July 14, 1964 C. S. HICKE 3,140,894

CONVERTIBLE DESK CHAIR

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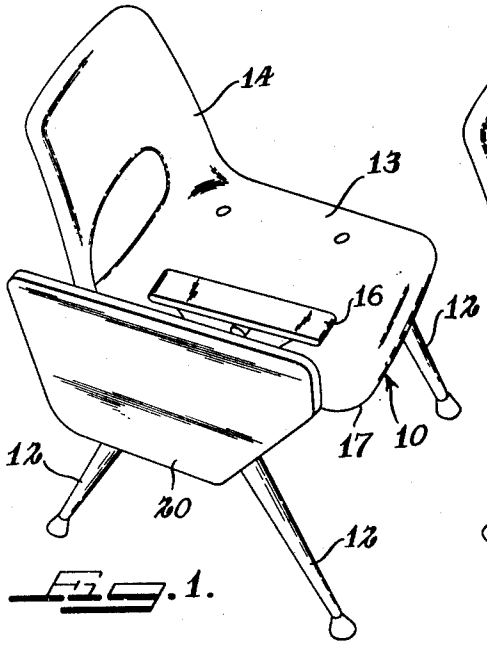

Fig. 1.

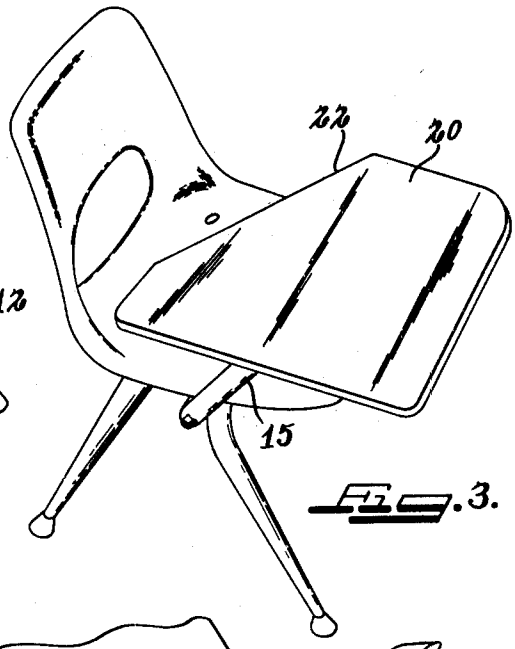

Fig. 3.

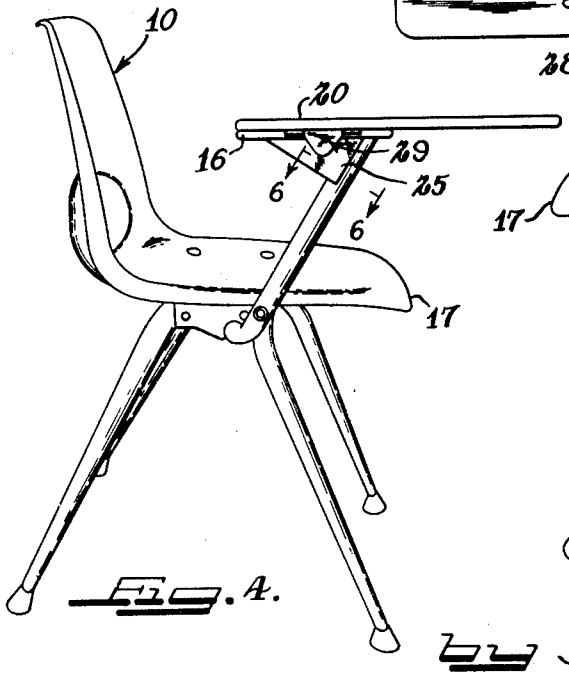

Fig. 4.

