Title: A MODULAR APPARATUS FOR REALIZATION OF WARDROBES PROVIDED WITH PLASTIC STRUCTURE

Abstract: The present invention relates to a modular apparatus composed of a plurality of modules obtained from molding plastic materials and adapted to be combined at the user’s discretion in order to obtain pieces of furniture with different shapes and dimensions, preferably wardrobes.
Description

A modular apparatus for realization of wardrobes provided with plastic structure

The present patent application relates to a modular apparatus used to realize furniture, basically wardrobes, provided with plastic structure.

The present invention has been devised further to a careful examination of the current requirements of the furniture market.

More and more often, consumers are searching for furniture characterized by versatility of use, in addition to low prices and pleasant aesthetics.

In particular, furniture must adjust easily to the available space and to the actual needs. At the same time it must be possible to change its configuration rapidly, according to changing needs, without requiring substantial modifications and without using specialized labor.

The specific purpose of the apparatus of the invention is to satisfy all the aforementioned needs, when making a wardrobe or another piece of furniture of the same type.

The specific usefulness of the apparatus of the invention is not to realize wardrobes with a special external shape. The purpose is to allow users to configure their furniture according to their specific requirements, while reducing costs to affordable levels.

The apparatus of the invention has achieved such a purpose, while comprising a limited number of modules characterized by high versatility.

It must be noted that the modules of the apparatus of the invention can be combined as desired by the user to generate wardrobes with any height, according to the number of internal shelves used.

The same components used to realize a wardrobe with one shelf can be also used in a larger number of specimens to realize wardrobes with one, three or more shelves.
Moreover, the fact that all modular components are obtained from molding plastic materials is justified by the need to reduce their cost and weight.

A further advantageous characteristic of the apparatus according to the invention relates to the capability of the various modules to provide stable coupling, without using external connection means, such as screws, plugs and the like.

Furthermore, the various modules of the apparatus according to the invention are capable of creating, in a corresponding piece of furniture, a self-bearing framework that is not simply limited to act as a simple "covering" structure for the furniture.

Such a provision is appreciated in view of the possibility for anyone to create pieces of furniture easily and rapidly, in total safety in terms of final result.

For illustrative reasons the description of the invention continues with reference to the attached drawings, which only have an illustrative, not limiting value, wherein:

- Fig. 1A is an axonometric top view of a horizontal panel of the framework of the invention;
- Figure 1B is an axonometric bottom view of the horizontal panel of Fig. 1A;
- Fig. 2 is an axonometric front view of the back of the apparatus of the invention;
- Fig. 3A is an axonometric external view of a vertical panel of the apparatus of the invention;
- Figure 3B is an axonometric internal view of the vertical panel of Fig. 3A;
- Fig. 4A is an axonometric top view of the top of the apparatus of the invention;
- Fig. 4B is an axonometric bottom view of the top of Fig. 4A;
- Fig. 5A is an axonometric external view of the door of the apparatus of the invention;
- Fig. 5B is an axonometric internal view of the door of Fig. 5A;
- Figs. 6A, 6B and 6C are three axonometric perspective views showing the hinge for doors of the apparatus of the invention;
- Fig. 7A is an axonometric bottom view of a first strip with handle of the apparatus of the invention;
- Fig. 7B is an axonometric top view of the strip of Fig. 7A;
- Fig. 8 is an axonometric bottom view of a first strip without handle of the apparatus of the invention;
- Fig. 9A is an axonometric bottom view of a second strip with handle of the apparatus of the invention;
- Fig. 9B is an axonometric top view of the strip of Fig. 9A;
- Fig. 10 is an axonometric bottom view of a second strip without handle of the apparatus of the invention;
- Fig. 11A is an axonometric view of a plate and a column of the apparatus of the invention;
- Fig. 11B is an axonometric view of the cooperation modes of two components of Fig. 11A with a specimen of the horizontal panel of Fig. 1A;
- Fig. 11C is an axonometric view of the two components of Fig. 11A installed in a piece of furniture obtained by means of the apparatus of the invention;
- Figs. 12A, 12B and 12C are three axonometric perspective views showing an end cap of the apparatus of the invention;
- Fig. 13 is an axonometric view of the cooperation modes of a horizontal panel of Fig. 1A with a back of Fig. 2;
- Figs. 14A and 14B are axonometric views showing the assembly steps of said components of Fig. 13 with three specimens of the vertical panel of Fig. 3A;
- Fig. 15 is an axonometric view of the cooperation modes of the top of Fig. 4A with the components of Fig. 14B, in assembled condition;
- Figs. 16A and 16B are axonometric views showing the assembly steps of a piece of furniture obtained with the components of the apparatus of the invention;
- Fig. 17 is an axonometric view of an additional piece of furniture without doors, obtained by suitably assembling the components of the apparatus of the invention;
- Fig. 18 is an axonometric view of an additional piece of furniture without doors, obtained by suitably assembling the components of the apparatus of the invention;
- Figs. 19A and 19C are axonometric views of a piece of furniture with doors and three shelves, obtained by suitably assembling the components of the apparatus of the invention;
- Fig. 19B is an exploded axonometric view of one of the doors provided in the piece of furniture shown in Figs. 19A and 19C;
- Fig. 20A is an axonometric view of an alternative embodiment of the horizontal panel of Fig. 1A;
- Fig. 20B is an axonometric view of a piece of furniture provided with a specimen of the horizontal panel of Fig. 20A;
- Figs. 21A and 21B are two axonometric views, a top view and a bottom view, respectively, of the foot of the apparatus of the invention;
- Figs. 22A, 22B and 22C are three axonometric views showing in sequence a first assembly mode of the foot of Figs. 21A and 21B;
- Figs. 23A and 23B are two axonometric views showing in sequence a second assembly mode of the foot of Figs. 21A and 21B;

Referring to the aforesaid figures, the apparatus of the invention is composed of a series of modules obtained from molding plastic materials, which can be used from time to time in the desired number and combination in order to realize wardrobes with or without front doors.

To that end, each of said modules is provided with coupling means associated with stopping means, adapted to cooperate with corresponding coupling and stopping means provided in the other modules.

Specifically referring to Figs. 1A and 1B, the first module of the apparatus of the invention is composed of a first boxed quadrangular panel (1) adapted to be mounted in horizontal position in order to act indifferently as bottom or intermediate shelf of a piece of furniture.
As expressly shown in Fig. 1A, the upper surface of said first horizontal panel (1) is characterized in that it is provided with three identical transversal grooves (1a) extending from the front to the back; it being provided that two of said grooves (1a) are obtained at the height of the lateral edges of the horizontal panel (1) and the third one is obtained in the central line of the latter.

