

June 12, 1956

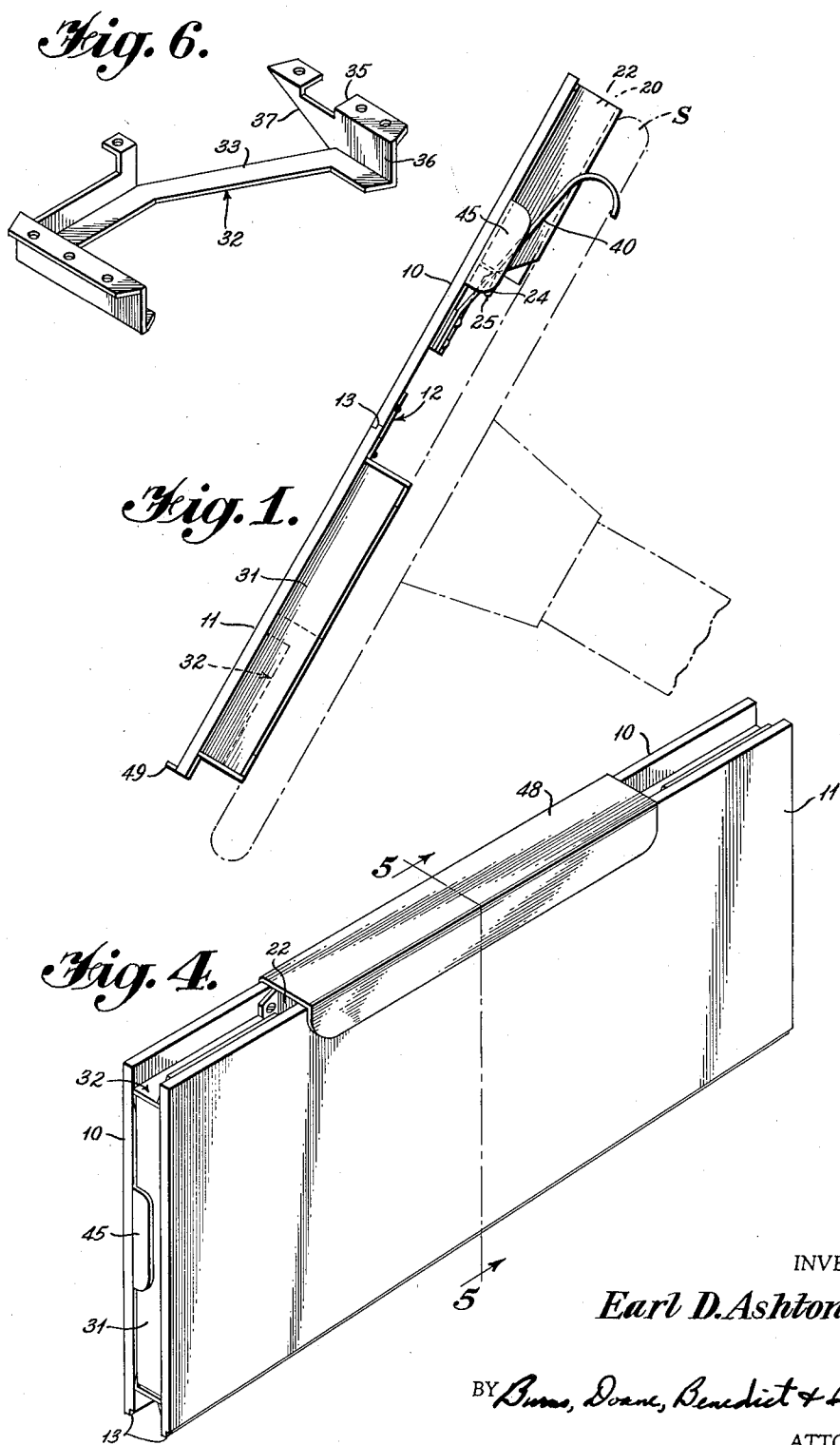
E. D. ASHTON

2,749,655

PORTABLE DESK

Filed Dec. 16, 1953

3 Sheets-Sheet 1



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Fig. 2.

