July 21, 1953 P. A. TERRY 2,646,106

HINGE CONSTRUCTION FOR ELEVATING CHAIR SEATS

Filed April 6, 1948 2 Sheets-Sheet 1

Fig. 1

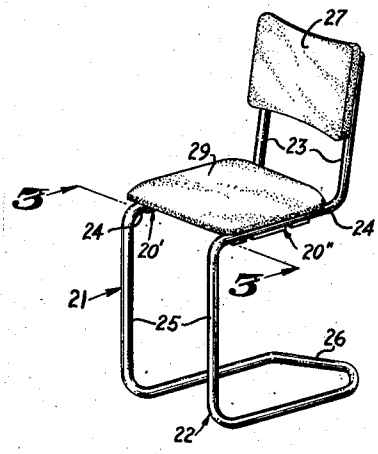


Fig. 2

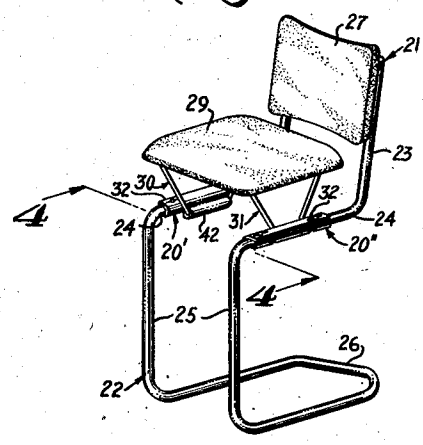


Fig. 3

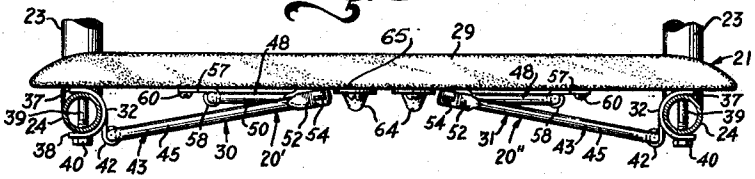


Fig. 4

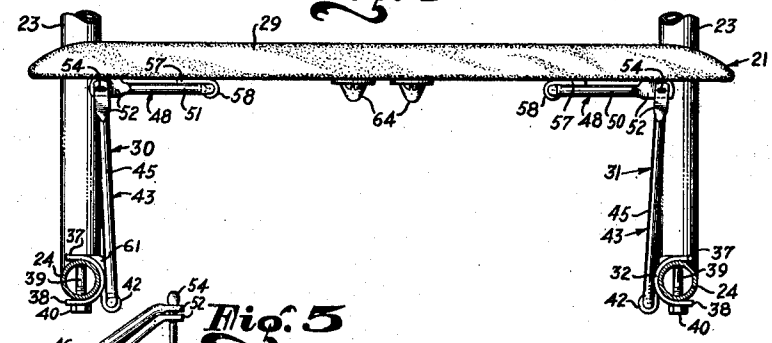


Fig. 5

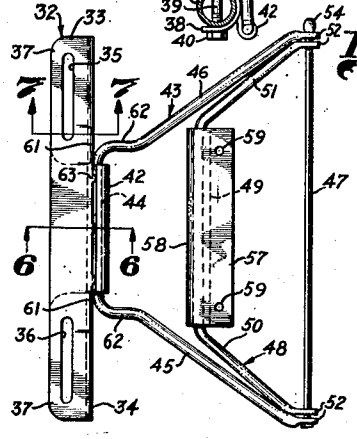


Fig. 6

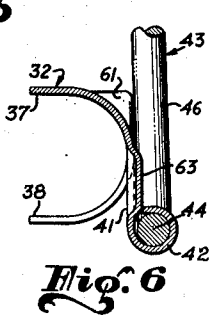
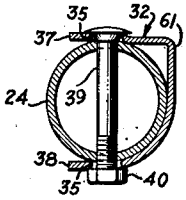


