The invention comprehends the provision of an inexpensive desk construction that provides a rigid typewriter support and at the same time may be constructed of cheap commercially available material such as corrugated paper board or other similar sheet materials of a correspondingly inexpensive character.

The invention comprehends the construction of a typewriting and writing desk of material, such as corrugated paper board, wherein the sheet material is constructed, arranged and designed to provide a rigid support for a typewriter or similar machine that will not carry many times its weight but will provide a substantially rigid support for the machine during operation, free from such vibration in the operation of the machine which would affect its efficient operation.

The invention further comprehends the construction of a knock-down typewriting and writing desk having a plurality of sheet material members formed to provide a supporting structure for a typewriter or the like or for use as a writing desk in which a rigid structure is obtained through the arrangement of the sheet material sections with each other in angular relation in such a manner that they will support a substantial vertical load against movement, the parts being interlittered without direct means of attachment and adapted for folding in disassembled relation so that they may be packed in a flat container in superimposed relation for ready portability to transport the desk from one point to another.

The invention comprehends novel features of construction of the various members incorporated in the desk construction to obtain their interfitting and interlocking engagement in a novel manner without special means of attachment of one member to the other so that in their interengaged relation they will cooperate to provide a rigid desk construction that will support many times the weight of an ordinary typewriter or the like and still be readily disassembled for folding in order to provide a knock-down construction that can be readily transported from place to place.

Other novel features of construction of the various parts involved in this desk, the manner in which they may be arranged, folded, and in which they cooperate to provide a rigid structure will be pointed out in detail in the following specific description of a preferred form of construction and in the appended claims.

In the drawings:

Fig. 1 shows the desk forming the present invention in perspective, the cover member being shown in its assembled vertical position.

Fig. 2 is a plan view with the cover member removed and portions of the top member broken away to show the structure beneath.

Fig. 3 is a vertical transverse section taken on line 3-3 of Fig. 2 showing the cover member in the vertical position.

Fig. 4 is a view similar to Fig. 3 taken on line 4-4 of Fig. 2.

Fig. 5 is a vertical longitudinal section taken on line 5-5 of Fig. 2 showing the cover member in its vertical position.

Fig. 6 is a fragmentary vertical longitudinal section similar to Fig. 5 with portions broken away and illustrating the cover member in horizontal position superposed on the top member.

Fig. 7 illustrates the various parts of the desk construction in perspective in disassembled relation.

Fig. 8 is an enlarged fragmentary perspective showing one kind of corrugated paper board adapted for use in the construction of the desk forming the present invention.

An outer casing 1 is formed of corrugated paper board and has a front panel 2, a rear panel 3, outer side panels 4 and inner side panels 5. This casing is formed of two pieces of corrugated paper board, one piece being formed to provide front panel 2 and the two side panels 4 by creasing the board at the corners between the front and the sides. The rear panel 3 is formed of a second piece of corrugated board and is joined at its ends to the ends of the board forming the side panels and the front panel by tape as indicated at 6. The corrugations of the board forming the casing extend in a vertical direction. The corrugated board forming front and rear panels 2 and 3 is slitted at 7 horizontally across the central portion and then scored vertically in spaced parallel relation at 8 while the section 45 between the score or crease lines 8 is slitted vertically in the center portion so as to form inner side wall sections 9.

These sections 8 are folded inwardly along the crease lines 8 and joined at their meeting edges by tape 10 to form the inner side walls 5 in spaced parallel relation to outer side walls 4. These inner side walls are of less height than the outer side walls as clearly illustrated in the drawings, Figs. 4, 5 and 7, and cooperate with the
outer side walls to form tubular pedestals at opposite ends of the desk and an open space under the center of the desk. Flaps 11 are formed on each of the front, rear and side panels at the upper edges which are turned inwardly so as to provide a smooth upper edge on the casing and also to aid in retaining the other parts in assembled relation as will appear in the following description.

This casing is readily foldable into a flat position by moving the front and rear panels toward each other through the pivotal action of the side panels relative to the front and rear panels at the corners, so that when the casing is folded, the front panel will be offset to one side of the rear panel while one of the side panels 4 will overlie the rear panel and the other side wall 4 will overlie the front panel in this offset relation.

