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RECLINING FURNITURE

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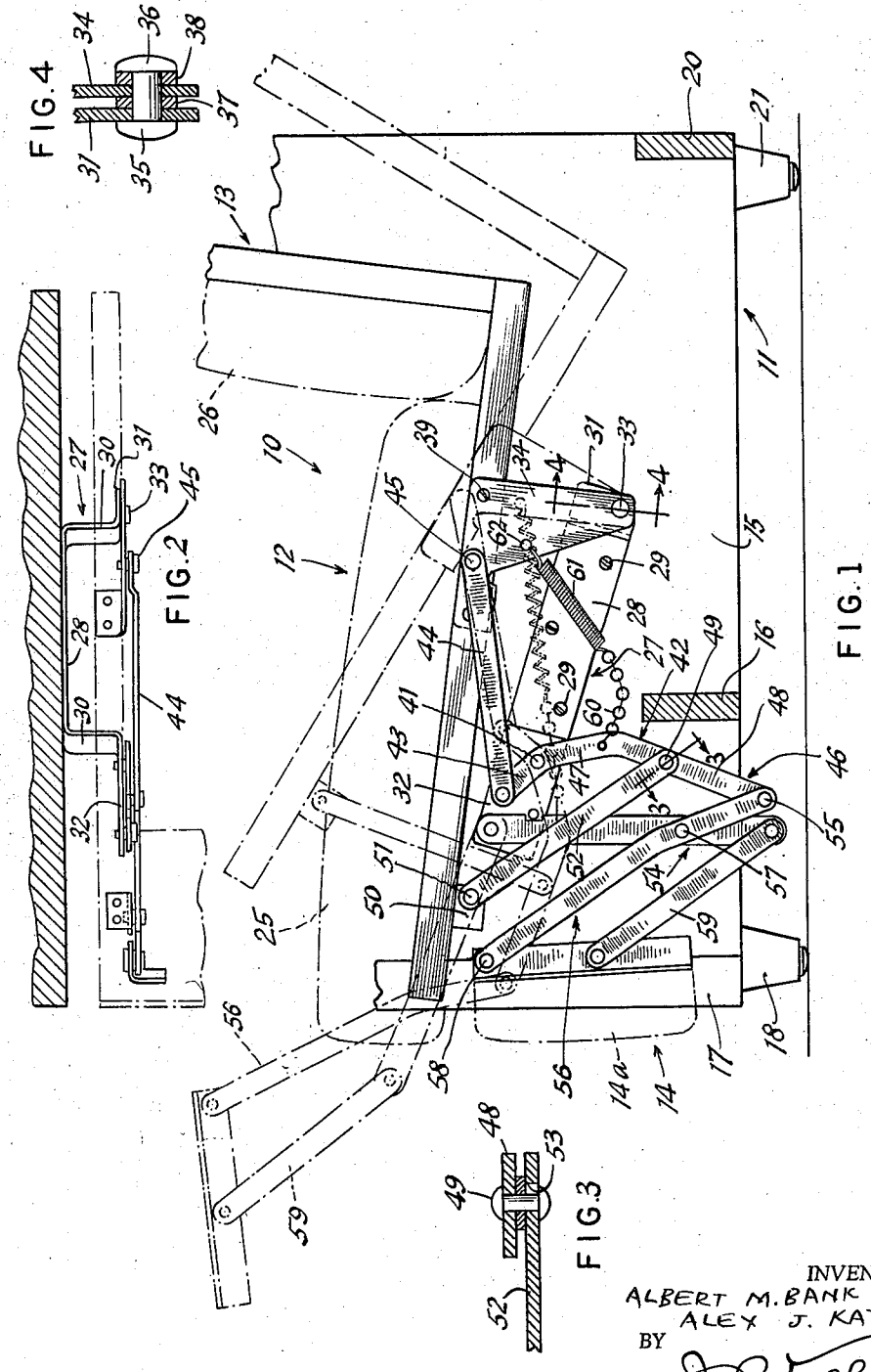


