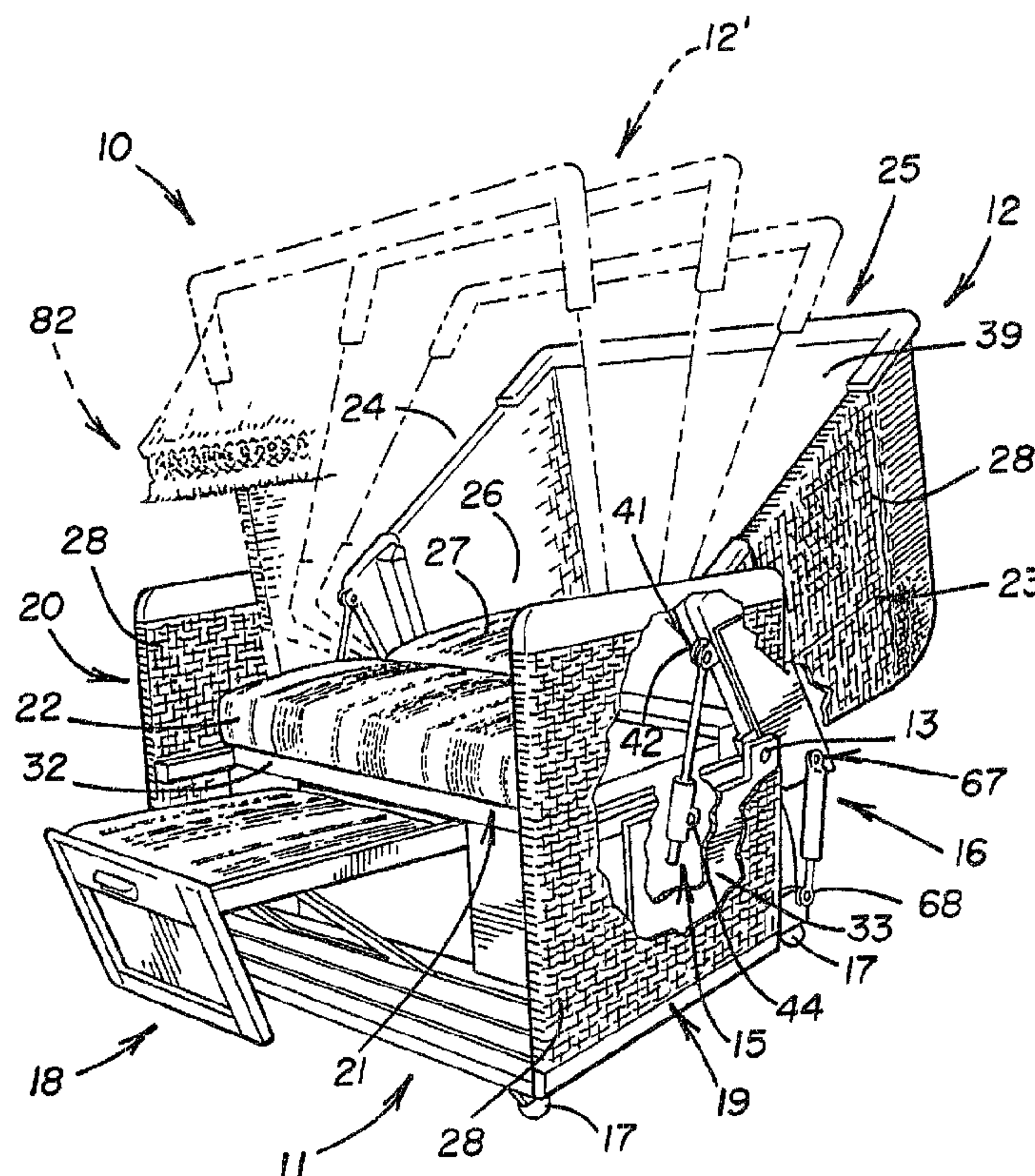




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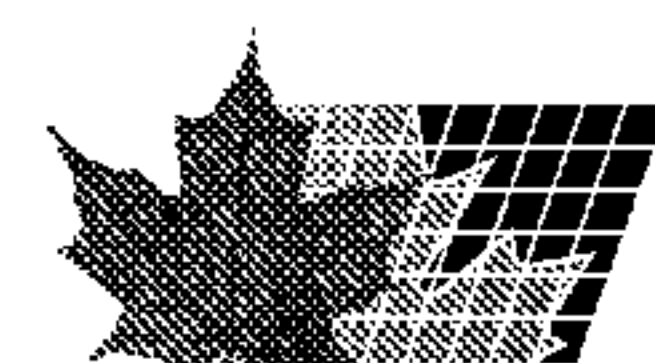
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(54) Titre : CHAISE LONGUE A AUVENT REGLABLE
(54) Title: CHAISE LOUNGE WITH ADJUSTABLE CANOPY



(57) Abrégé/Abstract:

A chaise lounge (10) usable for sunbathing and other recreational purposes, comprises a stationary base (11) having a normally upright hood-like canopy (12) pivotally mounted rearwardly thereon. The canopy (12) is adapted to be pivoted between a normal upright position to form a seating arrangement and a lowered position placing a back (26) of the canopy (12) in alignment with a top of the base (11). A control system includes at least one extensible and retractable strut (15) or an electric motor (65) connected to an actuating mechanism (15') for releasably holding and locking the canopy (12) in a selected position between its upright and lowered positions in response to selective activation of the motor (65).