The back ends of said three transversal grooves (1a) end inside a longitudinal groove (1b), with identical shape and section, obtained at the height of the back edge of the panel (1).

Transversal partitions (1a', 1b') protrude from the bottom of said grooves (1a, 1b), being regularly spaced and having height lower than the depth of the grooves receiving them.

The presence of said grooves (1a, 1b) isolates two large quadrangular portions (2) on the upper face of the horizontal panel (1), having a continuous surface and adapted to act as support surfaces for the objects stored inside the piece of furniture.

As shown in Fig. 1B, which is a bottom view of said panel, the three transversal grooves (1a) and longitudinal groove (1b) exactly correspond, on the lower surface of said horizontal panel (1), to three transversal grooves (10a) and one longitudinal groove (10b).

Said four grooves (10a, 10b) obtained in correspondence of the lower side of said horizontal panel (1) have the same shape and section as the corresponding "upper" grooves (1a, 1b) and are equally provided with corresponding series of transversal partitions (10a', 10b') not for their entire depth.

For convenience purposes, said four grooves (1a, 1b) obtained on the upper side of said first horizontal panel (1) are defined as "upper grooves", and likewise grooves (10a, 10b) obtained on the lower side of the same horizontal panel (1) are defined as "lower grooves".

It must be noted that the four upper grooves (1a, 1b) are joined with the corresponding four lower grooves (10a, 10b) by means of a horizontal partition wall (11) obtained at half of the thickness of the horizontal panel (1).
A comparison of said Figs. 1A and 1B shows that, because of the presence of said upper grooves (1a, 1b) and lower grooves (10a, 10b), the two quadrangular portions (2) of the upper side of said first horizontal panel (1) are empty on the bottom.

In fact, on the lower side of the panel (1), each portion (2) is defined by two transversal edges (3a), one back longitudinal edge (3b), and one front longitudinal edge (3c) because of the presence of a groove (4) obtained at the height of the front edge of the panel (1) without affecting the upper side of the latter.

The back longitudinal edge (3b) is provided, basically in central position, with a pair of slots (5a, 5b) with horizontal direction, of which the first one (5a) lays at height higher than the partition wall (11) situated between said upper grooves (1a, 1b) and lower grooves (10a, 10b), whereas the second one (5b) lays at height lower than the partition wall (11).

Two pairs of horizontal slots (5a, 5b) are obtained on each of said transversal edges (3a) towards the two ends of the same.

It can be otherwise said that each of said upper grooves (1a, 1b) is provided, on one of its lateral edges, with one or more specimens of said first slot (5a) and each of said lower grooves (10a, 10b) is provided, on the same lateral edge, with specimens of the second slot (5b), in lower position relative to said horizontal wall (11).

Referring to Fig. 2, the second component of the modular apparatus of the invention consists in an additional boxed quadrangular panel adapted to be mounted in vertical position and be therefore configured as the back (9) of the piece of furniture.

Said back (9) has an empty structure, internally stiffened by a vertical series of transversal ribbing (N).

Opposite pairs of short, basically V-shaped notches are obtained (12) on the lower longitudinal edge (9a) and the upper longitudinal edge (9b) of the back (9).

As expressly shown in Fig. 2, two pairs of wedge profiles (13a, 13b) are provided on the internal side of the back (9), it being provided that the
first pair of said wedge profiles (13a) is situated at the height of said lower longitudinal edge (9a) and the second pair of said profiles (13b) is situated at the height of said upper longitudinal edge (9b).

Additionally, said back (9) is provided on the front side with three vertical grooves (9c) adapted to be perfectly aligned with said grooves (1a) of the first panel (1) when the two components are mutually coupled.

In fact, the back (9) is adapted to be coupled with the upper side of said first panel (1), in vertical position on the back longitudinal edge of the panel (1), as expressly shown in Fig. 13.

More precisely, the lower longitudinal edge (9a) of the back (9) is exactly inserted into the upper longitudinal groove (1b) of the first panel (1).

In view of the above, the back (9) must have the same length as the upper longitudinal edge (1b) of the panel (1) and the lower longitudinal edge (9a) of the back (9) is adapted to be exactly engaged inside said upper longitudinal edge (1b) of the panel (1).

When such insertion is completed, other two important conditions occur, being necessary to stabilize coupling between back (9) and horizontal panel (1).

First of all, reference is made to the fact that said V-shaped notches (12) obtained on the lower longitudinal edge (9a) of the back (9) are disposed exactly "astride" said transversal partitions (1b') protruding from the bottom of the upper longitudinal groove (1b) of the horizontal panel (1).

At the same time, said wedge profiles (13a) provided on the internal side of the back (9) on the lower longitudinal edge (9a) are fitted inside the slots (5a) obtained on the panel (1) at height higher than said partition wall (11) and on the transversal edges (3b) that define said continuous portions (2) of the panel (1) in lower and rear position.

It must be noted that fitting of said wedge profiles (13a) in the slots (5a) is obtained in view of the intrinsic elastic deformation of the plastic material used to make the panel (1) and back (9), and also in view of the considerable strength applied by the operator in charge of assembling the
piece of furniture when coupling the lower edge (9a) of the back (9) and the upper groove (1b) of the horizontal panel (1).

The third component of the apparatus of the invention consists in an additional boxed quadrangular panel, hereinafter defined as "wall" (14), adapted to be mounted above said first panel (1) as side and internal partition.

Said wall (14) is illustrated in Figs. 3A and 3B, which show the internal and external side, respectively.

Just like the back (9), also the wall (14) has an empty structure internally stiffened by a vertical series of transversal ribbing (N).

Both on the lower edge (14a) and the upper edge (14b), series of opposite pairs of V-shaped notches (12) are provided, as well as two pairs of said wedge profiles (15a, 15b) respectively disposed on the lower edge (14a) and the upper edge (14b).

As shown in Fig. 3B, on the rear vertical edge, said wall (14) is provided with a rectilinear rib (14c) perfectly compatible with one of said vertical grooves (9c) provided on the front of said back (9).

Figs. 14A and 14B show the destination of the three specimens of said wall (14) after the previous assembly operation consisting in coupling the horizontal panel (1) with the back (9).

As shown in the aforesaid figures, two specimens of said wall (14) act as sides of the piece of furniture and the third specimen acts as internal partition, in intermediate position between the other two specimens.

In order to couple said components, the lower edge (14a) of each wall (14) is adapted to exactly engage inside one of the three upper transversal grooves (1a) of the first panel (1), in such manner that said V-shaped notches (12) obtained on said lower edge (14a) of the wall (14) are exactly disposed "astride" the partitions (1a') protruding from the bottom of the upper transversal groove (1a) of the horizontal panel (1).

