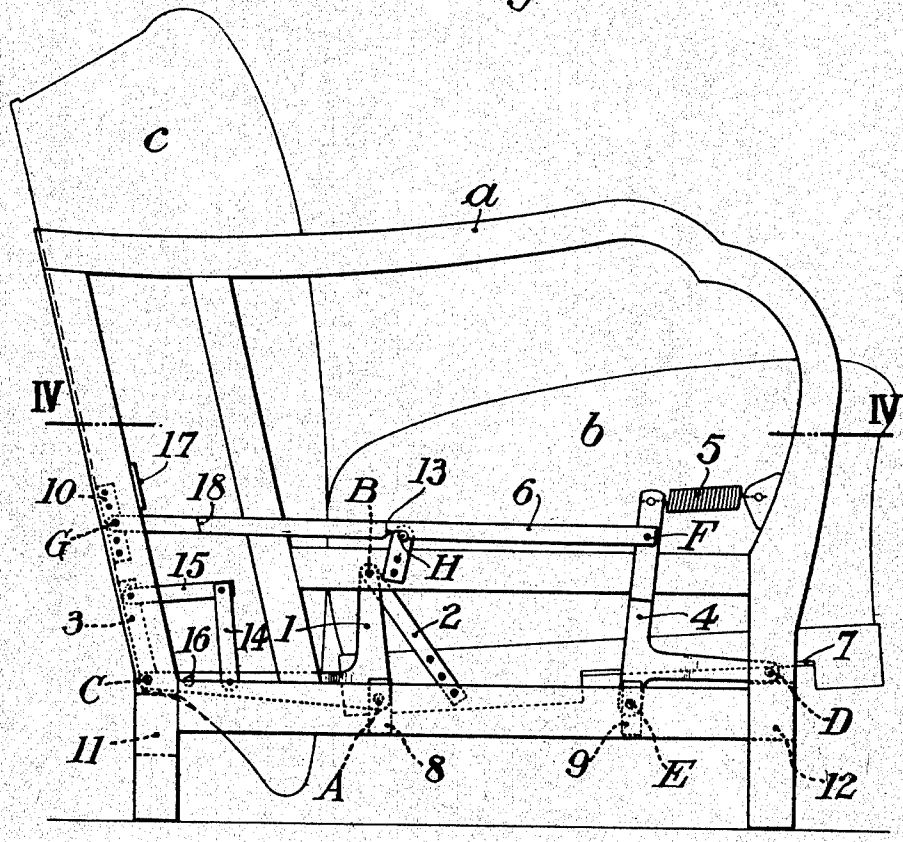
Aug. 9, 1938. A. DUCROT 2,126,098

RECLINING ARMCHAIR

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Fig. 1