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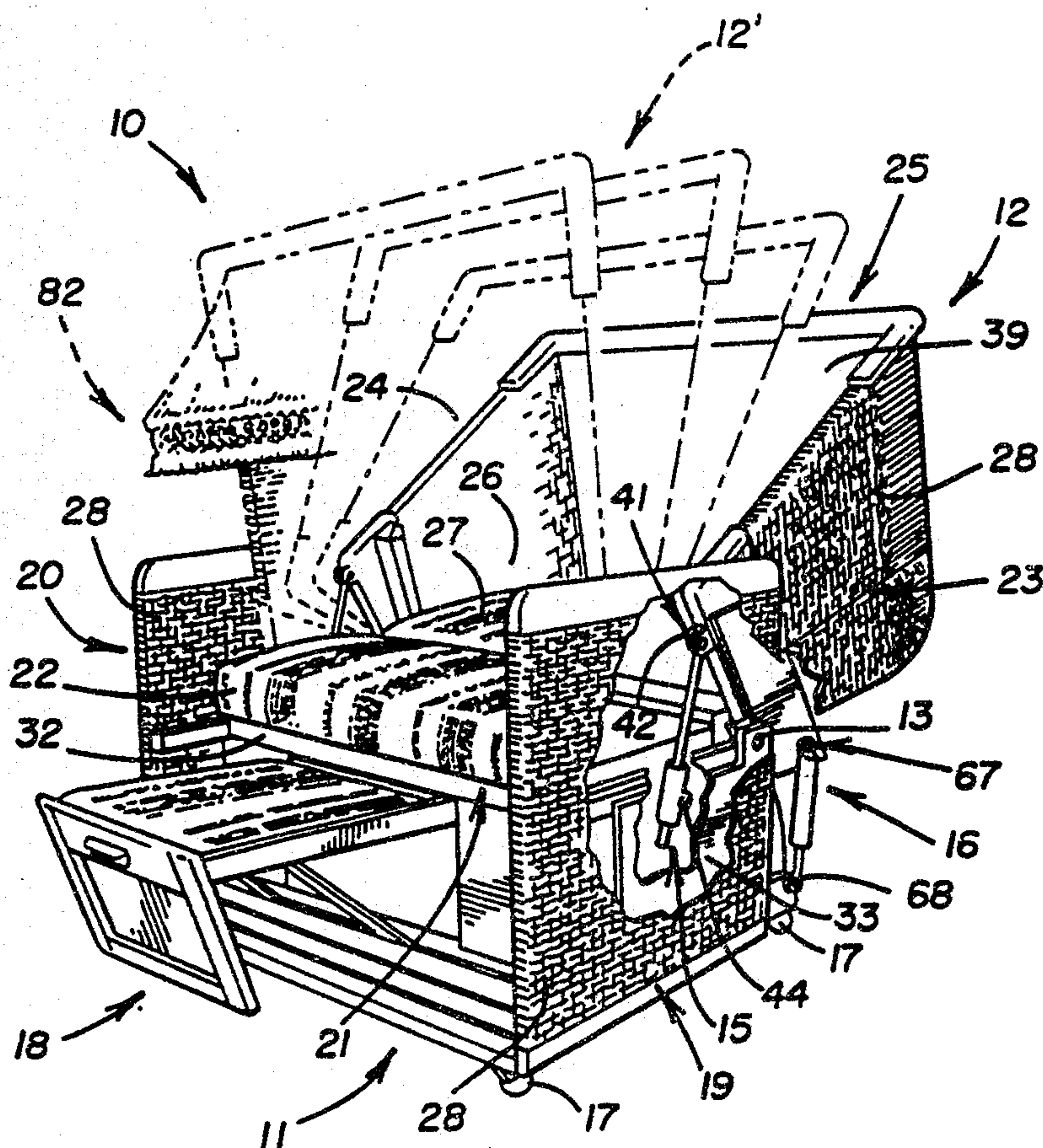
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(57) Abstract

A chaise lounge (10), usable for sunbathing and other recreational purposes, comprises a stationary base (11) having a normally upright hood-like canopy (12) pivotally mounted rearwardly thereon. The canopy (12) is adapted to be pivoted between a normal upright position to form a seating arrangement and a lowered position placing a back (26) of the canopy (12) in alignment with a top of the base (11). A control system includes at least one extensible and retractable strut (15) or an electric motor (65) connected to an actuating mechanism (15') for releasably holding and locking the canopy (12) in a selected position between its upright and lowered positions in response to selective activation of the motor (65).



CHAISE LOUNGE WITH ADJUSTABLE CANOPYTECHNICAL FIELD

This invention relates generally to a recreational and
vacational seating and lounging arrangement and more
5 particularly to a chaise lounge having an adjustable canopy
adapted to be moved in one of an infinite number of
positions between its upright and lowered positions.

BACKGROUND ART

Chaise lounges, having canopies mounted thereon, have
10 found widespread recreational and vacation use,
particularly at beaches and on the sun decks and patios of
homes and hotels. However, the backrest for this type of
lounge, popular in Europe and elsewhere, is often-times
fixed in position. Thus, the user is unable to adjust the
15 backrest for his or her comfort. The lounge was later
modified to permit the backrest to pivot on the lounge.
However, the externally operated mechanical locking systems
utilized are difficult to manipulate and the substantial
weight of the backrest (e.g., 75 lbs. or 33.75 kg.) renders
20 the lounge impracticable for every day use.

U.S. Patent Nos. 2,243,984; 2,279,748 and 2,837,140
discloses various types of beach chairs wherein an
adjustable backrest or canopy is pivotally mounted on a
frame to adjust the inclination of the backrest from an
25 upright position to a lowered position. Chairs of this
type normally rely on legs or struts, positioned rearwardly

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of the pivot point whereat the backrest pivots on the frame, for supporting the weight of the person sitting or lying thereon.

DISCLOSURE OF INVENTION

5 An object to this invention is to provide an improved and easily adjusted chaise lounge useful for a wide variety of recreational and vacational purposes. The lounge includes a moveable canopy for optionally providing full sun bathing or sun and wind protection, at the convenience
10 of the user.

The chaise lounge of this invention comprises a stationary base frame having laterally spaced and vertically disposed sides and a horizontally disposed top adapted to retain a seating cushion thereon. A normally
15 upright canopy frame comprises laterally spaced and vertically disposed sides, a top and a normally upright back, all secured together to form a hood. The canopy frame is pivoted rearwardly on the base frame to permit the canopy frame to be moved through an infinite number of
20 positions between its normal upright position and its lowered position, placing the back of the canopy frame in at least general horizontal alignment with the top of the base frame. A control system is adapted to release and permit the canopy to be moved to a selected position and to
25 hold and lock the canopy frame in such position, between its upright and lowered positions. Such control system may include one or more mechanical struts or a reversible electric motor secured on the base frame and actuating

means connected to the motor for moving the canopy frame to its selected position in response to activation of the motor.

BRIEF DESCRIPTION OF THE DRAWINGS

5 Other objects and advantages of this invention will become apparent from the following description and accompanying drawings wherein:

Figure 1 is a partially sectioned frontal perspective view of a chaise lounge with a canopy thereof shown in its
10 fully lowered position and further showing various raised positions of the canopy in phantom lines;

Figure 2 schematically illustrates a control system including a combined holding and locking strut and its attachment to an operator-controlled cable system for
15 selectively releasing the strut to permit pivotal adjustment of the canopy;

Figure 3 is a partially sectioned view schematically illustrating a combined cushioning and return spring strut employed in the lounge of Figure 1 to cushion movement of
20 the canopy when it is moved to a lowered position and for automatically moving the canopy back to its upright position in response to operator-release of the holding and locking struts;

Figure 4 illustrates an alternative control system,
25 including a motor-driven gear arrangement;

Figure 5 is a sectional view, generally taken in a direction of arrows VI-VI in Figure 4;

Figure 6 partially illustrates a chaise lounge

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utilizing the control system of Figure 4 therein; and

Figure 7 partially illustrates a repositioning of the control system in the chaise lounge of Figure 6.

