

Jan. 20, 1959

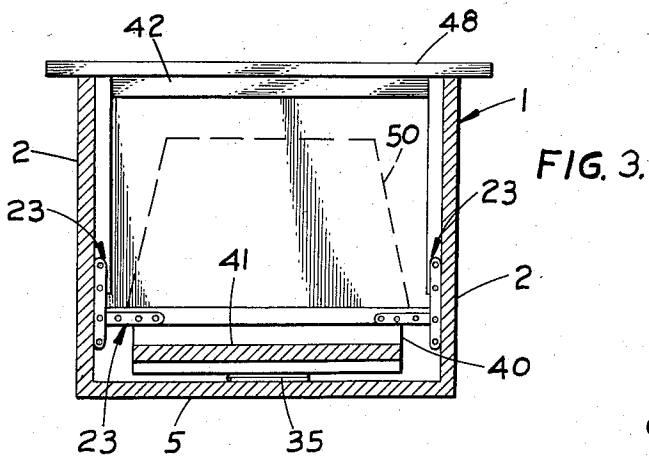
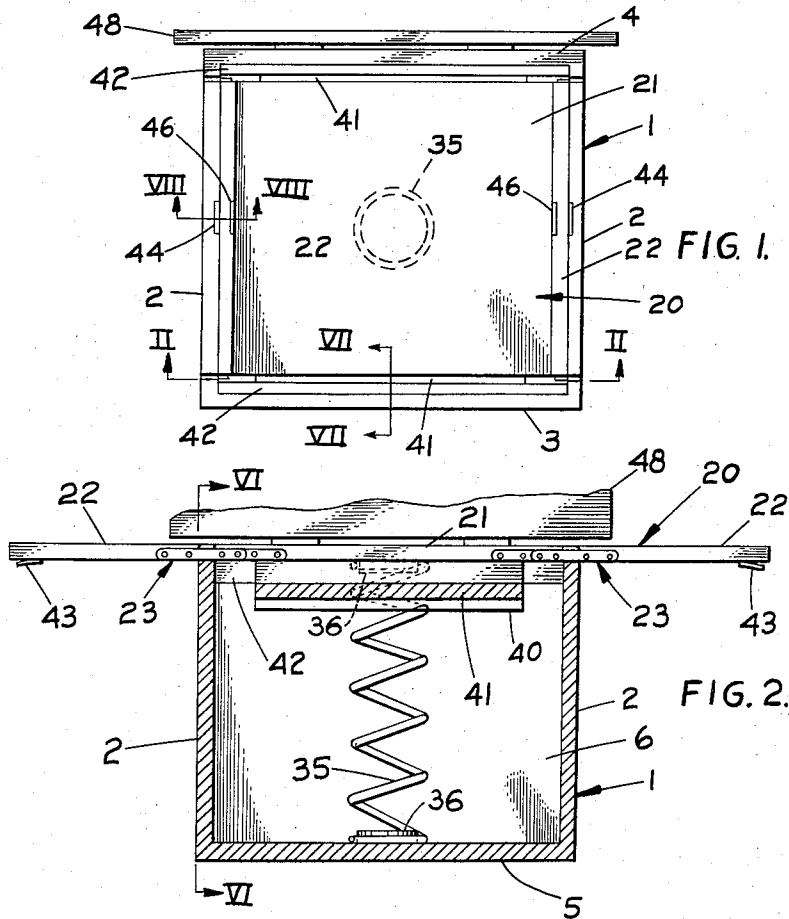
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2,869,957

COMBINATION WORK AND STORAGE UNIT

Filed March 11, 1957

4 Sheets-Sheet 1



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COMBINATION WORK AND STORAGE UNIT

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4 Sheets-Sheet 2

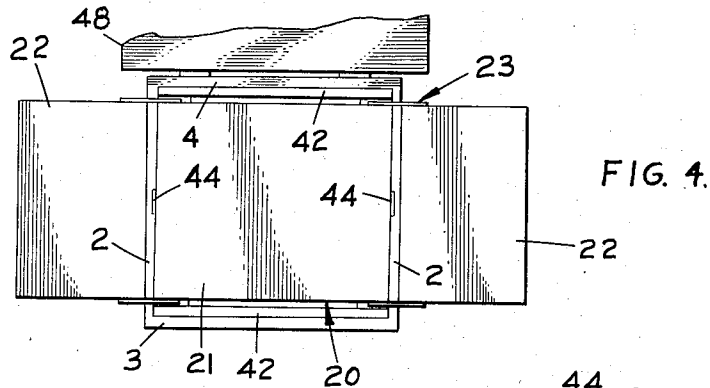


FIG. 4.