Fig. 7



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Fig. 8

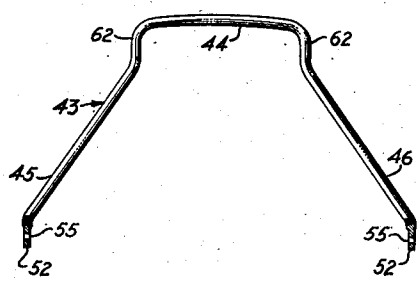


Fig. 9

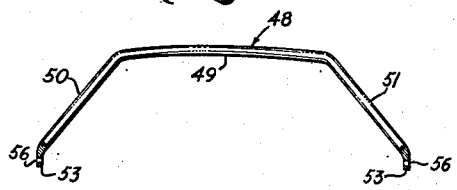


Fig. 10

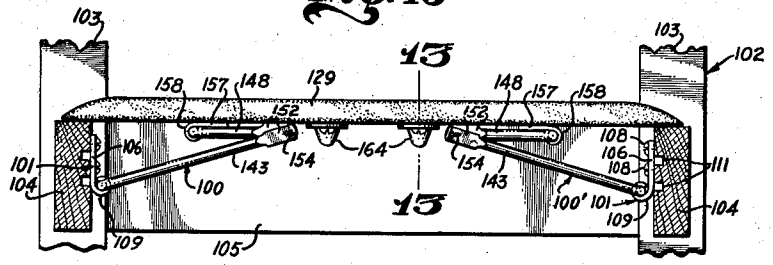


Fig. 11

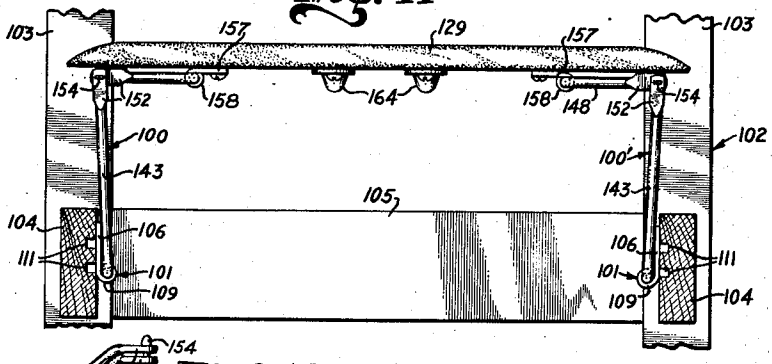


Fig. 12

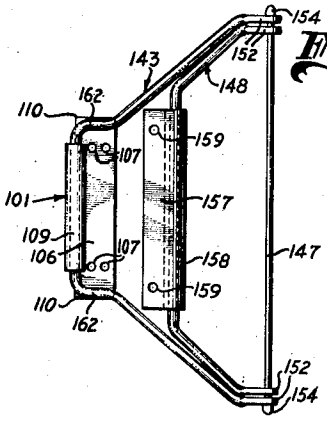
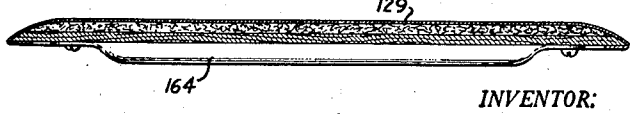


Fig. 13



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UNITED STATES PATENT OFFICE

2,646,106

HINGE CONSTRUCTION FOR ELEVATING CHAIR SEATS

Paul A. Terry, Lynwood, Calif., assignor of one-half to Herbert A. Huebner and Albert M. Herzig

Application April 6, 1948, Serial No. 19,202

10 Claims. (Cl. 155—91)

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This invention relates to chair hinges and more particularly to a foldable frame or supporting device in combination with and for selectively raising and supporting a seat of a chair relative to its frame and retaining the same when desired in said elevated position as and for a child's seat.

This application relates to an improvement of the invention disclosed in co-pending application Serial No. 623,646 filed October 22, 1945 in the names of Boschetti and Terry.

The present embodiment of this invention, while primarily directed to the understandable purpose of providing an elevated child's seat to replace the conventional "high-chair" or the like, is adaptable for use in elevating other working or supporting surfaces from a lower or conventional position to one of more suitable height for preferably temporary purposes.