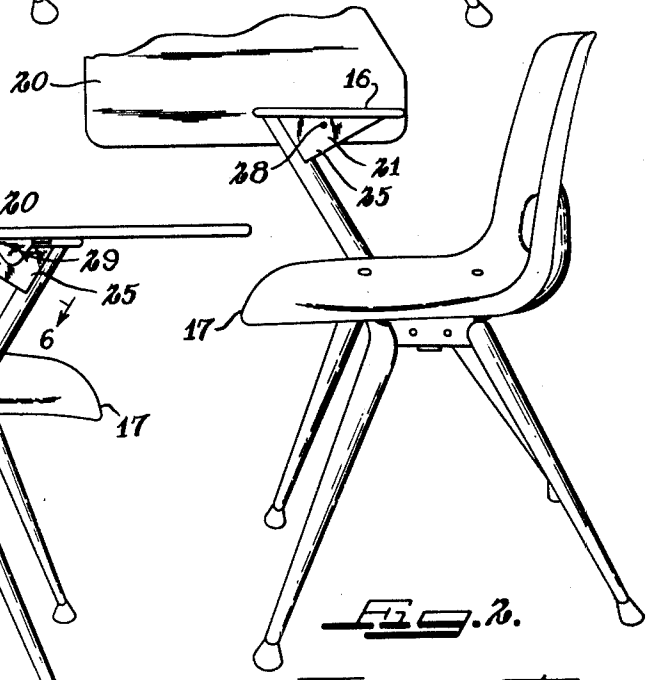

Fig. 2.

Inventor
CARROLL S. HICKE
by Hofgren, Brady, Wegner Allen & Stillman
Attys.

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Fig. 5.

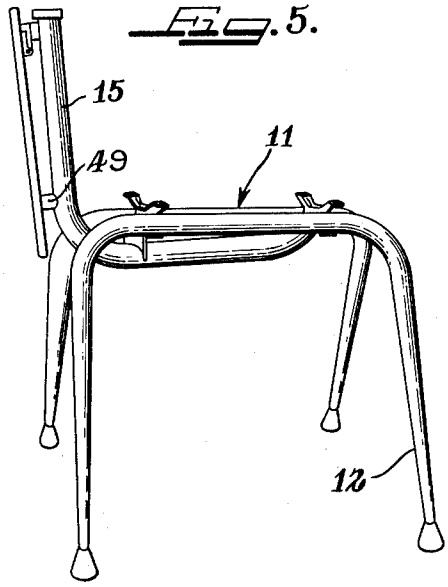


Fig. 6.

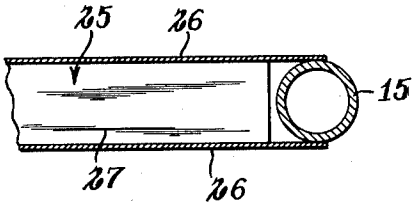
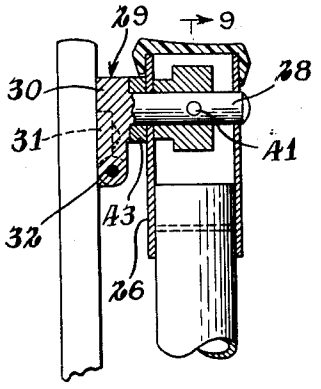


Fig. 8.



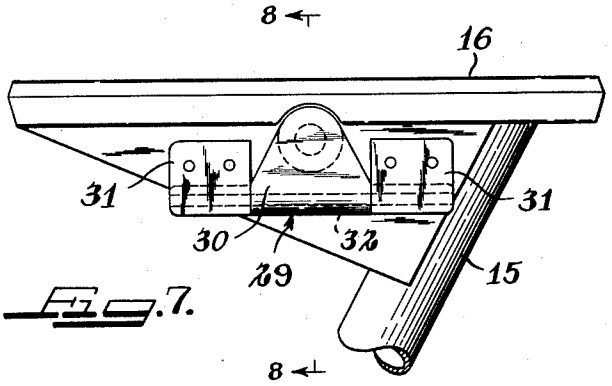


Fig. 7.

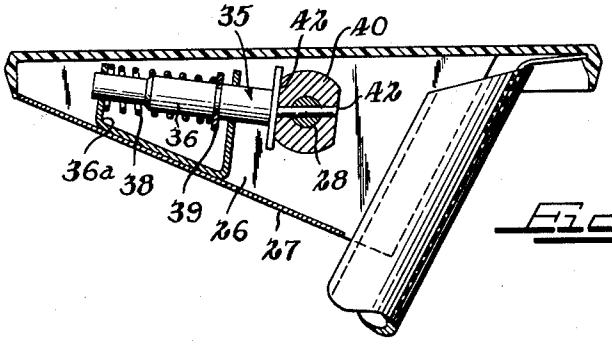


Fig. 9.