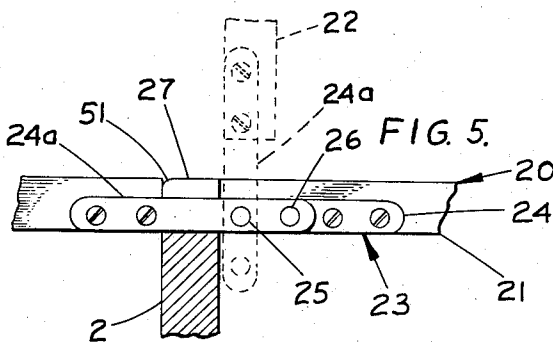


FIG. 5.

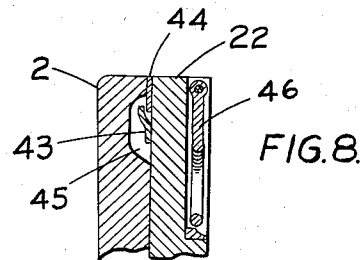


FIG. 8.

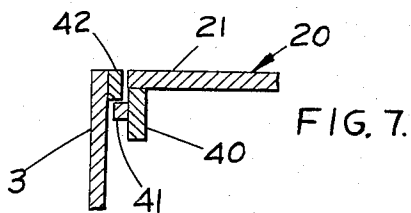


FIG. 7.

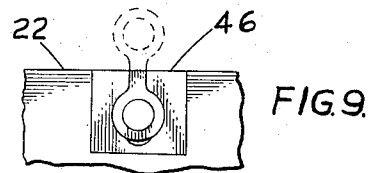


FIG. 9.

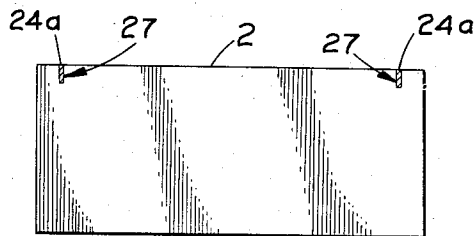


FIG. 6.

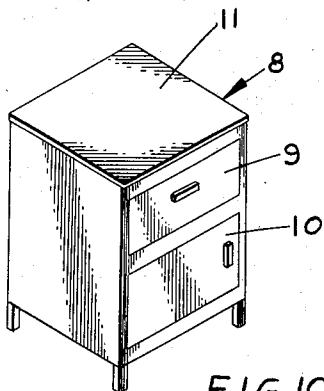


FIG. 10.