When the casing is extended into rectangular extended position as shown in the drawings, the tubular pedestals formed at the ends are adapted to receive a suitable supporting unit comprised of two pairs of cross members 12, one pair being inserted in each pedestal and a plurality of girders 13 that are supported by the plate members 12.

Each plate member 12 is formed of a sheet of corrugated board of the character shown in Fig. 6 with the corrugations running vertically, one of the plate members 12 of each pair having a vertical central slot cut in the lower half as indicated at 14, while the other plate member of each pair has a vertical central slot cut in the upper half as indicated at 15, so that the plate members of each pair may be assembled in interfitting relation with each other as clearly shown in Figs. 2 and 7. They intersect at their center portions and extend in angular relation similar to an X in shape. The upper edge of each of the plate members 12 is formed with a plurality of vertical slots 16 and the upper corners of each plate member are cut away to provide shoulders 17.

These plate members when assembled as shown in Fig. 7 are slidably engaged in the pedestals at each end of the casing 1 with each plate member extending diagonally in the pedestal, having the side edges slidably fitting in the opposite corners of the pedestal in the manner clearly illustrated in Fig. 2. When these pairs of interengaged plate members are slidably interengaged in the manner illustrated in Fig. 2 in the pedestals at each end of the casing, the casing is then prevented from folding and is held rigidly in extended position due to the stress distributing action of the plate members in cooperation with the casing, in their diagonal relation in the pedestals.

When the plate members are assembled in this manner in the casing, the girders 13, (four being illustrated), are then slid downwardly into slots 16 in plate member 12, the slots being so arranged in each of the plate members that they are slotted in relation longitudinally in the desk so that each girder engages in four slots, one in each plate member. This is illustrated in Figs. 2 and 5 in assembled relation, the manner of assembly being suggested by the illustration in Fig. 7.

It will be seen that the girders are arranged in spaced parallel relation and extend from end to end of the casing in assembled relation. The inner side panels 5 are of less height than the other panels forming the casing as apparent from the drawings and this provides a space at the top of the casing for the girders where they extend over the space between the pedestals.

The flaps 11 are arranged to extend into the cut-out upper corners of plate member 12 in the assembled relation of the plate members and girders forming the supporting unit, and the casing 1, the flaps engaging the shoulders 17 and retain the plate members in a fixed position with reference to the casing so that they will not slide upwardly after the several parts are assembled. In this way, this supporting structure in assembled relation in the casing will provide a support on the upper edges thereof at a fixed position with reference to the upper edge of the casing. Slots 16 in plate member 12 are of a depth equal to the height or width of girders 13. These girders are formed of strips of corrugated paper board in which the corrugations run in the vertical direction.

The central portion of each of the girders is recessed as indicated at 18. When the girders are assembled in the plate members the upper edges of the girders lie in the same plane as the upper edges of the plate members, that is in horizontal relation. This provides a firm and rigid support at the top of the deck for the top structure.

A top member 19 is formed of a single sheet of corrugated board to provide end sections 20 and an intermediate or central section 21 offset downwardly from the sections 20, the portions 22 of the sheet of corrugated board and connecting section 21 with sections 20 and extending in vertical relation so as to strengthen the top structure. The margins of each section 20 are formed with flaps 23 while the front margin of section 21 is formed with flap 24 and the rear margin with flap 25. These flaps are dependent from the top member.

The top member is placed upon the top of the supporting unit and within the casing with the flaps 23, 24 and 25 inserted inside the casing so as to engage between flaps 11 and the supporting unit, that is, the sections 20 engage outside of the supporting unit. The sections 20 are seated on the upper edges of girders 13 and plate members 12 while section 21 is seated in the recess 18 formed in the girders on the upper edges of the girders so as to form a recess in the top of the desk to receive a typewriter. When a typewriter is supported in the recess, section 21 of the top member, it is at a convenient height for normal operation by an operator seated on a chair in front of the desk in the usual manner.

The vertical portions 22 of the top member along with the depending flaps 23 cooperate with the casing and supporting unit to add rigidity to the desk structure in its assembled relation. It will be noted that all of these parts are merely fitted one into the other and have no other means of attachment. When the top member is in position in the casing on the supporting unit, the upper surface of sections 20 are spaced slightly below the upper rounded edges of the casing a distance equal to about a double thickness of the paper board used in making the deck.