BEST MODE OF CARRYING OUT THE INVENTION

5 Referring to Figure 1, a chaise lounge 10 comprises a base 11 having a canopy 12 pivotally mounted rearwardly thereon by laterally spaced and aligned pivot pins 13 (one shown). The canopy is adapted to be selectively pivoted from a normal upright position, forming a seating
10 arrangement, to its illustrated full line lowered position, forming a bed-like or "sunning" arrangement. A hand or operator-controlled cable system is adapted to release a control system including a pair of laterally spaced combined holding and locking struts 15, pivotally
15 interconnected between base 11 and canopy 12, to selectively hold and lock the canopy in any one of an infinite number of positions, as shown by phantom lines 12', between its normal upright and lowered positions.

The upper end of strut 15 is pivotally connected to
20 the frame of canopy 12 by a ball and socket connection 41 at a bracket 42. The strut is pivotally connected to a steel plate 33, formed integrally with the frame of base 11, by a ball and socket connection 44. A pair of laterally spaced combined cushioning and return struts or
25 cylinders 16 of the control system are pivotally interconnected between base 11 and canopy 12 at 68, 67 to cushion movement of the canopy when it is moved from its upright position towards its lower position. Cylinders 16

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further function to automatically move and return the canopy to its upright position in response to release of locking struts 15. Each corner of base 11 can be mounted on a standard caster 17 to facilitate movement of the lounge into various orientations for sun bathing, viewing or similar recreational delights. A standard collapsible and storable leg and foot rest 18 can be suitably mounted on the frontal side of base 11 for convenience of the user.

The two struts 15 and 16 on each side of the lounge can be combined into a single strut, pivotally interconnected between the base and canopy similar to the positioning of strut 15 in Figure 1 (or strut/actuator 15' in Figure 6), to provide a control system exhibiting the combined holding, locking, cushioning and return functions. For example, struts of this type are disclosed in U.S. Patent No. 3,874,480 and can be purchased from P.L. Porter Company of Woodland Hills, California, U.S.A. under its Model No. MM65-1016 for a "Single Linear Locking Device With Remote Control" (Mechlok or Double-Lok).

Base 11 comprises laterally spaced and vertically disposed opposite side panels 19 and 20 and a horizontally disposed top or seat panel 21, adapted to retain a seating cushion 22 and sub-cushion 32 thereon. The canopy comprises laterally spaced and vertically disposed sides 23 and 24, a top 25 and a normally upright back 26, adapted to have a back cushion 27 mounted thereon. Thus, when canopy 12 is moved to its fully lowered position illustrated in Figure 1, back 26 of the canopy and top 21 of the base, as

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well as cushions 22 and 27, are placed in at least general horizontal alignment to form the bed-like or "sunning" arrangement for the user.

The sides, top and back of the canopy are preferably covered with a woven, flexible material 28 to provide air ventilation through the canopy for convenience of the user. A porous liner 39 can be secured within canopy 12 and a sun shade 82 can be suitably mounted forwardly thereon. Woven multi-strip material 28, underlying back cushion 27, is suspended in a hammock-like manner from side rails of a frame of the canopy to provide the canopy with a high degree of structural integrity and the desired amount of flexibility.

Base 11 comprises a base frame composed of a plurality of wooden or metallic frame members suitably secured together to form a box-like rigid construction having an open front side. Canopy 12 is also formed by a plurality of structurally integrated wooden or metallic frame members that form the rigid hood-like skeleton frame for contiguous sides 23 and 24, top 25 and back 26 of the canopy.

Referring to Figure 2, each strut 15 comprises a partially illustrated tubular housing 45 suitably swaged at 46 onto a pair of identical and longitudinally spaced collars or bushings 47. A rod 48 is reciprocally mounted in the bushings and housing and has a pair of torsion coil springs 49 mounted thereon. One end of the rod is pivotally mounted on canopy frame 34 at pivot connection 41 whereas the opposite end of the rod remains free of

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attachment (Figure 1). A distal end 50 of each spring is captured within a slot 51, defined on an inner end of a respective bushing 47. A centrally disposed collar 52 is rotatably mounted on rod 48 and has an actuation lever 53
5 extending radially outwardly therefrom.

A proximal end 54 of each spring is captured within a slot 55 defined in collar 52. Thus, rotation of lever 53 to its phantom-line or release position 53' and against the helix directions of the coil springs will expand their mean
10 diameters to release torsional friction on the rod to permit it to reciprocate therein. When lever 53 is in its normal full line "locked" position, the coils of the springs will contract automatically to frictionally grip
rod 48 and thus hold and lock the rod and canopy 12 in a
15 selected position.

A cable control system comprises a schematically illustrated operator-controlled reciprocal handle (or slide button) 56, adapted to selectively and simultaneously reciprocate a pair of flexible cables 57 to release the
20 frictional gripping forces imposed on rods 48 by springs 49 of struts 15. Handle 56 is suitably mounted on a plate 58, mounted on an inner side of sidewall 23 (or 24) within canopy 12. The standard cables are suitably guided by brackets (not shown) secured on base frame 30 and canopy
25 frame 34 to ensure that a pulling of the cables will function to unlock struts 15.

A distal end of each cable 57 extends through a slot formed through a bracket 60 secured on housing 45 and

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further extends through a slot 61 formed in lever 53 and is anchored thereon. Thus, pulling of cable 57 will engage an enlarged terminal end 62 of the cable behind the lever to pivot the lever for release of the strut. In particular, 5 when the lever is rotated by the cable to its phantom-line position 53', it will rotate collar 52 generally clockwise in Figure 2 to release the gripping force of spring 49 on rod 48.

Housing 45, pivotally mounted at 44 on plate 33 will 10 pivot to compensate for relocation of the canopy to its selected position. Further detailed description of strut 16 and its attendant actuating mechanisms can be found in U.S. Patent No. 3,874,480. These types of struts can be purchased from P.L. Porter Company of Woodland Hills, 15 California under its Model No. MM65-1016 (Mechlok).

Figure 3 schematically illustrates combined cushioning and return strut 16 of Figure 1. Each strut is pivotally interconnected, rearwardly of pivot pins 13, between each side of canopy frame 34 and base frame 30 by ball and 20 socket pivot connections (or pins) 67 and 68, respectively (Figure 1). The strut comprises a rod 69 reciprocally mounted in a tubular housing 70. A standard compression coil spring S (shown by phantom lines) could be mounted in a spring and damping chamber 71, between a piston head 72 25 and the left end of the housing, to provide the basic spring dampening and return functions of the strut. However, it may prove preferable to utilize a standard gas over oil cylinder or strut to more closely provide a

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controlled and modulated spring force applied between the rod and housing. This will insure that the canopy will return to its upright position smoothly and slowly, when struts 15 are released from their locked conditions of operation.

