

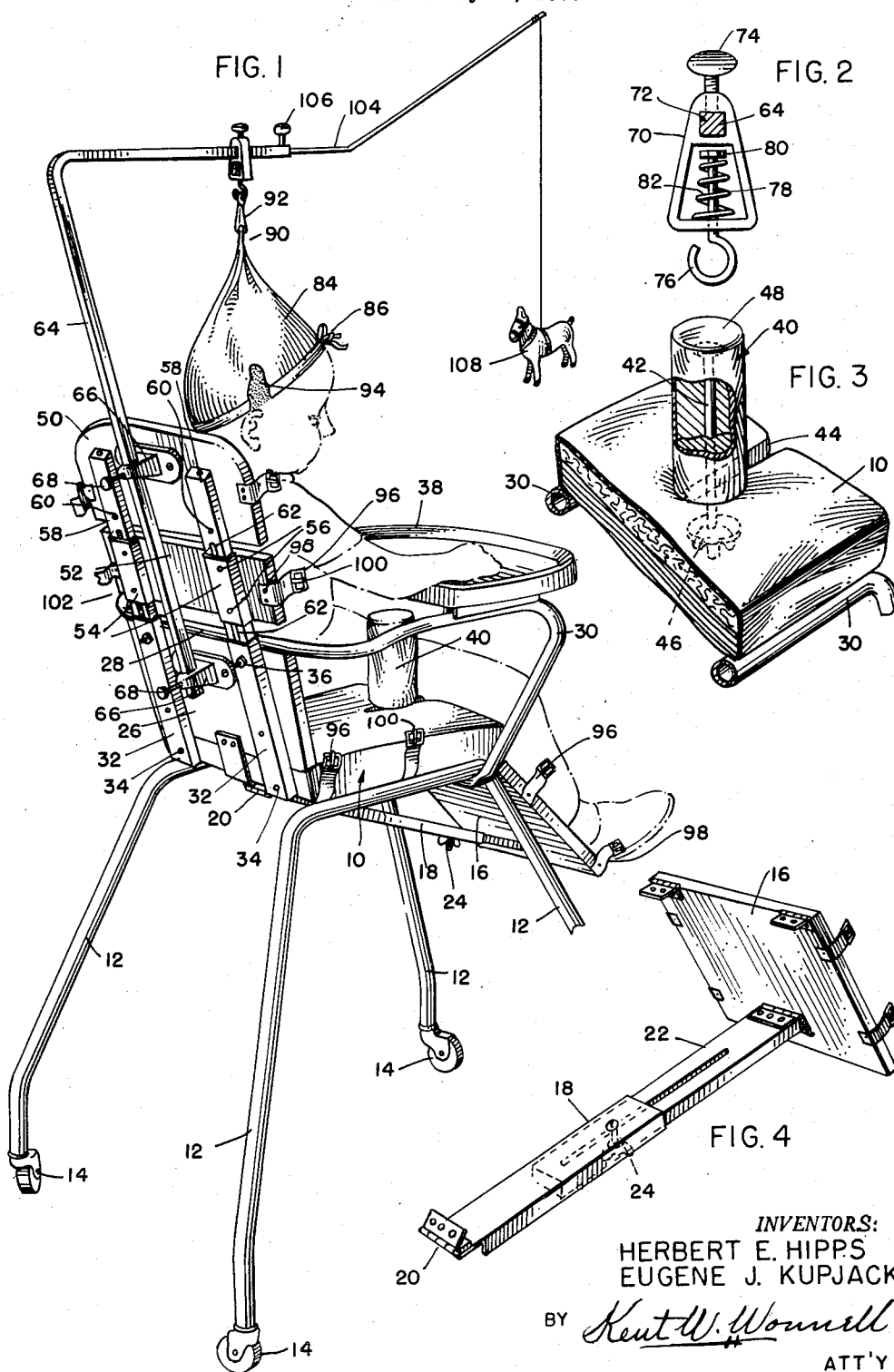
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CHAIR BRACE

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CHAIR BRACE

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This invention relates to an invalid's chair and is more particularly described as a chair brace for a cerebral palsy child.

In the treatment of a cerebral palsy patient, it is important that the child be kept in an erect position as much as possible for feeding, teaching and training the child, as he is thus able to see the world about him instead of the ceiling above which promotes mental development. It is important that the head as well as the body be held in an erect and upright position and also that the head be movable from side to side to strengthen the neck muscles.

An important object of the invention is therefore to provide a portable chair in which the body, legs and head of a patient may be supported in a substantially erect position.

A further object of the invention is to provide means for mounting and holding the head in an erect position and permitting it to turn from side to side.