FIG. 1

FIG. 2

FIG. 4

FIG. 3

INVENTOR.
ALBERT M. BANK 9nd
ALEX J. KATZ
BY
J. B. Feldman
ATTORNEY

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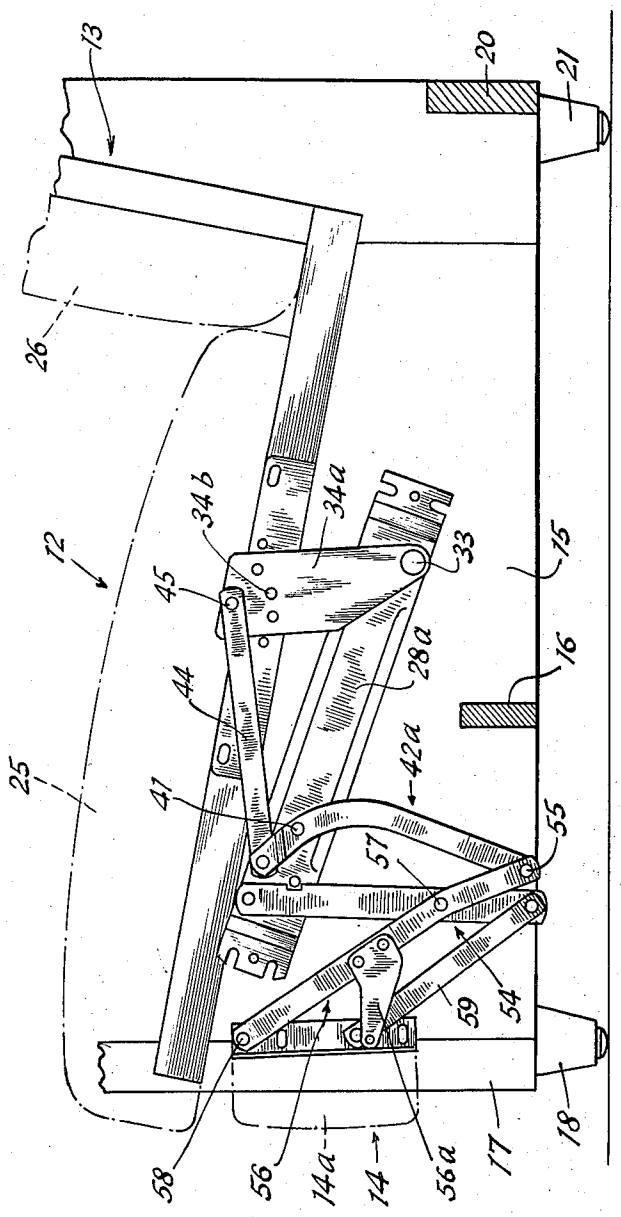


FIG. 5

INVENTORS
ALBERT M. BANK and
ALEX J. KATZ

BY

J. B. Kelshan
ATTORNEY

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RECLINING FURNITURE

Albert M. Bank, Jersey City, and Alex J. Katz, West Orange, N.J., assignors to Super Sagless Spring Corporation, Hoboken, N.J., a corporation

Application July 5, 1957, Serial No. 670,132

10 Claims. (Cl. 155—106)

This invention relates to reclining furniture. It is particularly directed to a chair comprising a seat portion, a back rest portion, and a leg rest, and provided with means for swinging the leg rest forwardly and upwardly as the seat and back rest portions are moved to reclining position.

This invention is a continuation-in-part of the invention disclosed in the applicants' patent application, Serial No. 494,886, filed March 17, 1955, now U.S. Patent No. 2,838,093, issued June 10, 1958, and entitled Reclining Furniture.

The principal object of the present invention is to provide an article of furniture of the character described in which simplified mechanism is provided for actuating the leg rest when the seat and back rest are moved to the reclining position.

Another object of this invention is to provide a strong, rugged and durable chair or sofa of the character described, which shall be relatively inexpensive to manufacture, easy to manipulate, comfortable in use, easy to assemble, and which shall yet be practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

This invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of the invention will be indicated in the appended claims.

