

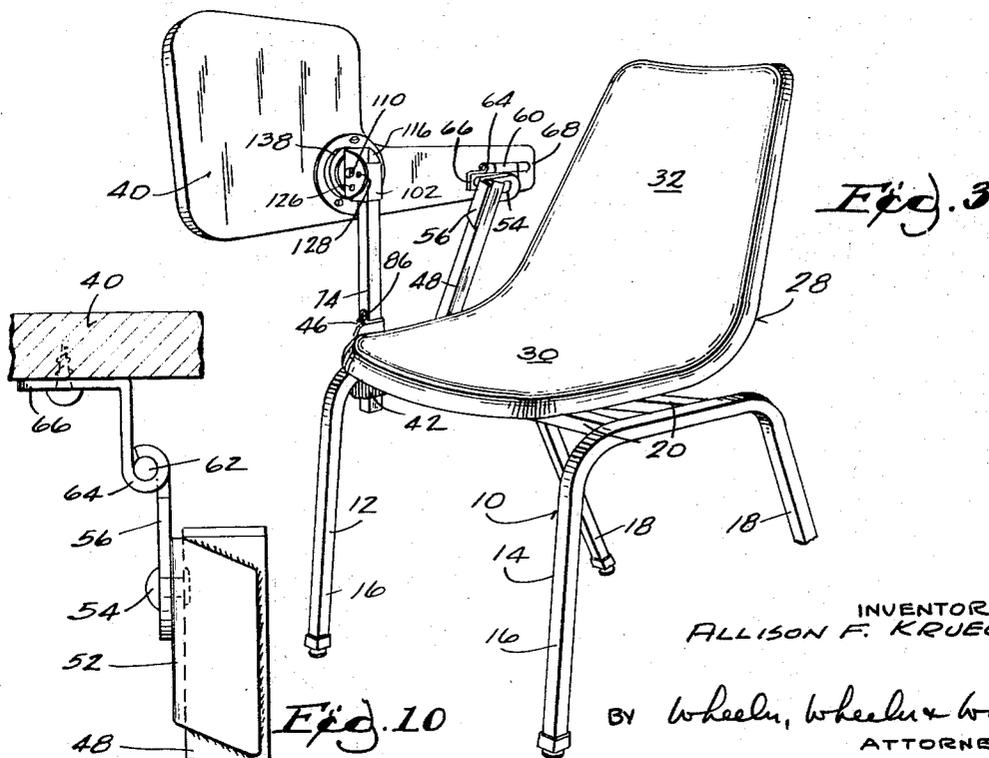
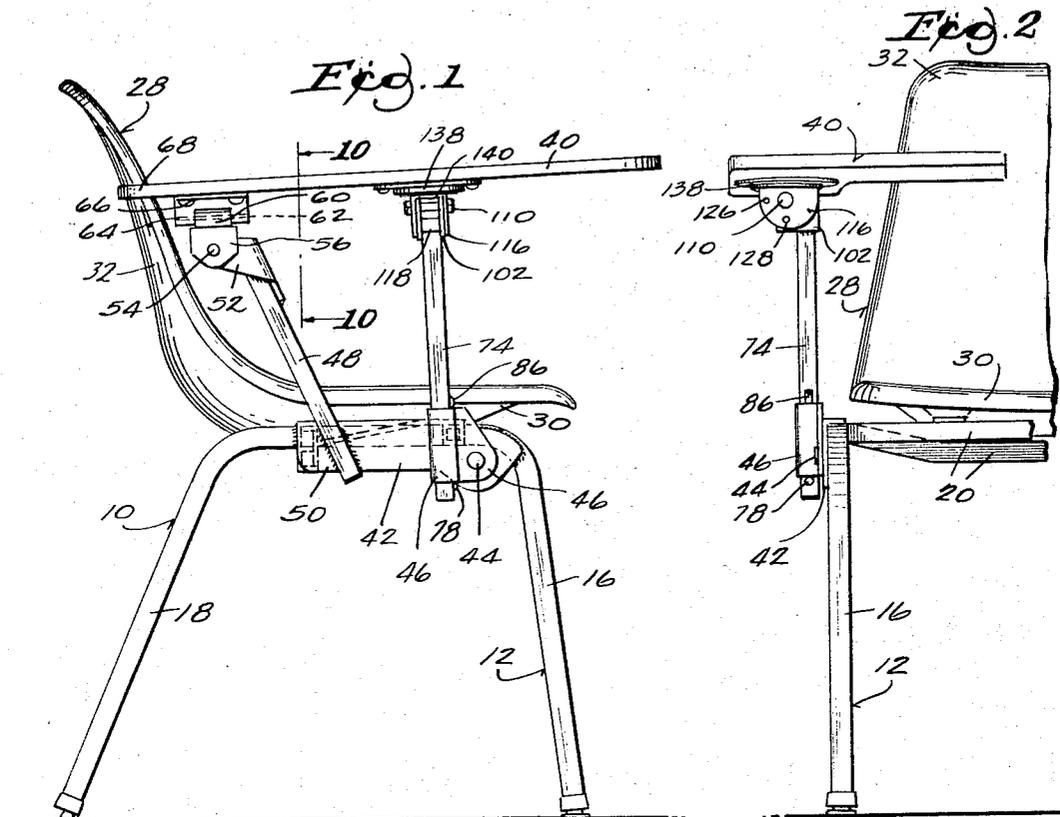
Dec. 20, 1966