The well-known gas-oil cylinder or strut is designed to permit a normal moving force to lower the canopy, upon release of locking struts 15, towards its selected lowered position. The struts will exhibit sufficient force to move the canopy back to its upright position in a smooth and controlled manner when the locking struts are again released in the above-described manner. Struts 16 may have either their rod end or head end (Figure 1) pivotally connected to canopy frame 34, depending on preference of the designer. The standard strut may be of the "Type 16" manufactured by SUSPA, Incorporated of Grand Rapids, Michigan, U.S.A.

Struts of this type may include an annular chamber 70' defined in housing 70 and one or more orifices 72' formed through piston head 72 for communicating oil from chamber 71 to chamber 70'. A nitrogen gas is retained in the head end of chamber 71 to function as a spring when the strut is retracted and to expand when the strut is extended. Orifice 72' (one or more of which can have a standard check valve therein to return oil to chamber 70') will function in a conventional manner to closely control the metering of oil into chamber 71 when the strut is retracted.

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Figures 4 and 5 illustrate an alternative control system 15' to replace each strut 15 and to permit elimination of struts 16 (Figure 1). The control system comprises a threaded rod 48' adapted for axial movement in a housing 45', under control of an operator switch 56', adapted to be mounted in canopy 12. Rod 48' comprises spiral teeth 64 adapted to be suitably engaged by meshing teeth of a gear 49'.

Gear 49' is rotatably mounted by axially spaced annular bearings in housing 45' and has external teeth meshed with external teeth of a gear 52'. Gear 52' is secured to the distal end of a cable 57'. Thus, rotation of the gear in Figure 5 will rotate gear 49' and move rod 48' axially in opposite directions, depending on the direction of rotation of gear 52'.

One end of rod 48' has an eyelet adapted to be pivotally mounted on pin 41 (or ball and socket) to pivot the canopy of base 11 in the manner described above. A pivot connection (pin or ball and socket) 44' pivotally mounts housing 45' on a bracket adapted for securance to steel plate 33 (Figure 1) to place the pivot axes of pins 41 and 44' in parallel relationship and positioned similar to pins 41 and 44 (Figure 2). Operator-control switch 56' has a pair of buttons thereon to selectively activate a reversible electrical motor 65 to, in turn, rotate flexible cable 57' (similar to the speedometer cable of an automobile) and gear 52' in its selected direction.

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A standard rechargeable battery pack 66 can be mounted in base frame 30, along with motor 65, to provide the power source for the motor. Control system 15' is preferred for those chaise lounge applications wherein it proves
5 desirable to fully automate the lounge "at the touch of a button." In particular, the canopy can be moved, locked and held at a selected position by simply operating control switch 56' whereas the aforescribed control system, including struts 15, relies on manual power to move the
10 canopy down from its upright position.

Control system 15' can also be utilized in the manner shown in Figures 6 and 7. As shown in Figure 6, a base frame 30' comprises a plurality of metallic structural members, such as aluminum or steel tubing, suitably secured
15 together by welding or the like. A canopy frame 34' comprises a reinforcement rail 43' on each lateral side thereof and a steel plate member 36' is suitably secured on the outside of each reinforcement rail. Each plate member 36' is pivotally mounted on a horizontally disposed upper
20 frame member 31' of base frame 30' whereby the canopy frame can be pivoted on the base frame in the manner described above.

Threaded rod 48' and its actuating mechanism (Figures 4 and 5) are pivotally mounted at 44' on a bracket 83
25 suitably welded or otherwise secured to the inner side of a vertically disposed base frame structural member 33'. The distal end of the rod is pivotally mounted at a ball and socket connection 41 to the lower end of a lever 84.

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The upper end of the lever is suitably secured within a slot formed beneath the rearward end of reinforcement rail 43' by standard epoxy and/or a bolt 85. Although the upper end of the lever is preferably secured to rail 43' at a position forwardly of pivot pin 13', it could be secured to the rail at a position rearwardly of the pivot pin.

Thus, extension or retraction of rod 48' will function to move the lever in an arch to simultaneously pivot structurally attached canopy frame 34' about the pivot axes of laterally spaced pivot pins or bolts 13'. The above-described drive mechanism for each rod 48' is controlled by a respective rotary drive cable 57', further connected to a standard split-drive power take-off 65'. The standard power take-off may comprise, for example, a pinon gear secured to the output shaft of motor 65 to mesh with a pair of opposed face gears, such as of the Spiroid type of gears manufactured by the Spiroid Division of Illinois Tool Works of Chicago, Illinois, U.S.A.

Thus, selective actuation of reversible motor 65, under control of button switch 56' (Figure 4), will energize the motor via battery 66 to simultaneously extend or retract rods 48' the desired amount. When the button is released after the canopy has been pivoted to its selected position on the base, the actuating means (gears, cable, etc.) for the rod will simultaneously and automatically hold and lock the canopy in such position relative to the base. Sufficient clearances and relative movement is provided by ball and socket connections 41 and 44' to

facilitate pivoting of the canopy between its upright and fully lowered positions.

Each rod 48' is suitably designed to extend and retract the proper amount to accomplish the same. Maximum extension of the rod in one direction in Figure 6, to place the canopy in its fully upright position, is controlled by a stop collar 50, whereas maximum extension of the rod in the opposite direction to place the canopy in its fully lowered position (Figure 1) is controlled by a stop collar 50'. The stop collars can be swaged or otherwise suitably secured to the rod once the proper extents of travel of the rod have been determined.

Although Figure 6 shows each generally horizontally disposed rod 48' positioned adjacent to the upper end of the vertical base frame member 33', it should be understood that this positioning and location could be changed. For example, each mounting bracket 83 could be secured to the lower end of a respective member 33' to position each rod 48' and its attendant drive mechanism adjacent to ground level. Lever 84 would be suitably lengthened to accommodate such positioning and to substantially lengthen its effective moment arm, i.e., increase the "mechanical advantage" of the control system whereby relatively less power would be required to pivot the canopy.

Figure 7 illustrates a general vertical disposition of each rod 48' in contrast to the general horizontal disposition of the rods, shown in Figure 6. A bracket 83' is welded or otherwise suitably secured on vertically

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disposed base frame member 33' to mount the actuating mechanism (Figure 4) for the rod thereon. The vertical disposition of the bracket is such so as to permit the rod to extend and retract a sufficient amount to enable the canopy to be pivoted between its upright and fully lowered position on the base as dictated by stop collars 50,50'.

