United States Patent

Laskowitz

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[54] MASSAGE APPARATUS

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[52] **U.S. Cl.** **128/58**
[51] **Int. Cl.** **A61h 11/00**
[58] **Field of Search** 128/24.3, 33, 57, 58

[56] **References Cited**

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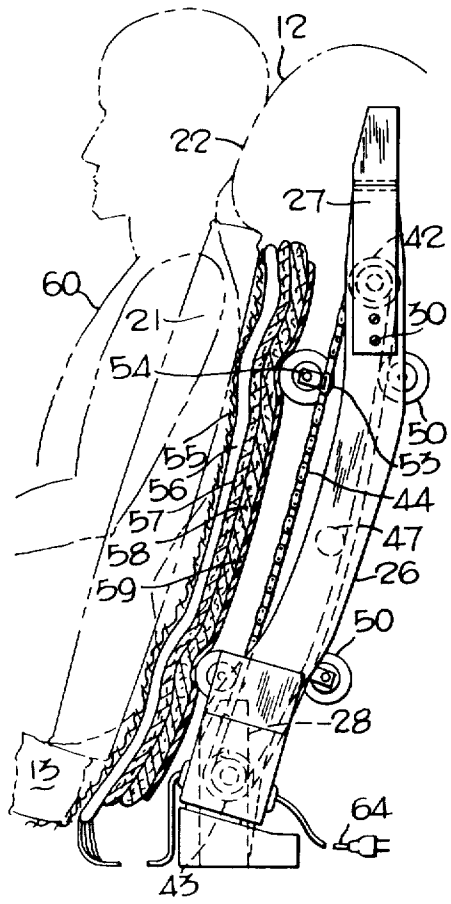
[57] **ABSTRACT**

A massaging apparatus is housed in a chair and includes a frame having side members, to each of which are mounted upper and lower rotatable sprockets. A pair of endless chains are mounted for rotation about associated upper and lower sprockets, and a plurality of transverse shafts, carrying massaging rollers, extend between the chains. The shafts, which are attached to each chain by means of adaptor links, orbit continuously with the chains. The chair housing the apparatus provides a body support, engaged by the massaging rollers, and a removable pillow permits the thickness of the body support to be varied during massaging and non-massaging use of the chair.