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4 Sheets-Sheet 3

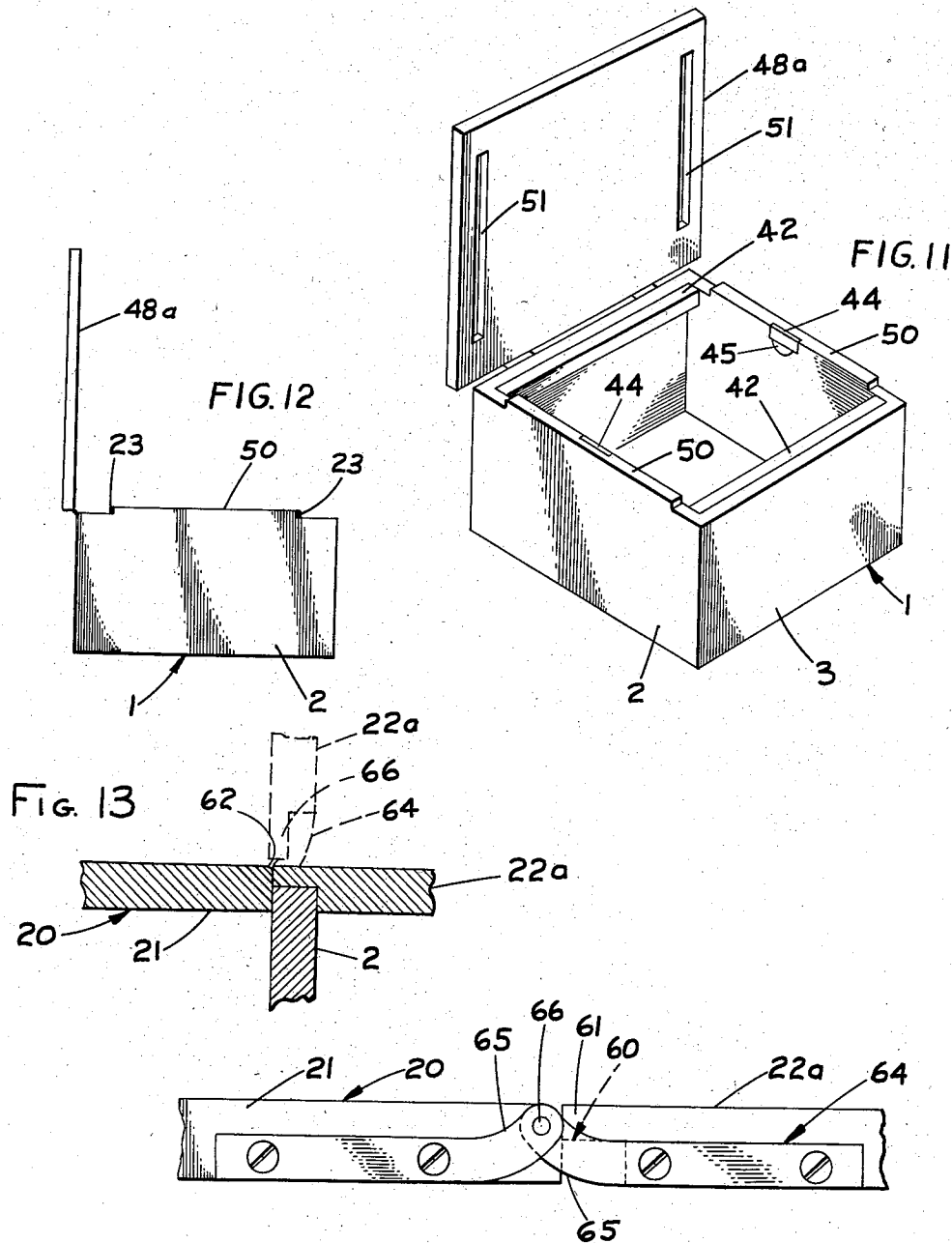


FIG. 14

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4 Sheets-Sheet 4

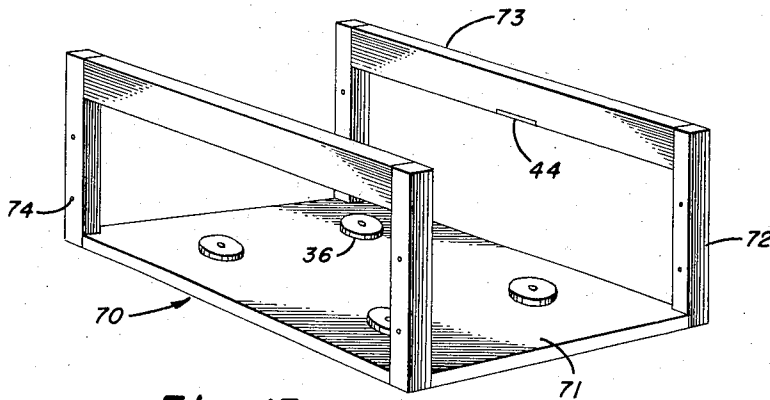


Fig. 15

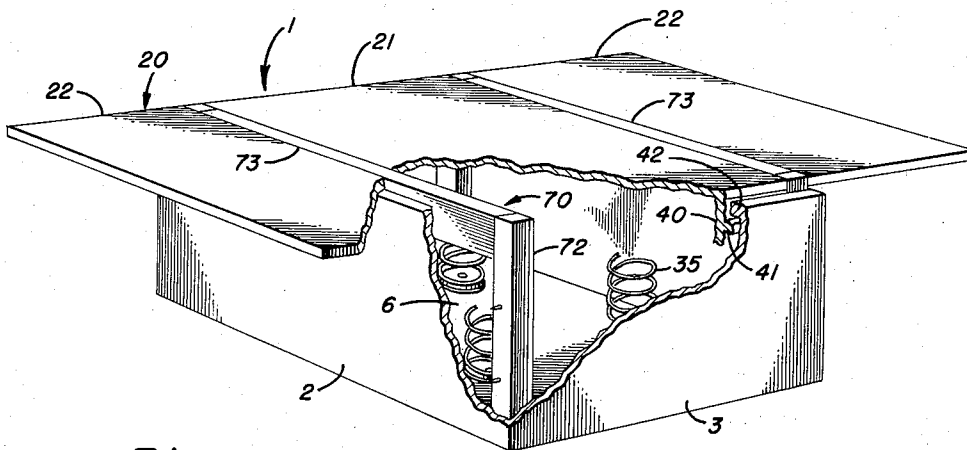


Fig. 16

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COMBINATION WORK AND STORAGE UNIT

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Application March 11, 1957, Serial No. 645,234

2 Claims. (Cl. 312—298)

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 cabinets 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. Heretofore, 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.

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 a plan view of this invention with the cover raised.

Fig. 2 is a sectional, elevation view taken along the plane II—II of Fig. 1, showing the platform in raised position.

Fig. 3 is a sectional, elevation view taken along the same plane as Fig. 2, showing the platform in storage.

Fig. 4 is a plan view of the platform in raised position.

Fig. 5 is an enlarged, fragmentary view of a hinge for the platform, illustrating the hinge in phantom when the platform is folded.

Fig. 6 is a sectional, elevation view taken along the plane VI—VI of Fig. 2.

Fig. 7 is an enlarged, fragmentary, sectional, elevation view taken along the plane VII—VII of Fig. 1.

Fig. 8 is an enlarged, fragmentary, sectional, elevation view taken along the plane VIII—VIII of Fig. 1.

Fig. 9 is an enlarged, fragmentary view of the handle used for manipulating the platform.

Fig. 10 is an oblique view of a unit of furniture incorporating this invention.

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Fig. 11 is an oblique view of a modified form of my invention.

Fig. 12 is a side elevation view of my invention as illustrated in Fig. 11.

Fig. 13 shows a modified joint between the central and end portions of the platform, illustrating the platform in folded position in phantom.

Fig. 14 is an enlarged, fragmentary, side elevation view of the hinge for the modification illustrated in Fig. 13.