The flap 25 on the rear end of section 21 is longer than the flap 24 or flap 23 as clearly illustrated in Fig. 4 in order to provide a fold portion 26 and an upwardly extending end portion 27. This provides for an interlocking between the end portion 21 and the flaps 24 and 25 on the rear panel 3 throughout the width of the center portion 21 and provides a tie between the rear panel and the top member as well as cooperates in supporting the
cover member in vertical position as will be described.

A cover member 28 is formed of two pieces of corrugated paper board 29 and 30 arranged in superimposed coincident relation and secured together by the tape binding 31 extending entirely around the marginal portions. The piece 28 has one edge of the central portion cut away as indicated at 32 in Figs. 1 and 7 while the remainder of this central section is offset to provide a section 33 in spaced parallel relation with the piece 30 of a width adapted to fill the recess formed in the top member.

The opposite edge of the piece 29 is cut to form a tongue 34, Fig. 4, that is foldable toward piece 30 so that the end will extend inwardly toward the piece 30 and then upwardly behind section 33. This construction forms an open ended pocket in the cover member of the character clearly illustrated in Figs. 1, 4 and 7 of a size suitable for receiving typewriting paper or other writing paper, etc. The closed end of the pocket is spaced above the adjacent margin of the cover member as illustrated.

With this construction of cover member 28, the edge portion adjacent the closed end of the pocket will normally form the rear or lower edge of the cover member, and is adapted for insertion between the rear edge of top member 18 and rear panel 3, the edge of the cover member engaging between the flaps 23 and 25 on top member 19 and flap 11 on rear panel 3 in the manner illustrated in Figs. 3 and 4. The cover member is supported in vertically extending relation with the open end of the pocket extending upwardly as illustrated in the drawings while the lower edge is engaged between the top member and the rear panel in such a manner that the lower edge engages in the fold portion 26 of flap 25 as shown in Figs. 3 and 4. In this position the closed end of the pocket formed by the flap 34 seats on the upper face of section 21 along the rear edge thereof as clearly illustrated in Figs. 1 and 4. In this position of the parts the desk is arranged for the support and use of a typewriter mounted on the top member and seated in the recess of top section 21.

When it is desired to use the desk as a writing desk it is preferable to remove cover member 28 from its vertical position as illustrated in Figs. 1, 4 and 5 and place the same in a horizontal position on the top of top member 18 with the pocket portion positioned on the underside to fit the recess in the top member so that offset section 33 rests on top of section 21 of the top member.

In this position of the cover member the outer surface of piece 30 is then disposed at the top of the desk in the plane of the upper edges of the front, rear and side panels and provides a flat surface over the entire desk top making it very convenient for use as a writing desk.

It will be noted from Fig. 8 that one form of corrugated paper board adapted for use in the construction of the top comprises two plane outer layers arranged in spaced parallel relation and joined by an undulating intermediate section which is suitably glued or otherwise secured thereto to form a unitary sheet structure. This form of paper board is a well known commercial article and has substantial strength in being uniform in thickness with the corrugations or undulations so that in a desk constructed as above described, and as shown in the drawings, with the undulating portions extending in a vertical direction, the desk has the ability to support a substantial weight. It is found from experience that a desk constructed as illustrated will carry a load of from four to six hundred pounds. It is further found that by the cooperation of plate members 12 with the tubular pedestal formed by the panels of the casing together with the interfering relation of girders 13 that lateral stresses in the desk construction are well distributed so that when a typewriter is supported on the desk, its normal operation will not cause vibration of the structure to any material extent.

As a result a substantially rigid desk construction is provided that will efficiently support a portable or standard size typewriter for its normal use. The flap portions on the casing and the top member also cooperate in reinforcing the casing and desk structure with the interfering relation of plate members 12 and girders 13, in addition to the flaps 11 cooperating with plate members 12 by engaging shoulders 7 to hold the supporting unit in the casing in properly adjusted position.