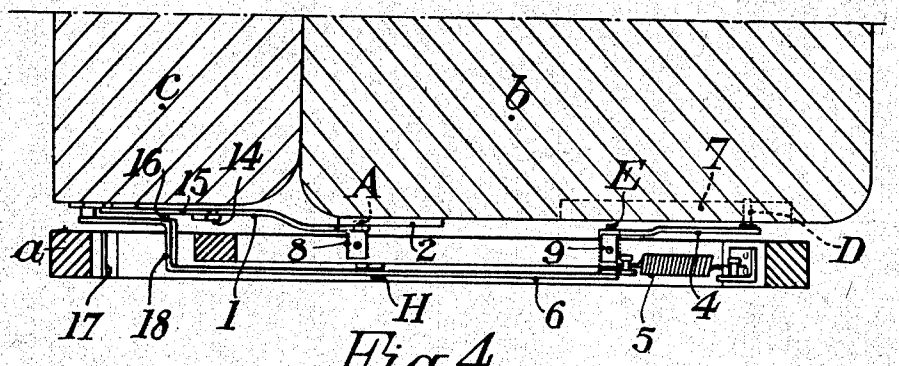


Fig. 4

A. Ducrot
INVENTOR

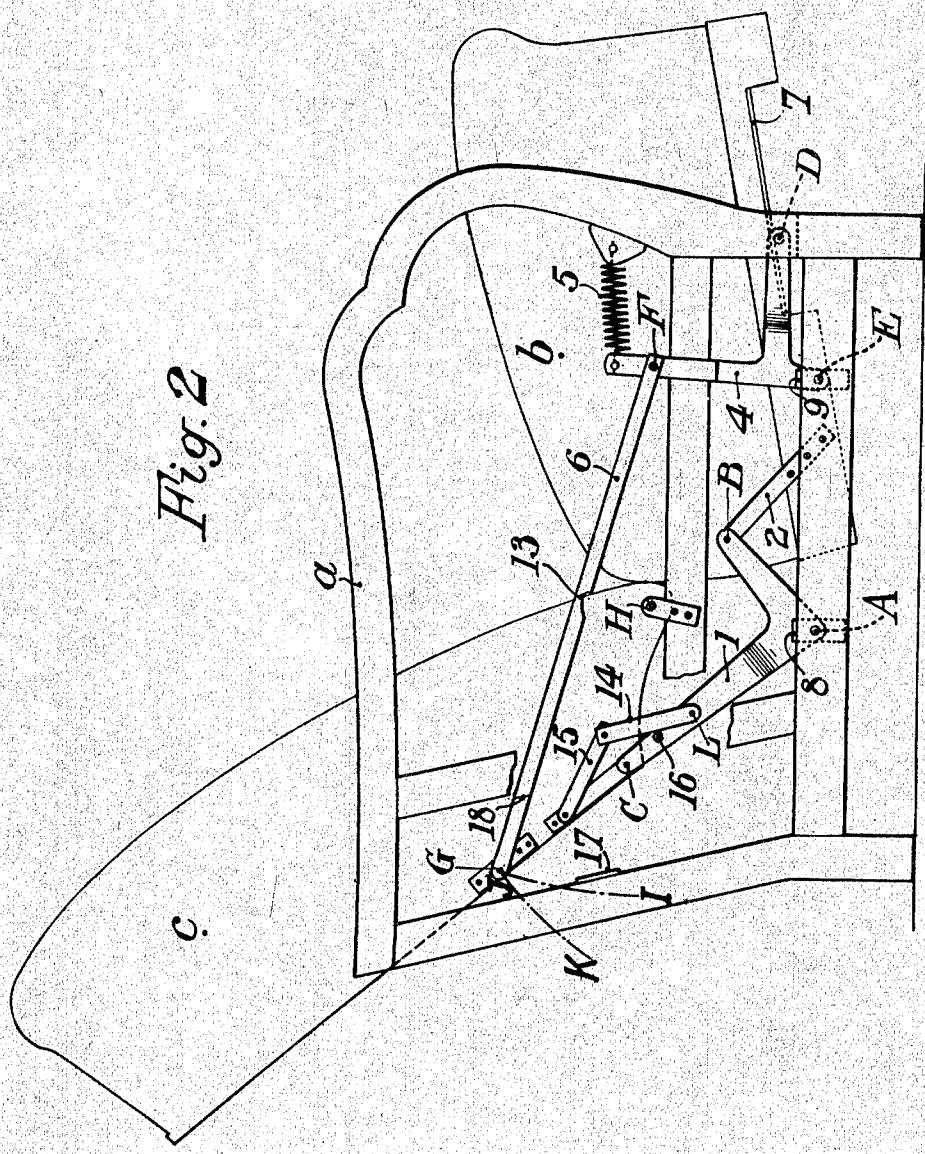
By Glascock Downing & Seebold
Attys.