It is well known that much inconvenience is associated with the task of accommodating chair benches or the like, originally intended for use by adults, to use by children. Although young people are ordinarily included in every household, relatively little attention has been paid to accommodating their needs except by providing furniture of a type substantially different from that of the grown-ups. Such children's furniture is not only cumbersome and space consuming but for the most part does not fit into the decorative scheme of the home and is usually accepted as a temporary incongruity or expedient. Even as a separate article of furniture, however, a child's seat is obviously unsuitable for use by an adult and so far as the child is concerned, his desire is generally to sit in a chair "like the grown-ups." For these reasons and others which will readily occur to anyone skilled in the art of raising children, the provision of a satisfactory child's seat readily convertible from a conventional chair comprising one of the extant articles of furniture fills a present and long-felt need.

No safe and practical structure of which the applicant has any present knowledge has heretofore been constructed with a view toward filling the above stated need. Various innovations are known in the prior art for temporarily increasing the height of a table top or bench but none, so far as applicant is aware, is safe and sturdy in use, readily and universally adaptable for converting a conventional article of furniture to the intended purpose, simple and economical of manufacture, and readily adjustable by a child.

It is therefore an object of this invention to provide a chair hinge in combination with a chair

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which may be safely used and adjusted by a child.

It is another object of this invention to provide an improved form of simplified, substantially fool-proof hinge of the desired character described which is easily adaptable for use upon a wide variety of conventional chair types as a separate article of manufacture therefrom.

It is another object of this invention to provide a new and improved supporting hinge made up of a minimum of working parts and capable of being manufactured at a cost substantially below that of anything of this character previously manufactured.

A further object is to improve and simplify the construction, operation and relationship to a chair of hinges having the same function as illustrated and described in the co-pending application above referred to.

It is among more specific objects of this invention:

(1) To provide a novel form of friction hinge;

(2) To provide a novel operative association of such a hinge with a chair;

(3) To provide a novel, economical and efficient means of joining the links of the desired hinge to one another;

(4) To provide a hinge having a maximum stability and strength in use combined with light weight;

(5) To provide a hinge, brackets of which provide suitable bearing surfaces assuring strength and avoiding injury as well as preventing wear where the described mechanism would otherwise chafe the article of furniture to which the device may be applied;

(6) To assure maximum weight bearing areas and supports compatible with use over the widest range of chair types, and consistent at the same time with harmonious appearance of the chair;

(7) To provide a universally adaptable means whereby chrome type chairs of the S-type or optionally of the conventional dinner type may be made convertible to a child's seat either during the process of manufacture of said chairs or thereafter, and which may additionally suit the purposes of different types of chairs without altering either the substantial form of the chair or the hinge and, in many cases without creating a detectable exterior difference in the chair, such results and adaptability of the hinge to be produced by the change of a minimum number of hinge parts for use with various chair styles;

(8) To provide a novel hinge construction of the desired character adaptable for use in either

type of chair last mentioned by the substitution of only one component part of the hinge.

This invention moreover has among its objects the improvement in like devices heretofore intended to accomplish analogous purposes in the prior art, and, equally important, the improved combination of chair and hinge.

With these and other objects in view, the invention consists in the construction, arrangement and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter set forth, pointed out in the appended claims and illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a perspective view of the preferred embodiment of this invention as applied to a popularly known S-type of chair.

Figure 2 is a view similar to Figure 1 but showing the chair seat in a raised position.

Figure 3 is a sectional elevational view on the line 3—3 of Figure 1.

Figure 4 is a sectional elevational view on the line 4—4 of Figure 2.

Figure 5 is a view of the preferred form of hinge per se of a type illustrated in Figures 1 through 4 but showing the same and in folded position apart from a chair.

Figure 6 is a detailed sectional view on the line 6—6 of Figure 5.

Figure 7 is a sectional view on the line 7—7 of Figure 5.

Figure 8 is a plan view of a long link.

Figure 9 is a plan view of a short link.

Figure 10 is an elevational view of a modified form of this invention as applied to a conventional dining room chair, parts of the frame of the chair being eliminated to show the relationship of the chair and hinge parts in a lowered position of the seat.