In the drawings forming a part of this specification and accompanying the same,

Fig. 1 is a vertical cross-sectional view extending from front to rear of an article of furniture embodying the invention, showing one side of the mechanism which controls the movement of the seat and leg rest, and showing said article in upright position;

Fig. 2 is a top plan view of a structure shown in Fig. 1;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1; and

Fig. 5 is a view similar to Fig. 1 and showing a modified form of the invention.

Referring now in detail to the drawings, wherein like reference numerals denote corresponding parts throughout the several views, **10** designates an article of furniture such as a chair or sofa, embodying the invention. The same comprises generally a supporting frame **11**, a seat **12** pivoted thereto in the manner hereinafter to be described, a back rest **13**, and a leg rest **14**.

The supporting frame **11** comprises a pair of side walls **15**, interconnected by a transverse bracing slat **16**. Attached to the front of the side walls **15** is a front frame portion **17** supported on front legs **18**. The rear ends of the side walls **15** are interconnected by a rear transverse bracing slat **20** and supported on rear legs **21**. The frame may be provided with arm rests (not shown) if desired. The mechanism which interconnects the leg rest **14** with

the seat is the same on opposite sides of the chair and both are located at the inside of the side walls of the chair. For this reason, the mechanism on only one side will be described.

The back rest **13** is fixed to the rear end of the seat **12**, which may be upholstered in any suitable manner as at **25**. Said back rest may also be upholstered as at **26** in any suitable manner.

Attached to the inner surface of side wall **15** is a bracket **27** having a web portion **28** fixed as by screws **29** to said wall **15**. Extending forwardly from the web **27** are parallel walls **30**. Extending rearwardly from one wall **30** is a foot **31**, and extending from the other wall **30** is a foot **32**. Pivoted to the foot **31** as on pivot pin **33**, is a triangular plate **34**.

The pivot pin **33** may have a head **35** at one end, and a flanged portion **36** at its other end (see Fig. 4). On the pivot pin **33** and between foot **31** and plate **34** is a nylon disc **37**, and between wall **34** and the flanged portion **36** is a second nylon disc **38**. These nylon discs serve as friction members and as brakes for slowing the movement of the chair to and from reclining position.

The upper end of the triangular plate **34** is fixed as by screws **39** to the frame **40** of seat **12**.

Pivoted to foot **32** of bracket web **27** as at **41**, is a lever **42**. The lever **42** has an upwardly extending arm **43**, the upper end of which is connected as by link **44** to a pin **45** on the triangular plate **34**. Lever **42** has an arm **46** having portions **47** and **48** forming an obtuse angle. On portion **48** of arm **46** of lever **42** is a rivet or pin **49**. At the under side of the front end of the seat **12** is a block **50**. Pivoted to the block **50** as by pivoted pin **51**, is one end of a link **52**. Said link **52** is formed with an oversized hole or small slot **53** (Fig. 3), receiving pin **49**.

Pivoted to wall or foot **32** of bracket **27** and disposed forwardly of the pivot pin **41** is one end of a lever **54**. Pivoted to the outer end of said arm **48**, as at **55**, is a lever **56**. The levers **54** and **56** are interpivoted mediately of the ends thereof, as by pivot pin **57**, and cross each other. Pivoted to the outer end of lever **56**, as at **57**, is the leg rest **14**. The leg rest **14** is also connected by a link **59** to the lower end of the lever **54**. As the seat is moved from upright to reclining position, the seat rotates about the pivot pin **33** causing the link **44** to pull lever **42** in a clockwise direction about its pivot **41** and projecting the leg rest to the dot-dash line position in Fig. 1. Thus, the leg rest is moved from a substantially vertical position below the front end of the seat, to a substantially horizontal, forwardly projecting position. The leg rest **14** may be upholstered in any suitable way, as at **14a**.