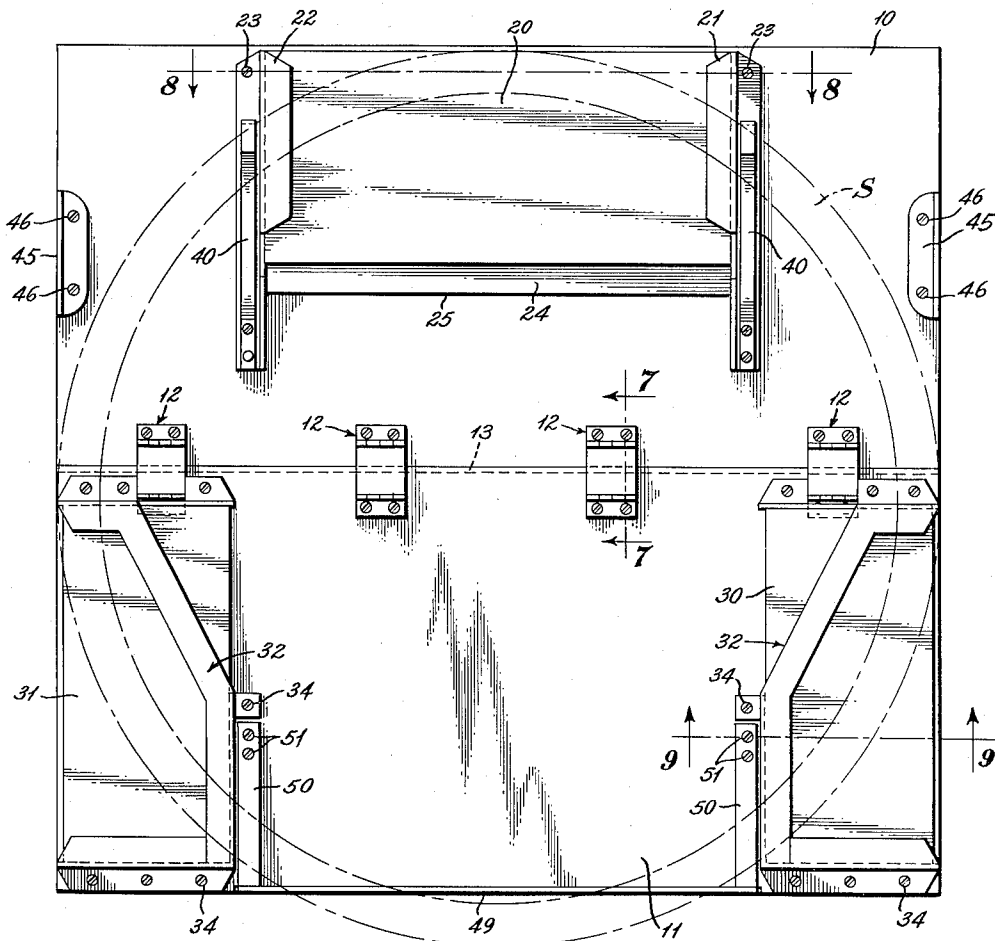
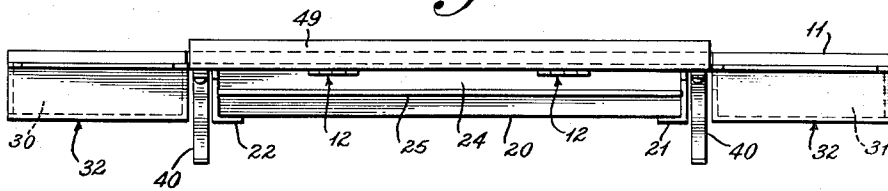


Fig. 3.



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Fig. 5.