Figure 11 is a view similar to Figure 10 but showing the seat in raised position.

Figure 12 is a plan view of the modified hinge per se in a folded position.

Figure 13 is a sectional view on the line 13—13 of Figure 10.

Referring more particularly to the drawings and having reference particularly to the preferred form of this invention, illustrated in Figures 1 through 9, a complete operative hinge unit preferably comprises a pair of hinges 20' and 20'' adapted for preferably opposed securement to a chair 21 of a type which has become popular recently and which is known in the trade as an S-type chair, the frame 22 of which is usually made of stainless steel, chrome, or the like.

The frame 22 of such a chair generally comprises vertical back supports 23, horizontal seat supports 24, legs 25, and a base 26. A pad or back rest 27 is normally secured to the back supports 23 by means of bolts and nuts (not shown), and a seat 29 is ordinarily secured to the seat supports 24 in a similar manner, the bolts ordinarily extending through the seat supports in a well known manner at approximately the four corners of the seat.

In view of this latter fact, applicant has formed his hinges 20' and 20'' in the preferred form illustrated in Figures 1 through 9 with toggle members 30 and 31 adapted to be secured to corresponding side rails or seat supports 24 by means of frame brackets 32. Said frame brackets are substantially U-shaped in cross section at their ends 33 and 34, said ends being formed with slots 35 and 36 in each arm 37 and 38 of the brackets in such a manner that when said brackets 32 are positioned over their respective side rails 24, suitable bolts 39 may be inserted through the slots 35, 36, and through the rails 24, where they may be tightened in place as by suitable nuts 40. The bolts 39 are thus given a position on said side rails corresponding to the position of the bolts (not shown) normally holding the seat 29 in place upon the chair in its conventional form. In order to assure a firm surface for the seat 29, the heads of any bolts 39 which may be used may be counter-sunk in the brackets 32 so as to bring them flush with the upper face of these brackets.

Between their ends 33 and 34 the brackets are formed respectively with reinforced depending flanges 41, the flanges being formed at their lower margins into a loop 42 designed for the reception of a long link 43, the cross piece 44 of which is confined for pivotal movement within the loop 42 and the arms 45 and 46 of which flare outwardly to make pivotal connection with a rod 47 or the like and also with a short link 48 which is likewise pivotally connected with the rod 47.

The short link 48 may also be substantially U-shaped having a cross piece 49 and arms 50 and 51 flaring outwardly. The arms 45, 46, 50 and 51 are preferably flattened at their ends 52 and drilled transversely for the slidable reception of the rod 47 upon which they pivot. Rod 47 is flattened at each end as shown at 54 to form shoulders which prevent removal of the rod through the holes 55 and 56. By this structure of the rod 47 the links 43 and 48, and particularly the arms 45 and 46 on the long link 43, are braced and prevented from spreading while sustaining the weight of the seat 29 and an occupant as will become apparent.

The cross piece 49 of the short link is confined for pivotal movement within a seat bracket 57 having a loop 58 formed for such purpose along one marginal edge thereof.

The seat brackets 57 are provided with holes 59 through which screws 60 or other suitable securing means may be inserted for firmly affixing the bracket to the underside of the seat 29.

It should be noted that the cross pieces 44 and 49 of the links 43 and 48 respectively are curved to a slight extent in a manner which causes them to bind against the inner surfaces of their respective loops 42 and 58 thereby resisting relative movement to a predetermined extent and preferably causing the toggle joint formed by the junction of the two links with the rod 47 to be the only loosely movable pivotal joint, the joints formed by the brackets and links respectively being under constant tension and resisting pivotal movement but not to a sufficient extent to prevent such movement. The purpose of such frictional joints is to assure the stability of the seat when the same is in raised position, as will be described in connection with the operation of the invention. The nature of said frictional joints, as well as the weight sustaining requirements of the hinge, illustrates the fact that spring steel or the like should be used in the construction of these elements. If desired, of course, only one joint of the three on any hinge can be of a frictional type.