Instead of using a common motor 65 as shown in Figures 6 and 7, a separate motor could be provided for directly driving gear 52' (Figure 5) for each actuating mechanism for the rod, i.e., cables 57' and power take-offs 65' could be eliminated. Each motor could be suitably mounted on a respective member 33' (Figures 6 and 7). Although it is preferable to have an actuating mechanism connected to each side of the lounge, it should be understood that in certain applications it may prove desirable to only utilize a single combined moving, holding and locking system on one side thereof. As suggested above, a single mechanical strut, such as the type disclosed in U.S. Patent No. 3,874,480, could replace control system or actuator 15' in Figures 6 and 7 to provide combined holding, locking, cushioning and return functions of the kind described above.

I CLAIM:

1. A sheltering lounge chair usable for sun bathing and the like comprising

a base frame having laterally spaced and vertically disposed sides and a horizontally disposed top adapted to retain a seating cushion thereon,

a normally upright canopy frame having laterally spaced and vertically disposed sides, a top and a normally upright back all secured together to form a hood open on its frontal side,

pivot means for pivotally mounting a rearward end of said canopy frame on said base frame for permitting said canopy frame to be moved through an infinite number of positions between its normal upright position to form a seating arrangement and a fully lowered position placing the back of said canopy frame in at least general horizontal alignment with the top of said base frame to form a bed, and

control means for normally locking and holding said canopy frame in its upright position and for selectively unlocking and permitting said canopy to be moved and locked at a selected position between its upright and fully lowered positions.

2. The sheltering lounge chair of claim 1 wherein said control means comprises at least one operator-controlled extensible and retractable strut pivotally interconnected between said base frame and said canopy frame.

3. The sheltering lounge of claim 2 wherein said control means further comprises combined cushioning and return means for cushioning movement of said canopy frame when it is moved from its upright position towards its fully lowered position and for automatically moving said canopy frame in a controlled manner from its selected position to its upright position.

4. The sheltering lounge chair of claim 1 wherein said control means comprises a reversible electric motor secured on said base frame and actuating means connected to said motor and pivotally interconnected between said base frame and said canopy frame for selectively pivoting said canopy frame on said base frame in response to activation of said motor.

5. The sheltering lounge chair of claim 1 further comprising operator means adapted to be mounted within said canopy frame for ready access to a person therein for selectively activating said control means.

6. The sheltering lounge chair of claim 1 wherein the control means is positioned on each lateral side of said lounge chair.

7. The sheltering lounge chair of claim 1 wherein the opposite sides of said canopy frame comprise a pair of at least generally parallel reinforcement rails and wherein said control means is pivotally connected to a respective one of said reinforcement rails.

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8. The sheltering lounge chair of claim 1 wherein said control means comprises a housing pivotally mounted on a particular side of said base frame, a motor, and a motor-driven threaded rod movably mounted in said housing and having an end thereof pivotally connected to a side of said canopy frame adjacent to said particular side of said base frame.

9. The sheltering lounge chair of claim 8 wherein the opposite sides of said base frame comprise a pair of vertically disposed structural members and wherein said housing is pivotally mounted on a respective one of said structural members, and further comprising a pair of stop means on said rod, positioned at a pre-set distance from each other and disposed on opposite sides of said housing, for engaging said housing when said canopy is moved to its upright or fully lowered position.

10. The sheltering lounge chair of claim 8 wherein said control means further comprises a motor-driven gear rotatably mounted in said housing and threadably engaged with said rod, and actuating means comprising cable means for rotating said gear, and switch means for selectively energizing said motor to rotate said cable means and said gear in either direction to raise or lower said canopy frame on said base frame.

11. The sheltering lounge chair of claim 8 wherein said rod is normally at least generally horizontally disposed adjacent to a respective inner side of said base frame when said canopy frame is in its upright position on

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said base frame.

12. The sheltering lounge chair of claim 8 wherein said rod is normally at least generally vertically disposed adjacent to a respective inner side of said base frame when said canopy frame is in its upright position on said base frame.

13. The sheltering lounge chair of claim 4 wherein the actuating means is positioned adjacent to each side of said base frame wherein a common said motor is connected to each of said actuating means.

14. The sheltering lounge chair of claim 4 wherein the actuating means includes an actuating means for each side of said base frame.

15. The sheltering lounge chair of claim 1 wherein the sides, top and back of said canopy frame are each covered with a material exhibiting a basket weave and wherein said sides comprise a pair of laterally spaced and parallel side rails positioned forwardly thereon and the material covering the back of said canopy frame is suspended in multiple strip form from said side rails and extends continuously in suspended relationship over the sides and back of said canopy from said side rails to provide a hammock-like suspension when said canopy frame is in its fully lowered position.