A. F. KRUEGER  
CHAIR WITH A FOLDING TABLET ARM AND TO A TABLET ARM  
UNIT OF NOVEL STRUCTURE

3,292,972

Filed May 28, 1965

2 Sheets-Sheet 1



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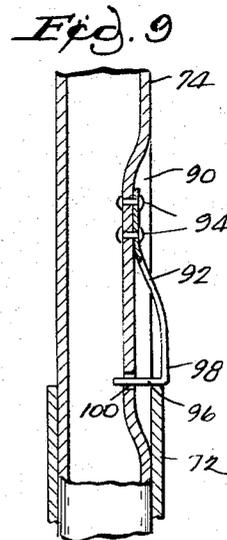
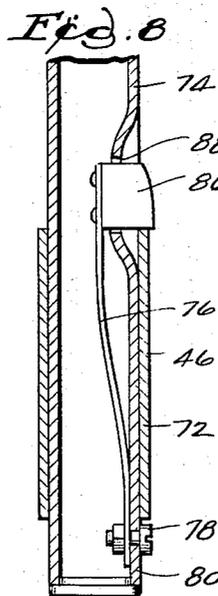
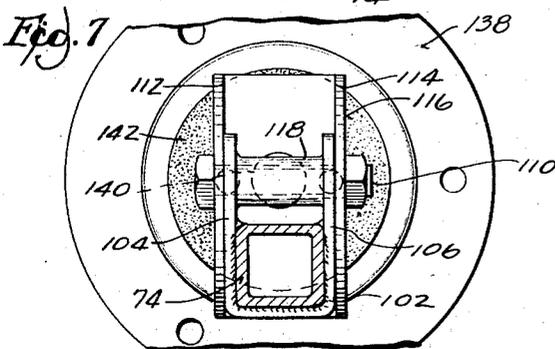
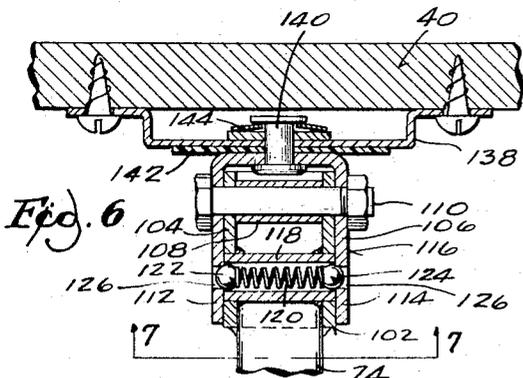
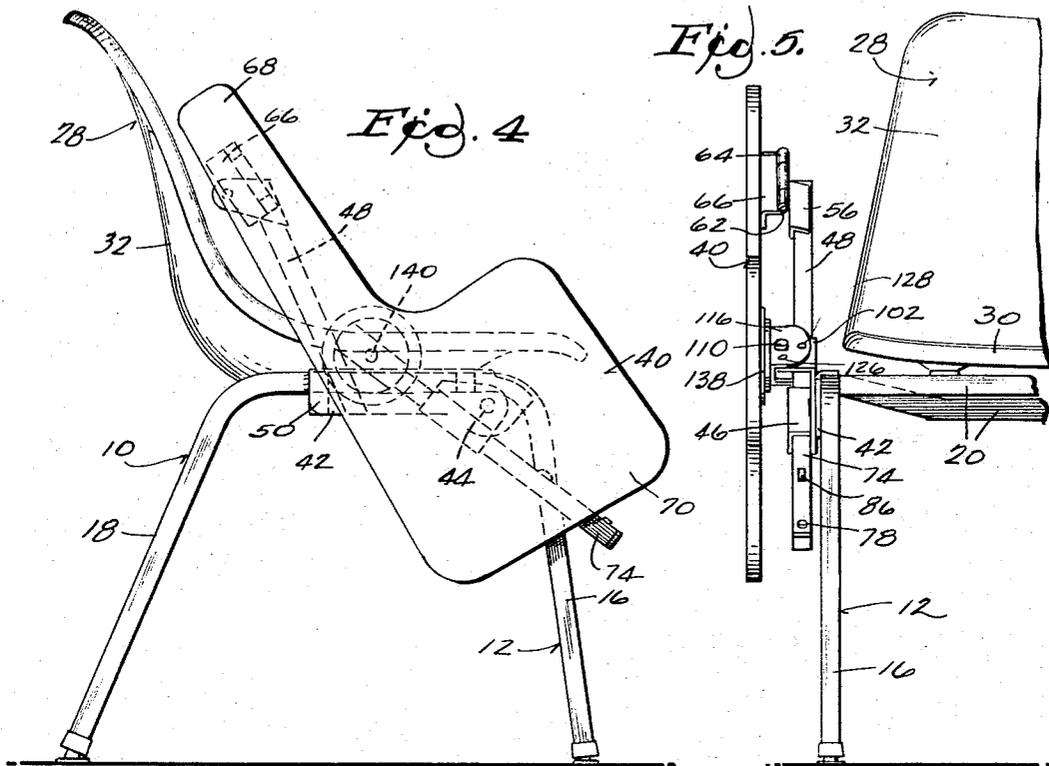
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**CHAIR WITH A FOLDING TABLET ARM AND TO A TABLET ARM UNIT OF NOVEL STRUCTURE**

