This invention relates to furniture and more particularly to a combination support and concealed storage means for a typewriter or other equipment.

While this invention may be used in an office or other business establishment, it is specifically intended to provide a neat, convenient and compact office equipment support for home use. It provides a combination table to support a machine such as a typewriter while in use and concealed storage for it when not in use. It has the additional advantage of providing both of these facilities without requiring the machine to be removed from the unit.

This invention permits various types of furniture to be used as a combination stand and storage facility. For example, it may be incorporated in a desk, an end table, a night stand, a telephone stand or cabinet of any nature. The nature of the invention is such that the dual purpose of the furniture is entirely camouflaged.

This invention provides a firm support for the machine which will withstand the vibration incident to the use of many types of equipment. Yet it requires minimum effort on the operator's part to raise and lower the equipment. Its simplicity assures freedom from mechanical difficulty and durability in operation.

This invention solves the problem of using such equipment as typewriters in the home. Herefore, the only facilities adapted for home use were stands providing, at best, exposed storage. The only other available storage facilities were either cupboards or drawers. These require the machine to be moved from its place of storage to its place of use at the beginning and end of each use. This invention solves these problems.

This invention provides the further advantage of making it possible to incorporate this invention in a piece of furniture which conventionally provides no leg room for the operator. The forward shifting of the platform is accomplished without manipulation of complex mechanisms by the operator. Thus, the operation is quick and simple.

These and other advantages of this invention will be immediately recognized by those skilled in the design and manufacture of furniture upon reading the following specification and the accompanying drawings.

In the drawings:
Fig. 1 is an isometric view of this invention, illustrating the front and side panels in phantom to expose the interior of the housing, the platform being shown in storage position.
Fig. 2 is an isometric view of the invention showing the platform in raised and forwardly shifted position.
Fig. 3 is a plan view of the invention showing the platform in storage position.
Fig. 4 is an oblique view of the carriage showing a fragmentary portion of the platform.
Fig. 5 is an oblique view of the platform-carriage assembly showing one leaf down and one raised.
Fig. 6 is an enlarged, fragmentary, sectional view taken along the plane VI—VI of Fig. 1.
Fig. 7 is an enlarged, fragmentary, sectional view taken along the plane VII—VII of Fig. 2.
Fig. 8 is an oblique view of a stabilizing block for the carriage spring.
Fig. 9 is a fragmentary, broken, isometric view of a modified carriage for use with the housing illustrated in Fig. 10.
Fig. 10 is a fragmentary, oblique view of the housing showing a modified construction for this invention.
Fig. 11 is a fragmentary, sectional, elevation view of the hold down latches for the modified carriage-platform construction.
Fig. 12 is an oblique view of a piece of furniture incorporating this invention.
Fig. 13 is an oblique, partially exploded view of a modified support for this invention.
Fig. 14 is an oblique view of a framework for supporting the carriage and platform of this invention.
Fig. 15 is a fragmentary, plan view of one of the side standards of the framework illustrated in Fig. 14.
Fig. 16 is a broken sectional elevation view taken along the plane XVI—XVI of Fig. 15.

In the following description, the invention is described as one for a typewriter. This is only for convenience and is not to be considered as a limitation on the use of this invention to typewriters. It may be used with any type of machine of such compact structure that may be concealed within a storage chamber of any type of furniture, cupboard or cabinet. For example, it may be used for such equipment as a kitchen mixer or other small home appliance.

In executing the objectives of this invention, there is provided a hollow housing having a central storage well or chamber open at its upper end. Cooperating with this storage chamber is a carriage mounted for vertical travel within the chamber. Mounted on the carriage is a platform having a central portion and a pair of end wings. The end wings are attached by hinges to the central portion whereby they may be folded from a position aligned with the central portion to one substantially normal to it. When the carriage is at the upper limits of its travel, the platform is free to slide forwardly with respect to the carriage so that its forward end may project forwardly of the housing in the form of a shelf.

In folded position, the platform may telescope down into the storage chamber with the carriage. In its bottom position, the platform is totally concealed within the storage chamber.

Referring specifically to the drawings, the numeral 1 indicates a housing having sides 2, a front 3 and a back 4. The lower end is closed by a bottom 5 forming a storage chamber 6, open only at the top. The size of the storage chamber 6 corresponds closely to that of the central portion of the hereinafter described platform. Its depth is such that the platform, when folded, together with its supporting carriage, can be telescoped entirely into it.