Attached to the arm **47** of lever **42** is one end of a chain **60**. The other end of the chain **60** is connected to one end of a coil tension spring **61**. The other end of the coil tension spring is attached, as at **62**, to the triangular plate **34**. When the chair is in upright position, the spring **61** is slack and so is the chain **60**. However, when the chair is moved to reclining position, the spring **61** will become tensioned to cushion the end of the reclining movement, and when a person desires to move from reclining to upright position, the tension of the spring **61** will aid the initial movement. The distance between the rivets **51** and **49** remains substantially constant as the chair moves from upright to reclining position. However, a slight variation in the distance is permitted by the oversized rivet opening or slot **53**. When the seat is in upright position, the link **52** rests on the rivet **49** and when the chair is in reclining position, the link **52** pulls up on the rivet **49**.

The modified chair construction shown in Fig. 5 differs essentially from the embodiment shown in Figs. 1–4

and described above, in that the link 52 forming part of the mechanism in the first embodiment, is omitted. Also, the lever 56 in the embodiment illustrated in Fig. 5 has a centrally fixed forwardly-extending plate 56*a*, the forward end of which abuts the underside of the leg rest 14 when the chair is in erect position, thereby serving as a stop when the seat is moved to said erect position. The triangular plate 34*a*, corresponding to the plate 34 in Fig. 1, is provided with a plurality of openings 34*b* by means of which it can be adjustably secured with respect to the bottom of the seat 12. The lever 42*a* in Fig. 5 corresponds to the lever 42 in Fig. 1, the only difference being that the lever 42*a* is of curved rather than angular shape. The chain 60 and spring 61 shown in Fig. 1, are omitted from the embodiment in Fig. 5. The operation of this modified embodiment illustrated in Fig. 5 is the same as that in the first embodiment illustrated in Figs. 1–4, described above.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As other possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

We claim:

1. In a reclining chair, a frame support, a seat pivoted to said support, a lever pivoted to said support and having arms extending in opposite directions, one arm being connected to the seat by a link extending rearwardly from said arm to a point on the seat substantially directly above the pivotal point of the seat to the frame support, a pair of crossing interpivoted levers, one end of one of the crossing levers being pivoted to said support, means to connect one end of the other crossing lever to the other arm of said first lever, a leg rest, the other end of said other crossing lever being pivoted to the leg rest, a link interconnecting the leg rest with the other arm of said first crossing lever, and a stop member projecting from said other crossing lever and operative to abut said leg rest when said reclining chair is in erect position.

2. In a reclining chair, the combination of a frame support, a seat, means pivotally connecting said seat with said frame support and allowing movement of said seat from an erect position to an inclined position in said frame, a two-armed lever pivoted to said frame at a position forward of said pivotal connecting means and having an upwardly extending arm and a downwardly extending arm, a first link pivotally connecting the upwardly extending arm of said lever with said seat at a point substantially directly above the pivotal connection of said seat to said frame, a leg rest, lazy tong mechanism connecting the frame with the leg rest, and means to connect the lazy tong mechanism to the other arm of said lever to project said leg rest forwardly and upwardly upon pivotally moving said seat from erect to inclined position and a stop member projecting from said lazy tong mechanism and operative to abut said leg rest when said chair is in erect position.

3. In combination, an elongated bracket adapted to be fixed to a chair seat, a second elongated bracket adapted to be fixed to a supporting frame for said seat, means to pivot the first bracket to the second bracket adjacent the rear end of the latter, a lever pivoted mediately the ends thereof to said second bracket forwardly of the pivotal connection of the first to the second bracket, and said lever having an upwardly extending arm and a downwardly extending arm, a first link connected at its front end to the upwardly extending arm and at its rear end to said first bracket at a point above the pivotal connection of the first and second brackets, a pair of crossing interpivoted levers, one of said crossing levers having an arm pivoted to said second bracket forwardly of the pivotal connection of said first mentioned lever to said second bracket, the other of said crossing levers being pivoted to the downwardly extending arm of said first-mentioned lever, a third bracket adapted to be attached to a leg rest, said other arm of said other of said crossing levers being pivoted to said third bracket, and a second link connecting the other arm of said one of said crossing levers with the third bracket, said first lever, pair of crossing levers, said second link and said third bracket constituting a lazy-tong mechanism, in combination with a stop member fixed to the other of said crossing levers, and means on said third bracket adapted to be engaged by said member to retain said third bracket in retracted vertical position.