Fig. 15 is an oblique view of a framework for mounting the platform in a storage chamber.

Fig. 16 is a partially broken, oblique view of the framework illustrated in Fig. 15 mounted in a storage chamber with the platform in open, operating position.

In executing the objectives of this invention, there is provided a housing having a storage compartment open only at the top. Associated with the storage compartment is a platform having a central and two end portions. The end portions are hinged to the central portion whereby they can be arranged either flush or normal to the central portion. The platform, in raised position, has the end portions flush with the central portion and has a gap between the central portion and each of the end portions for reception of two of the sides of the housing. In this position, the tops of the housing sides are flush with the top surface of the platform and are tightly clamped between the central and end portions for firmly supporting the platform in raised position. When the end portions are normal to the central portion, the entire platform may be telescoped into the storage chamber. Preferably, but not necessarily, the platform is spring biased upwardly so that it may be moved into and out of the storage chamber with minimum effort when the platform is loaded with a typewriter or similar instrument.

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 limiting the use of this invention to typewriters. It may be used with any type of machine of such compact structure that it may be stored within the housing. For example, it may be used for such equipment as a kitchen mixer or other small home appliances.

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 (Fig. 2) 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, 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. 10) in which the storage compartment is concealed behind the dummy drawer front 9 while the lower portion of the night stand behind the door 10 retains its 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.