As is most clearly illustrated in Figures 6 and 7, suitable bosses or abutments 61 are preferably formed in the brackets 32 and corresponding off-sets 62 are most desirably formed in the long

link 43 in a position to bear against the abutments 61 when the long link is in its substantially vertical position supporting the seat 29 in its elevated condition as and for a child's seat. The off-sets also clear certain diagonal or other reinforcing corner pieces, etc. on some chairs of the S-type and particularly the dinner-type making the hinges useable more universally.

Also, as heretofore stated, the depending flanges 41 are reinforced to prevent any lateral binding movement to an extent which would render unstable the support provided by the links during use. Such flange reinforcement may take any desired form, but suitable ridges 63 extending across the flange 41 have been found most suitable for this purpose as being susceptible to easy stamping and forming operations during manufacture of the brackets from a single sheet of material.

Mode of operation

When it is desired to use the invention in the preferred form above described (assuming first of course that the hinges 20' and 20'' have been applied to the side rails or other comparable portions of the frame of a chair as illustrated, for example, by means of the frame brackets 32, and that the seat 29 has been firmly secured to the seat brackets 57) the seat in its normal or lower position as illustrated in Figures 1 and 3 normally rests upon the frame or on the upper faces of the brackets 32. In such lowered position the chair is in condition for use by an adult in the usual manner.

When it is desired, however, to raise the seat for use as a child's chair, the seat portion 29 may be grasped and lifted against the frictional resistance of the joints, as those formed by the loops 42 and 58, into an extended position in which the links 43 and 48 are in substantial alignment. In this position, due to the frictional resistance of the joints, the links will normally remain in said aligned extended positions without dropping back, thereby freeing the hands of the user and enabling him to grasp the rods 47 breaking the corresponding joint outwardly towards the respective opposite edges of the seat in the manner of a toggle.

When the links have been moved from said "dead center" or extended position, the seat may be pressed downwardly until it rests firmly upon the ends 52 of the long link and/or upon the upper side of the short link by which it is also stabilized and positioned.

As may be seen most clearly in Figure 4, when the seat is in its elevated position a slight outward flaring relationship of the long links 43 to each other obtains, and in such position the offset portions 62 of the long links bear outwardly and firmly against bosses or abutments 61, thereby preventing sidewise or wobbling movement of the seat 29. Endwise or forward and rearward wobbling movement of the seat is overcome by the substantial length of the loop construction 42 associated with the long link and the flared and therefore broadened base measured by the spread between the ends 52 of said link.

The friction at the joints of the links, i. e., at 42 and 58, tends to prevent asymmetric pivoting of the links, such as might occur when a child exerts weight only at one side edge of the seat 21 outwardly of the links 43. In fact the raised seat will easily and firmly support the full weight of a 200 lb. adult using links made of ¼'' iron rod stock, a rod 47 of ⅛'' iron wire, and brackets formed of $\frac{1}{16}$'' aluminum plate. These figures are obviously intended only as illustrative.

The construction of the parts is such that the entire seat may be raised by a child unaided by an adult. For example, the child may raise the seat one side at a time, first adjusting the hinge on one side and then adjusting the hinge on the other side of the chair, or he may adjust them together.

In most chairs of the S-type the seat 29 is sufficiently reinforced in construction that no additional reinforcement thereof is necessary when converting the same for use as herein contemplated. In those where the seat is insufficiently rigid to withstand the weight of an occupant by supports only between its side edges, suitable bracing such as strips 64 may be employed. Such strips may be formed of substantially U-shaped cross section with a base formed of flanges 65 and the strips may be secured to the lower side of the seat (which is usually of plywood or the like and covered with a suitable padding and upholstering material) between the seat brackets 57 adjacent their ends or otherwise as may be desired. By such means a firm construction may be made of the seat 29 whether the same was originally capable of withstanding the conversion to a high seat or not. Supports 64 have been found satisfactory if made of $\frac{1}{16}$'' sheet aluminum and formed with a suitable reinforcing channel.

