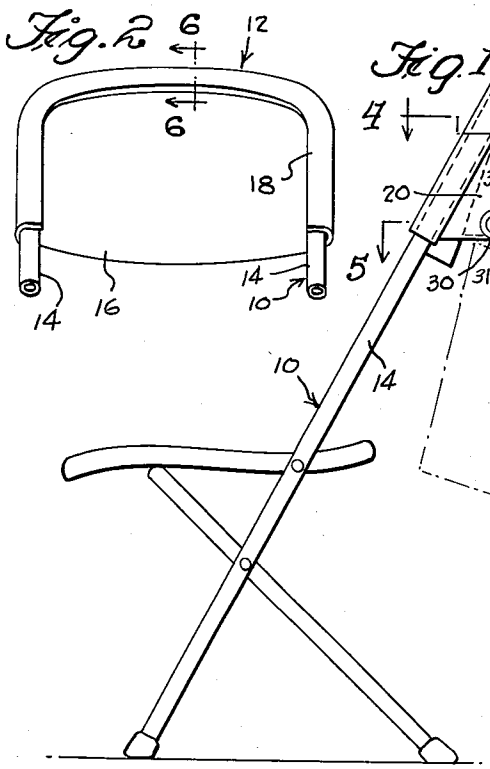
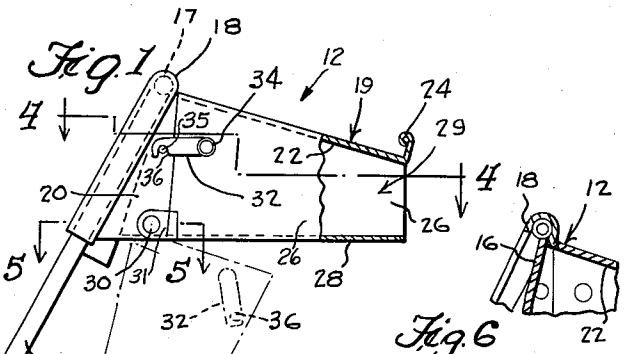
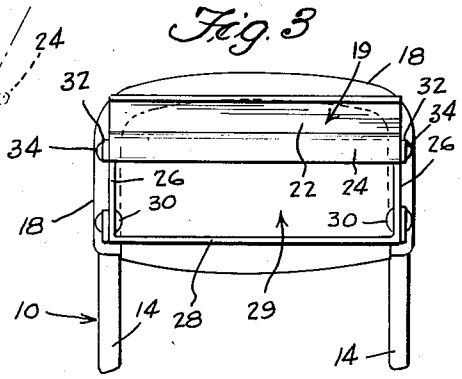
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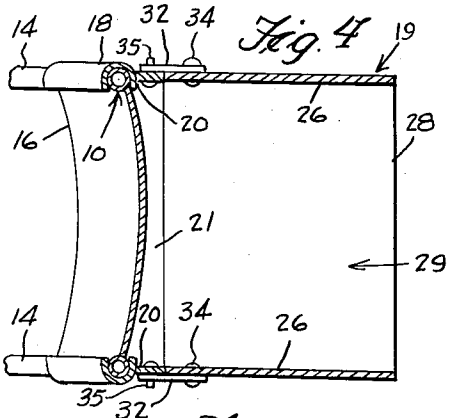
DESK OR TABLE ATTACHMENT FOR FOLDING CHAIRS

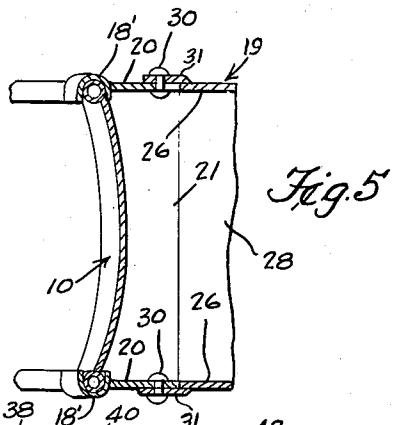
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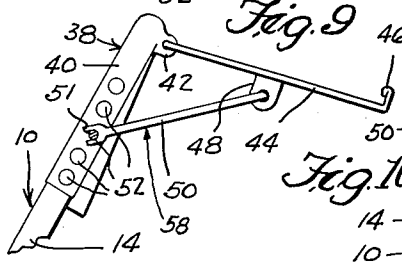