Associated with the housing is a platform 20 having a central portion 21 and a pair of end portions 22 (Figs. 1 through 4). Each of the end portions 22 is secured to the central portion 21 by a pair of hinges 23. The hinges 23 each consist of two bars 24 and 24a pivotally connected at 25 (Fig. 5). The connection 25 is at one end of the bar 24 and spaced substantially from the end of the bar 24a. When aligned, the bars 24 and 24a are also connected by a detent 26 at the end of the bar 24a adjacent the pivot 25. The bars 24a are rigidly secured to the end portions 22 and the bars 24 are similarly attached to the central portion 21.

The hinge structure itself is conventional but is useful in this invention because it permits the end portions 22 to be spaced from the central portion 21 a distance sufficient to receive the sides 2 of the housing snugly between them. (Figs. 4 and 5.) The unit is so designed that the tops of the sides 2 are flush with the top surface of the platform when the latter is raised and open.

If the arms are tightly clamped together by the pivot 25 and the detent is designed to have substantial frictional engagement, it has been found that the platform will remain open and supported by the hinges without assistance from the clamping action about the front wall. The clamping action about the front wall does, however, provide positive assurance against the possibility of the platform folding and dropping into the storage chamber under an excessive load. Thus, the platform, when open, will provide a firm support for a typewriter, having no tendency to work gradually downward due to vibration incident to the typewriter's use. The platform seats flush with the tops of the sides 2 by reason of the slots 27 in the sides 2 which receive the hinges 23 (Figs. 1, 5 and 6). The weight of the platform 20 is supported by the hinges 23 resting on the bottom of the slots 27.

The platform is biased upwardly by any suitable means such as the centrally located coil spring 35. The upper end of the spring bears against the bottom of the platform and the lower end bears against the floor 5 of the storage chamber 6. To prevent the ends of the spring from moving laterally, they are preferably stabilized by a disc shaped block 36 at each end. The blocks 36 are secured to the adjacent structure. The spring seats closely about the blocks.

Stability of the platform, as it is being manipulated, can be increased by using a plurality of the springs 35 such as one at each corner of the platform. In this case each spring will be weaker and their combined strengths will approximate that of the single spring 35, illustrated.

The platform is provided with a pair of legs 40 extending along two edges. The legs 40 are of such height that when the platform is lowered to the point where the legs rest upon the floor 5 of the storage chamber, sufficient room remains between the floor and the bottom surface of the platform for the spring 35. Associated with each of the legs 40 is a stop mechanism consisting of a stop bar 41 and a cooperating stop strip 42 (Fig. 7). The stop strips 42 are secured to the front wall 3 and back wall 4 of the storage chamber. Each stop bar 41 is secured to a leg 40 and is so located that it abuts the bottom of the stop strip 42 when the top surface of the platform is slightly above the top of the housing 1. The arrangement allows the platform to rise slightly above the top of the housing 1. The purpose of this will be explained under "Operation." The stops prevent excessive upward movement or floating of the platform under the bias of the spring 35 when the platform is in raised position.

The latch member 43 serves to lock the platform in stored position (Fig. 8). The latch member 43 is mounted on the bottom surface of each of the end portions 22. In this position it is concealed when the platform is raised and open. The latch members 43 each hook under a keeper bar 44. The keeper bars 44 are mounted flush

on the inside surface of the end walls 2 of the housing 1. Beneath each of the keeper bars 44 is an access pocket 45 for the latch 43. As the platform is lowered into the storage chamber, the sides slide downwardly past the keeper bars 44 until the latches 43 pass beneath them. The sides are then urged outwardly and the platform released. The upward biasing of the spring 35 forces the latches 43 into tight engagement with the keeper bars 44, preventing the platform from springing upwardly under the urging of the spring.

To open or raise the platform, it is first depressed until the latch bars 43 disengage the keeper bars 44. The end portions 22 may then be pivoted inwardly sufficiently to permit the latch bars to pass the keeper bars. The platform is then allowed to rise under the bias of the spring 35. To facilitate the raising and lowering of the platform, handles 46 are mounted on the top surface at the outer extremities of the end portions 22. Preferably, the handles 46 are of a type which may be stored flush with the surface but opened for use, as indicated in phantom lines in Fig. 9.