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10 Claims. (Cl. 297—162)

This invention relates to a chair with a folding tablet arm, and to a tablet arm unit of novel structure.

The chair comprises a base upon which a unitary molded seat and back structure is mounted. A feature of the present invention is an arrangement whereby the tablet arm and the mechanism which supports and provides for the adjustment of the tablet arm is unitary and includes a mounting plate supported directly and solely from the base independently of, and free of connection with, the back and seat structure.

The tablet arm is capable of two distinct movements, the first being a pivotal movement about a longitudinal fore and aft axis between a horizontal position over the lap of the user and a second position in which the arm is in a generally vertical plane at the side of the chair. This gives the user freedom of movement into and from the chair seat. The second movement is a pivotal movement in the said plane about a transverse pivot near the rear support for the tablet arm to permit the broad forward portion of the tablet arm to swing between its elevated position and its lowered storage position.

The means for effecting these movements is new. A mounting plate attached to the base is in permanent connection with it and with an upwardly extending rear support or post, which may be rearwardly inclined. At the top of this post, connection with the tablet arm is provided by a means which accommodates pivotal movement of the tablet arm about the aforesaid longitudinal and transverse pivots.

At the front of the mounting plate is another support which, instead of being fixed thereto, is vertically slidable through a bearing which is pivoted to the plate upon a transverse axis. A detent supports this forward support from the pivoted bearing member to hold the support releasably in its normally elevated position of use. At the top of this support, there is bracket connecting means between the support and the tablet arm and the other of which is parallel to the tablet arm, both of these being required to permit of the described movement of the tablet arm with respect to the chair base. Because of the compound movement of the forward support, the third pin between the bearing member and the mounting plate is also required.

In the drawings:

FIG. 1 is a view in side elevation of a chair embodying the invention, the tablet arm being shown in position of use.

FIG. 2 is a fragmentary front elevation of the chair shown in FIG. 1.