The modified form

In the modified form of the invention, illustrated in Figures 8 through 13, the links 43 and 48, illustrated in Figures 8 and 9, are also utilized in their form as illustrated and explained in connection with the preferred embodiment of Figures 1 through 9. A rod 147 may also be employed in the identical manner as that set forth in the preferred embodiment. The seat bracket 157, also similar in every respect to that illustrated in connection with the said preferred embodiment, may be used. The modified form 100 and 100' of the chair hinges differs from the preferred form only in the modified construction of frame brackets 101. These, instead of being modified for securement to the side rails of an S-type chair, are constructed for use in connection with a dining chair 102 of conventional construction ordinarily comprising back rest rails 103, side rails 104, and a back rail 105 joining the back rest rails 103 and providing in conjunction with the side rails 104 and a front rail (not shown but opposite from the back rail 105) a support for a seat 129.

In view of these similarities, the reference numerals used in connection with the preferred form of this invention will be duplicated wherever applicable in connection with the modified form of this invention by adding 100 thereto. Accordingly, the modified form of this invention most desirably includes a pair of long links 143 making a toggled connection with a pair of short links 148 through a rod 147, and the short link may connect through a frictional joint with a seat bracket 157 by means of a loop 158. The seat 129 may be supported and reinforced by suitable braces 164 as in the preferred embodiment first described.

For ease of manufacture of the hinge by mass methods, the provision of a difference only in one bracket materially reduces the cost of converting from one form to the other. The sole material difference in the two forms of the device are, as stated, in the frame brackets 101 which in the

modified form comprise an elongated flat base 106 formed with appropriate holes 107 adapted for the securement of the bracket to the side rails 104 or other appropriate portions of the frame as by means of screws 108.

The brackets 101 may be frictionally jointed to the long links 143 by means of suitable loops 109 in a similar manner to the seat brackets 157 and in a manner and for a purpose heretofore described. The offset portions 162 formed in the long link, in the raised position of the seat (Figure 11) or their adjacent parts, normally bear against extensions 110 of the frame bracket 101. These extensions 110 furnish a firm support substantially similar to that provided by the abutments or bosses 61 on the frame brackets of the preferred embodiment, and also prevent the side rails 104 of the chair from being injured or abraded by the links 143. Otherwise frequent use of the seat in its elevated position would inevitably wear grooves in the side rails and result in a certain degree of play and looseness of the raised seat.

The flat frame bracket 106 straddles the channels 111 which are frequently found in side rails of conventional dining room chairs being formed therein often for the purpose of making certain dovetailed connections of the chair parts.

The use of the modified hinge and chair is, from a user's standpoint, exactly the same as that described in connection with the preferred embodiment.

The material of which the hinges of this invention may be made will be apparent to anyone skilled in the art of furniture construction. It is apparent, however, that the links 43 and 48 may be of spring steel or equivalent material in the precise embodiments illustrated and described. The brackets 32, 57, 157 and 106 may be made of a cold rolled or mild steel stock, or of aluminum as noted, so that they may be readily formed by dies and shaped as desired.

It has been found practical to form the brackets by means of a forming die and to punch out the slots 35 and 36 and the screw holes where required in a substantially continuous or even single cutting and forming operation. Likewise in the preferred embodiment first above described and illustrated the ridges 63 providing reinforcements for the flange 41 and the bosses or abutments 61 are preferably formed during the same operation or series of operations. The rod 47 may be of mild steel wire or the like and may be peened at its ends in a similar manner to the peening or flattening of the ends of the links. The ends of the rod 47, however, obviously need not be drilled.

The slots 35 and 36 are of a length calculated to adapt the brackets 32 to practically all S-type chairs. Such chairs are generally made of tubing having an external diameter of from ⅞ to one inch. Accordingly the bracket (if intended as a separate mail order or retail item) is made with an internal diameter of approximately $\frac{15}{16}$ of an inch, the slots being approximately a quarter of an inch wide in order to accommodate the usual $\frac{3}{16}$ inch bolts which are removable from the chair in its conventional form. Such construction makes the bracket adaptable for use in converting a chair of the S-type to a high seat even though the same was not originally manufactured in combination with a chair hinge of the character herein described.

