

[54] EASILY ASSEMBLABLE FURNITURE,  
SUCH AS A DESK

[75] Inventor: Giorgio Tenani, Rovigo, Italy

[73] Assignee: Interburo Holding, Geneve,  
Switzerland

[22] Filed: Apr. 9, 1973

[21] Appl. No.: 349,664

[30] Foreign Application Priority Data

June 9, 1972 Italy ..... 12713/72

[52] U.S. Cl. .... 312/195, 16/135, 108/131

[51] Int. Cl. .... A47b 17/00

[58] Field of Search ..... 312/195; 108/129, 131;  
16/128 R, 135

[56] References Cited

UNITED STATES PATENTS

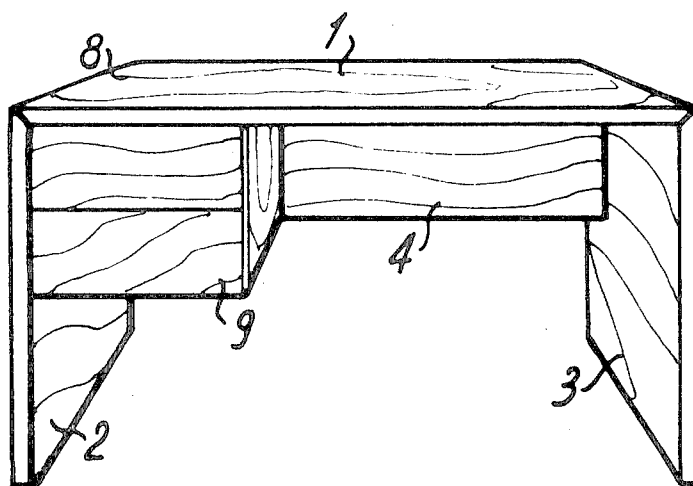
|           |         |               |         |
|-----------|---------|---------------|---------|
| 127,484   | 6/1872  | Hirsh .....   | 108/131 |
| 1,700,203 | 1/1929  | Baker .....   | 312/195 |
| 2,259,145 | 10/1941 | Waldo .....   | 312/195 |
| 3,650,562 | 6/1970  | Adler .....   | 312/195 |
| 3,663,079 | 5/1972  | Borsani ..... | 312/195 |