3 Claims, 4 Drawing Figures



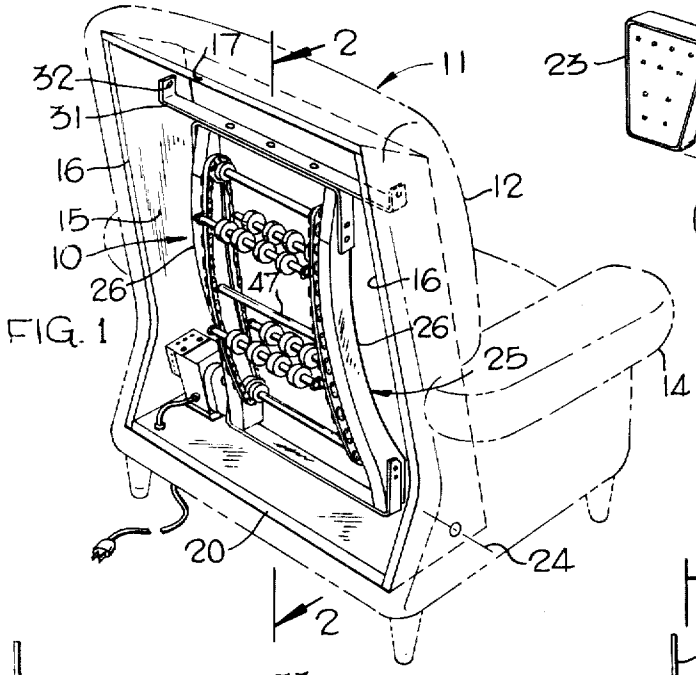


FIG. 1

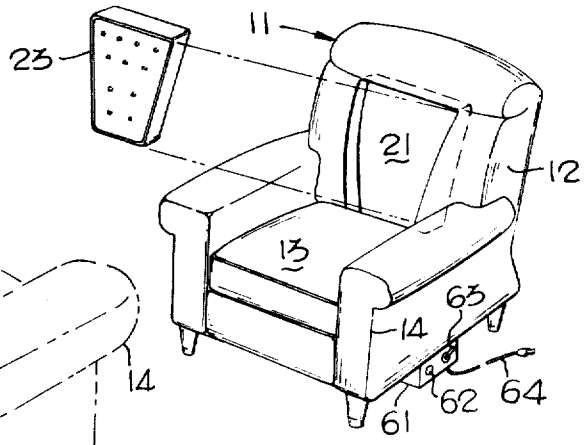


FIG. 4

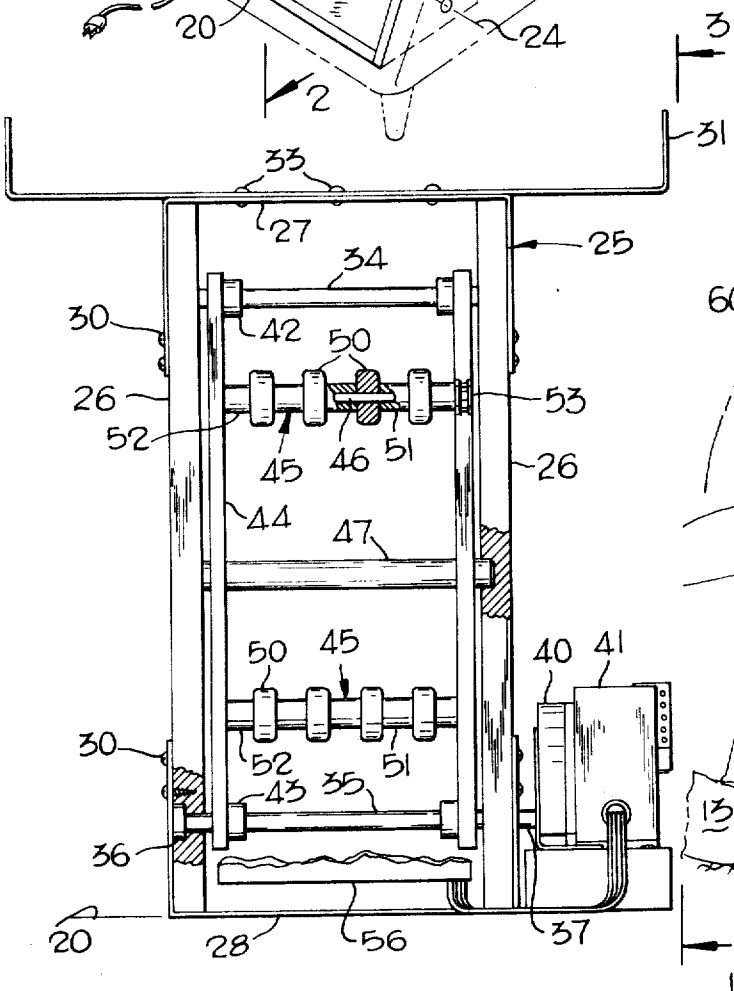


FIG. 2

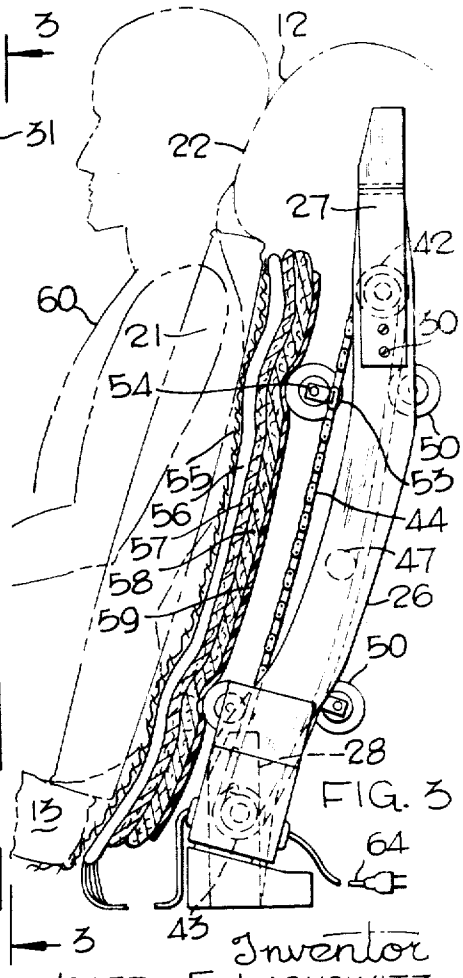


FIG. 3

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MASSAGE APPARATUS

BACKGROUND OF THE INVENTION

This invention relates to a massaging apparatus and particularly to an apparatus housed in the back of a chair or the like.

Chairs which incorporate massaging features are not in themselves new. However, almost all such chairs provide massaging elements which reciprocate in the vertical plane and the differences between these chairs reside in the varying means which are utilized to achieve the reciprocating action. Of the several known types, at least four incorporate a reciprocating carriage mounted on rails and in each case, reciprocating motion is imparted to the carriage by means of an endless chain having one link connected to the carriage.

In general, massaging devices of the type under consideration include some means of providing for a resilient transverse force, acting together against the back of the user and transverse to the direction of reciprocation. In one device, this resilient force is provided by an auxiliary spring-loaded leverage system pivotally mounted to the reciprocating carriage. In another, arch springs attached to the carriage are utilized to provide the resilient force.

Another type of body massager is that which includes a vertical, rotating massaging post rather than a reciprocating carriage. In one such massaging device, the vertically oriented post includes a plurality of rollers having their several axes arranged in a helix about the post. The inward and outward massaging action is achieved by selectively spacing the several axes at varying distances from the axis of the post.

SUMMARY OF THE INVENTION

This massaging apparatus may be conveniently housed in the back of a chair. The massaging action is provided by continuous orbital motion of the massaging roller assemblies rather than by reciprocating motion and in consequence, no rail-mounted reciprocating carriage is required.

The roller assemblies are connected between endless chains and are thereby resiliently mounted without the need for an auxiliary resilient system. When the roller assemblies are housed in a reclining chair, the massaging action may be selectively increased by simply redistributing the body weight of the user to the roller assemblies.

The construction of this device is exceedingly simple and virtually free from maintenance and repair problems.

The massage apparatus includes a frame having opposing side members to which are mounted upper and lower axle means. A pair of endless flexible elements, such as chains, are disposed about associated engagement elements, such as sprockets, mounted on the axle means.

A plurality of roller shaft assemblies, transversely disposed of said chains, extend between and are attached to the chains.

Electric drive means connected to one of the axle means induces motion to the endless chains, thereby producing orbital rotation of the shaft assemblies about the upper and lower axle means.

The shaft assemblies, each of which includes a plurality of massage rollers mounted on a shaft, are spaced at substantially equal intervals around the chains and each chain includes a plurality of link adaptors providing outwardly projecting lugs apertured to receive opposite ends of each associated shaft.