It has been found that when the seat is in a raised position a slight upward divergence between the long links 43 or 143 is desirable. Thus, for example, when the seat is in its raised position the upper ends of the arms 45—46 are preferably, though not necessarily, $\frac{1}{32}$ of an inch further apart than are the lower ends of said arms, where they merge with the cross members 44. Such divergence is not necessary to the proper operation of this invention, but has been found desirable not alone for preventing a sidewise movement of the seat as heretofore mentioned, but also for creating an appropriate toggle locking angle.

As noted the hinge herein described, if made to proper dimensions, is peculiarly adapted for use upon a vast majority of chairs now in use by the simple removal of the customary connecting means (e. g., screws and the like) between the seat and the frame. The brackets may be secured in place without altering in any great extent, and frequently not at all, the appearance of the chair as a conventional article of furniture. Of course, it is contemplated that chairs will be manufactured with the hinges already installed as integral units, and for such purpose any of the brackets may be omitted or modified as the chair construction calls for.

This invention features the provision of a new and improved chair hinge of light, simple construction, universally adaptable with but few exceptions to conventional chairs now in use without altering their appearance as ordinary articles of furniture, yet providing by a simple movement and with minimum manipulation a high seat for children which is sturdy and foolproof, and moreover whose simplicity of construction and design lends itself readily to mass production methods at low cost. This invention furthermore features a new and improved combination of chair and hinge for the purposes set forth.

While the instant invention has been shown and described herein in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is therefore not to be limited to the details disclosed herein but is to be accorded the full scope of the claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A toggle by means of which a seat may be raised or lowered relative to a chair frame, said toggle comprising a long link and a relatively short link having a toggled connection and brackets associated with the ends of the links adapted to pivotally connect said links to the frame and seat of a chair, said brackets comprising substantially flat elements each having a tubular portion, said links comprising a springy rod-like element having a portion extending through said tubular portion, said portion of said rod-like element being bowed to normally bear against the inner walls of said tubular portion in a manner to frictionally engage the latter and resist rotation of the link therein, forming a stiff frictional joint.

2. Mechanism by means of which a seat may be raised and lowered relative to a chair frame, comprising a toggle including a long link and a short link pivotally connected together, brackets pivotally connected to the free ends of said links adapted to mount said toggle to and between the frame and seat, said long links being generally vertical in the raised position of the seat and bearing against the brackets to which they are pivoted, said short links being substantially hori-

zontal in the raised position of the seat, each link including flared, opposed legs having transverse openings therethrough, and a rod extending through said openings to form said pivotal connection between links, said rod having retaining means thereon.

3. In a toggle hinge of the character described a bracket adapted to be associated with a tubular chair frame and comprising a substantially U-shaped element having opposite ends thereof adapted for the reception of bolts corresponding to holes normally included in a chair frame of the described character whereby said bracket may be bolted to said frame, an abutment on said bracket and a substantially tubular portion formed thereon, a rod-like link mounted in the tubular portion, said link in a predetermined position of rotation relative to said bracket normally bearing against said abutment.

4. In a toggle hinge of the character described a bracket adapted to be associated with a tubular chair frame and comprising a substantially U-shaped element having opposite ends thereof adapted for the reception of bolts corresponding to holes normally included in a chair frame of the described character whereby said bracket may be bolted to said frame, an abutment on said bracket and a substantially tubular portion formed thereon, a rod-like link mounted in the tubular portion, said link in a predetermined position of rotation relative to said bracket normally bearing against said abutment, said link being substantially U-shaped with flared arms terminating in flattened portions and formed with an off-set normally engageable against said abutment, and means adapted to restrain said arms against spreading forces occasioned by the positioning thereon when vertical of a chair seat and superimposed weight.

5. In a toggle hinge of the character described a bracket adapted to be associated with a tubular chair frame and comprising a substantially U-shaped element having opposite ends thereof adapted for the reception of bolts corresponding to holes normally included in a chair frame of the described character whereby said bracket may be bolted to said frame, an abutment on said bracket and a substantially tubular portion formed thereon, a rod-like link mounted in the tubular portion, said link in a predetermined position of rotation relative to said bracket normally bearing against said abutment, said link being substantially U-shaped with flared arms terminating in flattened portions and formed with an off-set normally engageable against said abutment, means adapted to restrain said arms against spreading forces occasioned by the positioning thereon when vertical of a chair seat and superimposed weight, said means comprising a rod connecting the ends of said arms, said arms having openings therein for the rotatable accommodation of said rod, said rod being formed with shoulders non-retractable through said openings, and a second substantially U-shaped relatively shorter link pivotally associated with said first link at said rod.