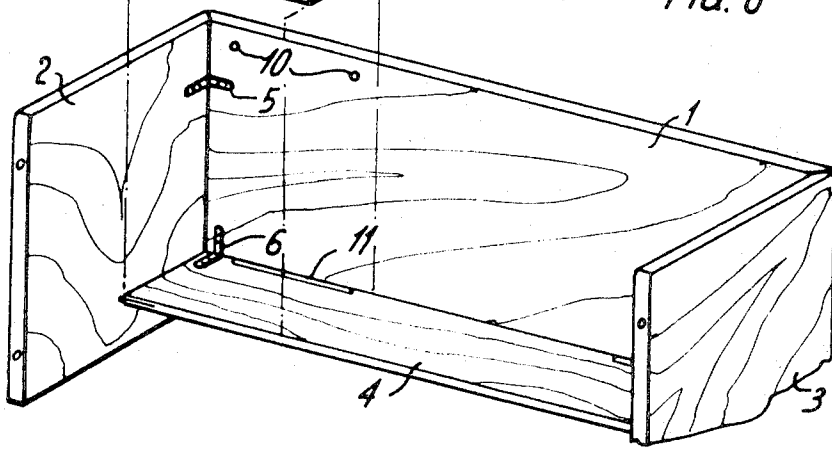
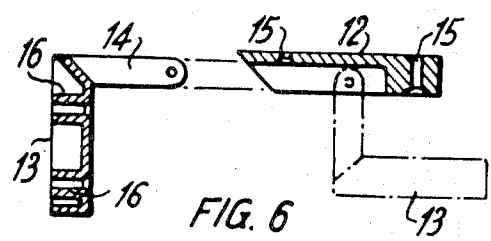
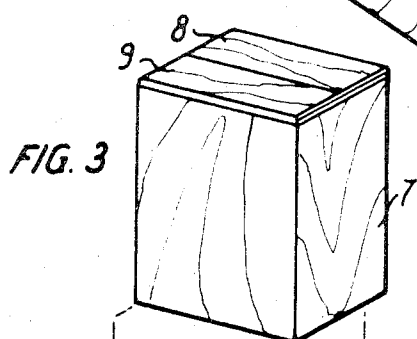
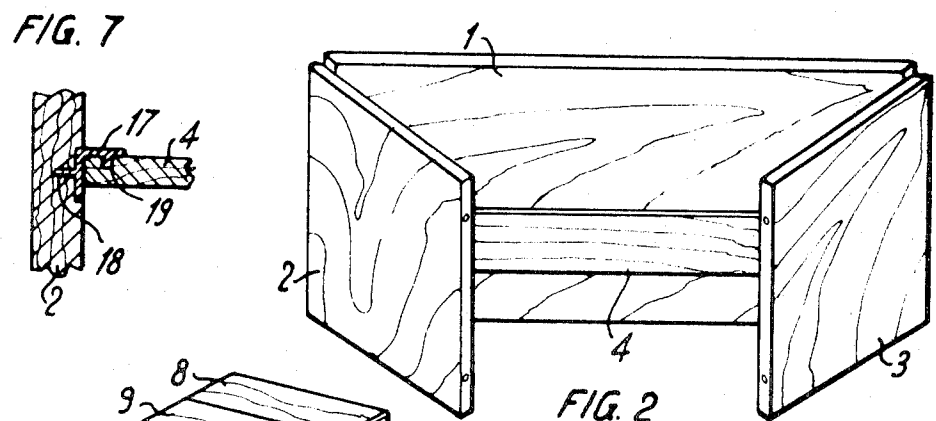
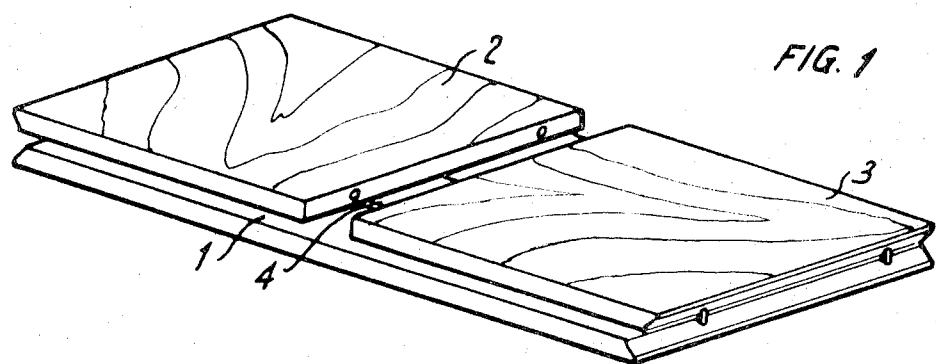
Primary Examiner—James C. Mitchell  
Attorney, Agent, or Firm—Waters, Roditi, Schwartz &  
Nissen

[57] ABSTRACT

A piece of furniture comprising a main rectangular plate having two side plates pivotably connected to the main plate at its opposite ends. The main plate has a length at least as long as the two side plates. The side plates are pivotably movable from a first folded position in a plane parallel to the main plate to a second deployed position in which the side plates are perpendicular to the main plate. A fourth auxiliary plate is pivotably connected to the main plate for movement about an axis parallel to the long sides thereof between a first folded position in a plane parallel to the main plate and a second deployed position in which it forms right angles with the main plate and the two side plates. The piece of furniture can be used as a desk in which case a box of drawers is secured in the quadrangular space formed by the main plate, the auxiliary plate and one side plate. The piece of furniture can also be used as a storage unit such as a bookcase or filing cabinet in which case shelves are secured to the side plates.