Aug. 9, 1938. A. DUCROT 2,126,098

RECLINING ARMCHAIR

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Fig. 2



A. Ducrot
INVENTOR

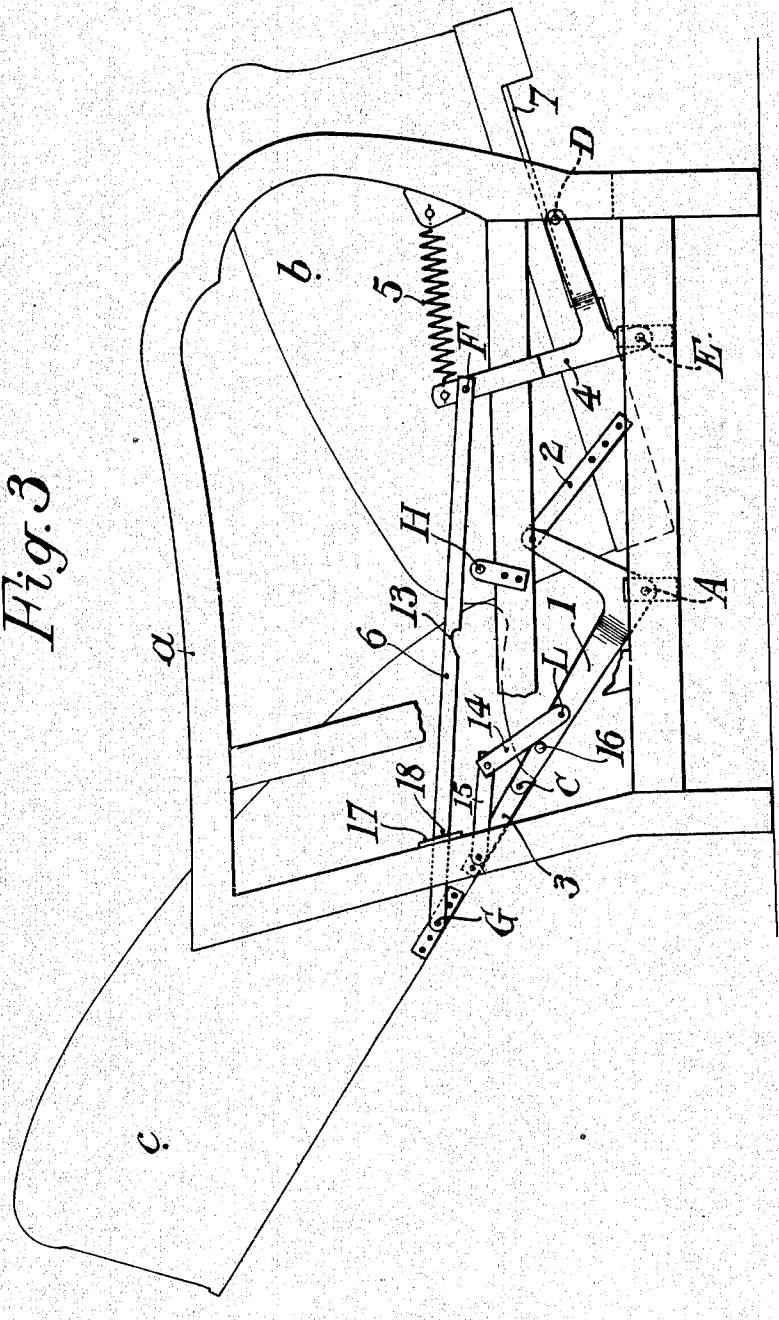
By: Glascock Downing & Seibold
Attys.

Aug. 9, 1938. A. DUCROT 2,126,098

RECLINING ARMCHAIR

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Fig. 3



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Patented Aug. 9, 1938

2,126,098

UNITED STATES PATENT OFFICE

2,126,098

RECLINING ARMCHAIR

Albert Ducrot, Paris, France

Application February 25, 1937, Serial No. 127,787
In France February 26, 1936

3 Claims. (Cl. 155—116)

This invention relates to a reclining arm-chair, so constructed that it can be used alternately as an ordinary arm-chair having a low and slightly inclined back, as a resting arm-chair having an extended and more inclined back, and, finally, as a couch which can assume at will a series of variable positions and on which the user can lay down nearly horizontally. These transformations are very easily obtained without the help of any special operating member, owing to joint, connection and guide means suitably combined with the seat, the back and the stationary main frame work of this arm-chair.