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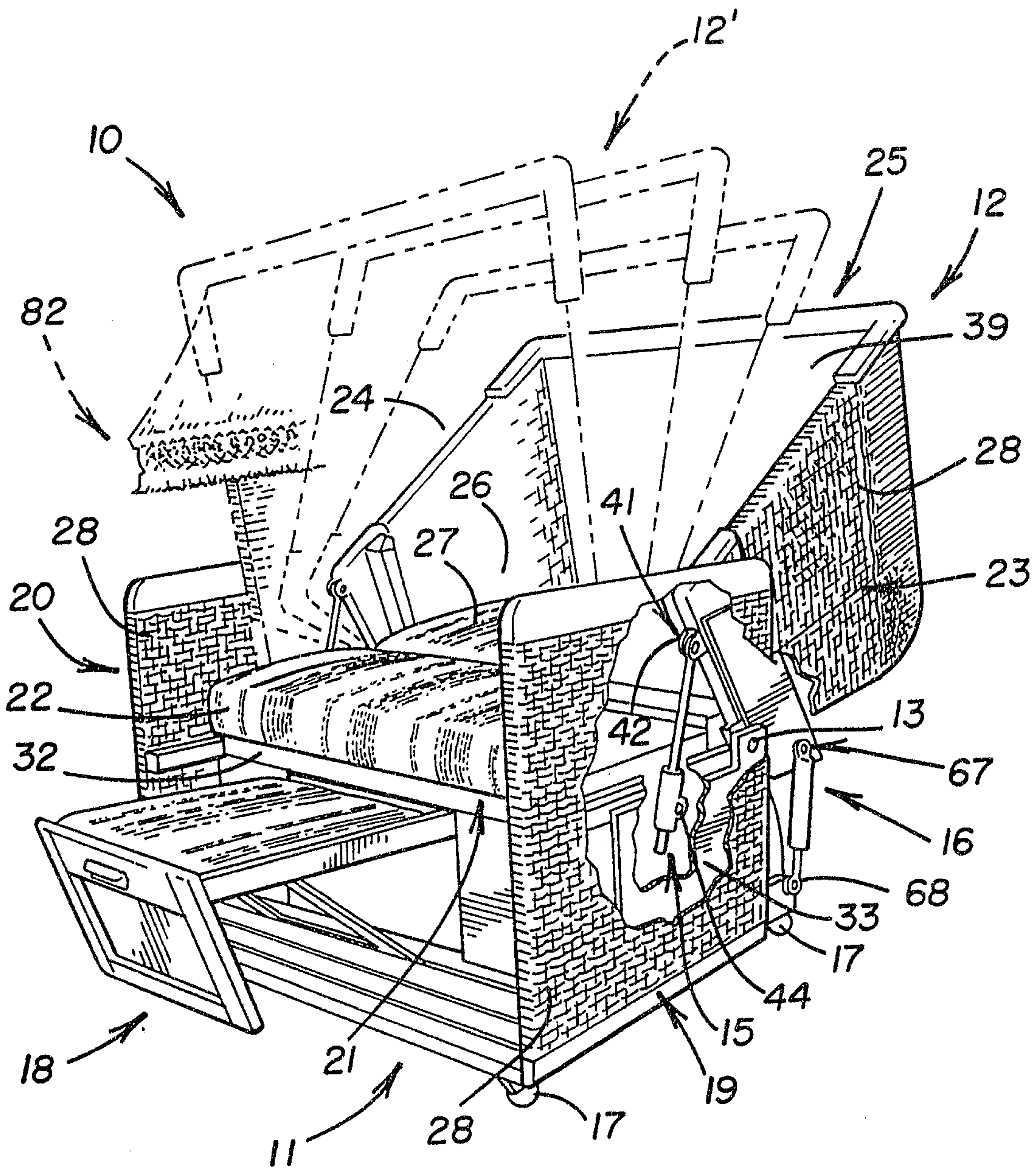


