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A Chair



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This invention relates to a chair more particularly, but not exclusively, for use by a child.

Furniture, in particular chairs and tables, are generally designed for household use to be of a particular size suitable for use by adults. Although furniture adapted specifically for use by children is available in schools, generally such furniture is not available in the home. It is often necessary, therefore, for children to use adult-size furniture.

The use of such furniture by a child has a disadvantage that the child is often forced to adopt an unhealthy posture. This is illustrated in Figure 1 which is a view of a child sitting on a conventional chair 2 with basic features of a backrest 4, a backrest-supporting stem 6, a backrest angle adjuster 8, a backrest lateral adjuster 9, a seat 10, a seat-height adjuster of which only a handle 12 is shown in the figure, a seat-supporting stem 14 and five legs 16 on rollers 18. A pivot 7 enables the backrest 4 to tilt forward and backwards. The height of the seat 10 is adjustable according to the length of the child's legs. In order for the child to rest his hands and elbows comfortably on a table 20, the seat 10 has to be raised which will cause his legs to dangle. Furthermore, the relative dimensions of the seat and table are such that the child is forced to slouch over the table,

so that the child's back is not straight and the distance from the child's eye to the table surface, on which any schoolwork will be placed, becomes small, such near-sighted work leading to myopia.

It is the object of the invention to provide an improved chair which alleviates at least one disadvantage of the prior art.

According to the invention there is provided a chair adapted for use by a child having a posture improving harness and a footrest connected thereto, the harness being arranged to urge a said child to adopt an upright posture.

Preferably the harness comprises first and second straps connectable from opposed sides of a back of a chair and a seat thereof and further preferably comprising a third strap connecting the first and second straps together.

Preferably the first and second strap members are retractable and are connected to respective retraction mechanisms which may comprise a roller including a biasing means arranged to bias the straps into a rolled-up configuration on the roller. The biasing means may comprise a spring member received within the roller.

The footrest may be adjustable.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings:

Figure 1 is a view of a child seated on a conventional chair.

Figure 2 is a rear view of a child seated on a chair being an embodiment of the invention.

Figure 3 is a front view of the child and chair shown in Figure 2.

Figure 4 is a view of a harness of the embodiment of Figure 2.

Figure 5 is an exploded perspective view of a strap reel of the embodiment of Figure 2.

Figure 6 is a perspective view of a spring member of the reel of Figure 4.

Figure 7 is a part-sectional front view of the reel of Figure 4 assembled.

Figure 8 is a perspective view of a footrest of the embodiment of Figure 2.

With reference to Figures 2 and 3 an embodiment of the chair of the invention is shown which is broadly similar to the chair of Figure 1 and for which corresponding reference numerals refer to corresponding elements. The chair is also provided with the restraining harness, generally designated

100, to urge the child to adopt an upright posture and is further provided with an adjustable leg footrest 200.

The harness comprises a strap 110 having three portions 112, 114 and 116. Portions 112 and 114 are arranged, in use, to lie over the shoulders of the child with portion 116 being arranged in use to lie across the child's waist. Between portions 112 and 116 and portions 114 and 116, snap-fit connectors 118, 120 are provided. Each connector engages a corresponding socket 130, 132 in snap-lock engagement, each socket being provided with a release button 134 of conventional construction.

The free ends of strap portions 112, 114 are connected to retraction reels 140, 142 connected to the seat back 4 which are illustrated in more detail in Figures 4 - 6.

Each reel 140, 142 includes a hollow cylindrical roller member 145 to which a free end of the respective strap is attached. The roller member 145 is provided with end plugs 147, 149 which are fixedly connected to the roller 145. The plugs 147, 149 are rotatably suspended relative to fixing brackets 160, 162 by means of shaft 153 and stub shaft 154, which engage cylindrical openings 151, 152 in plugs 147 and 149. Shaft 153 also projects through roller 145 when assembled, as more clearly shown in Figure 6. A wound-wire hollow cylindrical spring member 155 is connected at one end 156 to plug 149, shaft 153 passing through spring member and

being connected to an end 157 of the spring member, as shown in Figure 5, in which the end engages a cleft 159 in the shaft 153.

The straps 112, 114 are wound on respective roller 145. When the straps are pulled from the rollers, they unravel at the same time turning roller 145. Since roller 145 is connected to plugs 147, 149, these will rotate also, as will end 156 of spring member 155, since this is connected to plug 149. However, since end 157 of spring member 155 is fixedly held to shaft 153, this causes the spring member to wind up, thus providing a biasing force against rotation of roller 145. This has the effect of generating a retracting force on straps 112, 114, in a similar manner to that provided by an inertia reel seat belt.