The massaging device includes a body supporting member selectively engageable by the massaging rollers as the shaft assemblies orbit the upper and lower axle means. The body supporting member includes a relatively depressed portion and a removable pillow occupies the depressed portion when the massaging apparatus is inoperative. When the massaging apparatus is built into a reclining chair, the body weight of the user may be selectively distributed to the massaging rollers by varying the angle of tilt of the chair back.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a rear view of the chair in perspective with the back removed to reveal the massage apparatus;

FIG. 2 is an enlarged front elevational view of the massage apparatus taken on line 2—2 of FIG. 1;

FIG. 3 is a side elevational view taken on line 3—3 of FIG. 2; and

FIG. 4 is a front view of the chair in perspective with the removable cushion removed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now by characters of reference to the drawing, and first to FIG. 1, it will be understood that the massage apparatus, generally indicated by numeral 10, is mounted in the hollow back of a chair 11. The chair 11 which is preferably of the reclining type, includes a back portion 12, a seat portion 13, and opposed sidearm portions 14. The back portion 12 includes a box-like framing structure 15 having vertical sides 16, an upper crosspiece 17 and a base 20. The framing structure 15 serves as a housing for the massage apparatus and also as a skeletal structure for the covering material.

As illustrated in FIG. 4, the chair back portion 12 includes a front recess 21 which extends between the bolster 22 and the underside of the seat cushion 13. The front recess 21 is shaped to accommodate a back pillow 23 having a trapezoidal configuration.

The back portion 12 is indicated in FIGS. 1, 2 and 3 in a substantially upright position. It will be understood, however, that said back portion 12 may be tilted to various reclining angles about a pivot axis such as that indicated by numeral 24. The actual mechanism required to attain such tilting does not form part of this invention and the tilting may be achieved by any conventional manner. However, as will appear, the tilting action plays a part in the efficacy of the massaging apparatus.

The massage apparatus 10 is housed within the box-like framing structure 15, and it will be understood that said apparatus 10 includes a frame generally indicated by numeral 25. As indicated in FIGS. 2 and 3, the frame 25 includes a pair of opposed side members 26, which are held apart by upper and lower U-shaped bracket members 27 and 28. The side members 26 are preferably of wood and the bracket members 27 and 28 preferably of metal, said bracket members 27 and 28 being attached to said side members 26 by fasteners, such as screws 30. The rectangular frame 25 is mounted between the base 20 and a channel-shaped bracket member 31, which extends between and is attached to the vertical sides 16 of the box-like framing structure 15 by fasteners 32. The frame 25 is rigidly attached to said bracket 31 by means of rivets 33 and screwed or otherwise attached to the base 20.

The massage apparatus 10 includes upper and lower axles 34 and 35 which extend between the side members 26 and constitute first and second axle means. Said upper and lower axles 34 and 35 are journaled within bearings, such as that indicated by numeral 36 set within said side members 26. The lower axle 35 includes an outwardly extending portion 37 which is coupled by any conventional means to the reduction unit 40 of an electric motor 41. Said electric motor and reduction unit constitute drive means.

The upper axle 34 carries a pair of sprockets 42 mounted in spaced relation on said axle 34 for rotation therewith and constituting a first engagement means. The lower axle 35 likewise carries a pair of sprockets 43 mounted in spaced relation on said axle 35 for rotation therewith and constituting a second engagement means. Associated upper and lower sprockets 42 and 43, adjacent a common side member 26, are in substantial alignment and engage one of a pair of endless chains 44. The chains 44 are disposed in side-by-side relation and constitute flexible drive elements.

A plurality of roller shaft assemblies constituting shaft means, are generally indicated by numeral 45. These assemblies, four in number in the preferred embodiment, are disposed at substantially equal intervals around the length of the endless chains 44. Each roller shaft assembly 45 includes a shaft 46 transversely disposed of and attached to each of the endless chains 44. A plurality of rollers 50, separated by inter-

mediate and end spacers **51** and **52** respectively, are carried in rotatable relation by each shaft **46**.

The attachment means by which each shaft **46** is connected to the chains **44** includes a link adaptor **53**. In the preferred embodiment, each link adaptor **53** replaces a conventional chain link and said link adaptor **53** is provided with a pair of spaced, outwardly extending lugs **54** apertured to receive an associated shaft **45** in rotative relation. It will be understood that the roller shaft assemblies **45** travel with the chains **44** in continuous orbital movement about the upper and lower axles **34** and **35**.