A still further object of the invention is to provide an adjustable back to change and vary the back support which is needed.

A further object of the invention is to provide means for adjustably supporting a foot and leg rest at the front of the chair seat.

Still a further object of the invention is to provide an adjustable supporting crotch post for additionally holding the patient in the chair.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which,

Fig. 1 is a rear perspective view of a training chair brace in accordance with this invention;

Fig. 2 is an elevational view of the head piece support;

Fig. 3 is a fragmentary view with parts broken away showing the crotch post; and

Fig. 4 is a perspective view showing the foot rest and the means for angularly adjusting it relative to the seat.

This training chair brace is an aid in helping a handicapped child to learn head balance, sitting balance, use of hands and arms and as a preliminary to his learning to walk.

Referring now more particularly to the drawings, the chair has a padded seat 10 with bent, hollow tubes secured thereto forming widely extending legs 12 mounted at the bottom on casters 14. Thus the chair is freely movable from room to room so that a child can watch his mother at work. This will hold his interest and he will begin to follow her movements, first with his eyes and later by moving his head from side to side. These movements continued over a sufficient period, strengthen the neck muscles so that the head can be held erect and control is obtained over head movements. The chair thus serves a double purpose. It leaves the mother or nurse free for household or other duties but trains the child at the same time.

Extending downwardly at the front of the seat is a padded foot rest 16 hinged at the top to the seat and

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having an adjustable brace comprising a pivoted plate 18 connected to the rear of the seat by a hinge 20. Extending upwardly from the foot rest is a slotted plate 22 hinged to the foot rest and movable relative to the pivoting plate 18 depending upon the inclination of the foot rest, with a thumb screw 24 attached to the plate 18 and extending through the slotted plate 22 so that the angle of the foot rest may be adjusted and set as desired.

At the back of the chair is a sectional back rest having a fixed section 26 at the bottom below a connecting portion 28 of the opposite side arms 30 which are formed from a single piece of tubular material bent to the proper shape and the connecting portion positioned at the top of the fixed section 26 of the back. This back section 26 and the connecting portion 28 are secured in place by hollow rectangular sleeves 32 secured at the bottom to the back of the seat 10, intermediate the ends of the sleeves by fastening screws 34 centrally located and by fastening bolts 36 extending through the connecting portion and centrally through the sleeve 32 at the top thereof.

Resting upon the forwardly projecting portions of the arm 30 is a food and play tray 38 which preferably has a sliding engagement with the arms connected and disengaged by spring catches which are not shown, but are commonly used in highchairs and form no particular part of the present invention.

At the front of the seat and below the tray is a crotch post 40 which has an inner shouldered stem 42 threaded at the end and extending through a slot 44 in the seat with a thumb screw 46 at the under side of the seat for variably adjusting the position of the post in a forward and rear location depending upon the size of the child placed in the chair. This crotch post is preferably covered with padding 48 so that there is no danger of hurting or injuring a child in the seat.

An extension of the back is afforded by an upper back section 50 and a lower and intermediate section 52. The intermediate section has hollow sleeves 54 extending vertically at the back of the section and the sleeves may be secured to the intermediate section by central fastening screws 56 or other suitable fastening means.

To the upper back section, supporting posts 58 are connected, one at each side, and in alignment with the sleeves 54 of the intermediate section and the sleeves 32 of the fixed back section 26. The posts are secured to the upper section by fastening screws 60 or any other suitable fastening means, and the lower portion of each post is formed with a central slot 62 which extends from just below its connection with the upper section 50 through the lower end of the post so that the post may be inserted through the sleeves of the intermediate and bottom back sections, the fastening screws 34, 36 and 56 extending freely through the slots of the posts and permitting a sliding engagement of the posts with the sections.

With this construction, the intermediate section 52 may be included with or omitted from the back and if it is omitted, the height of the back may be reduced to that extent. The posts 58 are of sufficient length that the portions of the back may be spaced apart or close together to additionally vary the height of the back but to also retain the intermediate section in connection therewith.

In order to hold the back sections in spaced relation and to provide a head support, an angular metal bar 64 extends through clamps 66 projecting from the back of the upper back section 50 and from the rear of the fixed back section 26, each clamp having a screw 68 for tightly engaging and holding the bar 64 in any adjusted position. The upper end of the bar 64 is bent at right angles and extends forwardly to overlie the head of a child seated in the chair and the height of the overlying portion may

be adjusted by varying the connection of the bar in the clamps 66.