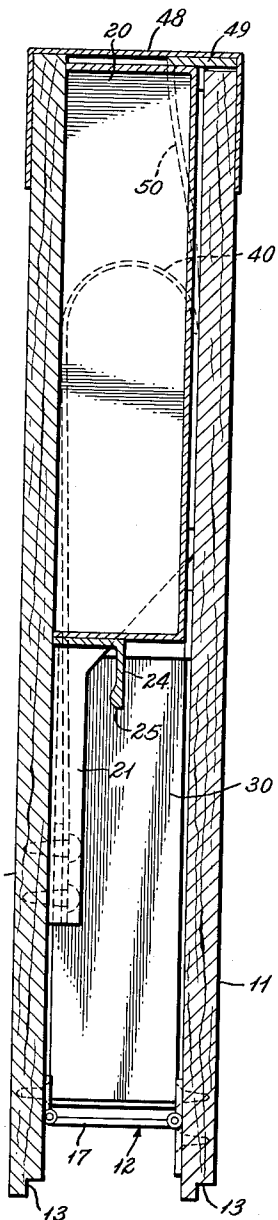


Fig. 7.

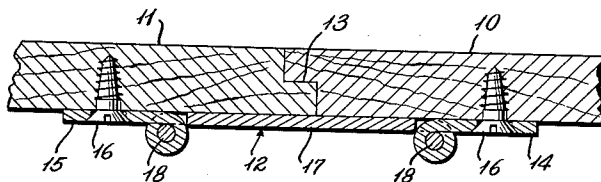


Fig. 8.

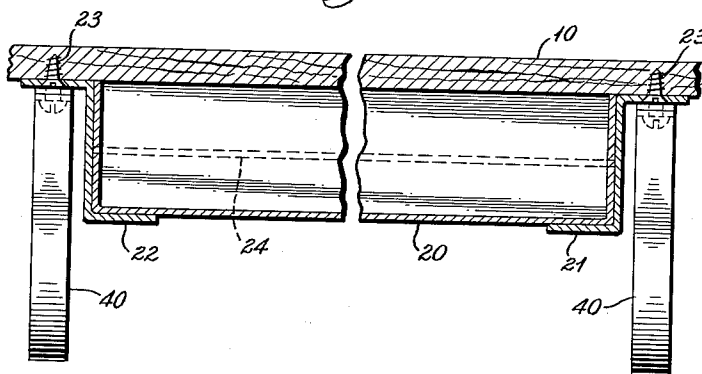
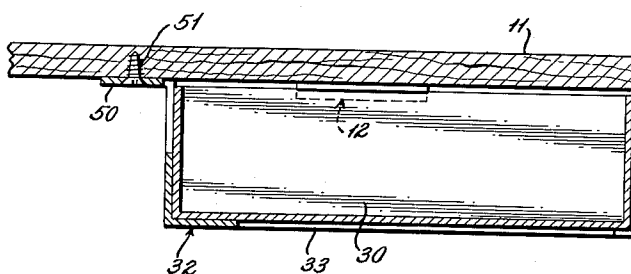


Fig. 9.



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PORTABLE DESK

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5 Claims. (Cl. 45—58)

This invention relates generally to a portable desk construction. More specifically the invention is directed to a desk structure supportable on a conventional vehicle steering wheel to provide a work area for the vehicle occupant to write, make notes, sketch, et cetera.

The invention finds its greatest use as a temporary expedient to facilitate the making of notes, sketching and the like by those who do a great deal of driving in connection with their work, and accordingly are obliged to utilize their automobile or truck as a mobile office. Such persons invariably find themselves extremely handicapped by the lack of a suitable writing surface within the vehicle to permit the taking of notes, sketching, et cetera. However, the provision of a plane writing surface is not the complete answer to the problem. In many instances a person requiring the writing surface within the vehicle likewise finds a real need for a means for storing writing and drawing implements and supplies convenient to the writing surface. Additionally, due to the limited space generally available within the auto or truck for the storage of a portable desk, it is necessary that such a desk be extremely compact and occupy a minimum amount of space when not in use.

The vehicle steering wheel is mounted at such an angle to the horizontal that a work surface supported thereon and parallel to the general plane of the steering wheel provides a writing area which is convenient and ideally positioned for use by a person seated in the driver's position of the vehicle. Due to the wide variety of steering wheel sizes and designs alternately provided with a protruding horn button or horn ring, a work surface carried by a vehicle steering wheel must be supported thereon in such a manner that the horn button or horn ring will not interfere with the positioning of the desk or writing surface. This variety of steering wheel and horn ring designs creates a particular problem in providing a supporting means for the portable desk, which supporting means is suitable for securely mounting the desk regardless of the particular design of steering wheel or horn ring arrangement with which the desk is to be used.