The housing 1 may be a separate unit within itself or it may be an integral part of a larger piece of furniture, such as a desk, end table, cabinet, corner table, night stand or cupboard. This is illustrated by the night stand 8 (Fig. 12) in which the storage compartment is concealed behind the dummy drawer 9 while the lower portion of the night stand, behind the door 10, retains traditional structure and function. Access to the storage compartment is obtained by raising the hinged top 11. The integration of this invention into various pieces of furniture does not change it but rather serves the purpose of
blending it into its surroundings and of concealing its true purpose. To facilitate and simplify the understanding and description of this invention, it is illustrated as a separate unit. It should, however, be considered that the housing described in the following specification and illustrated in the several figures may constitute an integral part of a larger piece of furniture.

Seated within the storage chamber 6 is a carriage 20. The carriage 20 has a top board 21 and a pair of legs 22, one at each end. The lower ends of the legs 22 are extended to form ears 23 projecting beyond the sides of the top board 21 (Figs. 4 and 5). The ears 23 on each side of the carriage are connected by a bar 24 extending fore and aft. The bars 24 cooperate with stops 25 secured to the side walls 2 of the housing 1 (Fig. 7). The stops 25 are seated slightly below the top of the housing (Fig. 6). The purpose of this will become apparent in the description of the platform. The carriage is urged upwardly by a spring 26 (Fig. 3), bearing at its lower end against the bottom 5 and its upper end against the lower surface of the top board 21. Preferably, the strength of the spring 26 is such that it will raise the carriage 20 to the top or substantially to the top of the storage well when the carriage is loaded with the hereinafter described platform and an office instrument such as a typewriter. To prevent the ends of the spring 26 from moving laterally, they are preferably stabilized by a disk-shaped block 27 at each end (Fig. 8). The blocks 27 are secured to the adjacent structure by screws installed through the holes.

Stability of the carriage and its associated platform, as it is being manipulated, can be increased by using a plurality of springs 26 such as one at each corner of the carriage. In this case, each spring will be weaker and their combined strength will approximate that of the single spring 26.

Seated on the carriage 20 is a platform 30. The platform 30 consists of a main portion 31 of approximately the same size as the carriage 20. A side leaf 32 is pivotally secured to each of the side margins of the main portion 31 by hinges 33. In open or operating position, the leaves 32 are aligned with the central portion 31 to form a flat table-like surface. In folded position, the leaves 32 are substantially normal to the main portion 31 and the platform is of such size that it may be telescopically depressed into the storage chamber 6.

At the forward end, the platform 30 has a laterally extending bar 34 secured to its lower surface (Fig. 4). The outer ends of the bar 34 project beyond the edges of the platform approximately the same distance as the ears 23 project from the legs 22. The bar 34 is preferably of metal and may consist of a single strip, extending the entire width of the platform or it may consist of two short sections, one mounted at each side of the platform. The bar 34 is mounted to the under surface of the platform 30 and therefore spaces the platform from the carriage a distance equal to its thickness. To support the forward end of the platform, a pair of slides 35 (Fig. 4) of the same size as the bar 34 is secured to the forward end of the carriage 20.

The platform 30 is slidably secured to the carriage 20 by the plates 36 for forward and rearward adjustment (Figs. 4 and 7). The plates 36 have a vertical leg which is inset into the edge of the main portion 31 of the platform and a lower leg which wraps under the top board of the carriage. One plate 36 is used on each side of the carriage and is located sufficiently rearwardly that the platform may slide forwardly approximately one-half its length. It will be recognized that instead of employing a single long plate 36 on each side that two or more short plates 36a (Fig. 9) of the same configuration may be substituted.

When the platform 30 is open, its lower surface is in the same plane as the top of the housing, thus giving some vertical support to each of the side leaves 32. To this end, the stops 25 are depressed below the top surface of the sides 2 a distance equal to the thickness of the bar 34 (Fig. 7).

Since the spring will bias the platform upwardly, it is necessary that the platform and carriage be held down when in storage. For this purpose, the outer, lower edge of each of the side leaves 32 is rabatted to provide a shoulder 40 (Fig. 6). The shoulders 40 engage under the stops 25 to lock the platform in depressed position. When the platform is in storage, it is entirely concealed within the storage chamber 6 by closure of the cover 41 which is hinged securly to the back panel 4.

It will be recognized that the platform and the housing may be constructed of any suitable material. It may be finished in any suitable manner to make the unit attractive as a piece of furniture.