6. In a toggle hinge of the character described a bracket adapted to be associated with a tubular chair frame and comprising a substantially U-shaped element having opposite ends thereof adapted for the reception of bolts corresponding to holes normally included in a chair frame of the described character whereby said bracket may be bolted to said frame, an abutment on said bracket and a substantially tubular portion

formed thereon, a rod-like link mounted in the tubular portion, said link in a predetermined position of rotation relative to said bracket normally bearing against said abutment, said link being substantially U-shaped with flared arms terminating in flattened portions and formed with an off-set normally engageable against said abutment, means adapted to restrain said arms against spreading forces occasioned by the positioning thereon when vertical of a chair seat and superimposed weight, said means comprising a rod connecting the ends of said arms, said arms having openings therein for the rotatable accommodation of said rod, said rod being formed with shoulders non-retractable through said openings, a second substantially U-shaped relatively shorter link pivotally associated with said first link at said rod, and a second bracket having a portion encircling for frictional rotation the bight portion of said U-shaped second link.

7. In a toggle hinge of the character described a bracket forming an abutment, means for securing said bracket to a rail of a chair, a substantially U-shaped toggle link pivotally mounted on said bracket, said bracket extending above said pivotal mounting and limiting the pivotal movement of the opposed arms of the toggle link in a substantially upright position of the link relative to the bracket, the opposing arms of said toggle link being flared outwardly relative to one another and means associated with the ends of said arms restraining said arms when upright against relative spreading movement under the influence of a force pressing downwardly upon and supported by said ends.

8. In a toggle hinge of the character described a bracket forming an abutment, means for securing said bracket to a rail of a chair, a substantially U-shaped toggle link pivotally mounted on said bracket, said bracket extending above said pivotal mounting and limiting the pivotal movement of the opposed arms of the toggle link in a substantially upright position of the link relative to the bracket, the opposing arms of said toggle link being flared outwardly relative to one another and means associated with the ends of said arms restraining said arms when upright against relative spreading movement under the influence of a force pressing downwardly upon and supported by said ends, said means comprising a rod, said ends being formed with openings therein, said rod extending through said openings and being formed with shoulders upon the ends thereof non-retractable through said openings, and a relatively shorter U-shaped link pivotally associated with said rod.

9. In a chair comprising a frame member and a seat member, a toggle hinge comprising two links having a joint in common at one of their ends and means pivotally connecting the other end of each of said links to said frame and seat members respectively, said seat connecting means and said frame connecting means being horizontally off-set relative to one another whereby said seat has a lowered position upon said frame and a raised position upon one end of one of said links in a substantially vertical position thereof, said links comprising substantially U-shaped members each forming two outwardly flared arms and a cross arm, said first named arms having said common joint at their flared ends, an off-set in said flared arms, one of said pivotal means comprising a bracket of substantially U-shaped cross section fitting over a tubular rail comprising a horizontal portion of said chair frame, said

bracket providing an abutment for the link pivotally connected to said bracket against which the link rests in the raised position of the seat and the generally vertical position of the link.

10. In a chair comprising a frame member and a seat member, a toggle hinge comprising two links having a joint in common at one of their ends and means pivotally connecting the other end of each of said links to said frame and seat members respectively, said seat connecting means and said frame connecting means being horizontally off-set relative to one another, the lower links being secured below the upper edge of and bearing outwardly against the horizontal side portions of the frame, whereby said seat has a lowered position upon said frame and a raised position upon one end of one of said links in a generally vertical position thereof, said toggle link having at least one frictional pivotal joint

comprising a tubular hinge portion, normally frictionally confining a portion of one of said links, said portion of said link being in the form of a bowed pintle of springy construction yieldably pinched within said tubular portion.

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