FIG. 3 is a view in three-quarter perspective showing the same chair with the tablet arm pivoted from its horizontal position of use to a substantially vertical plane to permit the user to move to or from the seat.

FIG. 4 is a view similar to FIG. 1 showing the same chair with the tablet arm pivoted from the FIG. 3 position downwardly to a third or storage position.

FIG. 5 is a fragmentary front elevation of the chair as shown in FIG. 4, with the tablet arm in its storage position.

FIG. 6 is an enlarged fragmentary detail view taken in section through the tablet arm and its connection with its forward support.

FIG. 7 is a view taken in section on the line 7—7 of FIG. 6.

FIG. 8 is a fragmentary detail view on an enlarged scale taken in section on the line 8—8 of FIG. 2.

FIG. 9 is a view similar to FIG. 8 showing a modified construction.

FIG. 10 is a fragmentary detail view taken in section on the line 10—10 of FIG. 1.

The base 10 may be of any form. As shown, it is generally conventional comprising, by way of exemplification, a structure in which side members 12 and 14 each include one forward and one rearward leg 16 and 18, the side members being cross connected by bars 20 upon which is mounted the structure 28 which unitarily includes the seat 30 and back 32.

As already stated, the tablet arm 40 and the supports hereinafter to be described are connected with the base 10 entirely independently of the seat and back structure 28.

Connected with side frame member 12 of the base is a plate 42 which carries a fulcrum pin 44 for the bearing member 46 from which the tablet arm is supported. A rear tablet arm support 48 is welded rigidly to the rear end 50 of the plate 42 remote from the pintle 44. Support 48 extends in a generally upward direction which, in the instant device, has a rearward inclination as clearly shown in FIG. 1.

At the upper end of the rear support post 48 is a bracket 52 which carries a transverse pintle 54 to which a hinge leaf 56 is pivoted for movement in a vertical plane. Attached to leaf 56 by longitudinal pintle 62 is another hinge leaf 66 screwed to the lower surface of the tablet arm 40 at the rear end portion 68 thereof (FIG. 10).

As best shown in FIGS. 1, 3 and 4, the tablet arm may be of conventional form, its rear end portion 68 being narrow and its forward work supporting portion 70 being broad. In use, this broad forward portion 70 of tablet arm 40 is in the horizontal position shown in FIGS. 1 and 2 and overlies the knees of the user of the chair. It may be pivoted to the position shown in FIG. 3 on the longitudinally aligned axes of hinge pintle 62 and a forward pintle bolt 110 as described below.

The bearing sleeve 46 is, in the instant device, of rectangular cross section. In it the forward support member 74 is vertically reciprocable between an upper position (FIGS. 1—3) and a lower position of storage (FIGS. 4 and 5). A releasable detent latch of some kind, preferably positive in its action, holds the support 74 in its upper position. FIGS. 8 and 9 show two types of latches for this purpose. In the structure of FIG. 8, a spring 76 is connected as by screw 78 with the forward wall 80 of the forward support 74. The free end portion 82 of the spring extends toward the forward wall 80 of the forward support 74 and has a combination pushbutton and detent stop 86 projecting through an aperture at 88 in the forward wall in a position to engage the top margin of the bearing sleeve 72 whereby to hold the forward support in an elevated position. If the detent and pushbutton 86 is pushed manually inwardly to clear the top margin of the bearing 72, the support member 74 can slide downwardly through the bearing. In its upward movement, it engages automatically due to the bias of spring 76. The head of screw 78 serves as a stop when the support member is moved upwardly.

FIG. 9 shows a construction in which a recess is formed at 90 in the forward wall 80 to accommodate the upper end of a detent spring 92 connected by rivet 94 to the wall 80. The lower extremity 96 of this spring is turned inwardly to provide the detent stop which normally engages the upper end of the bearing sleeve 72 but which may be pushed inwardly by manual pressure on the intermediate thrust portion 98 of the spring, thus displacing portion 96 of the spring through the aperture 100 in the wall 80 of the support member 74 to allow the support

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member to slide downwardly through the bearing. This also re-engages automatically when moved upwardly.