Modifications

In the modified form of this invention, the stops 25 are eliminated together with the ears 23 on the ends of the legs 22. The housing sides 2 are provided with vertical slots 50, 51, and 52 (Fig. 11). It is desired to have such that they extend partially through the side walls and open into the storage chamber 6. The modified carriage 20a (Fig. 9) has a laterally projecting pin at the front and rear on each side. The front pins 53 seat in the slot 50. The rear pins 54 seat in the slots 51. The pins 53 and 54 are secured to the bar 24. These pins in turn are secured to the leaves 22a. Since the pins project beyond the side margins of the carriage 20a, the bars 24 are aligned beneath the top board 21 and the legs 22a have no ears on the ends. The slots 52 permit the carriage and platform to be lowered with the ends of the bar 34 projecting laterally from the carriage.

The slots 50, 51, and 52 all initially open through the top of the housing. However, the slots 50 and 51 are, after the installation of the carriage, closed at their upper ends by a removable block 55 detachably secured by any suitable means such as a screw 56. The blocks 55 act as stops limiting upward travel of the carriage. Thus, they serve the same purpose as the cooperation between the bar 24 and the stops 25 in the construction illustrated in Figs. 3 and 7.

In this construction, the bar 34 is offset rearwardly of the pin 54 to permit the pin to come against the limiting stops 54a. When the upper end of its travel is reached the bar 34 is free to pass through the top of the slot 52. The ends of the bar 34 project further than in the construction illustrated in Figs. 1, 2, and 3, since it is necessary that they ride over a portion of the housing side walls 2a rather than the stops 25. In order that the platform may seat upon the top of the housing, the rearward end of the side wall 2a is provided with a channel 57 of sufficient depth to receive the bar 34.

The platform 30 is of the same construction and is secured to the carriage 20 by the same means as that illustrated in Figs. 5 and 7. However, since the stops 25 have been eliminated, it is necessary to provide hold-down latches consisting of a keeper plate 58 secured to each of the side walls 2a and a latch plate 59 secured to the under surface of each of the leaves 32 of the platform (Fig. 11). An access pocket 60 is provided behind the keeper plate 58 to permit engagement of the latch bar 59. These are held in engagement by the upper biasing effect of the spring.

Fig. 13 illustrates a further modification of this invention. It is adapted for use with the type of guiding and holding means illustrated in Figs. 9 and 10. In this construction the carriage and platform are not secured to the housing 1 directly but to an independent chassis or framework 76. The framework 76 consists of a base 71 and a pair of side standards 72. The base is provided with
blocks 27 for seating the bottoms of a plurality of the springs 26. The side standards 72 are rigidly secured to the base 71. Each is equipped with the slots 50, 51 and 52 exactly as are the sides 2a of the housing in Fig. 10. The slots 50 and 51 are closed at the top by blocks 55 secured by screws 56. Also, the tops of the side standards have channels 57 for seating the ends of the bar 34.

The framework 70 is designed to have the platform 30 and carriage 30a (Fig. 9) assembled to it to form a complete structure. The framework 70, with the assembled carriage and platform, is seated in the storage chamber 6 of the housing 1 and is secured to the housing by screws installed through the holes 73.

This construction makes it possible to fabricate the platform, carriage and their associated structure as an integrated unit of various standardized sizes. These units may then be incorporated in a piece of furniture, a kitchen cabinet or a cupboard by constructing them with a storage chamber of the correct dimensions. The operation of the platform and carriage is identical to that illustrated in Figs. 1-5.

Figs. 14, 15 and 16 illustrate a further modification of the invention involving a carrying forward of the structure illustrated in Fig. 13. In this case the framework 70a retains the base 71 but the side standards, instead of being panels, each consist of three U-shaped channel sections 51a, 52a and 53a connected by a bar 78. The bar abuts the front side of the channel 52a and is notched to receive the flanges 77. Seated against the outer surfaces of both the channels and the bar 78 is a mounting strip 79 secured to the channels and the bar by suitable fasteners such as screws 80.

After the channels have been assembled to the base 71, the carriage and platform are assembled to them. The strip 79 and bar 78 are then assembled to the channels, tying them together, providing a track for the bar 34 of the carriage and closing the upper ends of channels 50a and 51a.

The channels and strip 79 may be of any suitable material such as steel, aluminum or reinforced plastic. The structure, like the one shown in Fig. 15, permits the platform-carriage assembly to be installed in the frame to form a self-contained assembly ready for installation in a suitable cabinet. The operation of the structure is the same as that illustrated in Fig. 13.

Operation

For the purpose of describing the operation of this invention, it is assumed that the platform is in storage, that is, depressed into the storage chamber as illustrated in Fig. 1. To release the platform, it is pressed down just enough to release the leaves 32 from beneath the stops 25. The operator then allows the platform to rise under the influence of the spring 26 until bars 24 contact the stops 25. At this point the bar 34 on the platform 30 is above the stops 25. The leaves 32 may then be folded downwardly to align with the main portion 31 of the platform.