In the light of the above-discussed problems, it is a principal object of this invention to provide an improved portable desk construction to be mounted on a vehicle steering wheel so as to allow persons seated in front of the steering wheel to perform work on the desk in front of them.

It is a further object of this invention to provide a portable desk which is collapsible into a compact package and having means for retaining writing implements and supplies within the desk.

It is also an object of this invention to provide a portable desk structure supported on a vehicle steering wheel in such a manner as to not interfere with the conventional horn ring or button built into the steering wheel structure, and which utilizes an improved hinge structure to enable folding the desk into a compact package.

It is an additional object of this invention to provide a portable desk supportable on a vehicle steering wheel and having drawers suitable for writing instruments and supplies, which drawers are retained closed when the device is folded, and having spring hooks movable outwardly to engage the steering wheel in supporting the desk thereon.

The foregoing and other important objects and desirable features inherent in and encompassed by the invention will be brought out in detail in the following description

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of a preferred embodiment of the invention as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view showing the mode of mounting the portable desk on a vehicle steering wheel,

5 Figure 2 is a bottom plan view showing the underside of the portable desk of this invention.

Figure 3 is a front elevation of the portable desk,

Figure 4 is a perspective view showing the portable desk in its collapsed state,

10 Figure 5 is a sectional view taken on line 5—5 of Figure 4,

Figure 6 is a perspective view of a bracket forming drawer guides for a desk drawer,

15 Figure 7 is a detailed sectional view taken on line 7—7 of Figure 2,

Figure 8 is a detailed sectional view taken on line 8—8 of Figure 2, and

Figure 9 is a detailed sectional view taken on line 9—9 of Figure 2.

20 Figures 1 and 2 of the drawings illustrate the portable desk structure of this invention as it is supported on a conventional vehicle steering wheel S, which steering wheel is illustrated in broken lines to show its general relationship to the desk. The writing surface for the desk is made up of a pair of panels 10 and 11 hingedly interconnected by a series of spaced hinges 12. In the specific embodiment illustrated on the drawings, the portable desk is made up of two panels. However, it will be readily recognized that within the scope of this invention the desk may be made into more than two hingedly interconnected panels as may be desired to enable collapsing of the desk structure into a more compact package for storage during non-use.

35 The panels employed to serve as the writing surface of the desk may be of plywood, plastic, metal or other suitable material, as desired. In the illustrated embodiment a shiplap joint 13 is provided between the abutting edges of the two hingedly connected panels, which joint has been found to be most effective when plywood panels are used. Such a joint gives a thicker edge that will more effectively withstand any splintering stresses. On the other hand, in the event that the panels are made of plastic or metal, the adjacent edges of the panels are preferably cut at a 45° angle to permit meeting of the edges when the desk panels are unfolded for use.

40 The hinges 12 are specifically designed to effectively interconnect the two panels when in use and permit the portable desk to be folded for convenient storage. Such hinges have a pair of leaves 14 and 15 provided with suitable countersunk apertures so as to enable their being secured to the panels 10 and 11, respectively, by screws 16. It will be readily recognized that wood screws are employed where the panels 10 and 11 are of plywood, and that in the event that such panels are of plastic or metal, other suitable securing means will be used to properly mount the hinges.

55 The leaves 14 and 15 of each hinge 12 are interconnected by an intermediate hinge leaf 17 which is connected at its opposite ends by hinge pintles 18 to the respective leaves 14 and 15. The provision of the intermediate leaf 17 in each of the hinges 12 provides a hinge structure which has several advantages in the novel structure of the portable desk of this invention. First, the intermediate leaf 17 permits the hinge leaves 14 and 15 to be secured to the respective panels 10 and 11 at points spaced from the edge of such panels so as to reduce the possibility of splintering or destruction of the panel edges upon hard usage of the desk structure. Secondly, the make-up of the hinges 12 each having an intermediate leaf 17 results in the joint between the panel edges being effectively supported so that when the two panels 10 and 11 are unfolded into position for use the writing surfaces of the

two panels will be in the same plane. In this position the hinges 12, mounted on the underside of the panel at spaced points along the abutting edges, resist any tendency of the panels to be folded beyond their coplanar position. As a further advantage to the specific hinge construction, the intermediate leaf 17, upon collapsing of the desk structure retains the panels 10 and 11 in properly spaced relation to permit the drawers carried by the underside of the desk structure to be sandwiched between the two panels 10 and 11. The operation and function of the hinges 12 will be apparent from the description set forth hereinafter.