It will be obvious that the desk may be disassembled by removing the cover member, then the top member, subsequently the girders 13 and plate members 12. After top member 18 is removed the flaps may be folded outwardly and the vertical sections 22 moved about the fold line joining them with sections 20 and 21 so that the top member may be unfolded to lie in a flat position. Plate members 12 may also be disassembled by disengaging one from the other whereupon they may be superimposed upon one another and when the casing is folded in the manner hereinbefore described, it will be apparent that all of these parts may be laid in superimposed relation and in a flat position, one on top of the other, and as a result the entire desk construction in collapsed or knock-down position may be assembled in a flat box for shipment or transport from one place to another. It will also be apparent that the desk can be readily assembled without tools or other special means merely by interfitting the parts one within the other in the manner above described, and that when they are interfitting they will all interlock and co-operate with the other to produce a rigid assembled desk structure.

The invention claimed is:

1. A collapsible desk, comprising an outer casing of sheet material formed to provide outer side, front and rear panels foldably connected at the corner edges, and spaced inner side panels of less height than the first-mentioned panels foldably connected to the lower portions of the front and rear panels intermediate the ends to form tubular pedestals at the ends of the desk, said front and rear panels having an opening between said inner side walls, a supporting unit having end supports removably engaged in said pedestals and supporting members connecting the upper end portions, said casing and supporting unit cooperating in assembling relation to provide a rigid structure, and a laterally extending top member supported thereby.

2. A collapsible desk comprising an outer casing of sheet material having front, rear and connecting side panels, inwardly folded flaps on the upper edges of said panels, a supporting unit removably assembled in said casing and cooperating therewith to provide a rigid structure, cooperating parts on said supporting unit for cooperative engagement with said flaps to retain said supporting unit in said casing against top.
ward movement, and a top member removably supported on said unit and casing.

3. A knock-down desk comprising an outer casing having front, rear and side panels formed in sheet material, said side panels spaced inwardly from the first-mentioned side panels in parallel relation and cooperating to form pedestals at the ends of the desk, a supporting unit having plate members of sheet material slidably engaged in vertical relation, in each of said pedestals, said plate members extending in angular relation to said panels for cooperation to provide rigid pedestals, said unit having horizontally extending strips of sheet material interengaged with said plate members in edgewise relation, and a top member supported laterally extending horizontal relation on the upper edges of said plate members and strips interfitting in said casing.

4. A knock-down desk comprising an outer rectangular casing having front, rear and outer side panels and inner side panels in spaced relation cooperating to provide a tubular structure at each end of the desk to form a pedestal, plate members slidably engaged in said pedestals in diagonal interengaged relation, girders of sheet material interengaged in the top portions of said plate members in vertical edgewise relation, and a top formed of a horizontal sheet mounted on the upper edges of said girders and plate members, said top, plate members and girders cooperating with said casing in assembled relation to provide a rigid desk structure.

5. A knock-down desk comprising an outer casing having front, rear and side panels, a supporting unit mounted therein having vertically disposed plate members of sheet material interfitting with each other in angular relation, girders interfitting with the upper ends of said plate members formed of horizontal strips of sheet material mounted in edgewise relation on said plate members, and a horizontal top sheet supported on the upper edges of said girders and plate members cooperating with said casing to form the desk having said plate members, casing, girders and top sheet cooperating in interlocking relation to interlock said parts together in rigid assembled relation to form a desk.

6. A knock-down desk comprising an outer casing of sheet material standing on edge and formed to provide front, rear, and outer and inner side panels at each end, said side panels cooperating with the front and rear panels to form a tubular pedestal at each end of the desk, a pair of crossed interlaid plate members in each tubular pedestal having opposite edges of each plate member slidably engaged in opposite corners of said pedestal at the intersection of the front and rear panels with the side panels, said panels and plate members cooperating to provide a rigid supporting structure, strip members mounted in edgewise relation on said plate members, and a top member mounted on said strip and plate members in substantially horizontal relation.

7. A knock-down desk comprising an outer casing formed of sheet material standing on edge to provide tubular pedestals of polygonal cross section, each vertically disposed pair of girders and crossed plate members slidably engaged in each pedestal with opposite edges of each plate member engaging in opposite corners; strip members mounted in edgewise relation on said plate members, and a top member supported in laterally extending horizontal relation on said strip and plate members, said strip and plate members and said top and said casing cooperating to provide a rigid desk structure.