The platform 30 is then shifted forwardly by sliding it over the carriage 20 until forward movement is stopped by contact between the slides 36 and the forward one of the legs 22 (Fig. 2). The amount of permissible forward movement may vary widely but preferably it is at least half the depth of the platform. At this point the platform is ready to be used.

As so situated, the carriage is positively locked to the housing since its rearward end is supported by the ends of the bar 34 resting on the top surface of the stops 25. The rearward end of the platform is locked to the carriage. The platform is supported against downward movement by the seating of the platform upon the front panel 3 of the housing. The leaves 32 are similarly supported by the sides 2 of the housing on which they rest. Further, the inner edges of the leaves 32 tightly abut the main portion of the platform and are held by the hinges.

To return the platform to storage, this procedure is merely reversed. That is, the platform is shifted to its rearward position and the leaves 32 are folded up normal to the main portion. The platform is then depressed into the storage chamber until the side leaves 32 may be engaged under the stops 25.

It will be seen that a typewriter or any other type of machine or small appliance may be placed on the platform and moved from operating position into storage without being shifted on the platform since it will travel back with the platform as the latter slides rearwardly on the cradle and will be received into the storage chamber as the platform is lowered. Thus, it is never necessary to lift the weight of the machine nor is it ever necessary to move it from one support to another. The machine may be merely seated upon or permanently secured to the platform.

The wings provide an additional working space on each side of the typewriter for holding papers or making notes. They thus serve not only to hold the platform down when it is in storage but as additional work area when the platform is operating.

Once the machine is in storage on the platform, the closure of the cover 41 conceals the machine and protects it against external damage and from dust or other foreign material being deposited on it.

The operation of the modified construction is identical to that of the construction shown in Figs. 1-4. The only difference between these two structures lies in the manner in which the parts are designed to cooperate but the cooperation is identical.

It will be seen that this invention provides an inexpensive combination typing table and storage cabinet for a typewriter, small appliance or any other machine or instrument of suitable size. The simplicity of the structure lends itself to inexpensive manufacture and to a minimum of effort on the part of the operator to manipulate. Since the platform is positively secured to the housing, the entire structure of the unit of furniture into which it is incorporated cooperates with the platform to steady it and make it a firm and rigid support for the machine. Further, the invention provides a structure specifically adapted as a facility for machines such as typewriters and adapting their incorporation into existing home furniture and cabinet designs without loss of efficiency or sacrifice of aesthetic qualities. This has not previously been accomplished.

While I have described a preferred embodiment of my invention and several modifications thereof, it will be understood that other embodiments may be made incorporating the principles of this invention. Such of these modifications as incorporate the principles of this invention are to be considered as included in the herein-after appended claims unless these claims by their language expressly state otherwise.

I claim:

1. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for forward and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; a projection on each side of said platform extending outwardly beyond the side margins thereof; a pair of stop members along at least a portion of each of the sides of said carriage and extending laterally beyond the margins of said carriage; an enclosure for said carriage and platform and said
carriage and platform being vertically movable in said enclosure; stop means on said enclosure paralleling the sides of said platform and for engaging each of said stop members; the top surfaces of said stop members being bearing surfaces for said projections when said carriage and platform are at the upper limit of their travel and said platform is shifted forward with respect to said carriage.

2. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; a projection on each side of said platform extending outwardly beyond the side margins thereof; a pair of stop members along at least a portion of each of the sides of said carriage and extending laterally beyond the margins of said carriage; an enclosure for said carriage and platform and said carriage and platform being vertically movable in said enclosure; stop means paralleling the sides of said carriage and platform for engaging each of said stop members; the top surfaces of said stop members being bearing surfaces for said projections when said carriage and platform are at the upper limit of their travel and said platform is shifted forward with respect to said carriage; a wall at the forward end of said enclosure; said platform being adapted to rest on said wall when said platform is shifted forward.

3. A combination work and storage unit comprising: a frame having upstanding side standards; a carriage seated in said frame and vertically movable with respect thereto; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; side standards each having a bearing surface; a lateral projection on each side of said platform at the rear thereof seated on said bearing surface when said platform is at its upper limit of travel and is shifted forward with relation to said carriage; said projections being disengaged from said bearing surfaces when said platform is at the aft limit of its sliding travel; said carriage having means engaging a wall on said side standards for limiting upward travel of said carriage when said projections are aligned with said bearing surfaces for sliding travel therealong.