The arrangement of these members is such that, in the "ordinary arm-chair" position, the seat is substantially horizontal and the back nearly vertical, its lower part being placed behind the seat, and that the simple swinging of this back, from this position, automatically causes the seat to be moved forwardly at the same time as the inclination of the seat and back is increased; this result is moreover already obtained in reclining arm-chairs such as those forming the subject-matter of French Patents Nos. 714,601 and 717,012 in the name of the applicant.

For that purpose, the rear of the seat is connected to the bottom portion of the back, on either side, in the known manner, by means of a bell crank lever pivoted at the bottom on the main framework.

But the back, instead of being connected to the main framework by simple inextensible links, rigidly limiting its backward tilting, is now connected to this framework through the medium of springs or other resilient devices, so that it can be tilted very far backwards (couch position).

The dimensions and relative positions of the various connecting members are so determined that in each of its three positions of use, the arm-chair is in a stable condition, that is to say the passage from one position to another cannot accidentally take place.

A form of construction of an arm-chair according to the invention will be described with reference to the accompanying drawings given by way of example only.

Figs. 1, 2 and 3 are side elevations showing the arm-chair in its three positions of use, the main framework being shown bare so as to allow the mechanism to be seen.

Fig. 4 is a partial horizontal section made along line IV—IV of Fig. 1.

a designates the main framework, *b* the seat and *c* the back.

On either side, the main framework supports, by means of a pivot A, a bell crank lever 1, having branches of unequal length and one end of which is pivotally connected at B to the seat, and the other at C on the back. The pivot B is arranged near the rear of the seat and is carried by an iron strap 2 secured to the seat frame.

The pivot C is arranged at the lower end of the back and is carried by an iron strap 3 secured to the back frame.

The front of the seat is supported, on either side, by a pin D carried by one arm of a second bell-crank lever 4 pivoted at E on the main framework and having its other arm connected, on the one hand, to the said framework by a spring 5 and, on the other hand, to the back by a link 6 pivotally connected at F to this lever and at G to the back-frame.

The seat rests on each pin D through an iron strap 7 which is secured to the frame of the seat and can slide on this pin; the latter can, if necessary, be provided with a roller in order to reduce friction when said pin contacts with this iron strap.

The pivots A and E are carried by iron straps 8 and 9 secured to the main framework and the pivot G is carried by an iron strap 10 secured to the back frame at some distance above the pivot C. In the ordinary arm-chair position (Fig. 1), the bell crank lever 1 is so placed that the pivot B is located above and slightly to the rear of pivot A, and the pivot C is situated to the rear of the latter and nearly level therewith. The back is thus in its lowest and most erect position, its lower part, situated behind the seat and against the latter, and resting on the rear cross member 11 of the main framework; at the same time, the seat is held nearly horizontal owing to the fact that its rear part is lifted nearly to the maximum by pivot B, whilst the pins D on which it rests at the front are in their lower position.

In this position, the back is held erect by the stretched springs 5 and the links 6 and could be tilted backwards only by causing lever 4 to rock so as to lift the front of the seat and, consequently, that portion of the weight of the person seated thereon acting in front of the pivots A. However, in order that the back should resist with even greater certainty the thrust of the back of the user, the lower edge of each link 6 is provided with a notch 13 which, in the position shown in Fig. 1, is in engagement with a stop-

pin H secured to the main framework and thus the pin and notch rigidly prevent any backward displacement of pivot G.