4. The combination of claim 3, in combination with a stop pin on said second bracket, forwardly of said first mentioned lever and adapted to be contacted by the downwardly extending arm of said first mentioned lever to limit extension of the lazy-tong mechanism.

5. In combination, a first elongated bracket adapted to be fixed to a chair seat, a bracket arm fixed relative to the bracket and extending downwardly therefrom, a second elongated bracket adapted to be fixed to a supporting frame for said seat, means to pivot the lower end of said arm to the said second bracket adjacent the rear end of the latter, a lever pivoted mediately the ends thereof to said second bracket, forwardly of the pivot point of said arm, to said second bracket, said lever having an upwardly extending arm and a downwardly extending arm, a first link interconnecting the upper end of said upwardly extending arm to the upper end of said bracket arm, a pair of crossing, interpivoted levers, means to pivot the upper end of one of said crossing levers to said second bracket adjacent the forward end of the latter and forwardly of the pivot point of the first mentioned lever to said second bracket, means to pivot the lower end of the other of said pair of crossing levers to the lower end of the downwardly extending arm of said first mentioned lever, a third bracket adapted to be fixed to a leg rest, the upper end of said other of said pair of crossing levers being pivoted to said third bracket, and a link connecting the lower end of the first of said pair of crossing levers with said third bracket, said first mentioned lever, pair of crossing levers, third bracket and second link constituting a lazy-tong mechanism.

6. In combination, a bracket adapted to be fixed to a chair seat, an arm, means to attach the upper end of said arm to said bracket and said arm extending downwardly therefrom, an elongated bracket adapted to be attached to a supporting frame for said seat, means to pivot the lower end of said arm nearer to the rear end of said bracket than to its front end, a lever pivoted to said bracket nearer the front end of said bracket than its rear end, said lever having an upwardly extending arm, and a downwardly extending arm, a link connected at its front end to the upper end of the upwardly extending arm of said lever and at its rear end to the upper end of said first arm, a pair of crossing, interpivoted levers, each having an upwardly extending arm and a downwardly extending arm, means to pivot the upper end of the upwardly extending arm of one of said crossing levers to the elongated bracket, forwardly of the pivotal point of said front lever thereto, means to pivot the lower end of the downwardly extending arm of the other of said crossing levers to the lower end of the downwardly extending arm of said first lever, a third bracket adapted to be attached to a leg rest, means to pivot the upper end of the upwardly extending arm of said other of said crossing levers to said third bracket, and a second link connecting the lower end of the downwardly extending arm of said one of said crossing levers to said third bracket, said first lever, said pair of crossing levers, said third bracket, and said second link constituting a lazy-tong mechanism adapted to move from retracted to extended

position when said first bracket and the arm fixed thereto are swung rearwardly relative to said second bracket.

7. The combination of claim 6, said third bracket having a flange, and an arm fixed at one end to said upwardly extending arm of said other of said crossing levers and being adapted to contact said flange to retain said lazy-tong mechanism in retracted position.

8. The combination of claim 7, in combination with a stop pin fixed to said first bracket and adapted to be contacted by the downwardly extending arm of the first lever, to retain said lazy-tong mechanism in extended position.

9. The combination of claim 6, the upwardly extending arm of said first lever being inclined forwardly when said lazy-tong mechanism is in retracted position.

10. The combination of claim 6, the downwardly extending arm of said first lever having a downwardly and rearwardly inclined portion below the pivoted point of said lever, when said lazy-tong mechanism is in retracted position, and a stop pin on the second bracket adapted to be contacted by said downwardly and rearwardly inclined portion when said lazy-tong mechanism is extended, to limit the extension of said mechanism.

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