A head support comprises an adjustable clamp 70 which has an opening 72 slidable upon the forward projecting portion of the bar 64 with a thumbscrew 74 for attaching it in any adjusted position along the bar. Extending below the clamp is an eyelet 76 having a stem 78 projecting within the clamp and a nut 80 at the upper end of the stem with a coil spring 82 surrounding the stem between the nut and the lower supporting portion of the clamp, thus providing a spring supported swivel holder for the head gear.

Various types of head pieces such as helmets, straps and caps have been tried but the most successful has been a stocking cap 84 with a drawstring 86 at the bottom and a loop 88 at the top engaged by a ring 90. This ring is connected to the eyelet 76 by a spring clip 92. This head piece is secured to the head of a patient by a non-toxic, non-irritating liquid adhesive 94 which is applied over the front, back and sides of the head after the hair has been cut very short, that is, no longer than one-fourth of an inch. The cap is rolled downwardly at the back until it is below the hair line and down to the ears on both sides and to the middle of the forehead at the front. The drawstring 86 is then made tight and the cap is retained in position until the adhesive is dried and then the ring 90 may be attached to the spring clip. The head clamp 70 is moved back and forward on the bar until a position is found where the child's head is held erect. There must not be too great a pull on the cap and the child's head must be able to move from side to side. The adhesive and the head piece may stay on the child's head for a week at a time and if the cap should be removed, the child's head should be cleaned with soapy water and a new head piece or fresh adhesive should be again applied to the head piece.

At the sides of the back sections, the seat 10 and the foot rest 17 are buckles 96 firmly attached by small nails, rivets 98 or other suitable fastening devices. Each buckle has one or more prongs 100 projecting in an opening thereof in a well known manner and adapted to engage fastening straps which are inserted through the openings and tightened by engagement with the prongs. These straps have no buckles and may be inserted to engage the buckles 96 from either end so that it is a simple matter to apply straps across the legs and body and on top of the seat and to engage the upper portion of the body about the shoulders. Usually one shoulder is engaged by a strap having both ends at the other side of the back rest so that the arms are free for movement, but the child is held in an upright position.

At the front of the overlying portion of the angular bar 64 in an opening at the end of the bar is a toy arm 104 secured in place by a thumb screw 106 and bent intermediate its ends so that the toy may be adjusted from side to side by simply releasing the thumb screw and turning the arm in one direction or the other.

A toy 108 suspended at the outer end of the arm will attract a child's attention and by placing it at one side or the other, that arm or the fingers of a child may be exercised more than the other.

This construction is capable of variation and adjustment to accommodate the various parts to patients of different sizes within the limits of extent of the parts themselves. It is advisable to omit a cross piece at the bottom of the foot rest; the crotch post is adjustable to

the front or rear of the seat; the back rest may be varied to support the same patient differently at different stages of his recovery; the back sections may be variously secured together by the adjustable angular bar 64, and it may be varied in height depending upon the size of the patient; and the toy arm may be varied in position depending upon the treatment desired. The head piece is first applied and then is adjustably connected to its support, and the various straps are extended about the limbs and body of the patient to assist in holding him in an upright seating position.

While the invention has been described in some detail, it should be regarded as an illustration or example rather than as a limitation or restriction of the invention, since various changes in the construction, combination, and arrangement of the parts may be made without departing from the spirit and scope of the invention.

We claim:

1. An invalid's chair brace comprising a connected back and seat, the back comprising a plurality of sections, one section having a permanent connection to the seat and a clamp thereon, separate top and intermediate sections, and means connected to the top section for adjustably engaging the clamp and securing all of the back sections together.

2. An invalid's chair brace in accordance with claim 1, in which said means comprises guides each having a post secured to the top section and projecting downwardly at each side and sleeves connected to the other back sections through which the post extends.

3. In an invalid's chair brace in accordance with claim 2, the intermediate section having sleeves through which the posts extend freely and from which it is separately removable.

4. An invalid's chair brace in accordance with claim 1, in which the intermediate and seat sections of the back are provided with hollow aligned sleeves affixed thereto having central projections and the upper back section having a projecting post at each side with a central slot insertable through the other sleeves, the slot extending at the sides of the central projections.

5. In an invalid's chair brace, a connected back and seat, the back comprising upper, lower and intermediate sections, means for adjustably connecting the back sections together, a bar connected to the back and extending forwardly over the seat, the bar having fastening means on the upper and lower sections of the back for connecting them together with the intermediate section in between, and for extending or reducing the height of the back.

6. An invalid's chair brace in accordance with claim 5, in which the means for adjustably connecting the sections of the back together includes a sleeve in connection with the intermediate section, and a separate sleeve in connection with the back section attached to the seat, and a post connected to the upper back section insertable through the sleeves of the intermediate and seat sections of the back.

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