The upper end of support member 74 carries a yoke 102 having laterally spaced arms 104 and 106. The space between arms 104 and 106 laterally adjacent the support 74 is spanned by a bushing 108 through which extends the longitudinal pivot bolt 110. This bolt is aligned with hinge pintle 62 and extends through the arms 112 and 114 of the yoke 116. Yoke 116 is complementary to the yoke 102 in that the arms 112 and 114 are in face bearing contact externally with the arms 104, 106 of yoke 102.

An exemplification of an impositive detent between these yokes is as follows:

Another tubular bushing 118 spans the space between arms 104, 106 of yoke 102 and is welded thereto as best shown in FIG. 7. It contains a compression spring 120 acting to urge detent balls 122 and 124 outwardly partially through the respective openings 126, 128 provided in the arms 112, 114 of yoke 116. The structure just described is solely by way of exemplification of an appropriate impositive detent. The partial engagement of the respective balls in the respective openings will hold the inner and outer yoke arms impositively against moderate pressure tending to effect relative displacement thereof. If a heavier pressure is exerted, the balls 122 and 124 will be cammed inwardly against the bias of spring 120 to permit relative movement between the yoke.

As best shown in FIG. 2, there are two sets of the openings 126, 128 so that the tablet arm mounted on complementary yoke 116 by means presently to be described can be held impositively in each of the selected positions shown in FIGS. 2 and 3.

The means for mounting the tablet arm 40 from the complementary yoke 116 includes a bracket 138 fastened to the tablet arm and having a centrally offset portion pivoted by means of the rivet 140 to the said complementary bracket 116. The pintle rivet 140 extends through a friction plate 142, engaged with the lower surface of the bracket 138 and the top surface of yoke 116 as best shown in FIG. 6. Spring washer 144 provides the desired tension on the friction surfaces.

The operation of the device is as follows:

With the tablet arm 40 in a generally vertical plane for storage as shown in FIG. 4 and FIG. 5, the user seats himself in the chair and pulls the tablet arm upwardly. The upward movement will involve pivoting of the yoke 56 at the rear end of the tablet arm about the generally horizontal transverse pintle 54 while the forward end of the tablet arm will swivel on the pintle 140 with respect to the forward support 74, the said support simultaneously pivoting with respect to the base by movement of its bearing 72 on pintle 44. FIG. 3 shows the tablet arm in the elevated position which it reaches and which is maintained by engagement of the detent latch 86 or 98 (for example) on the upper end of the bearing.

The tablet arm is now swung from a vertical plane to a horizontal plane by pivoting it upon the hinge pintle 62 beneath its rear end and the aligned pintle bolt 110 beneath its forward end. This movement is initially resisted by the impositive spring-pressed detent balls 122 and 124 which, when the tablet arm reaches its horizontal position, re-engage themselves in the second set of apertures 126 and 128 as best shown in FIG. 6. The tablet arm is now firmly supported in a position for use.

When the user is through with the tablet arm, he may easily leave the chair simply by pivoting the tablet arm from its horizontal position as shown in FIG. 1 to its elevated position in a vertical plane as shown in FIG. 3. This can be done with no operation of any manually releasable latches such as those shown at 86 and 98. However, if the user is going to leave the chair for any substantial period of time, or if it be otherwise desired that the chair be stored, the tablet arm may be swung in its vertical plane from the position of FIG. 3 to the position of FIG. 4, this being done by manually releasing the

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latch which supports the forward post in its elevated position, a more positive latch being required at this point because it has to sustain whatever load is imposed on the tablet arm during its usage.

I claim:

1. In a tablet arm chair, the combination with a base including a frame and legs, and seat and back means mounted on the base, of a tablet arm, and means supporting the tablet arm from the base entirely independently of the seat and back means, said supporting means including a rear support and a forward support, means connecting the upper end of the rear support with the rear of the tablet arm and providing for relative pivotal movement between the tablet arm and the rear support upon a transverse axis and a longitudinal axis, the forward support having means connecting it with the frame and with the tablet arm and for accommodating pivotal movement of the tablet arm upon a longitudinal axis, the forward support having means providing vertically slidable and pivotal connection with the frame for accommodating relatively vertical movement of the tablet arm forward end with respect to the frame in the course of its said pivotal movement with respect to the rear support.

2. A tablet arm according to claim 1 in which the forward support has releasable latch means for preventing relative vertical movement between the forward end of the tablet arm and the frame.