FIGURE 1

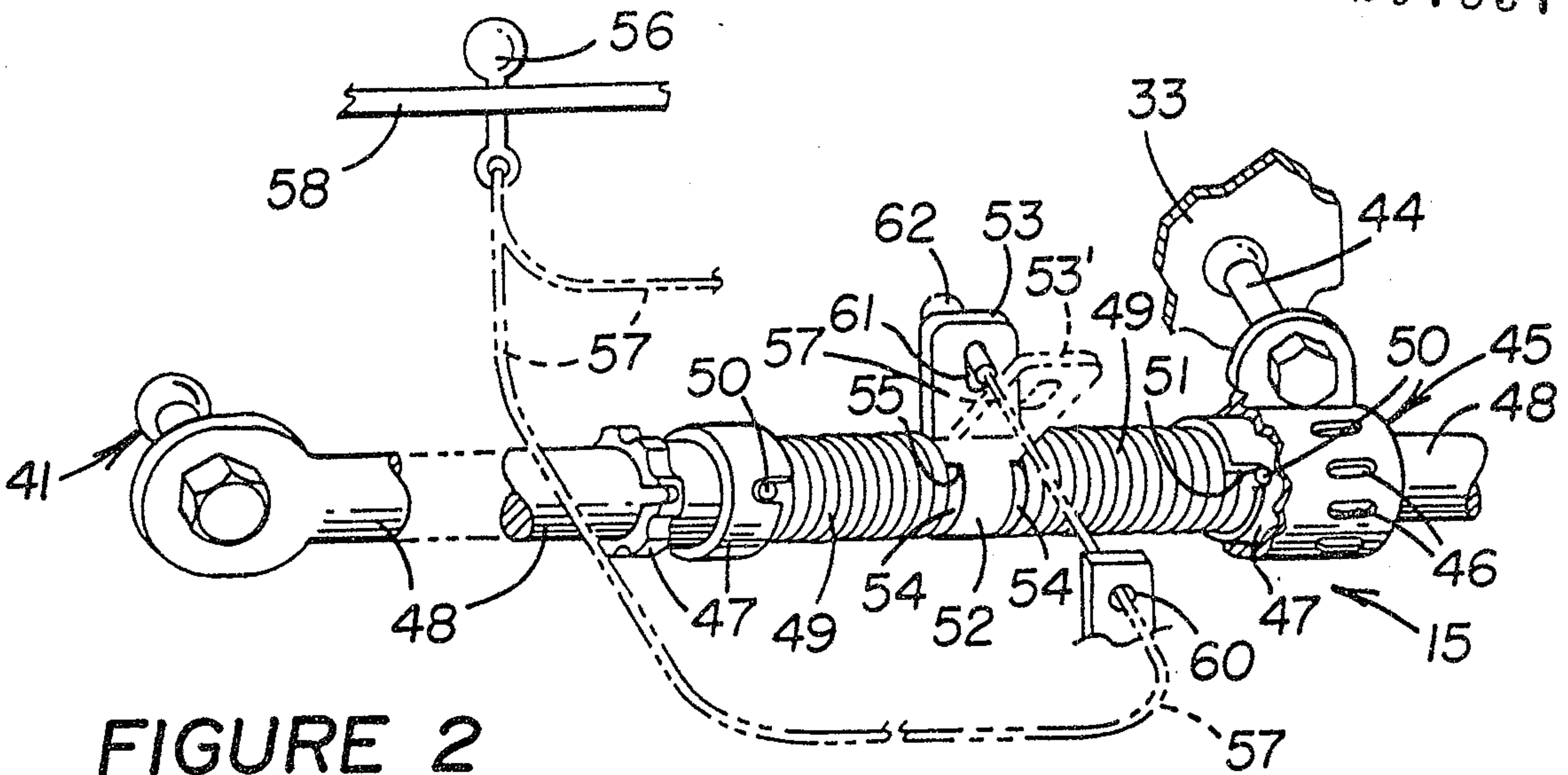


FIGURE 2

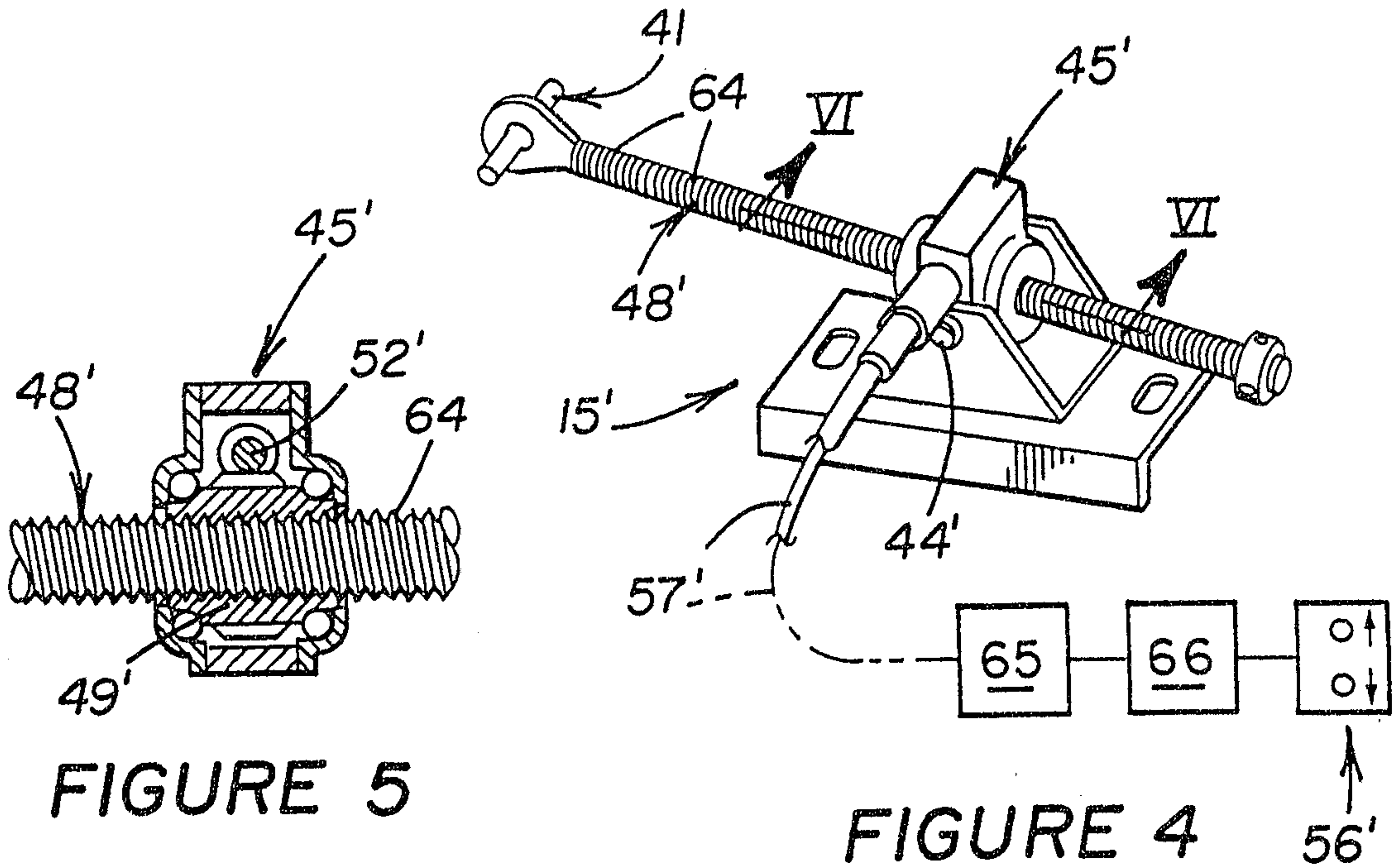


FIGURE 5

FIGURE 4

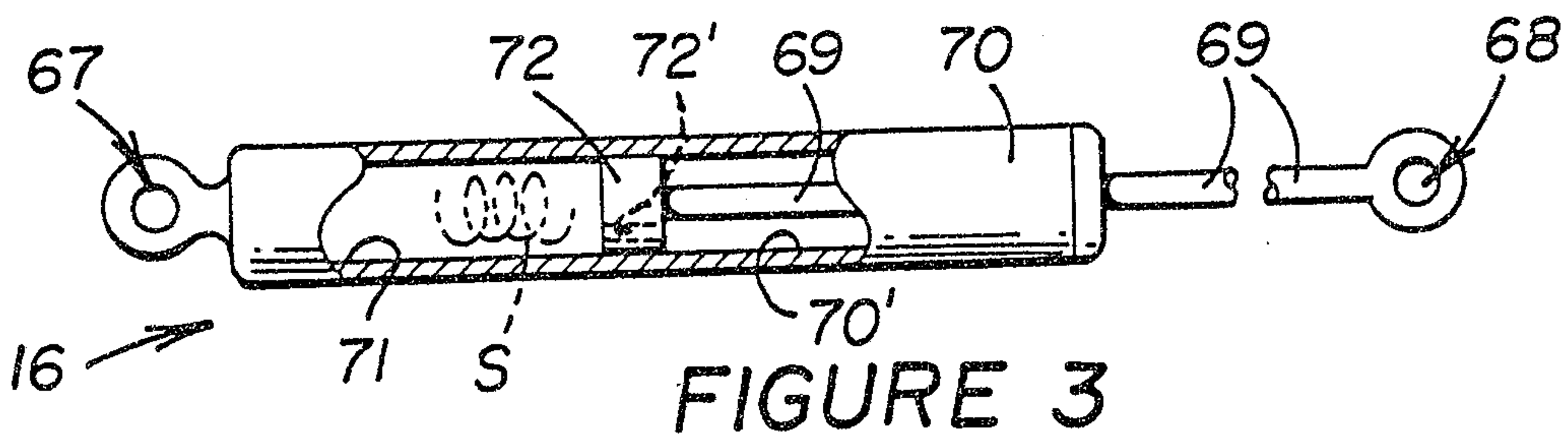