4. A combination work and storage unit comprising: a housing having upstanding side walls and a front wall; a carriage seated in said housing and vertically movable with respect thereto; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; said side walls each having a bearing surface; a lateral projection on each side of said platform at the rear thereof seated on said bearing surface when said platform is at its upper limit of travel and is shifted forward with relation to said carriage; said projections being disengaged from said bearing surfaces when said platform is at the aft limit of its sliding travel; a stop on each of said walls; said carriage having means engaging said stop on each of said side walls for limiting upward travel of said carriage when said projections are aligned with said bearing surfaces for sliding travel therealong; said platform when shifted forward being adapted to seat on said front wall.

5. A combination work and storage unit comprising: a housing having upstanding side walls and a front wall; a carriage seated in said housing and vertically movable with respect thereto; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; said side walls each having a bearing surface; a lateral projection on each side of said platform extending outwardly beyond the side margins thereof when said platform is at its upper limit of travel and is shifted forward with relation to said carriage; said projections being disengaged from said bearing surfaces when said platform is at the aft limit of its sliding travel; said side walls each having vertical channels therein; one of said channels in each of said walls adapted to receive said projections; a pair of stop elements projecting from each of the side margins of said carriage; one of said stop elements projecting into each of the other of said channels; end members seated in the upper ends of each of said other channels for engaging said side members; means for guiding each of said carriage when said projections are aligned with said bearing surfaces for sliding travel therealong; said platform when shifted forward being adapted to seat on said front wall.

6. A piece of furniture having front, back and side walls defining a storage chamber open at the top; a carriage seated in said chamber and vertically movable with respect thereto; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; a projection on each side of said platform extending outwardly beyond the side margins thereof; a pair of stop members along at least a portion of each of the sides of said carriage and extending laterally beyond the margins of said carriage; said carriage and platform being vertically movable in said chamber; means on said enclosure for engaging each of said stop members; means for guiding each of said carriage when said platform is shifted forward with respect to said carriage; said platform when shifted forward being adapted to seat on said front wall.

7. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; said platform extending outwardly beyond the periphery of said carriage; an enclosure for said carriage and platform and said carriage and platform being vertically movable in said enclosure; means on said enclosure for engaging each of said stop members; means for guiding each of said carriage when said platform is shifted forward with respect to said carriage; said platform when shifted forward being adapted to seat on said front wall.

8. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; a projection on each side of said platform extending outwardly beyond the side margins thereof; a pair of stop members extending laterally beyond the periphery of said carriage; an enclosure for said carriage and platform and said carriage and platform being vertically movable in said enclosure; means on said enclosure for engaging each of said stop members; means for guiding each of said carriage when said platform is shifted forward with respect to said carriage; said platform when shifted forward being adapted to seat on said front wall.
support said platform when said platform is shifted forwardly.

9. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform embracing said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; a projection on each side of said platform extending outwardly beyond the side margins thereof; a pair of stop members along at least a portion of each of the sides of said carriage and extending laterally beyond the margins of said carriage; an enclosure for said carriage and platform and said carriage and platform being vertically movable in said enclosure; stop means on said enclosure paralleling the sides of said carriage and platform for engaging each of said stop members; the top surfaces of said stop members being bearing surfaces for said projections when said carriage and platform are at the upper limit of their travel and said platform is shifted forwardly with respect to said carriage; means at the forward end of said enclosure adapted to support said platform when said platform is shifted forwardly.

10. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform engaging said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; a projection on each side of said platform extending outwardly beyond the side margins thereof; a pair of stop members extending laterally beyond the periphery of said carriage; an enclosure for said carriage and platform and said carriage and platform being vertically movable in said enclosure; stop means on said enclosure for engaging each of said stop members; a pair of bearing surfaces on said enclosure, one engaging beneath each of said projections when said carriage and platform are at the upper limit of their travel and said platform is shifted forwardly with respect to said carriage; means at the forward end of said enclosure adapted to support said platform when said platform is shifted forwardly.

11. A combination work and storage unit, comprising: a carriage; a platform seated on said carriage for fore and aft sliding movement with relation thereto; means on said platform engaging said carriage and adapted to prevent vertical and lateral movement of said platform with respect to said carriage; an enclosure for said carriage and the platform and said carriage and the platform being vertically movable in said enclosure; stop means on said enclosure for limiting upward travel of said carriage and platform; a first element on said platform and a second element on said enclosure, said first and second elements being disengaged when platform is at the aft limit of its sliding travel and said carriage and platform are vertically movable and engaged when said platform is shifted forwardly of said aft limit for preventing both said platform and said carriage from moving downwardly into said enclosure.

References Cited in the file of this patent

UNITED STATES PATENTS

1,098,344 McLean Apr. 14, 1914
1,278,510 Richardson Oct. 14, 1930
2,069,707 Herman Feb. 2, 1937