8. A knock-down desk comprising a casing of sheet material having on one edge, inner side panels spaced inwardly from the first-mentioned side panel in parallel relation and cooperating to form pedestals at the ends of the desk, a supporting unit having plate members of sheet material slidably engaged in vertical relation in each of said pedestals, said plate members extending in angular relation to said panels for cooperation to provide rigid pedestals, said unit having horizontally extending strips of sheet material interengaged with said plate members in edgewise relation, and a top member removably supported on said unit and casing, a top member having on said top and said casing cooperating to provide a rigid desk structure.

9. A knock-down desk comprising a casing of sheet material having on one edge a plurality of parts interfitting in vertical edgewise relation in said casing, flaps on the upper edge of said casing interfitting and interlocking with said supporting unit, a top member having on said supporting unit and having depending marginal flaps interfitting with said casing and unit, said casing, unit, top and flaps cooperating to provide a rigid desk structure.

10. A knock-down desk comprising a casing of sheet material standing on edge having a plurality of panels joined at the edges, a supporting unit of sheet material in said casing having the upper portion formed with a recess, and a top member of sheet material mounted in horizontal relation on top of said supporting unit and having an offset section engaging in said recess at said top member and the offset section thereof and said support and casing cooperating to provide a rigid structure and a well for receiving a typewriter.

11. A knock-down desk comprising a casing of sheet material, sheet material members mounted in said casing in edgewise relation to form a rigid supporting structure, a top member mounted at the top of said casing, and a cover member detachably mounted on the top member in horizontal position to form a top for said desk, and movable to a vertical position with one edge interfitting between said casing and supporting unit to support said cover member in said vertical position.

12. A knock-down desk comprising a casing of sheet material, sheet material members mounted in said casing in edgewise relation to form a rigid supporting structure, a top member mounted at the top of said casing, and a cover member detachably mounted on the lower edge engaged between said top member and casing, said cover member being detachable and movable into a horizontal position on said top member.

13. A knock-down desk comprising a casing of sheet material, sheet material members mounted in said casing for cooperation to provide a rigid supporting structure, said members being formed to provide a recess in the top portion, a top member mounted on said casing and members having an offset portion seated in said recess to provide a well for receiving a typewriter, and a cover member detachably mounted at the back of said top member having a holder formed therein, said top member being movable into a horizontal position on said top member, said recess receiving and housing said holder.

14. A knock-down desk comprising a casing of sheet material having front, rear and side panels joined at their ends and standing on edge, a plurality of sheet material members mounted on edge in said casing and cooperating therewith.
to provide a rigid support structure, a top member on said structure having depending edge flaps interlitted with said casing and sheet material members, and a cover member superimposed on said top member in one position to provide a writing surface on said desk and having one edge adapted for interfitting engagement with said top member, flaps and casing for support in a vertical position along the rear edge of the desk.

15. A knock-down desk comprising a casing formed of sheet material having foldably connected front, and rear panels, and inner and outer side panels at each end to form tubular open ended pedestals, a pair of crossed interengaged plate members slidably engaged in diagonal relation in each pedestal, girders formed of sheet material mounted in vertical edgewise spaced parallel relation with opposite ends interengaged with said plate members, a top member of sheet material supported on the upper edges of said girders and plate members, and a cover member superimposed on said top member in one position and supported in a second position in vertical relation with one edge engaged between said top member and said rear panel.

16. A collapsible desk comprising an outer casing of sheet material formed to provide side, front and rear panels, spaced inner side panels of less height than the other panels secured to the front and rear panels intermediate the ends to form tubular pedestals at the ends of the desk and define a central opening extending from the front to the rear of the desk at the lower portion thereof, a supporting unit having vertically extending end supports removably engaged in said pedestals and horizontal supporting members supported on top of and extending between and across the upper end portions of said end supports above said inner side panels, said casing and supporting unit cooperating in assembled relation to form a rigid structure, and a laterally extending top member supported thereby.

MILTON S. STEVENSON.
RAYMOND WELLS.