At the same time, said wedge profiles (15a) provided on the internal side of the wall (14) on the lower edge (14a) are fitted inside the slots (5a) obtained on the first panel (1) at height higher than said partition wall (11) and
on the longitudinal edges (3b) that define said continuous portions (2) of the panel (1) in lower and rear position.

Evidently, mutual coupling is favored, in terms of perfect centering, by the exact insertion of the rear vertical rib (14c) of each wall (14) into the corresponding groove (9c) provided on the front of the back (9).

The fourth component of the apparatus of the invention consists in an additional boxed quadrangular panel adapted to act as top (16) of the piece of furniture.

Figs. 4A and 4B expressly show the top (16), respectively showing the perfectly smooth, upper side and the boxed lower side with strongly irregular structure. Moreover, it must be noted that the upper side of said top (16) slightly protrudes with respect to the lower side.

It can be said that the lower side of said top (16) has a configuration that basically corresponds to the lower side of said first panel (1) that acts in horizontal position as bottom and shelf of the furniture piece.

Said top (16) comprises:
- a rear longitudinal groove (100b), from the bottom of which a regularly spaced series of vertical partitions (100b') protrudes
- a front longitudinal groove (40)
- a set of three transversal grooves (100a) joined with said rear longitudinal groove (100b), each of them being provided on the bottom with a corresponding set of vertical partitions (100a')
- two large, basically square portions (20) stiffened by ribbing (N1), each of them being defined by two transversal edges (30a), a rear longitudinal edge (30b) and a front longitudinal edge (30c); it being provided that said rear longitudinal edge (30b) has one central slot (5b) disposed in horizontal position and each of said transversal edges (30b) has two specimens of said slots (5a) towards the ends.

Fig. 15 shows the installation of the top (16) in order to complete the composition of a piece of furniture with the configuration shown in the preceding Fig. 14B.
The top (16) is inserted from up down, in such manner that the upper edge (9b) of the back (9) is exactly inserted in the rear longitudinal groove (100b) and the upper edges (14b) of the three walls (14) are exactly inserted in the transversal grooves (100a).

During such coupling, the pairs of V-shaped notches (12) obtained on the upper edge (9b) of the back (9) are conjugated with the transversal partitions (100b') provided inside the rear longitudinal groove (100b) of the top (16) and the pairs of V-shaped notches (12) obtained on the upper edge (14b) of each wall (14) are conjugated with the transversal partitions (100a') provided inside the transversal groove (100a) of the top (16).

Such coupling is additionally stabilized because, on one side, the wedge profiles (13b) obtained in internal position on the upper longitudinal edge (9b) of the back (9) penetrate the slots (5a) provided on the rear longitudinal edges (30b) that define the two large portions (20) of the lower side of the top (16) and, on the other side, the wedge profiles (15b) obtained in internal position on the upper edge (14b) of each wall (14) penetrate the slots (5a) provided on the transversal edges (30a) that define the two portions (20) of the lower side of the top (15).

Referring to Figs. 16A and 16B, the apparatus of the invention can be also used to realize a piece of furniture with multiple shelves.

In such a case, after coupling a specimen of the horizontal panel (1), the back (9) and three specimens of the wall (14), as shown in Fig. 14B, the structure must be closed on top with an additional specimen of said horizontal panel (1) that acts as shelf, in this case, as shown in Fig. 16A.

Such mounting can be obtained as long as the top edges of said back (9) and walls (14) are exactly engaged into said lower grooves (10a, 10b) obtained in the lower side of said horizontal panel (10) acting as shelf.

In particular, the upper edge (9b) of the back (9) must be inserted into the rear longitudinal groove (10b) of the lower side of said first panel (1), whereas the upper edges (14b) of the three walls (14) must be inserted into the three transversal grooves (10a) of the lower side of the panel (1).
Moreover, said coupling guarantees the exact conjugation of said V-shaped notches (12) provided on the top of the back (9) and the three vertical walls (14) with said partitions (10a', 10b') respectively provided on the three transversal grooves (10a) and the rear longitudinal groove (10b) provided on the lower side of said first panel (1) acting as shelf.

At the same time, the wedge profiles (13b) provided in internal position on the upper edge (9b) of the back (9) are fitted into the slots (5b) that, within said longitudinal edges (3b) protruding from the lower side of the first panel (1) acting as shelf, are disposed under said horizontal partition (11).

Likewise, the two wedge profiles (15b) provided at the height of the upper edge (14b) of each vertical wall (14) are fitted into corresponding slots (5b) obtained, under said horizontal partition (11), on the transversal edges (3a) protruding from the lower side of the panel (1).

Referring to Fig. 16B, the upper side of said first panel (1), acting as shelf, is coupled with a back (9) and three specimens of the vertical wall (14).

This operation is carried out according to the installation modes illustrated with reference to Figs. 14A and 14B, illustrating the coupling between the upper side of the first panel (1) acting as bottom with the back (9) and three walls (14).

Fig. 16B also illustrates the presence of a top (16) used to close the piece of furniture on top, according to the installation modes illustrated with reference to Figs. 4B, 14A, 14B and 15.

Evidently, by combining a suitable number of said modular components (1, 3, 14), a piece of furniture with a higher number of shelves than the one shown in Fig. 16b can be realized; for illustrative, not limiting purposes, reference is made to Fig. 17.

Referring to the aforesaid figures, it must be noted that all components of the apparatus of the invention are provided, for fabrication requirements, with square holes (F, FC) that certainly tend to jeopardize aesthetics.

For this reason, the additional component of the modular apparatus of the invention consists in the cap (17) shown in Figs. 12A, 12B and 12C. The
function of said cap (17) is to close said square holes (F, FC), as shown in Figs. 15 and 17.

In particular, the cap (17) is provided with an empty pyramidal head (17a) with square base, the rear opening of which is defined by a basically square edge (17b) from which two opposite pairs of hook-shaped teeth (17c) partially protrude in external position on the square edge (17b), having a tilted profile (17d) converging towards the center of the cap (17).

Moreover, said square edge (17b) is shaped and dimensioned in such manner to be exactly inserted into one of said holes (F, FC).

Such an insertion, however, can be obtained on condition that the two pairs of teeth (17c) are brought in close position, since the distance between them is higher than the width of the hole (F).

The two pairs of teeth (17c) are brought in close position by energetically pushing the cap (17) inside the hole (F), in such manner that the interference generated between the opening edge of the latter and the front tilted profiles (17d) of the teeth (17c) cause a reduction of the distance provided in idle condition between the two opposite pairs of teeth (17c), thus making insertion in the hole (F) possible.

Because of the intrinsic elasticity of the plastic material used for the cap (17), as soon as they pass the opening of the hole (F, FC), the four teeth (17c) suffer a spring back effect, meaning that they are separated again and fitted on the back of the opening of the hole (F, FC), thus preventing the accidental detachment of the cap (17).