It will be observed from FIG. **3** that the roller shaft assemblies **45** are spaced sufficiently outwardly of the chains **44** so that the rollers **50** engage the underside of the material forming the front recess **21**. This material includes a layer of chair facing fabric **55**; two plys of material forming a heating pad **56**; a layer of burlap webbing **57**; a layer of padding or batting **58**; and importantly, a heavy grade of plastic sheet such as NAUGAHYDE. As the roller shaft assemblies **45** move upwardly during their orbital travel, the rollers **50** engage the rear face of the plastic sheet **59** imparting a massaging action to the body of the user of the apparatus. It will be understood, of course, that during the massaging operation, the pillow **23** is removed from the front recess **21** and that said recess **21** is occupied by the shoulders and lower back of the user indicated in broken outline in FIG. **3** by numeral **60**.

A transverse bar **47**, of nylon or similar material, extends between the side members **26** and provides a chain guide bar which assists in insuring that the chains **44** are sufficiently tensioned. The chain guide bar **47** also precludes contact between passing roller assemblies **45**.

A switch box, generally shown by numeral **61** in FIG. **4** and including a signal light **62** and switch **63**, controls power supplied to the electric motor **41** and also to the optional heating pad **56**. An extension cord **64** leads from the switch box **61** to an electrical outlet (not shown).

It is thought that the functional advantages of this massaging apparatus have become fully apparent from the foregoing description of parts but for completeness of disclosure, the operation of the device will be briefly described.

The pillow **23** is placed within the recess **21** when it is desired to use the reclining lounge chair **11** in the customary manner. When, on the other hand, it is desired to utilize the massaging apparatus **10**, the back pillow **23** is removed and the user **60** sits as indicated in FIG. **3** with the back part of his body occupying the recess **21**. The switch **63** may then be switched to a massage position, in which event, the motor **41** is energized and the massaging action commenced. Alternately, the switch **63** may be switched to a massage plus heat position, in which case the heating pad **56** is also energized.

When the motor **41** is energized, the reduction unit **40** turns the lower drive axle **35**, causing the chains **44** to move in an orbital path about the idler axle **34**. The four roller assemblies **45** travel with the chains **44** in an orbital path and in doing so impart a rippling, undulating movement to the plastic sheet **59** with which they are in engagement. The chains **44** provide the rollers **50** with considerable resilience transversely to their axis of rotation, the chains **44** acting, as it were, as a bowstring.

In the substantially upright position of the body, indicated in FIG. **3**, the shoulders of the user **60** are more strongly massaged. If it be desired to increase the massaging of the lower portion of the user's back, this may be automatically achieved by simply tilting the back portion **12** to a greater degree of tilt. When this is done, and the back portion **12** is therefore pivoted about the pivotal axis **24** to a position intermediate the upright and prone positions, the body weight is transferred to some extent from the seat **13** to the back portion **12**. Thus, massaging action is effectively imparted to both the upper and lower portions of the user's back. Increased angular displacement of the chair back toward the horizontal will throw proportionately more of the body weight onto the lower portion of the massaging apparatus. Further, the user **60** may increase the pressure on one side of his back by simply twisting his body slightly to throw more body weight to that side. It follows, therefore, that by adjusting the angle of inclination of the back portion **12** and the position of the body, the degree of massaging action on the back of the user may be controlled in a semi-automatic manner. It will be clear that the greater the body weight bearing against a roller **50**, the stronger the massaging action from that roller.

The removable pillow **23** provides a unique function in that a variable thickness of padding may be placed between the body of the user **60** and the massaging rollers. Thus, there is no need to compromise between a padding thickness which is sufficiently thin to provide massaging action when massaging is required and yet thick enough to avoid discomfort from projecting rollers when massaging is not required. In short, a relatively thin padding is provided during the massaging operation and, by insertion of the back pillow **23**, the user **60** is cushioned from the stationary rollers.