7 Claims, 11 Drawing Figures





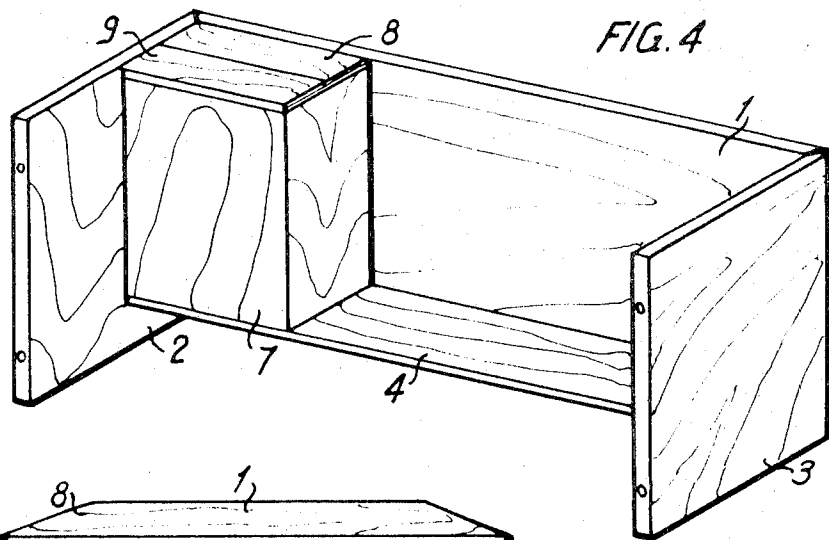


FIG. 4

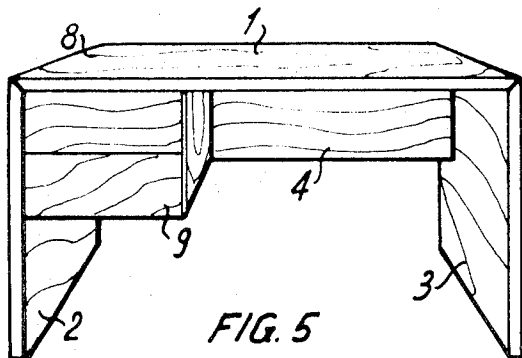


FIG. 5

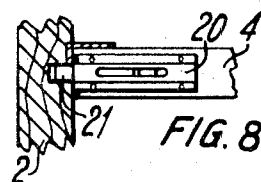


FIG. 8

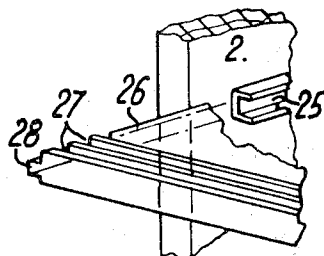


FIG. 11

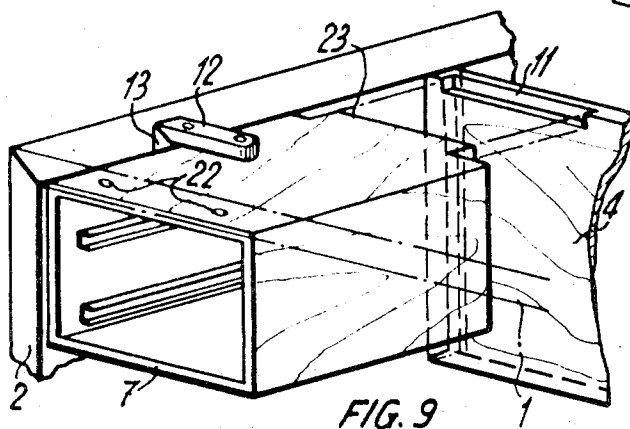


FIG. 9

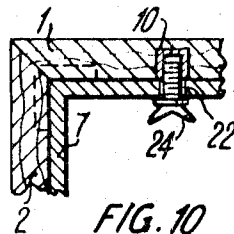


FIG. 10

# EASILY ASSEMBLABLE FURNITURE, SUCH AS A DESK

## BRIEF SUMMARY OF THE INVENTION

The invention relates to furniture and particularly but not exclusively to a desk or storage unit or the like.

The furniture according to the invention is characterized by a main, rectangular, face plate having opposite ends to which two side plates are respectively pivotably connected. The main plate is at least as long as the two side plates. The side plates are pivotably movable from a first position in which they are retracted and lie against the main plate to a second position in which the side plates form right angles with the central plate. A fourth auxiliary plate is pivotably connected to the main plate and can occupy a first position in which it is interposed between the side plates and the main plate in a plane parallel thereto and a second deployed position in which it forms right angles with the three other plates.

## BRIEF DESCRIPTION OF THE DRAWING

The attached drawing shows an embodiment, with variations, of a piece of furniture according to the invention.