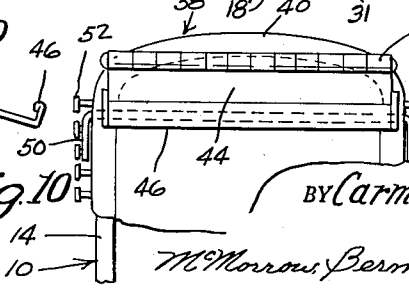












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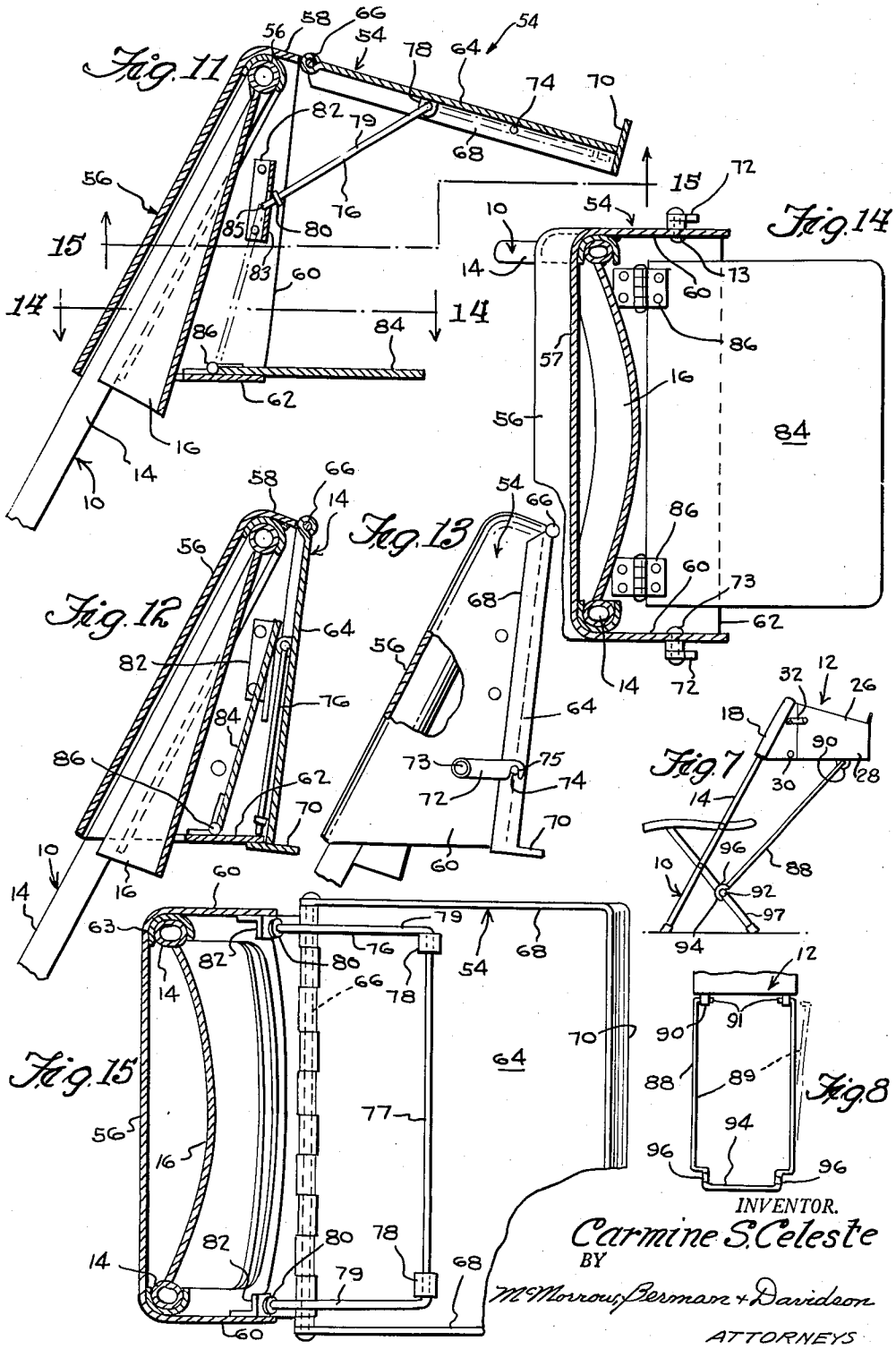
BY Carmine S. Celeste

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ATTORNEYS

Feb. 28, 1961 C. S. CELESTE 2,973,028

DESK OR TABLE ATTACHMENT FOR FOLDING CHAIRS

Filed July 3, 1958 2 Sheets-Sheet 2



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2,973,028

DESK OR TABLE ATTACHMENT FOR FOLDING CHAIRS

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9 Claims. (Cl. 155—123)

This invention relates to novel attachments for chairs to provide a tray, desk, shelf, or table surface projecting rearwardly from the backs of chairs.