The adjustable footrest 200 is shown in more details in Figure 7 which includes a mounting bracket 202 to which is connected a hollow cylindrical member 204 having a securing knob 206 further connected thereto. A further cylindrical member 208 is slidably received in member 204 and includes a plurality of openings 210 in which a protrusion from the knob 206 can engage to hold the footrest in a particular position. The member 208 is connected to a triangular shaped bracket 212 serving as a footrest member.

The rollers 18 of the prior art are also preferably replaced by gliders 19 to prevent the child from pushing the chair around.

In use, the height of the seat 10 is adjusted to be the right height for the child to sit at a full size desk 20. The footrest 200 is then adjusted to suit the legs of the child, so that the child's legs are not dangling.

After the child sits on the seat the connectors 118, 120 are clipped into engagement with the sockets 130, 132. As the straps are extended, the retraction reels are rotated against the bias of the spring member 155 so that a gentle force is applied to the child's shoulders when seated urging the child to adopt a correct upright posture. The strap portion 116 which lies across the stomach of the child, prevents the child from slouching in his seat.

The force exerted by the spring members 155 need not be so great as to force the child to adopt an upright posture. Even a slight pressure on the child's body and shoulders will urge and suggest to the child to adopt an upright posture.

The embodiment described is not to be construed as limitative. For example, although the harness has been shown having three strap portions 112, 114, 116, the strap portion 116 may be omitted. Furthermore, the straps 112, 114 may connect directly to the chair without the use of connectors 118, 120. In such an arrangement, the child extends the straps 112, 114 from the reels 140, 142 and slips the extended straps over his/her shoulders. If a strap 116 is provided in such an arrangement, a snap-lock connector may be

provided at some point along the length of the strap 116 for connection across the waist of the child. Furthermore, although the straps have been shown connected to respective retraction reels, the straps may both be connected to a single reel or the reels may be omitted and the straps manually adjusted in size to suit the child.

Furthermore, the harness may comprise a single strap provided diagonally across the child from one side of the back of the chair to the other side of the seat.

Claims

1. A chair adapted for use by a child having a posture improving harness and a footrest connected thereto, the harness being arranged to urge a said child to adopt an upright posture.
2. A chair as claimed in claim 1 wherein the harness comprises at least one strap connected between a back of the chair and a seat thereof.
3. A chair as claimed in claim 2 comprising first and second said straps.
4. A chair as claimed in claim 3 further comprising a third strap connecting the first and second straps.
5. A chair as claimed in any one of claims 2 to 4 wherein the or each strap is retractable.
6. A chair as claimed in claim 5 wherein the or each strap is connected to a retraction mechanism.
7. A chair as claimed in claim 5 wherein the or each retraction mechanism comprises a roller including a biasing means arranged to bias the strap into a rolled-up configuration on the roller.
8. A chair as claimed in claim 7 wherein the biasing means comprises a spring member disposed within the roller,

rotation of the roller causing the spring member to wind up and bias the roller against said rotation.

9. A chair as claimed in any one of the preceding claims wherein the footrest is adjustable.

10. A chair as claimed in claim 1 having a back and a seat and wherein the posture improving harness comprises first and second straps including first and second connectors respectively, the seat including first and second sockets provided with respective release buttons and adapted to receive and releasably engage said first and second connectors respectively in a snap-lock engagement.

11. A chair as claimed in claim 1 having a back and a seat and the posture improving harness comprises a strap including first and second strap portions adapted to lie over the shoulders of a person and a third strap portion unitary with and extending between the first and second strap portions and adapted to lie across the person's waist.

12. A chair as claimed in claim 11 further comprising a retraction mechanism and wherein the at least one strap is retractable.

13. A chair as claimed in claim 1 having a back and a seat and wherein the posture improving harness comprises at least one strap connected between the back and the seat to a retraction mechanism, said retraction mechanism including a roller and a biasing means arranged to bias the strap into a rolled-up configuration on the roller, the biasing means comprising a spring member disposed within the roller and a shaft disposed within the spring member, the shaft including a cleft and the spring member including an end engaged in said cleft whereby rotation of the roller causes the spring member to wind up and bias the roller against said rotation.

14. A chair as claimed in claim 1 further comprising a back and a seat and the footrest being adjustable and including a bracket mounted to the underside of said seat and a footrest member extending downwardly from said bracket.