I claim as my invention:

1. A massage apparatus for a chair or the like, comprising:

a. a body supporting member,

b. a frame including opposed side members,

c. a first axle means mounted to the frame and including a pair of spaced sprocket elements, each of said sprocket elements being adjacently disposed of an associated side member,

d. a second axle means mounted to the frame in spaced side-by-side relation to the first axle means and including a pair of spaced sprocket elements, each of said sprocket elements being adjacently disposed of an associated side member,

e. a pair of operatively orbiting endless chains, each chain being mounted about associated sprocket elements on the first and second axle means, each chain including forward and rearward portions reversely moving in the orbital plane the forward portions extending between associated sprocket elements in substantially unsupported relation in the orbital plane,

f. a plurality of shaft assemblies transversely disposed of and attached to said chains for orbital travel about said first and second axle means, each shaft assembly including a shaft member connected to the chains and having at least one massaging roller mounted thereon and operatively engaging the body supporting member when carried by the forward portions of the chains each forward portion being movable into the orbital plane to provide a resilient mounting for said massaging roller in the manner of a bowstring, and

g. drive means connected to one of said axle means whereby to induce motion into said chains,

h. the side members having a substantially bow configuration between the first and second axle means, and

i. the forward portions of the chains being forwardly clear of the side members for a portion of their length.

2. A massage apparatus for a chair or the like, comprising:

a. a body supporting member,

b. a frame including opposed side members,

c. a first axle means mounted to the frame and including a pair of spaced sprocket elements, each of said sprocket elements being adjacently disposed of an associated side member,

d. a second axle means mounted to the frame in spaced side-by-side relation to the first axle means and including a pair of spaced sprocket elements, each of said sprocket elements being adjacently disposed of an associated side member,

e. a pair of operatively orbiting endless chains, each chain being mounted about associated sprocket elements on the first and second axle means, each chain including forward and rearward portions reversely moving in the orbital plane the forward portions extending between associated sprocket elements in substantially unsupported relation in the orbital plane,

f. a plurality of shaft assemblies transversely disposed of and attached to said chains for orbital travel about said first and second axle means, each shaft assembly including a shaft member connected to the chains and having at least one massaging roller mounted thereon and operatively engaging the body supporting member when carried by the forward portions of the chains each forward portion being movable into the orbital plane to provide a resilient mounting for said massaging roller in the manner of a bowstring, and

g. drive means connected to one of said axle means whereby to induce motion into said chains,

h. the body supporting member including a depressed portion, and

i. a removable pillow occupying the depressed portion in the inoperative condition to cushion the user from the stationary rollers.

3. A massage apparatus for a chair or the like, comprising:

a. a body supporting member,

b. a frame including opposed side members,

c. a first axle means mounted to the frame and including a pair of spaced sprocket elements, each of said sprocket elements being adjacently disposed of an associated side member,

d. a second axle means mounted to the frame in spaced side-by-side relation to the first axle means and including a pair of spaced sprocket elements, each of said sprocket elements being adjacently disposed of an associated side member,

e. a pair of operatively orbiting endless chains, each chain being mounted about associated sprocket elements on the first and second axle means, each chain including forward and rearward portions reversely moving in the orbital plane the forward portions extending between associated sprocket elements in substantially unsupported relation in the orbital plane,

f. a plurality of shaft assemblies transversely disposed of and attached to said chains for orbital travel about said first and second axle means, each shaft assembly including a shaft member connected to the chains and having at least one massaging roller mounted thereon and operatively engaging the body supporting member when carried by the forward portions of the chains each forward portion being movable into the orbital plane to provide a resilient mounting for said massaging roller in the manner of a bowstring, and

g. drive means connected to one of said axle means whereby to induce motion into said chains,

h. a chair having a reclining back providing the body supporting member, said back including a depressed portion, whereby body weight is selectively distributed to the resiliently mounted engaged shaft assemblies in proportion to the angle of tilt of the back.

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