The desirability of a device of the character stated is of course well appreciated. For example, in churches, auditoriums, etc., a device of the character described can be used to support hymnals, program books, etc. and can even be used as a storage place for said books. Further, in schools the device can comprise either a temporary or permanent desk for pupils. By reason of the invention, a plurality of folding chairs can be quickly set up, to accommodate extra pupils efficiently while still avoiding the expense of heavy, permanent-type desks that cannot be folded and moved to a storage area.

To obviate the difficulties which have been noted in connection with permanent desks and equivalent pieces of furniture, and to provide chair and desk means that can be swiftly erected, and that can be collapsed and stored away with equal ease, it is proposed in carrying out the present invention to provide an attachment which is designed especially for fitting over the back of a folding chair. However, as will presently appear, the attachment need not be limited to use only with folding chairs, and can be applied to the back of any type of chair having the properly shaped back frame, shaped to receive the device comprising the present invention.

Another more particular object of the invention is to provide an attachment of the character stated which will itself be of a foldable nature, so as to be collapsed into a substantially flat condition against the chair back when not in use.

Another object is to so form the device that when moved to its operative, unfolded position, it can, in at least one form of the invention, be adjustable to a selected position of inclination, designed to accommodate the particular user with maximum comfort.

Another object is to provide a device as stated which, when unfolded, will at least in one form provide not only a surface on which one may support a book, or on which one may write, but also a lower surface which provides a storage shelf.

Another object is to provide a device of the character stated which will not require modification or redesign in any way of a chair to which it is applied, and which can be removed bodily from the chair without the use of special tools.

Another object, in all forms of the invention, is to provide a chair attachment of the character stated which, despite its marked versatility, will nevertheless be capable of manufacture at a relatively low cost.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a side elevational view of a folding chair to which has been secured a chair attachment according to the present invention, said attachment being shown in full and dotted lines in operative and inoperative positions respectively;

Figure 2 is a fragmentary elevational view of the chair with the device attached, as seen from the left of Figure 1;

Figure 3 is a fragmentary rear elevational view of the chair, showing the device as seen from the right of Figure 1;

Figure 4 is a horizontal section taken substantially on line 4—4 of Figure 1;

Figure 5 is a horizontal section of the device as seen from line 5—5 of Figure 1;

Figure 6 is a detail sectional view of the device taken substantially on line 6—6 of Figure 2;

Figure 7 is a reduced side elevational view of a chair equipped with an attachment of the type shown in Figure 1, wherein the attachment has been slightly modified to provide special bracing means;

Figure 8 is a fragmentary rear elevational view of the device as shown in Figure 7, as seen from the right of Figure 7, the dotted lines showing the brace means as it appears while being detached;

Figure 9 is a fragmentary side elevational view of a chair equipped with another modified form of the attachment;

Figure 10 is an elevational view of the device shown in Figure 9, as seen from the right of Figure 9;

Figure 11 is an enlarged vertical section through still another form of the invention in its open position;

Figure 12 is a view like Figure 11 in which the device has been moved to a folded or inoperative position;

Figure 13 is a side elevational view of the device shown in Figure 11, a portion being broken away, with the device in its folded position;

Figure 14 is a horizontal section on line 14—14 of Figure 11; and

Figure 15 is a horizontal section on line 15—15 of Figure 11.

Referring in detail to the drawings, the form of the invention shown in Figures 1 to 6, includes vertical tubular side rails 14, between which a transversely curved back plate 16 is fixedly connected, the upper end of the plate being secured over the cross member 17 at the upper ends of the rails 14.

The chair back attachment 12, shown in Figures 1 to 6, has mounting means which comprises an inverted U-shaped channel 18 which extends along and is engaged removably around the side rails 14 and the cross member 17.

Fixedly secured to and projecting rearwardly from the legs 18' of the channel 18 are vertically, rearwardly extending parallel flanges 20 of approximately right-triangular configuration, and a horizontal plate 21 extends between and is fixedly connected to the bottom edges of the flanges 20.

The attachment further comprises a desk assembly 19 having a rearwardly declining flat top wall 22 having along its rear edge an upstanding flange 24. The top wall 22 provides a table or desk surface, when the assembly 19 is in its elevated operative position, as shown in Figure 1.

The top wall 22 has along its side edges rigid depending side walls 26 which have fixedly connected to their bottom edge a bottom wall 28, so that an open-ended box form is produced which provides a storage compartment 29, in which articles may be kept while the device is in use.