Within such an innovative technology, it is also possible to make pieces of furniture with doors, as shown in Figs. 18 and 19.

In order to realize such a solution, the apparatus of the invention is provided with two additional components, respectively consisting in the door (18) shown in Figs. 5A and 5B and the hinge (21) shown in Figs. 6A, 6B and 6C.

Referring to Figs. 5A and 5B, the door (18) consists in a boxed panel internally stiffened by a vertical series of transversal ribbing (N), basically having the same shape and dimensions as the wall (14).
Opposite pairs of basically V-shaped notches are obtained (12) on the lower (18a) and upper (18b) edge of the door (18).

As shown in Fig. 5B, the internal side of said door (18) is provided with a first pair of wedge profiles (19a) at the height of said lower edge (18a) and a second pair of wedge profiles (19b) at the height of said upper edge (18b).

Said V-shaped notches (12) and wedge profiles (19a, 19b) of the door (18) have the same shape, position and size as the corresponding notches and wedge profiles illustrated with reference to the previous components of the apparatus of the invention.

The peculiarity of the door (18) is the presence, on one of the vertical edges, of a tubular cylindrical profile (20), the lower (20a) and upper (20b) end of which are respectively disposed at the height of said lower (18a) and upper (18b) edge of the door (18), while being separated by a certain distance.

The component designed to cooperate with said door (18) consists in the hinge (21) expressly shown in Figs. 6A, 6B and 6C.

Said hinge (21) is formed of a cylindrical sleeve (21a) that supports a radial plug (S) in external position, composed of two converging arms (21b) connected at the end by an elastically compressible V-shaped bridge (21c), it being provided that each of said arms (21b) is provided at the end with a tooth (21d) in parallel position to the axis of said sleeve (21a).

In view of the above, the installation mode of the door (18) in the piece of furniture can be illustrated.

The first operation is the insertion of the sleeve (21a) of a first specimen of hinge (21) on the outside of the lower end (20a) of said vertical cylindrical profile (20) of the door (18) and the sleeve (21a) of a second specimen of the same hinge (21) on the outside of the upper end (20b) of the same vertical cylindrical profile (20); such a condition is shown in Fig. 19.

The second operation is the forced insertion of the plugs (S) of the two hinges (21) now coupled with the door (18) inside square holes (FC) frontally provided at the ends of said first panel (1), acting as bottom and shelf, as well
as at the ends of the top (16); the presence of said holes (FC) is shown in
Figs. 1A and 4B.

It must be noted that, in idle position, each of said plugs (S) has volume higher than the inlet section of the hole (FC).

However, also in such a case, the insertion of the plug (S) in the hole (FC) is obtained by taking advantage of the interference created between said front hooks (21 d) protruding on the two sides of the plug (S) and the vertical edges of the hole (FC).

Such an interference, which can be overcome by exerting a suitable force during the insertion of the plug (S), causes the compression of said elastic bridge (21 c) connecting said two arms (21 b) of the plug (S), thus bringing them closer.

Such a temporary thinning of the plug (S) makes its insertion in the hole (FC) possible.

Evidently, said plug (S) tends to return to its normal condition spontaneously and suddenly, as soon as the front hooks (21 d) have passed beyond the vertical edges of the hole (FC) and mutual interference has ceased.

In such a condition, the elastic bridge (21 c) tends to recover its normal position, the two arms (21 b) are separated again and the hooks (21 d) are fitted in internal position on the vertical edges of the hole (FC), thus preventing the accidental uncoupling of the hinge (21) from the piece of furniture.

The apparatus of the invention comprises two additional components adapted to cooperate with the door (18) illustrated above in order to finish the upper and lower edge of the same.

Referring to Figs. 7A and 7B, the first finishing component consists in a boxed strip (22) provided with a lateral handle (23) at the front end.

Said strip (22) is provided with one mouth (IM) for the exact insertion, inside the strip (22), of one of said lower (18a) and upper (18b) edge of a door (18).
Such a strip (22), which is hereinafter defined as "first finishing strip" (22), must be preferably coupled with the upper horizontal edge (18b) of the door (18), in order to provide, in external position on the furniture piece, a handle (23) used to open and close the door (18), as shown in Fig. 18.

As shown in Fig. 7A, said first finishing strip (22) is internally provided with transversal partitions (22a) connecting the first (22b) and second (22c) longitudinal edge; it being also provided that the first (22b) of said vertical edges is provided, towards the longitudinal ends, with two horizontal slots (5b), of the type illustrated for the previous components of the apparatus of the invention, whereas the second longitudinal edge (22c) externally supports said handle (23).

In order to mount such a first finishing strip (22) on top of the door (18), the upper edge (18b) of the door (18) is inserted inside the strip, using said mouth (IM), thus obtaining the usual coupling between said pairs of notches (12) provided on the edge (18b) and said partitions (22a) provided in internal position on said first finishing strip (22).

At the same time, an additional consequence occurs, meaning the fitting of said wedge profiles (19b) provided in internal position on the upper edge (18b) of the door (18) inside the slots (5a) provided on said first longitudinal edge (22b) of the first finishing strip (22).

As shown in Fig. 18, said first finishing strip (22) is provided, in external position on the first edge (22b), with a basically omega-shaped projection with elastically deformable structure, adapted to be forcedly inserted into one of said holes (F) provided on the front of the top (16) of the piece of furniture when the door (18) is closed.

Said projection (24) is adapted to stabilize the door (18) in closing position; it being provided that a sufficient energetic traction of said door (18) allows to extract the projection (24) from the hole (F) in order to open the door (18).

The holes (F) adapted to receive the omega-shaped projection (24) are also provided on the front edge of each specimen of the panel (1), in order to stop the door (18) also when the omega-shaped projection (24) is
disposed in front of a specimen of said panel (1), as shown in Figs. 19A, 19B and 19C.

As shown in Fig. 1A, just like the top (16), on the front longitudinal edge, the first panel (1) is provided with four specimens of said square holes, of which two (FC) towards the ends of the front edge and two (F) in symmetrical position in the proximity of the central transversal groove (1a) on the two sides of the same.

The additional component adapted to cooperate with the door (18) is a second boxed finishing strip (22') shown in Fig. 8. Said second finishing strip (22') is exactly the same as the strip (22) shown in Figs. 7A and 7B, with the only difference that it is not provided with handle (23).

Fig. 18 shows the presence of two specimens of said second strip (22') on the lower edges (18a) of the two doors (18) provided in the piece of furniture shown in such a figure.

Figs. 9A and 9B refer to an additional component adapted to cooperate with said door (18); it is a first connection strip (25) provided with lateral handle (23).