The underside of the writing surface made up of panels 10 and 11 carries one or more drawers suitable for containing writing implements and supplies. In the illustrated embodiment there are shown three separate drawers carried on the underside of panels 10 and 11 slidable outwardly from the edges of the panels.

The top drawer 20 is slidable outwardly from the top edge of the portable desk and is supported on the underside of panel 10 by a pair of drawer guides 21 and 22 secured to the panel 10 by a series of screw fasteners 23. These drawer guides 21 and 22 are secured in parallel spaced relation on the underside of panel 10 with facing flanges engaging the bottom of the drawer 20 to slidably retain it on the desk structure. An angle member 24 is secured between the guides 21 and 22 as by being suitably soldered or welded thereto and acts as a stop to limit inward movement of the drawer 20 sliding in the guides 21 and 22. One leg of angle member 24 extends away from the end of the drawer 20, as shown more clearly in Figure 5, and is provided with a beaded edge 25. This exposed leg having the beaded edge serves as a convenient location for storing spring clamps which are used to fasten papers and other work to the writing surface of the desk.

As illustrated on the drawings, a pair of lower side drawers 30 and 31, smaller than top drawer 20, are provided adjacent the lower right and left-hand corners, respectively, of panel 11. These drawers 30 and 31 are slidable outwardly from the sides of the panel 11 in a pair of guides formed by a bracket 32, as specifically illustrated in Figure 6. The brackets 32 for each of the drawers 30 and 31 are similarly formed. However, the diagonal connecting member 33 which joins the two drawer guides of each bracket extends generally parallel to a line tangent to the steering wheel rim, as more clearly shown in Figure 2. By this formation the diagonal members 33 do not obstruct the positioning of the desk on the steering wheel by their engaging the horn ring. These brackets 32 are secured to the underside of panel 11 by screws 34.

Particular attention is called to the formation of the upper drawer guide of each bracket 32. As shown more clearly in Figure 6, the attaching flange is slotted at 35 to accommodate the leaf of one of the hinges 12 connected to panel 11 and the web 36 connecting this attaching flange with the flange engaging the bottom of the drawer is beveled as at 37. This beveling of the web 36 enables the desk structure to be used with vehicle steering wheel structures having a protruding horn ring. Thus the horn ring will not interfere with the desk's being supported on the peripheral portion of the steering wheel proper.

As most clearly shown in Figure 2, the portable desk supportingly engages the steering wheel at six spaced points, with the panels 10 and 11 being held away from the steering wheel by a distance equal to the height of the drawer guides disposed around the under surface of the panels 10 and 11. Thus it will be seen that the steering wheel engages the underside of the drawer guides 21 and 22 and supportingly contacts two locations on the brackets 32 which form the drawer guides for the lower side drawers 30 and 31. This mode of supporting the panels 10 and 11 provides a uniform distribution of the

weight around the periphery of the steering wheel so as to insure that the writing surface will be firmly supported as is necessary for accomplishment of the desired writing or sketching operations.

A pair of spring hooks 40 are secured to extend parallel to the attaching flanges of drawer guides 21 and 22 with the outer free ends thereof curved outwardly so as to appropriately engage the outer edge of the steering wheel to support the desk structure thereon. As illustrated on the drawings, the screws which assist in attaching the guides 21 and 22 to the underside of the panel 10 are also used to connect one end of the hooks 40 to the panel 10. It will be seen that when the desk is opened for use by moving the hingedly interconnected panels 10 and 11 to their coplanar position, the free ends of the spring hooks 40 will engage the outer periphery of the steering wheel to effectively support the desk structure thereon. In the structure of this invention the hooks 40 are desirably made of a resilient material so that the curved outer free ends thereof will protrude outwardly from the rear of the desk structure to facilitate engagement thereof with the steering wheel S. On the other hand, as will be explained subsequently, when the desk is collapsed for storage during non-use, the spring hooks 40 are urged inwardly to be completely housed between the panels 10 and 11.