The desk assembly 19 is pivoted on the flanges 20 by pivot pins 30 which extend through the lower ends of the flanges 20 and through forwardly extending laterally outwardly offset ears 31 on lower portions of the side walls 26, so that, in its elevated position, shown in Figure 1,

the walls of the assembly **19** abut the walls of the mounting support. Latch dogs **32** are pivoted at **34** on the outer sides of the side walls **26**, at points spaced above and rearwardly of the pivots **30**. The dogs **32** extend beyond the forward edges of the side walls **26** and have notches **36** in their lower edges which are adapted to engage over detent pins **35** which project from the outer sides of the mounting means flanges **20**.

In Figures 9 and 10 there is shown a modified construction, wherein the device **38** comprises a channel **40** which is like the member **18**.

Projecting rearwardly from the upper portion of the channel **40** is a transversely, horizontally extending piano hinge **42**, and connected to the member **40** by said hinge **42** is a desk assembly comprising plate **44** providing a desk or table surface and having an upwardly projecting flange **46** on its rear edge. Extending downwardly from intermediate portions of opposite side edges of the plate **44** are ears **48**.

A U-shaped brace **50** has its bight portion extending through and pivoted in the ears **48**, its legs having on their free ends notched heads **51** which are removably engageable with selected ones of vertical rows of headed pins **52** that project laterally outwardly from the legs of the channel **40**. By reason of this arrangement, adjustment of the inclination of the plate **44** is provided for. Disengagement of the notched heads **51** from the pins **52** permits the desk assembly to swing downwardly to a collapsed position.

In Figures 11–15 there is shown another modified form of the invention, generally designated **54**. The form **54** includes a U-shaped channel **56** which has on its forward side a plate **57** that extends there across and in front of the chair back **10**, as clearly seen in Figure 14. The plate, though of flat formation, could be curved correspondingly to the plate **16** of the chair back, so as to be disposed in face-to-face contact therewith.

Plate **57** at its top is integral with a rearwardly projecting flange **58**, and at its sides is integral with rearwardly projecting vertical flanges **60**. A bottom wall **62** is fixedly connected between the lower edges of the flanges **60**.

Designated at **64** is a plate usable as a desk, tray, or table surface. This is reinforced through the provision of depending longitudinal side flanges **68** integrally formed thereon (Figures 11 and 13). At the rear free edge of plate **64** there is integrally provided an upstanding flange **70**. Latch dogs **72** are pivotally connected at **73** to the outer sides of the side flanges **62**, and are adapted to extend rearwardly therefrom to engage laterally outwardly projecting latch pins **74** provided on the outer sides of the side flanges **68**, the latch dogs having notches **75** in their lower edges to engage over the pins **74**, so as to hold the desk assembly in its pendant collapsed position, shown in Figures 12 and 13.

When the plate **64** is swung upwardly to its use position, it is supported by a brace **76** of U-shape (Figure 15) having a horizontally, transversely extending bight portion **77** journaled in downwardly struck sleeves **78** on plate **64**. The legs **79** of the brace, adjacent their free ends, have stop collars **80**.

Vertically elongated angle brackets **82** are fixedly secured to the inner surfaces of the flanges **60** and have flanges **83** which are formed with vertical rows of openings **85**, any of which can receive the free ends of the legs **79**, with stop collars **80** bearing against the flanges **83**. Through the provision of a plurality of openings in each bracket, the inclination of the plate **64** can be adjusted according to the desire of a particular user.

Designated at **84** is a shelf, which is hingedly connected as at **86**, at its forward edge, upon the bottom wall **62**, forwardly of the bottom wall **62**. Plate **84** is swingable between its depressed horizontal position shown in Figure 11, to an inoperative, upwardly swung position, shown in Figure 12. Bottom wall **62** serves as an abutment limiting swinging downward movement of the shelf **84** below its operative horizontal position.

Referring to Figures 7 and 8, there is here shown a modification which is identical to the form shown in Figure 1, except for the provision of additional brace means to hold the desk assembly up to its operative position. The additional brace means comprises a U-shaped brace **88**, having legs **89**, the upper ends of which are formed with inwardly projecting extensions **91** which are engaged rotatably in sleeves **90** fixed on the rear part of the bottom wall **28**. Legs **89**, at their lower ends, are integrally connected to a bight portion **94** which has forwardly offset portions at its opposite ends, which are formed with rearwardly opening notches **96**, which are engageable with pins **92** projecting outwardly from lower portions of the legs **97** of the chair **10**.