Said strip (25) is not adapted to finish the upper and lower edges of a door (18), but acts as connection between two doors, connecting the upper edge (18b) of the underneath door and the lower edge (18a) of the above door.

The functional destination of said first connection strip (25) is shown in Fig. 19A and in the exploded drawing of Fig. 19B, which also shows a second connection strip (25') identical to the first strip (25) but not provided with lateral handle.

First of all, it must be noted that, being adapted to connect two doors (18), the first connection strip (25) has height double than the first finishing strip (22) and is provided with two opposite mouths, the first one (IMI) facing downwards, and the second one (IMS) facing upwards.

As shown in Figs. 9A and 9B, exactly at half of its thickness, said first connection strip (25) is internally provided with a horizontal wall (25d) connected on both sides with a series of vertical transversal partitions (25a).
Said horizontal wall (25c) does not extend until the ends of the strip (25), where said first lateral edge (25b), opposite to the edge (25c) that supports the handle (23), is provided with two pairs of horizontal slots (5a, 5b), one above the other; it being provided that the first slot (5a) of each pair is situated at higher height than the horizontal wall (25d) and the second slot (5b) is situated at a lower height.

Coupling between said first connection strip (25) and the two doors (18) mounted above and under the strip (25) is obtained according to the same modes illustrated above with reference to said first finishing strip (22).

When the horizontal edges (18a, 18b) of the doors (18) are engaged on opposite sides into said first connection strip (25), the pairs of V-shaped notches (12) provided on said edges (18a, 18b) conjugate with said transversal partitions (25a) provided inside said strip (25).

At the same time, the two wedge profiles (19a) of the door (18) are fitted into the first slots (5a) of the first connection strip (25) and the two wedge profiles (19b) of the underneath door (18) are fitted in the second slots (5b) of the strip (25).

Fig. 10 shows said second connection strip (25'), which basically has the same configuration as the first connection strip (25), with the only difference that it is not provided with lateral handle.

Said second connection strip (25') is internally provided with a series of vertical transversal partitions (25a), a horizontal partition (25d) and two pairs of horizontal slots (5a, 5b) situated towards the ends.

Fig. 19C, which shows the same piece of furniture as Fig. 19A with closed doors, is an additional representation of the cooperation modes between the doors (18) and said finishing and connection strips.

Specifically referring to Figs. 7A and 9A, it must be noted that the first finishing strip (22) and the first connection strip (25) are provided in the front with an eye (200) under the handle (23).

When the doors (18) of a piece of furniture are closed - as shown in said Fig. 19C - the eyes (200) of the two adjacent handles (23) are disposed
side-to-side and can be used to insert the hook of a lock, the ends of a chain or any other means used to obtain the safe locking of the piece of furniture.

Fig. 11A refers to two additional components of the apparatus of the invention, which have been devised to provide additional alternative solutions to those who want to use the apparatus of the invention to realize furniture according to their specific requirements.

The first of the components shown in Fig. 11A is a boxed column (26) with same height as the wall (14), whereas the second component is a rectangular, elongated narrow plate (27).

Specifically referring to Figs. 11B and 11C, the column (26) is provided at both ends (26a, 26a') with a step (26b, 26b') facing the inward of the piece of furniture.

The lower end (26a) of said column (26) is adapted to be exactly engaged into a seat (1a") obtained at the front end of the central transversal groove (1a) provided on the upper side of said first panel (1); whereas the upper end (26a') is adapted to be engaged inside a seat obtained at the front end of the central transversal groove (10a) provided on the lower side of said first panel (1) or inside a seat (100a") obtained at the front end of the central transversal groove (100a) provided on the lower side of said top (16).

The steps (26b, 26b') provided at the ends (26a, 26a') of the column (26) allow for avoiding interference of said vertical partitions (1a', 10a', 100a') provided inside said transversal grooves (1a, 10a, 100a).

Instead, the plate (27) is adapted to be forcibly inserted in the remaining part of the central groove (1a) in such manner to create a single uninterrupted surface, in combination with said two continuous portions (2) of the first panel (1).

To that end, the plate (27) is laterally provided with elastically deformable wedge profiles (27a) adapted to interfere with the lateral walls of the destination groove (1a) and realize a more stable coupling between said two components.

A possible practical use of these two components (26, 27) is shown in Fig. 11C, which shows a piece of furniture with a lower compartment (VI)
divided into two halves by an intermediate specimen of said wall (14) and an upper compartment (VS) uninterrupted from one side to the other side of the piece of furniture because of the front use of the column (26).

Said figure shows that, in the upper compartment (VS) of the piece of furniture, the column (26) has the same function as the intermediate wall (14) in the lower compartment (VI), acting as support for an additional horizontal panel (1) or directly for the top (16).

Referring to Figs. 20A and 20B, the apparatus of the invention comprises an additional component adapted to give the user higher discretion during the configuration of the piece of furniture.

Fig. 20B shows a piece of furniture provided on the left-hand side with a compartment (VV) extending in vertical direction, without interruption, from the horizontal bottom panel (1) to the upper top (16), whereas on the right-hand side the corresponding vertical volume is divided into an upper half and a lower half by an intermediate shelf.

The continuous vertical compartment (VV) is obtained by using the component shown in Fig. 20A.

It is a second horizontal panel (110) basically identical, both on the upper and lower side, to said first horizontal panel (1) adapted to act both as bottom and shelf for the piece of furniture.

The peculiarity of the second embodiment (110) of the horizontal panel, which can be defined as "asymmetrical", consists in the fact that it is provided with only one continuous portion (2) on one side of the central transversal groove (1a).

On the other side of the central transversal groove (1a) only an L-shaped support structure is provided, being composed of half of the rear longitudinal groove (1b), at the end of which a corresponding transversal groove (1a) is normally connected.

In cooperation with said L-shaped structure, said central transversal groove (1a) defines a free space (SL) accessible from the front of the second panel (110).
As shown in Fig. 20A, on the side of said central transversal groove (1a), towards said free space (SL), a boxed strip (111) is provided, with upper surface at the same height as the upper surface of said continuous portion (2) provided on the opposite side of the central groove (1a).

Said boxed strip (111) is centrally provided with a lowered longitudinal area (112), on the bottom of which regularly spaced holes (112a) are obtained, whereas, on the external edge of the same, vertical pegs (112b) are obtained in staggered position relative to said holes (112a).

When the asymmetrical panel (110) is mounted inside a wardrobe, the holes (112a) and pegs (112b) can be advantageously used to hook or hang objects or tools of different type.

Unlike the corresponding symmetrical embodiment shown in Figs. 1A and 1B, such a horizontal asymmetrical panel (110) is adapted to be used only as shelf and not as bottom for the piece of furniture.