It is to be noted that the weight of the user tends to hold the seat in place, owing to the fact that the pivot B is located slightly behind the pivot A, so that there is no risk of the seat being accidentally moved forward and thus causing an unvoluntary lifting of the back through the medium of the bell crank lever 1.

To alter the device from the ordinary arm-chair position shown in Fig. 1 to the resting arm-chair position (Fig. 2), it suffices to lift the back and to then push it backwards. The lifting of the pivots G and C has the effect of releasing the notches 13 from the stop-pins H and causes the bell crank lever 1 to pivot, thus moving the pivots B forwardly and downwardly. The seat thus moves forward by sliding on the pins D and is inclined backwards; at the same time, the levers 4 retained by the weight of the seat and by the pull of the springs 5 prevent the links 6 and pivots G from moving backwards, so that the inclination and lifting of the back depend on the displacement of the pivots C about the pivots A.

The tilting angle of the back relatively to the seat is limited, independently of the connection by the links 6 and bell crank levers 4, by means of abutment devices comprising, in this example, an arm 14 pivoted at L on each bell crank lever 1 and connected, by a link 15, to the back, so that upon tilting of the latter, the arm 14 abuts against a lug 16 rigid with the lever 1 and thus limits the angle of rotation of the back about the pivot C.

The user can thus rest against the back at the same time as on the seat without causing the angle formed between these members to become greater. Their position is maintained in a stable manner by the tension of the springs 5.

To pass from this resting arm-chair position to the couch position (Fig. 3), it is only necessary for the user to cause a sufficient portion of his weight to bear against the back, thus compelling the unit constituted by the back and the seat, to rock about the pivots A by stretching the springs 5.

In the example illustrated, this backward rocking movement is limited by rubber or like abutments 17, on which bear bent portions 18 of the links 6, but it is to be understood that it is possible to obtain, if desired, a more accentuated backward rocking movement. In each position obtained by rocking movement about the pivots A and E, the balance of the structure is ensured by the tension of the springs 5, balancing the difference of the torques of reverse directions exerted by the weight of the user on the back and the seat.

It is to be understood that, without departing from the scope of the invention, the forms and details of construction of the various parts of the arm-chair can be modified, that the connection and guide means described can be replaced by any other equivalent means, for instance the pivots G of the back can be guided according to the path indicated by the broken line IJK and which is imparted to them by slides of similar shape secured to the framework, the links 6 being then dispensed with and the springs 5 being attached to other points of the framework for directly acting on the back; the opening of the angle formed by the seat and back can also be limited by any other means than those illustrated; a tension spring can also be attached, on the one hand, to the rear of the frame of the seat and, on the other hand, to the front cross member of the framework, in order to facilitate the forward displacement of the seat and, consequently, the lifting of the back.

I claim:

1. In a reclining arm-chair, the combination of a stationary main framework, a movable seat, a movable back, bell cranks pivotally connected respectively on both sides of said stationary framework, said bell cranks each including two arms, one of which is pivoted to the rear end of said seat while the other arm of each bell crank is pivoted to the lower end of said back, other bell cranks pivotally connected to said framework at each side of said arm-chair and each including two arms, one of the arms of the last mentioned bell cranks having a projection bearing on the underside of the front end of the seat and a link having one end pivoted to the other arm of each of said last mentioned bell cranks and the other end pivoted on said back.

2. A reclining arm-chair as claimed in claim 1, in which a stop pin is secured to the main framework and in which the lower edge of each link is provided with a notch which, in the erect position of the back, is in engagement with the stop pin, said notch being released from said stop-pin on the lifting of the back.

3. A reclining arm-chair as claimed in claim 1, in which abutment means is provided on the framework for limiting the pivoting movement of said back relative to said bell cranks when said back is lifted and inclined towards the rear side, springs for normally pulling the said back and said bell crank levers towards the front end of the framework, one end of each spring being connected to the main framework and the other end of each spring to the adjacent arms of the last mentioned bell cranks.

ALBERT DUCROT.