When the panels 10 and 11 are folded from their coplanar position of use to a position parallel to one another, the hinges 12, by reason of the intermediate leaf 17, space the two panels by a distance sufficient to permit the drawer 20 and its guides 21 and 22 to be nested between the drawers 30 and 31 carried by the pair of guides on brackets 32. Thus the desk structure is folded into a package such as illustrated in Figure 4 with the three drawers nested together to occupy the space between the panels 10 and 11.

In order that the drawers will not fall open during storage, it is desirable that the desk structure when collapsed have means for automatically locking the drawers against being opened. Thus on the underside of the panel 10 adjacent the opposite side edges thereof, there are secured a pair of angle members 45 attached to the panel by screws 46. As the panels 10 and 11 are folded together, the flange of angle members 45 which extends outwardly away from panel 10, will engage the outer front end of the drawers 30 and 31, respectively, in a manner as shown in Figure 4. Thus the drawers 31 and 32 will be retained against opening when the panels 10 and 11 are folded into the collapsed state of the desk structure. To hold the panels 10 and 11 in the position as shown in Figure 4, a suitable retaining means is provided in the form of a channel clip 48 which is placed over the edge of the panels.

When the portable desk is positioned on a vehicle steering wheel for use as illustrated in Figure 2, a ledge is provided along a portion of the lower edge of panel 11 by a rib 49. This rib 49 is positioned in a recess formed in the lower edge of panel 11 and is mounted therein on a pair of resilient strips 50 secured to the opposite ends of the rib 49 and extending upwardly along the under surface of panel 11 to be attached at their opposite end to such panel by suitable fasteners 51.

With the desk positioned for use, the resilient strips 50 hold the rib 49 so that its longitudinal edge protrudes for a distance above the writing surface of panels 10 and 11, to provide the ledge as shown in Figure 1. This ledge serves as a rest to retain papers, books, pencils, et cetera, from sliding off the inclined surface. On the other hand, when the panels 10 and 11 are collapsed to their positions as shown in Figure 5, and the clip 48 applied, the rib 49 is moved to overlie the front of the drawer 20 to thereby retain it in its closed position with clip 48 holding the rib in its retracted position. Upon removal of the channel clip 48, the resilient strips 50 urge the rib 49 outwardly to form the ledge along a por-

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tion of the lower edge of panel 11 and the writing surface of the portable desk.

It will thus be appreciated that the rib 49 is completely housed by the channel clip 48 when the desk is closed. As a further advantage, it will be noted that the rib 49 does not extend entirely across the lower edge of the desk structure, and thus does not interfere with the free movement of the forearm of the individual using the desk, since it actually occupies the space which is directly in front of the user's body.

In describing the desk structure, the fastening means for each of the elements mounted on panels 10 and 11 has been described as being screw fasteners. It will be appreciated that if the panels 10 and 11 are of metal or plastic, other suitable fastening means may be employed instead of screw fasteners.

The operation and mode of use of the hereinabove-described portable desk will now be generally described. The folded package as illustrated in Figure 4 contains in a compact unit the three nested drawers which may be used to hold writing instruments and supplies. By merely removing the channel clip 48 from its engagement with the edges of panels 10 and 11, the desk panels 10 and 11 may be unfolded into their coplanar position in preparation for use. Upon removing clip 48, rib 49 is moved outwardly to form the ledge along the lower edge of panel 11. Moving the panels 10 and 11 toward the position of use will release the spring hooks 40 so that they will move outwardly to their proper position for engagement with the steering wheel. The six-point contact of the various drawer guides with the steering wheel and the particular structure of the hinges 12 used in interconnecting the panels 10 and 11, insures that such panels will provide a plane surface for use in writing, note taking, sketching, et cetera, when positioned on the vehicle steering wheel.