Finally, Figs. 21A and 21B show the foot (30) adapted to be mounted under said panel (1) when the latter is used as bottom of the piece of furniture.

In particular, said foot (30) has a boxed structure with basically truncated-pyramidal shape with square base and is provided, on the upper planar surface, with a symmetrically opposite pair of vertical plugs (31a, 31b) with basically semi-elliptical profile.

The function of said plugs (31a, 31b) is to be engaged into corresponding tubular seats (32) provided on the lower side of the panel (1) and illustrated in said Fig. 1B, in such manner to create a prismatic anti-rotation coupling.

The peculiarity of the pair of plugs (31a, 31b) provided on each foot (30) consists in the fact that they occupy an off-centered position relative to said upper planar side of the latter.

The first (31a) of these plugs is basically situated in the center of the foot (30), whereas the second (31b) is basically situated at half of the distance between said first plug (31a) and the rear edge (30b) of the foot (30).
The above has been devised in order to couple the foot (30) to the panel (1) according to two different modes.

In particular, this alternative mounting solution of the feet (30) is used with reference to the three specimens that must be mounted in correspondence of the front longitudinal edge of the panel (1).

The first of these mounting solutions is shown in sequence in Figs. 22A, 22B and 22C.

As shown in the aforesaid drawings, the six feet (30) provided on the panel (1) must be engaged against the lower side of the same, in order to realize male-female coupling between the vertical plugs (31) of the first ones and the corresponding tubular seats (32) of the second one.

In particular, Fig. 22C shows that, in such an occasion, the front edge (30a) of the three feet (30) applied on the front of the panel (1) is disposed in significantly protruding position relative to the front longitudinal edge of the panel (1).

Instead, Figs. 23A and 23B show that the three feet (30) are mounted in such manner that the rear edge (30b) is perfectly flush with the longitudinal edge of the panel (1).

It is worthless saying that the two alternative mounting solutions of said feet (30) can be implemented on condition that, before insertion on the lower side of the panel (1), said feet (30) are given 180° alternative rotation, thus taking advantage of said off-centering provided for the pairs of vertical plugs (31a, 31b).

Finally, it must be noted that the "protruding" position of the feet (30) of Fig. 22C is preferred when the wardrobe is provided with doors; so, the front edge (30a) of each foot (30) is basically flush with the front side of the doors, as shown in Figs. 19A and 19C.

Instead, the "non-protruding" position of the feet (30) in Fig. 23B is preferred when the wardrobe is not provided with doors, since the front projection of the feet (30) would be anti-aesthetic, useless and cumbersome; reference is made to Fig. 17.
Claims

1) A modular apparatus for realization of wardrobes and the like, characterized in that it comprises the following modules obtained from molding plastic materials:
- a first boxed quadrangular panel (1) adapted to act as bottom or shelf for the piece of furniture and also provided, on the upper side, with longitudinal coupling means (1b) and transversal coupling means (1a), both provided with stopping means (5a, 5b), which correspond, on the lower side of the same first panel (1), to longitudinal (10b) and transversal (10a) coupling means, equally provided with stopping means (5a, 5b); it being provided that said longitudinal coupling means (1b, 10b) are situated at least in correspondence of the rear longitudinal edge of the first panel (1) and said transversal coupling means (1a, 10a) are situated in correspondence of the transversal edges and the central area of the first panel (1);
- a boxed quadrangular back (9) for the piece of furniture, provided with a lower longitudinal edge (9a) and an upper longitudinal edge (9b) adapted to cooperate with said longitudinal coupling means (1b, 10b) of said first panel (1) and also provided with stopping means (13b, 13a) adapted to cooperate with said stopping means (5a, 5b) provided on said longitudinal coupling means (1b, 10b) of the first panel (1);
- a boxed quadrangular wall (14) adapted to act as side or internal partition of the piece of furniture, provided with a lower longitudinal edge (14a) and an upper longitudinal edge (9b) adapted to cooperate with said longitudinal coupling means (1a, 10a) of said first panel (1) and also provided with stopping means (15b, 15a) adapted to cooperate with said stopping means (5a, 5b) provided on said transversal coupling means (1b, 10b) of the panel (1);
- a boxed quadrangular top (16) for the piece of furniture, provided on the lower side with longitudinal coupling means (100b') and transversal coupling means (100a'), both provided with stopping means (5b) and disposed in specular position to the longitudinal (1b, 10b) and transversal (1a, 10a)
coupling means of said first panel (1); it being provided that said longitudinal coupling means (100b') of the top (16) are adapted to cooperate with the upper longitudinal edge (9b) of the back (9) and the stopping means (5b) are adapted to cooperate with the stopping means (13b) provided on the upper longitudinal edge (9b) of the back (9); it being provided that said transversal coupling means (100b') of the top (16) are adapted to cooperate with the upper longitudinal edge (14b) of the wall (14) and the stopping means (5b) are adapted to cooperate with the stopping means (15b) provided on the upper longitudinal edge (14b) of the wall (14).

2) An apparatus as claimed in claim 1, characterized in that said longitudinal and transversal coupling means provided on said first panel (1) consist in rectilinear grooves (1b, 10b / 1a, 10a); it being provided that the grooves (1b, 1a) obtained on the upper side of the first panel (1) are separated from the grooves (10b, 10a) obtained on the lower side of the first panel (1) by means of a horizontal partition (11); it being also provided that said longitudinal grooves (1b, 10b) are adapted to exactly house, respectively, said lower (9a) and upper longitudinal edge (9b) of the back (9) until they are stopped against the horizontal partition (11) and said transversal grooves (1a, 10a) are adapted to respectively house said lower (14a) and upper (14b) longitudinal edge of the wall (14), until they are stopped against the horizontal partition (11).

3) An apparatus as claimed in claim 2, characterized in that each of said rectilinear grooves (1a, 1b, 10a / 10b) of said first panel (1) is provided with a regularly spaced series of transversal partitions (1a', 1b' / 10a', 10b'), having height lower than depth of the same grooves.

4) An apparatus according to one or more of the preceding claims, characterized in that said lower edge (9a) and upper edge (9b) of the back (9), as well as said lower edge (14a) and upper edge (14b) of the wall (14) are provided with regularly spaced opposite pairs of basically V-shaped notches (12), it being provided that each pair of said notches (12) is adapted to be coupled, in basically "astride" position, with one of said vertical partitions (1b', 10' / 1a', 10a') protruding from said grooves (1b, 10b/a1, 10a),
during the insertion of said edges (9a, 9b) of the back (9) into the
corresponding longitudinal grooves (1b, 10b) of the first panel (1) and the
insertion of said edges (14a, 14b) of the wall (14) into the corresponding
transversal grooves (1a, 10a) of the same first panel (1).