FIGURE 3

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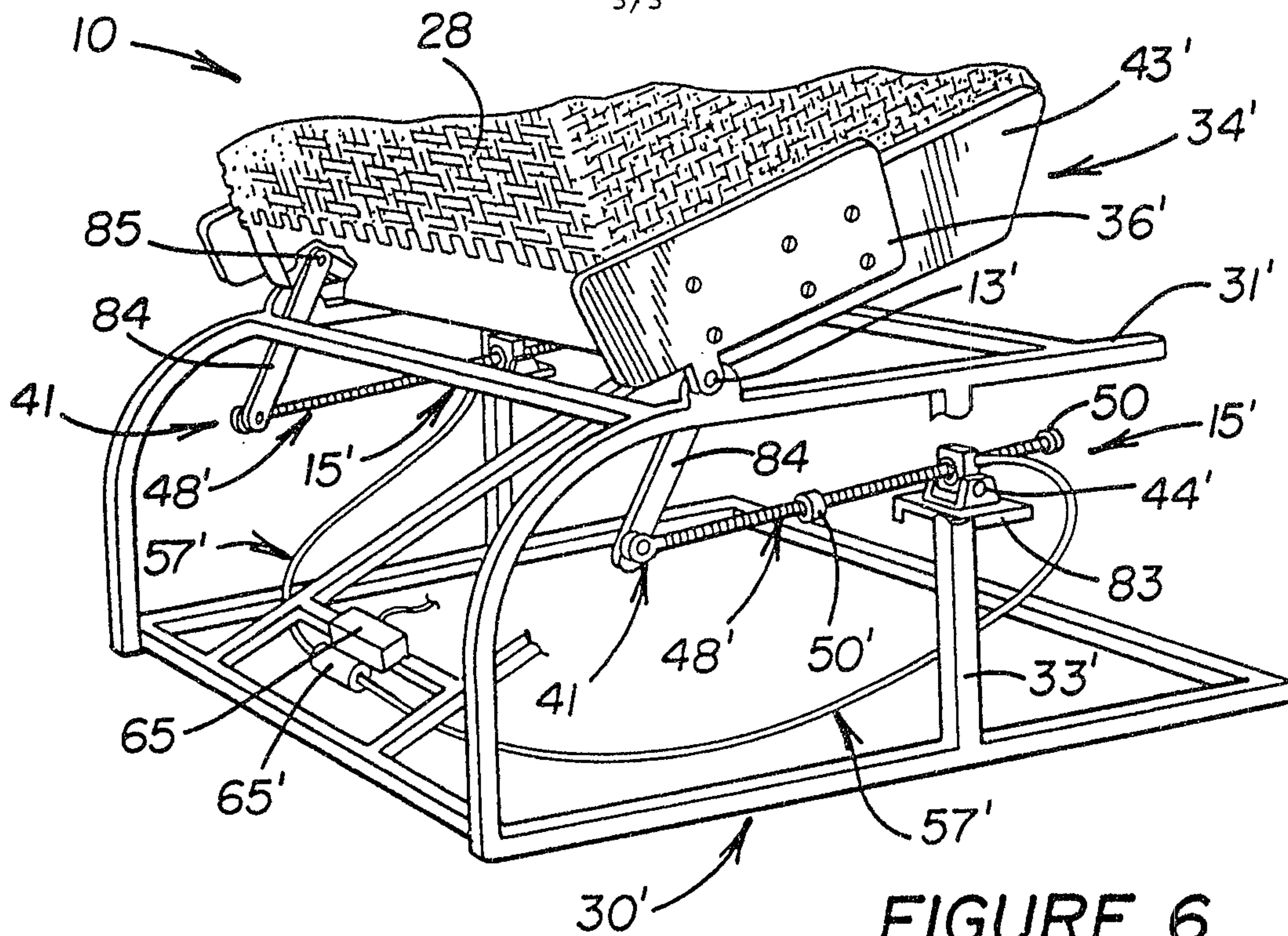


FIGURE 6

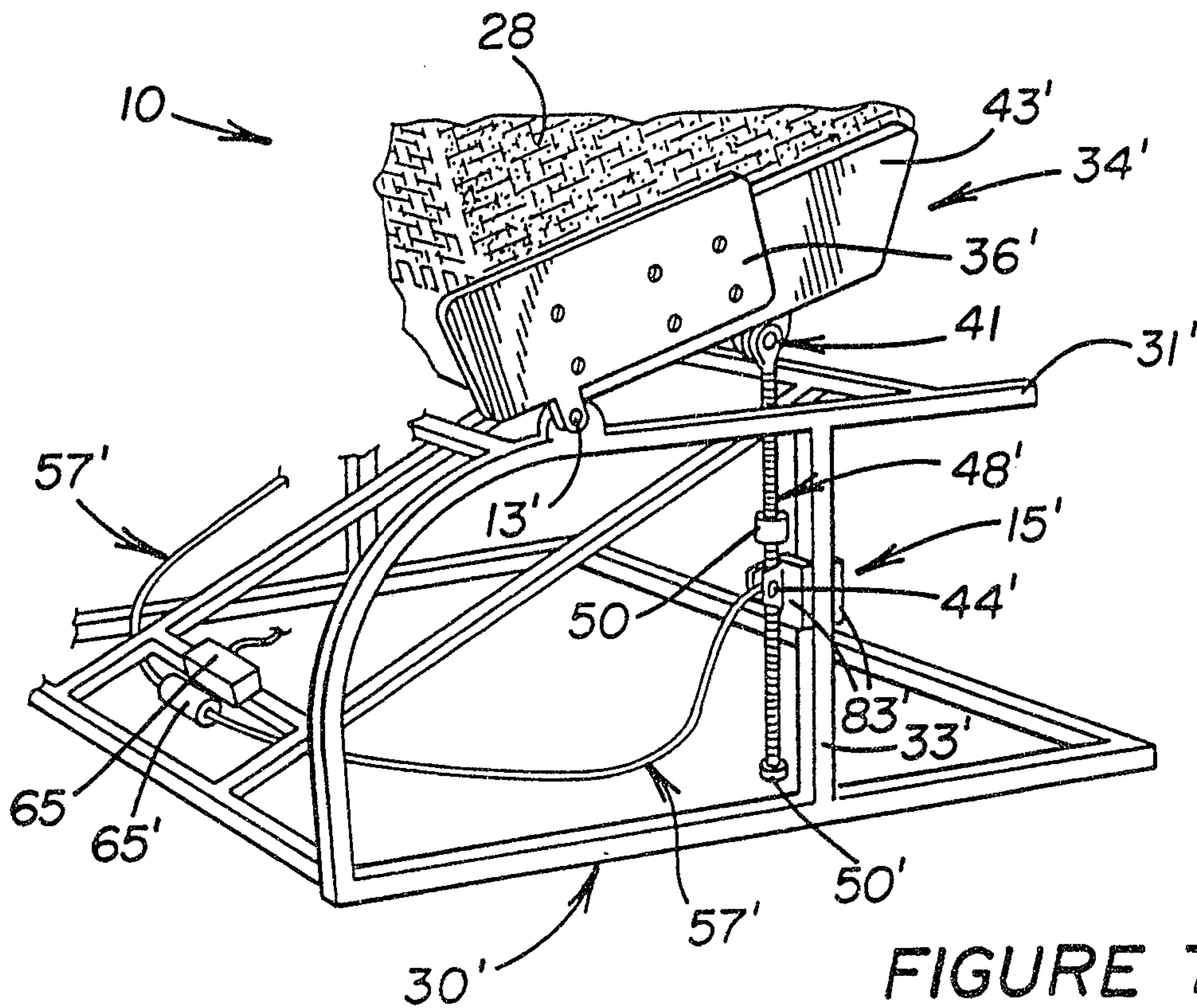


FIGURE 7