The mode of supporting the portable desk on the steering wheel makes the desk of this invention universally adaptable to the wide variety of steering wheel and horn ring structures as found on present automobiles. Likewise, on trucks, which generally have a center horn button, the drawer guides hold the panels 10 and 11 away from the steering wheel so that the horn button will not interfere with the positioning of panels 10 and 11. It will further be noted that the supporting structure enables the desk to be used with steering wheel structures having large diameter horn rings or arcs, by merely opening the drawers slightly so that their inner ends will not interfere with the desk's support on the steering wheel rim.

Having thus described my invention, what I claim is:

1. A portable desk adapted to be mounted on a vehicle steering wheel comprising a pair of panels providing a writing surface, hinge means interconnecting the abutting edges of said panels so as to enable said panels to be folded together into a compact package for storage during non-use, said hinge means including a pair of hinge leaves secured respectively to said panels on the opposite face thereof from said writing surface at points inwardly removed from the junction of the abutting edges of said panels, an intermediate hinge leaf, spaced parallel pintle pins pivotally interconnecting the opposite ends of said intermediate leaf to the leaves secured to the respective panels, said pintle pins being disposed at points spaced from the junction of the abutting edges of said panels whereby said intermediate leaf bridges and lies beneath the junction to support and strengthen the joint between the panels against displacement of said panels beyond a fully opened coplanar relationship, parallel drawer guides secured to the underside of and spaced from the ends of one of said panels, said guides having a drawer slidably retained therein, a pair of brackets secured adjacent the opposite ends of the other panel on underside thereof, said drawer guides being positioned so as to nest intermediate the brackets on the other panel upon fold-

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ing of the desk for storage during non-use with the guides, drawer and brackets housed between said panels and together with said brackets engage with the steering wheel rim in supporting the desk thereon, and a pair of hooks secured at laterally spaced locations on the opposite face of said panels from said writing surface and having outwardly curved free ends for engagement with a vehicle steering wheel to retain said desk positioned thereon, said hooks being housed between said panels when the desk is folded for storage during non-use.

2. A portable desk as recited in claim 1 wherein the free ends of said hooks are resilient to normally protrude outwardly beyond said drawer guides for engagement with a vehicle steering wheel, and are urged inwardly upon collapsing of said desk so as to be housed between said pair of panels.

3. A portable desk adapted to be mounted on a vehicle steering wheel comprising a pair of panels providing a writing surface, hinge means interconnecting the abutting edges of said panels so as to enable said panels to be folded together into a compact package for storage during non-use, said hinge means including a pair of hinge leaves secured respectively to said panels on the opposite face thereof from said writing surface at points inwardly removed from the junction of the abutting edges of said panels, an intermediate hinge leaf, spaced parallel pintle pins pivotally interconnecting the opposite ends of said intermediate leaf to the leaves secured to the respective panels, said pintle pins being disposed at points spaced from the junction of the abutting edges of said panels whereby said intermediate leaf bridges and lies beneath the junction to support and strengthen the joint between the panels against displacement of said panels beyond a fully opened coplanar relationship, parallel drawer guides secured to the underside of and spaced from the ends of one of said panels, said guides having a drawer slidably retained therein, a pair of brackets secured adjacent the opposite ends of the other panel on the underside thereof, each of said brackets having spaced drawer guides with a drawer retained in each of said brackets to be slidable in a plane parallel to said other panel, said drawer guides being positioned so as to nest intermediate the brackets on the other panel upon folding of the desk for storage during non-use with the guides, drawers and brackets housed between said panels and together with said brackets engage with the steering wheel rim in supporting the desk thereon, and a pair of hooks secured at laterally spaced locations on the opposite face of said panels from said writing surface and having outwardly curved free ends for engagement with a vehicle steering wheel to retain said desk positioned thereon, said hooks being housed between said panels when the desk is folded for storage during non-use.

4. A portable desk as recited in claim 3 wherein angle members are secured to the underside of said one panel at the opposite ends thereof having one leg extending outwardly from the plane of said panel, whereby the outwardly extending leg of each of said angle members will cooperate with one of the drawers contained in said brackets upon folding of said panels to restrain such drawers against opening when the desk is folded for storage during non-use.

5. A portable desk as recited in claim 3 wherein a rib is mounted adjacent the lower edge of one of said panels to provide a ledge to support articles on the writing surface when the apparatus is supported on a vehicle steering wheel.

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