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3,140,894

CONVERTIBLE DESK CHAIR

Carroll S. Hicke, Fort Atkinson, Wis., assignor to Brunswick Corporation, a corporation of Delaware

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7 Claims. (Cl. 297—162)

This invention relates to convertible desk chairs, and more particularly to a tablet assembly for a desk chair.

The primary object of this invention is to provide a new and improved convertible desk chair.

Desk chairs are a well known form of institutional furniture, and are particularly suited for use in classrooms and lecture rooms. These desk chairs include a suitable chair structure with a tablet secured to a side of the chair and providing a work surface suitable for writing and holding various material such as books. Such tablets are often fixed to the chair, although they may be convertible between a work surface position above the front edge of the chair seat, and a depending position adjacent the seat. A convertible arrangement is particularly useful in providing earlier access in seating oneself in the chair. In many earlier convertible desk chairs the tablet is not firmly held in work surface position and often movement of the tablet to and from its work surface position follows a path extending outwardly from the chair so as to interfere with an adjacent chair or person standing nearby. Also, many prior convertible desk chairs utilize bulky and often expensive mounting devices for the tablets.

An important object of this invention is to provide a new and improved assembly for mounting a tablet on a convertible desk chair.

A more specific object is provision of a new and improved assembly for attaching a tablet to a convertible desk chair in such a manner that the tablet follows a planar path flat along the side of the chair and moves across the chair seat in a path generally parallel the front edge of the seat in moving between working surface and retracted positions. Another object is provision of a new and improved mounting device for such an assembly.

Other objects and advantages will become readily apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a preferred embodiment of a convertible desk chair with a tablet in retracted position;

FIG. 2 is a perspective view of the convertible desk chair with the tablet in an elevated intermediate position;

FIGS. 3 and 4 are perspective views of the convertible desk chair with the tablet in work surface position;

FIG. 5 is a perspective view of a frame portion of the convertible desk chair, with the tablet in retracted position;

FIG. 6 is an enlarged, fragmentary section taken generally along the lines 6—6 of FIG. 4;

FIG. 7 is an enlarged fragmentary side elevational view of a portion of the convertible desk chair in retracted position, and with the tablet removed for clearer illustration;

FIG. 8 is a fragmentary front elevation view with parts broken away along the line 8—8 of FIG. 7; and

FIG. 9 is a fragmentary vertical section taken generally along the line 9—9 of FIG. 8.

While an illustrative embodiment of the invention is shown in the drawings and will be described in detail herein, the invention is susceptible of embodiment in many different forms, and it should be understood that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention of the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

The invention is, in brief, directed to a convertible desk chair, and more particularly to the mounting of a tablet on a chair for movement of the tablet in a path closely proximate the chair during transposition between a work surface position and a retracted position facilitating access to the chair seat. This mounting neatly and unobtrusively connects the chair and its tablet so that the tablet may move between its positions without interference with a person seated in the chair or other persons or objects near the chair.

With reference to the drawings, a convertible desk chair includes a suitable chair **10** having a frame **11** (FIG. 5) with legs **12** and supporting a chair body including a generally horizontal seat **13** secured to the frame **11** and a back rest **14** extending upwardly from the rear of the seat. A support, illustrated in the form of an arm **15** forming part of the frame, extends upwardly from seat **13**. More particularly, arm **15** extends upwardly from the right hand side of seat **13** and at its upper end carries a suitable arm rest **16** which extends rearwardly above front edge **17** of the seat and preferably is made of plastic as illustrated in FIGS. 8 and 9 to quietly support a work tablet without being damaged by the latter.