5) An apparatus as claimed in one or more of the preceding claims,
characterized in that said stopping means (5a, 5b) provided on said first
panel (1) consist in corresponding pairs of horizontal slots (5a, 5b), one on
top of the other, wherein the first slot (5a) is obtained on a lateral side of the
grooves (1a, 1b) provided on the upper side of the first panel (1), whereas the
second slot (5b) is obtained, with interposition of said horizontal partition (11),
on the lateral edge of the grooves (10a, 10b) provided on the lower side of the
first panel (1).

6) An apparatus as claimed in one or more of the preceding claims,
characterized in that said stopping means provided on the lower (9a) and
upper (9b) longitudinal edge of the back (9) consist in pairs of wedge profiles
(13a, 13b) and said stopping means provided on the lower longitudinal edges
(14a, 14b) of the vertical wall (14) consist in corresponding pairs of wedge
profiles (15a, 15b); it being provided that said wedge profiles (13a, 15a)
respectively provided on the lower longitudinal edge (9a) of the back (9) and
the lower longitudinal edge (14a) of the vertical wall (14) are adapted to be
fitted into the first slots (5a) respectively provided on the longitudinal groove
(1b) and the transversal grooves (1a) of the upper side of the first panel (1); it
being also provided that said wedge profiles (13b, 15b) respectively provided
on the upper longitudinal edge (9b) of the back (9) and the upper lower
longitudinal edge (14b) of the vertical wall (14) are adapted to be fitted into
the second slots (5b) respectively provided on the longitudinal groove (10b)
and the transversal grooves (10a) of the lower side of the first panel (1).

7) An apparatus as claimed in one or more of the preceding claims,
characterized in that said longitudinal and transversal coupling means
provided on the top (16) consist in rectilinear grooves (100b, 100a)
respectively adapted to exactly house the upper longitudinal edge (9b) of the
back (9) and the upper longitudinal edge (14b) of the wall (14).
8) An apparatus as claimed in claim 7, characterized in that each of said rectilinear grooves (100b, 100a) of the top (15) is provided with a series of transversal partitions (100b', 100a') with height lower than the depth of the corresponding groove; it being provided that each of said partitions (100b', 100a') is adapted to be exactly coupled with one of said opposite pairs of basically V-shaped notches (12) provided on the upper longitudinal edges (9b, 14b) of back (9) and wall (14), during the insertion of said upper longitudinal edges (9b, 14b) of the back (9) and each wall (14) inside the destination grooves (100b, 100a).

9) An apparatus as claimed in claims 7 and 8, characterized in that said stopping means provided on the top (16) consist in second slots (5b) obtained in one of the side edges of said grooves (100a, 100b) and also adapted to receive said wedge profiles (13b, 15b) respectively obtained on the upper longitudinal edge of the back (9) and on the upper longitudinal edge of the wall (14).

10) An apparatus according to one or more of the preceding claims, characterized in that said first panel (1) is provided on the upper side with two identical continuous portions (2) between which one of said transversal grooves (1a) is interposed.

11) An apparatus according to one or more of the preceding claims, characterized in that said panel (1) is provided on the lower side with multiple pairs of tubular seats (32) with vertical axis in the proximity of its front and back longitudinal edges.

12) An apparatus according to one or more of the preceding claims, characterized in that said panel (1) is provided with a seat (1a") obtained at the front end of the central transversal groove (1a) provided on the upper side and an identical seat at the front end of the transversal groove (10a) provided on the lower side.

13) An apparatus according to one or more of the preceding claims, characterized in that said top (16) is provided with a seat (100a") obtained at the front end of the central transversal groove (100a) provided on the lower side.
14) An apparatus according to one or more of the preceding claims, characterized in that said back (9) is provided on the front side with coupling means (9c) disposed in perfect alignment with said transversal coupling means (1a, 10a) provided on said first panel (1) and also adapted to cooperate with coupling means (14c) provided on the back vertical edge of each of said walls (14).

15) An apparatus according to claim 14, characterized in that each of said coupling means provided on the back (9) consists in a vertical rectilinear groove (9c) and in that the coupling means provided on each of said walls (14) consists in a rectilinear rib (14c) adapted to be exactly inserted into said groove (9c).

16) An apparatus according to one or more of the preceding claims, characterized in that said back (9) and said wall (14) have the same empty structure internally stiffened by transversal ribbing (N) with vertical direction.

17) An apparatus according to one or more of the preceding claims, characterized in that said panel (1) and said top (16) are provided, on the front longitudinal edges, with four square holes, of which two (FC) situated towards the ends of the front edges and two (F) situated in symmetrical position in the proximity of the central transversal groove (1a, 100a) on its two sides.

18) An apparatus as claimed in one or more of the preceding claims, characterized in that it comprises an additional module consisting in a boxed quadrangular door (18) provided, both on the lower edge (18a) and the upper edge (18b), with coupling means (12) associated with stopping means (19a, 19b); it being provided that said door (18) is also provided, on the rear vertical edge, with means (20) for application of hinges (21).

19) An apparatus as claimed in one or more of the preceding claims, characterized in that it comprises additional modules consisting in:
- a first (22) and a second (22') boxed finishing strip, both provided with one mouth (IM) for exact insertion of said lower (18a) and upper (18b) edge of the door (18); it being provided that said finishing strips (22, 22') are also provided, in said one mouth, with coupling (22a) and stopping (5b) means...
adapted to cooperate with corresponding coupling (12) and stopping (19a, 19b) means provided on the lower (18a) and upper (18b) edge of the door (18) - a first (25) and a second (25') boxed connection strip, both provided with two opposite mouths (IMI, IMS) for exact insertion of said lower (18a) and upper (18b) edge of the door (18); it being provided that said connection strips (25, 25') are also provided, in each of said mouths, with coupling (25a) and stopping (5b) means adapted to cooperate with corresponding coupling (12) and stopping (19a, 19b) means provided on the lower (18a) and upper (18b) edge of the door (18).

20) An apparatus as claimed in claims 18 and 19, characterized in that said coupling means provided on the lower (18a) and upper (18b) longitudinal edges of the door (18) consist in regularly spaced opposite pairs of basically V-shaped notches (12) and in that the corresponding coupling means of said boxed finishing (22, 22') and connection (25, 25') strips consist in vertical transversal partitions (22a, 25a) situated between the opposite longitudinal edges (22b, 22c / 25b, 25c) of the strips and also adapted to be exactly conjugated with said basically V-shaped notches (12) provided on said lower (18a) and upper (18b) longitudinal edges of the door (18).