It will be seen that when the retaining bracket or brace **88** is in its Figure 7 position, it will provide a very effective, strong support for the desk assembly **12**, so that the device can actually be used as a school desk.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. In combination, a chair having a back comprising vertical side rails and a cross member extending between the upper ends of the rails, a U-shaped channel mounting member having a bight portion engaged over said cross member and legs engaged over said side rails, and vertical flanges fixed to said legs and extending rearwardly therefrom, said flanges having upper and lower ends and rear edges, a desk assembly having forward and rear ends, means horizontally pivoting the desk assembly at its forward end on said mounting member to swing from a horizontal operative position to a pendant inoperative position, and means adapted to extend between the desk assembly and portions on said flanges for holding the desk assembly up in its operative position.

2. The combination of claim 1, wherein said holding means comprises latch dogs pivoted on the sides of the desk assembly, said dogs having notches, and lateral pins on said flanges over which the notches are engageable.

3. The combination of claim 1, wherein said holding means comprises latch dogs pivoted on the sides of the desk assembly, said dogs having notches, and lateral pins on said flanges over which the notches are engageable, and a brace pivoted to the desk assembly and extending downwardly therefrom and having a free lower end removably engageable with a part of the chair only in the operative position of the desk assembly.

4. The combination of claim 1, wherein said holding means comprises brace means having an upper end pivoted to and depending from an intermediate part of the desk assembly, said brace means having a free lower end, a bracket means fixed on a flange of the mounting members and having a row of vertically spaced openings in which the lower end of the brace means is selectively engageable, and stop means on the brace means engageable with the bracket means and limiting insertion of the lower end of the brace means in openings.

5. The combination of claim 1, wherein said holding means comprises brace means having an upper end pivoted to and depending from an intermediate part of the desk assembly, said brace means having a free lower end, bracket means fixed on a flange of the mounting members and having a row of vertically spaced openings in which the lower end of the brace means is selectively engageable,

and stop means on the brace means engageable with the bracket means and limiting insertion of the lower end of the brace means in openings, said pivot means being a hinge located at the upper end of the mounting means, said hinge means being connected to the forward end of the desk assembly at a location spaced above said bracket means.

6. The combination of claim 1, wherein said holding means comprises brace means having an upper end pivoted to and depending from an intermediate part of the desk assembly, said brace means having a free lower end, bracket means fixed on a flange of the mounting members and having a row of vertically spaced openings in which the lower end of the brace means is selectively engageable, and stop means on the brace means engageable with the bracket means and limiting insertion of the lower end of the brace means in openings, said pivot means being a hinge located at the upper end of the mounting means, said hinge means being connected to the forward end of the desk assembly at a location spaced above said bracket means, a vertical plate extending across the forward side of said mounting member and fixed to the bight portion and the legs of the mounting member, said plate having an extension on its upper end reaching rearwardly over said bight portion and to which said hinge is fixed.

7. The combination of claim 1, wherein said desk assembly comprises an open-ended box form having a top wall providing a writing surface, side walls, and a bottom wall providing a storage shelf.

8. The combination of claim 1, wherein said desk assembly comprises an open-ended box form having a top wall providing a writing surface, side walls, and a bottom wall providing a storage shelf, said pivot means comprising ears fixed on and extending forwardly from said side walls and along sides of the flanges, and pivots on the flanges extending through the ears, said holding means being spaced above said ears and said pivots.

9. The combination of claim 1, wherein said holding means comprises brace means having an upper end pivoted to and depending from an intermediate part of the desk assembly, said brace means having a free lower end, bracket means fixed on a flange of the mounting members and having a row of vertically spaced openings in which the lower end of the brace means is selectively engageable, and stop means on the brace means engageable with the bracket means and limiting insertion of the lower end of the brace means in openings, said pivot means being a hinge located at the upper end of the mounting means, said hinge means being connected to the forward end of the desk assembly at a location spaced above said bracket means, said desk assembly comprising a plate serving as a writing surface, said plate having a forward end connected to said hinge and having depending side flanges, a bottom wall extending between and fixed to said vertical flanges at the lower ends thereof, said bottom edge having a rear edge, a shelf plate having a forward end portion overlying the rear edge of the bottom wall and hinged upon said bottom wall at a point spaced forwardly from said rear edge to be supported in a horizontal operative position by the bottom wall, said shelf plate being swingable upwardly between the desk assembly and the chair back as the desk assembly is swung downwardly toward its pendant position, and latch means on the vertical flanges removably engageable with the side flanges of the desk assembly only in the pendant position thereof.

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