A generally flat tablet **20** is mounted on chair **10** for movement between a retracted position, as shown in FIG. 1, and a work surface position as shown in FIGS. 3 and 4. This tablet is mounted on the chair by a mounting device **21** so that the tablet may be moved between retracted and work surface positions without interfering with a person seated in the chair or a person or object near the chair. More particularly, in retracted position (FIG. 1), tablet **20** is flat along the chair side, and flat in a generally vertical plane substantially normal front edge **17**, and in work surface position (FIGS. 3 and 4), the tablet is flat in a generally horizontal plane spaced above the front of seat **13**. Tablet **20** moves between these positions in a path closely proximate the chair so as not to protrude from the chair, and in moving through this path passed through an intermediate elevated position (FIG. 2). In transposition between retracted and intermediate positions, the tablet moves in a path flat in a generally vertical plane generally normal seat front edge **17**, and in the illustrated embodiment these positions and the transposition path are in the same plane. In transposition between work surface and intermediate position the tablet **20** again moves in a path generally parallel seat front edge **17** and across the seat, with the tablet flat in a plane rotated about an axis normal to front edge **17**. Thus, the tablet does not extend outwardly an appreciable distance from the chair in moving between retracted and work surface positions, so that it may be converted in crowded places.

Tablet **20** is firmly retained in work surface position by a mounting device **21** in cooperation with arm rest **16** which receives the undersurface of tablet **20**, as shown

in FIG. 4. It should be noted that mounting device **21** is intermediate, and generally centered between opposite ends of arm rest **16**, to retain the tablet against rocking movement from front to back of the chair.

Mounting device **21** may be best seen in FIGS. 6–9 and includes a suitable mounting body, here in the form of a housing **25** having opposed generally vertical side walls **26** connected at their lower edges by a bottom wall **27**. This housing is secured to arm **15** and attached to the underside of arm rest **16** to form a neat and compact assembly which is unobtrusive and conforms with the lines of the chair. The housing also provides a brace structure between the arm rest and arm for bracing arm rest **16**. A pivot shaft **28** extends through and is journalled on housing side walls **26** for rotation about a horizontal axis generally normal to the chair side. This shaft is connected with a hinge **29**, and more particularly to one leaf member **30** of the hinge. Another hinge leaf **31** is connected with the first leaf by a hinge pin **32** for pivotal movement of the leaves about an axis generally normal and close to the shaft axis. Leaf **31** is firmly attached to the underside of tablet **20** in any suitable manner as by screws. With reference to FIG. 7, it will be seen that in the illustrated embodiment leaf **31** comprises two sections on either side of leaf **30**, for effectively preventing catching clothing or smashing a finger in the hinge. In the moving between retracted position (FIG. 1) and elevated positions (FIG. 2), the tablet pivots approximately 180° on shaft **28**, and approximately 90° on hinge pin **32**.

Shaft **28** is releasably held in positions corresponding to the tablet retracted and elevated or work surface positions, by means here illustrated in the form of cam follower or detent **35** having a shank **36** reciprocably mounted in a generally U-shaped bracket **36***a* which has a portion along bottom wall **27** secured to housing **25**. Resilient means, here in the form of a compression spring **38**, engages a leg of this bracket and a collar **39** secured to shank **36** for resiliently urging detent **35** into engagement with a cam **40** suitably fixed to shaft **30**, as by a pin **41**. This cam is illustrated with opposed flats **42** for selectively engaging detent **35** to releasably hold tablet **20** in retracted position, or in elevated or work surface position, respectively, and this means generally facilitates moving the tablet between its positions by providing an index means.

It should be noted that in retracted position, the tablet is inclined slightly inwardly toward the chair from mounting device **21**, and this is accomplished by hinge **29** and more particularly by abutment of its leaves with each other. The tablet is spaced from the chair by a spacer bushing **43** telescoped on shaft **28** between housing **25** and hinge **29**, and a bumper **49** may be secured to arm **15** to further retain tablet **20** in retracted position and to prevent the chair or tablet from being marred.