21) An apparatus as claimed in claims 18 and 19, characterized in that said stopping means provided on said lower (18a) and upper (18b) edges of the door (18) consist in pairs of wedge profiles (19a, 19b) and in that the stopping means of said boxed finishing (22, 22') and connection (25, 25') strips consist in first (5a) and second (5b) horizontal slots obtained on the first longitudinal edge (22b, 25b) of the strips for fitting of said wedge profiles (19a, 19b) of the door (18).

22) An apparatus as claimed in claims 19 to 21, characterized in that said connection strips (25, 25') are internally provided, basically at half of their height and only in the central area, with a longitudinal partition (25d) separating the series of said transversal partitions (25a) provided in the first one (IMI) of said mouths of the strips (25, 25') from the series of analogous transversal partitions (25a) provided in the second one (IMS) of said mouths;
it being provided that each of said connection strips (25, 25') is provided, towards the ends of the first longitudinal edge (25b), with two of said first horizontal slots (5a) situated at height higher than said horizontal partition (25d) and two second slots (5b) situated at height lower than said horizontal partition (25d).

23) An apparatus as claimed in one or more of claims 19 to 21, characterized in that said first finishing strip (22) is provided with a handle (23) in external position on the second longitudinal edge (22c).

24) An apparatus as claimed in one or more of claims 19 to 22, characterized in that said first connection strip (25) is provided with a handle (23) in external position on the second longitudinal edge (25c).

25) An apparatus according to one or more of claims 19 to 24, characterized in that said first finishing strip (22) and said first connection strip (25) are provided in the front with an eye (200) in the proximity of the corresponding handles (23).

26) An apparatus as claimed in one or more of claims 19 to 25, characterized in that said first finishing strip (22) and said first connection strip (25) are provided, in external position on the first edge (22b, 25b), with a basically omega-shaped projection (24) with elastically deformable structure, adapted to be forcedly inserted into one of said square holes (F) provided towards the center of the front edge of said panel (1) and top (16).

27) An apparatus as claimed in claim 18, characterized in that said means provided on the rear vertical edge of said door (18) for application of hinges (21) consist in a tubular cylindrical profile (20), the lower (20a) and upper (20b) ends of which are respectively disposed at the height of said lower edges (18a) and (18b) door (18), while being separated by certain distance.

28) An apparatus as claimed in claim 27, characterized in that each of the hinges (21) adapted to cooperate with said tubular profile (20) is formed of a cylindrical sleeve (21a) adapted to exactly penetrate into one of said ends (20a, 20b) of the tubular profile (20), and a radial plug (S) adapted to be forcedly engaged and blocked into one of said square holes (FC) provided towards the ends of the front edge of said panel (1) and top (16).
29) An apparatus as claimed in claim 28, characterize in that each of said radial plugs (S) is formed of two converging arms (21c) connected at the ends by means of an elastically compressible basically V-shaped bridge (21c) and also provided at the ends with a tooth (21d) in perpendicular position.

30) An apparatus according to claim 18, characterized in that said door (18) is provided with an empty structure internally stiffened by transversal ribbing (N) with vertical direction.

31) An apparatus according to one or more of the preceding claims, characterized in that it comprises additional two components, respectively consisting in:

- a boxed column (26) with height basically identical to the wall (14), the lower end of which (26a) is adapted to be inserted into a seat (1a") provided at the front end of the transversal groove (1a) realized in the center of the upper side of said first panel (1), whereas the upper end (26a') of the column (26) is adapted to be inserted into a seat (100a") provided at the front end of the transversal groove (10a, 100a) respectively realized in the center of the lower side of the first panel (1) and the lower side of the top (16); it being also provided that each of said ends (26a, 26a') of the column (26) is joined with a step (26b, 26b');

- a rectangular plate (27) adapted to be exactly inserted on the back of said column (26) into said transversal groove (1a) provided in the center of the upper side of said first panel (1), in such manner to create one uninterrupted surface, in combination with said continuous portions (2) of the first panel (1); it being also provided that said plate (27) is laterally provided with elastically flexible wedge profiles (27a) adapted to be fitted into corresponding specimens of said first slots (5a) provided in one and/or the other of the vertical edges defining said transversal groove (1a).

32) An apparatus as claimed in one or more of the preceding claims, characterized in that it comprises an additional component consisting in a second boxed quadrangular panel (1 10) adapted to act only as shelf for the piece of furniture, having the same shape and dimensions as said first panel (1) and also provided in upper position with a rear longitudinal groove (1b).
connected with three transversal grooves (1a) and in lower position with a longitudinal groove and three transversal grooves; it being provided that said second panel (10) is provided on one side of the central longitudinal groove (1a) with a continuous portion (2), whereas on the opposite side, in the proximity of the side of the transversal groove (1a), it is provided with a boxed strip (11) the upper surface of which is disposed at the same height as the upper surface of said continuous portion (2) provided on the opposite side of the central groove (1a); it being provided that said second panel (10) is frontally provided with two of the square holes (FC) situated towards the ends and two of said square holes (F) symmetrically situated towards the center on the sides of said central transversal groove (1a).

33) An apparatus as claimed in claim 32, characterized in that said strip (10) of the second panel (10) is centrally provided with a lowered longitudinal area (12) on the bottom of which regularly spaced holes (12a) are provided, whereas on the external edge of the same, vertical pegs (12b) are obtained in staggered position relative to said holes (12a).

34) An apparatus as claimed in one or more of the preceding claims, characterized in that it comprises an additional component consisting in a foot (30) for the piece of furniture; it being provided that said foot (30) has a boxed structure with upper planar side, from which two symmetrically opposite plugs (31a, 31b) protrude, being adapted to be exactly inserted into one of said pairs of tubular seats with vertical axis (32) provided under said first panel (1).

35) An apparatus as claimed in claim 34, characterized in that said foot (30) is provided with a basically truncated-pyramidal shape and the two plugs (31a, 31b) have a basically semi-elliptical profile; it being also provided that the first of said plugs (31a) is basically situated in the center of the foot (30), whereas the second one (31b) is basically situated at half of the distance between said first plug (31a) and the rear edge (30b) of the foot (30).

36) An apparatus as claimed in one or more of the preceding claims, characterized in that it comprises an additional component consisting in a cap (17) adapted to be forcibly inserted and fitted into said square holes (F, FC)
provided on said first panel (1), second panel (10) and top (16), and eventually on the back (9) and wall (14).

37) An apparatus as claimed in claim 36, characterized in that said cap (17) is provided with an empty pyramidal head (17a) with square base, the rear opening of which is defined by a basically square edge (17b) from which two opposite pairs of hook-shaped teeth (17c) partially protrude in external position on the square edge (17b), having a tilted profile (17d) converging towards the center of the cap (17).
A. CLASSIFICATION OF SUBJECT MATTER
INV. A47B47/04 A47B61/00
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
A47B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

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