3. In a tablet arm chair, the combination with a base including a frame and legs, and seat and back means mounted on the base, of a tablet arm, and means supporting the tablet arm from the base entirely independently of the seat and back means, said supporting means including a rear support and a forward support, means connecting the upper end of the rear support with the rear of the tablet arm and providing for relative pivotal movement between the tablet arm and the rear support upon a transverse axis and a longitudinal axis, the forward support having means connecting it with the frame and with the tablet arm and for accommodating pivotal movement of the tablet arm upon a longitudinal axis and relatively vertical movement of the tablet arm forward end with respect to the frame, the means for accommodating pivotal movement of the tablet arm upon a longitudinal axis including detent means for opposing such movement.

4. In a tablet arm chair, the combination with a base including a frame and legs, and seat and back means supported on the base, of a tablet arm and mounting unit attached to the frame of the base independently of the seat and back means, said unit comprising a mounting plate fixed to the base, a tablet arm, a rear support for the tablet arm connected rigidly with said mounting plate, means having pivotal joints transversely of the frame and longitudinally thereof for connecting the rear end of the tablet arm with the rear support, and a forward support for the tablet arm and including means for accommodating pivotal movement between the forward support and the tablet arm in each of two planes and for accommodating movement of the forward end of the tablet arm in a vertical longitudinal plane, the last said means including a bearing member having a transverse pintle placing it in pivotal connection with said plate for oscillation in a plane longitudinal with respect to said arm, the forward support comprising a bar reciprocable in a generally vertical direction through the bearing member and adapted to partake of pivotal movement thereof in said plane and with respect to the plate.

5. A tablet arm chair comprising the combination of a frame, a tablet arm, forward and rear supports connected with the frame and each having pivotal connection with the tablet arm upon substantially aligned longitudinal axes, means providing an additional pivotal connection between the rear support and the tablet arm for accommodating relative pivotal movement upon a transverse axis, means for providing an additional pivotal connec-

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tion between the forward support and the tablet arm for accommodating relative movement upon an axis normal to the tablet arm, and means for accommodating relative vertical sliding movement between the forward support and the frame and for accommodating relative pivotal movement between the support and the frame upon a transverse axis in the course of bodily pivotal movement of the tablet arm about the pivotal connection between it and its rear support.

6. A tablet arm chair according to claim 5 in which a seat and back are mounted on the frame independently of said supports and a plate connected with the frame provides a mounting for both of said supports from the frame, the rear support having a rearward inclination as well as upward direction with respect to the plate and the plate being provided with a bearing member having a pivotal connection with the plate for providing said last mentioned transverse axis, the forward support being reciprocable through the bearing member in a generally up and down direction and having releasable latch means for holding it against downward movement therein.

7. A unit for supporting a tablet arm from a chair and for accommodating tilting movement of the tablet arm upon a longitudinal axis and upon a transverse axis, said unit comprising a mounting plate, a tablet arm, forward and rear supports for carrying the tablet arm from the mounting plate, the rear support having fixed connection with the mounting plate and having means connecting it to the tablet arm and for accommodating relative tablet arm movement upon transverse and longitudinal axes, the forward support having means connecting it with the tablet arm and for accommodating movement upon the said longitudinal axis and for accommodating movement between the forward support and the mounting plate in a generally vertical direction and pivotally in a vertical plane about a transverse axis.

8. A unit according to claim 7 in which the last mentioned means comprises a bearing member pivoted to the

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mounting plate and in which the forward support is mounted for reciprocation upwardly and downwardly, and releasable latch means for securing the forward support against downward movement with respect to the bearing member.

9. A unit according to claim 8 in which the releasable latch means comprises a resilient element having one portion fixed to the forward support and another portion biased into engagement with a stop provided by a portion of the bearing member, and manually movable against the bias of said resilient element.

10. A unit according to claim 8 in which the upper end of the forward support has a yoke fixed thereto, a second yoke in pivotal connection with the first yoke upon said longitudinal axis, a pintle providing such pivotal connection, and means pivotally connecting the second yoke with the tablet arm upon an axis normal to the tablet arm, one of said yokes having an aperture and the other of said yokes being provided with impositive detent means including means for biasing the detent means into pressure engagement in the said aperture.

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