I claim:

1. A convertible desk chair or the like, comprising, in combination, a frame adapted to rest on a floor or the like, a seat supported on the frame, an upright on the frame beside the seat, a tablet movable between a generally horizontal work position over the upright and a retracted generally vertical depending position alongside the upright on the opposite side thereof from the seat, and means mounting the tablet for movement as described, including a hinge having a first leaf affixed to the tablet and a second leaf pivotably connected to the first leaf for movement relative thereto about a first axis and pivotally mounted on the upright for movement about an axis generally at right angles to said first axis so that the tablet is movable 180° in a generally vertically disposed plane alongside said upright in either direction from said storage position to a third position where the tablet may be swung about the hinge axis to the generally horizontal work position, and detent means for releasably holding said second hinge member with the tablet in each of said storage and third positions.

2. A convertible desk chair, comprising, a chair unit having a seat and supporting legs, an upright connected to the chair unit and extending upwardly alongside the seat, a tablet movable between a generally horizontal work position over the upright and a retracted generally vertical storage position alongside the upright, and means mounting the tablet for movement between the two described positions including a shaft journaled on the upright for movement about a generally horizontal axis transverse to the upright, a hinge having a first leaf secured to the shaft and a second leaf secured to the tablet and hingedly connected to the first leaf for movement relative thereto about an axis normal to the first-mentioned axis, so that the tablet is movable approximately 180° in a generally vertical plane alongside the upright in either direction from the storage position to a third position where the tablet may be swung about the hinge axis to the work position, and detent means for defining the third position comprising a spring biased detent and a cooperating detent surface, one on the upright and one on the shaft, for releasably holding the shaft at a position with the tablet in the third position.

3. A convertible desk chair construction comprising, a chair structure including a supporting understructure and a seat on the understructure including a front edge, an upright at one side of said seat attached to said chair structure including an elongated generally horizontal arm rest disposed above and alongside the seat generally perpendicular to the front edge of the seat, a work supporting tablet means pivotally and hingedly mounting the tablet to the support for pivoting about an axis transverse to the arm rest between a lower retracted position alongside the upright in a generally vertical plane parallel to the arm rest and an upper intermediate position in the same general plane and alongside the arm rest, and for pivoting from said intermediate position about an axis generally parallel to the arm rest to a work position in a generally horizontal plane over the arm rest with the bottom of the tablet resting on the top of the arm rest to support the tablet in work position and retain the same against movement about said transverse axis and about said parallel axis except toward said intermediate position.

4. A convertible desk chair comprising, in combination, a chair unit having a seat and supporting legs, an upright support connected to the chair unit extending upwardly alongside the seat and having connected thereto an elongated generally horizontal arm rest disposed above and alongside the seat extending longitudinally forwardly and rearwardly of its connection to the upright support, a tablet movable between a generally horizontal work position over the upright and a retracted generally vertical storage position alongside the upright, and means mounting the tablet for movement between the two described positions including a shaft journaled on the upright intermediate the ends of the arm rest for movement about a generally horizontal axis transverse of the upright, a hinge having a first leaf secured to the shaft and a second leaf secured to the tablet and hingedly connected to the first leaf for movement relative thereto about an axis normal to the first-mentioned axis, so that the tablet is movable approximately 180° in a generally vertical plane alongside the upright in either direction from the storage position to a third position where the tablet may be swung about the hinge axis to the work position over the arm rest with the bottom of the tablet resting on the top of the arm rest to support the tablet against rotational movement about said transverse axis and about said normal axis except toward the intermediate position, and detent means for defining the third position comprising a spring biased detent and a cooperating detent surface, one on the upright and one on the shaft, for locating and releasably holding the tablet in its third position.

5. A combination as in claim 3 in which said means

pivotally and hingedly mounting the tablet includes a pivot axis about which the tablet pivots from said intermediate position to said work position with said pivot axis extending alongside the arm rest in spaced parallel relation thereto when the tablet is resting on the arm rest.

6. A combination as in claim 3 wherein the mounting means mounts said work tablet for pivoting through 360° about said transverse axis, and the mounting means, tablet and arm rest are disposed relative to each other with the mounting means intermediate opposite ends of the arm rest and tablet, and the bottom of the tablet in work position engages the top of the arm rest forwardly and rearwardly of the mounting means.

7. A convertible desk chair as defined in claim 3, wherein the arm rest is made of plastic material to quietly support the work tablet without being damaged by the latter.

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