In the drawing:

FIG. 1 is a perspective view showing the parts of a desk in a collapsed state;

FIG. 2 shows the desk in the course of deployment;

FIG. 3 is an exploded view of part of the assembled desk;

FIG. 4 is a view similar to FIG. 3 showing the assembled desk;

FIG. 5 is a front view of the desk in its position of use;

FIGS. 6-10 are cross-sectional views showing details of assembly of portions of the desk; and

FIG. 11 is a perspective view showing a portion of a modification of the desk to enable the same to serve as a storage unit as well. DETAILED DESCRIPTION

Referring to FIG. 1, therein is shown a desk in folded condition for storage or shipping or the like, and the desk comprises a main rectangular plate 1 which constitutes the top of the desk, two lateral side plates 2 and 3 pivotably connected to plate 1 at its side edges and folded flat thereagainst, and an auxiliary plate 4 connected to plate 1 for pivotal movement about an axis parallel to one of the longitudinal edges of plate 1.

These plates in the folded or collapsed state are all arranged in parallel relation and the plate 4 is folded against the main plate 1 after which the side plates are folded against the plate 4.

FIG. 2 shows the different plates in the course of unfolding and FIG. 3 shows the plates in their final deployed positions. In FIG. 3 it can be seen that the side plates 2, 3 form right angles with plate 1 while plate 4 forms right angles both with plate 1 and plates 2 and 3. In FIG. 3 there are also shown hinges 5 and 6 and it also can be seen that plate 4 is spaced from the longitudinal edge of plate 1 but extends parallel thereto. It is equally possible to pivotably attach plate 4 to plate 1 at the very edge of the latter. The hinges 5 and 6 include respective arms which are embedded in their associated plates to be flush therein.

In FIG. 3 there is also seen a box 7 of right parallelepiped shape with drawers 8 and 9 which box is secured in the quadrangular space bounded by plates 1, 2 and 4 directly beneath the plate 1.

The plate 1 is provided with holes 10, and a longitudinal slot 11 is formed in plate 4 to enable the mounting of the box 7 as shown in FIG. 9 and as will be explained more fully later.

If desired, a box of drawers can be mounted at both sides of the desk rather than only at one as shown in FIGS. 3-5, and moreover, it is also possible to mount one or more boxes of drawers at other locations below the plate 1.

FIG. 4 shows the finished desk on its back, and FIG. 5 shows the desk in upright position ready for use.

In FIG. 6 there can be seen the details of the hinges of the side plates to the main plate, these hinges being so constructed that when the side plates are folded parallel to plate 1 a space is provided for the folded auxiliary plate 4. These hinges comprise a fixed portion 12 destined to be fixed to the plate 1 optionally, partly or completely embedded in the thickness thereof, and a hinged portion of right-angle shape with one arm 13 attached to its respective side plate 2 or 3 in the same manner.

The other arm 14 of the right-angle hinge portion is pivotably connected at its free end to portion 12 and is adapted to be received in a recess formed by a slot in portion 12. In the folded position of the associated side plate, the right-angle shaped hinge portion assumes the position as shown in chain-dotted lines in FIG. 6 and as evident therefrom the side plate is held in spaced relation from plate 1 thereby to accommodate plate 4. In the deployed position, the side plate forms a right angle with plate 1 due to the right angle shape of the hinge portion.

The portion 12 is provided with holes 15 for receiving attachment screws or the like to secure portion 12 to plate 1. The arm 13 is provided with ribs 16 having holes therethrough for receiving attachment screws or the like to secure the arm 13 to its corresponding side plate 2 or 3 at its outer surface.

FIG. 7 shows a part of side plate 2 and auxiliary plate 4 and, in particular, the means by which they can be held in deployed position. Such means comprises a formed, clasp member 17 having one flange embedded in plate 2, the other taking a support position against the inner face of plate 4. Projections 18 are fitted into a corresponding groove in plate 2 and projections 19 engage in a corresponding groove in plate 4. The assembly is completed, with reference to the structure shown in FIG. 8, where member 17 can be seen, by the provision of a slot 20 in the free edge of plate 4 in which slot, a tongue 21 is secured in advance to penetrate into a hole in plate 2 when the plate 4 has been opened and projection 19 has entered the associated groove in plate 4.

Referring next to FIGS. 9 and 10, therein is shown the means by which the box of drawers can be secured to the desk, FIG. 9 showing the box 7 without the drawers to permit the drawer guides to be seen. Additionally, FIG. 9 shows plates 2 and 4, but plate 1 has been removed to show hinge 12, 13, the position of plate 1 being shown in chain-dotted outline.

In FIGS. 9 and 10 there are seen two holes 22 in the box 7 which align with holes 10 in plate 1 when a projection 23 at the back of box 7 has entered into slot 11

3

in plate 4. The box 7 has been foreshortened in FIG. 9 in order to show the projection 23 and the slot 11. In actuality, when the projection 23 is engaged in slot 11, this establishes the rearward position of the box and the front face of the box lies flush with the edges of plates 1 and 2. The holes 22 are aligned with holes 10 at this time and screws 24 can be inserted into the aligned holes to secure the assembly together. The holes 10 can be threaded, or preferably threaded metal inserts can be secured in holes 10 and the screws 24 can have wings so that engagement of screws 24 can be easily undertaken by hand. Hence, as can be seen, the entire assembly of the desk can be simply and rapidly effected without the necessity of a single tool.

The same is true of the variation shown in FIG. 11 where there is seen a portion of a storage unit with shelves, adapted, for example, to serve as a file cabinet or bookcase.

FIG. 11 shows a portion of plate 2 and on its internal face there is fixed a guide 25 of U-shape. A shelf 26 can be engaged in guide 25 by simply sliding the same therein. The opposite end of shelf 26 is engaged in a corresponding guide (not shown) on the inner face of the opposite plate 3 at the same height and parallel to guide 25.

If the finished piece of furniture is to be closed, for example, by sliding doors, these can be placed at the front of the shelves in grooves 27 which terminate at tenons 28 which engage in guides 25.

Instead of grooves 27, there can be placed a pivotal board at the front of shelf 26 which in folded state lies on shelf 26 and which is unfolded before the shelf is installed.

What is claimed is:

1. A piece of furniture comprising a main rectangular plate having opposite ends, two side plates pivotably connected to the main plate at said opposite ends, said main plate having a length at least as long as the two side plates, said side plates being pivotably movable from a first folded position in a plane parallel to the main plate to a second deployed position in which the side plates are perpendicular to the main plate, and a fourth auxiliary plate pivotably connected to the main plate for movement about an axis parallel to the long sides thereof between a first folded position in a plane parallel to the main plate and a second deployed position in which it forms right angles with the main plate and the two side plates, said auxiliary plate being superposed on said main plate in the folded position and said

4

side plates being superposed on the auxiliary plate in their folded positions, first hinge means connecting each side plate with the main plate, second hinge means connecting the auxiliary plate to the main plate, the second hinge means including hinges constructed and arranged to permit the auxiliary plate to be folded into the folded position thereof flat against the main plate, the first hinge means being constructed and arranged to permit the side plates to be folded flat against the auxiliary plate which is now flat against the main plate, said first hinge means comprising a first flat hinge element embedded in the main plate, and a second hinge element of right angle shape including a first arm pivotably connected to the first element and a second arm embedded in its associated side plate, said first hinge element and said second arms being flush in their respective plates, said first hinge element having a slot therein in which said first arm lies in the plane of said first hinge element when the side plate is in deployed position.

2. A piece of furniture as claimed in claim 1 comprising locking means between said auxiliary plate and side plates for detachably securing the same together in said deployed positions thereof.

3. A piece of furniture as claimed in claim 1 comprising a box of right parallelepiped shaped adapted to be placed in the quadrangular space bounded by the main plate, the deployed auxiliary plate and one deployed side plate, and means associated with said box for securing the same to at least one of said plates manually and without tools.

4. A piece of furniture as claimed in claim 3 wherein the securing means comprises manually turnable screws.

5. A piece of furniture as claimed in claim 3 wherein said auxiliary plate is provided with a slot, said box having a rear projection which is engaged in said slot when the box is placed in said quadrangular space.

6. A piece of furniture as claimed in claim 1 wherein said side plates have inwardly facing opposed surfaces in the deployed position, U-shaped channels secured to the side plates in aligned position and a shelf slidably engageable in said channels.

7. A piece of furniture as claimed in claim 6 wherein said shelf has grooves in which sliding doors can be slidably received, said shelf having opposite ends with tenons extending beyond said grooves, said tenons being engageable in said U-shaped channels.

\* \* \* \* \*

50

55

60

65