When the platform is stored, the open or exposed top of the housing 2 may be closed by any suitable means such as by a cover 48 hingedly secured to the back wall 4 of the housing 1. It will be recognized that various means may be used to cover the storage chamber 6 when the platform is lowered.

The housing 1 and its related cover 48, together with the platform 20, may be fabricated from any suitable material. It may be provided with any type of finish required for improving its ornamental appearance.

Operation

The typewriter 50, indicated by the phantom lines in Fig. 3, may either simply rest on the platform or it may be secured to it by catches, screws or any other suitable fasteners.

To raise the typewriter from the storage chamber 6 and ready it for use, the cover 48 is first raised to expose the top of the storage chamber. In stored position, the bottoms of the legs 40 do not contact the floor 5 of the storage chamber 6. This permits the platform to be depressed slightly further into the storage chamber before being raised. This is necessary to disengage the latches 43 from the keeper bars 44. To do this, the operator pivots the handles 46 into operating position, presses down on the platform against the spring 35 until the latches 43 are disengaged. The operator then pivots the end portions 22 of the platform 20 inwardly slightly so that the latches 43 will clear the keeper bars 44. The operator then raises the platform. Since the spring 35 biases the platform upwardly, it is unnecessary for the operator to lift the combined weight of the platform and typewriter or other instrument resting on the platform. Depending upon the strength of the spring, the operator merely has to either exert a slight amount of lifting force on the platform or control its rate of ascension.

The platform continues to rise until the stop bars 41 engage the stop strips 42. At this point, the central portion of the platform is slightly above the top surfaces of the sides 2. The operator then pivots the end portions 22 of the platform downwardly until they are aligned with the central portion 21. In so doing, the end portions 22 pass partially over the end walls 2 of the housing. When the end portions 22 are aligned with the central portions 21, the bars 24 and 24a of the hinges 23 are aligned and the detent 26 engages. The operator then lowers the platform until the hinges rest on the bottom of the slots 27 in the end walls 2 of the housing 1. At this point, the top surface of the platform 20 is flush with the top surface of the end walls 2.

A close fit is provided between the surfaces of the sides 2 and the ends of the central portion 21 and the adjacent ends of the end portions 22. This may be done even though the end portions have to swing about these walls,

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since they move substantially into alignment while the platform is raised partially above the top of the housing 2. If necessary, this may be facilitated by slight radiusing 51 of the outer edge of the walls 2 (Fig. 5). By leaving the end portions 21 tipped slightly, upwardly, as the seating of the platform over the sides 2 is initiated, the lower end of the gap between the central and end portions is slightly increased. Thus, the sides 22 may enter easily. After substantial engagement has been effected, the end portions are pivoted down to alignment and the platform will seat securely. Because of the tight fit, downward pressure applied to the central portion 21 of the platform will, when sufficient to overcome the holding effect of the detent 26, cause the end portions 22 to pivot slightly upwardly about the pivot points 25. This slight upward movement of the outer ends 22 effects a clamping or binding action with the sides 2 of the housing 1. This, combined with the positive engagement between the hinges 23 and the bottoms of the slots 27 within which they are seated, provides positive support for the platform.

The platform provides a convenient support for the typewriter. It also provides space on either side for paper and other materials commonly required with a typewriter or similar machine. It will be recognized that if the typewriter is not firmly attached to the platform, it may, when desired, be moved to one side so that it rests on both the central portion and one of the end portions. This combines the free areas of the platform on one side of the typewriter. The structure of the platform is such that it provides a firm and positive support for the typewriter even though so relocated.

To return the platform to the storage chamber 6, the operator grasps the two end portions 22 in such a manner that he may pivot them slightly downwardly about the hinged pivots 25. He then raises the platform until the stop bars 41 and strips 42 engage. At this point, the platform is once again partially above the top of the housing 1, permitting the end portions 22 to be pivoted over the top of the sides 2 until they are normal to the central portion 21 of the platform. The stop bars 41 prevent the platform from being lifted out of the storage chamber 6 by the upward force applied by the operator in pivoting the end portions upwardly.

Having folded the platform into a U-shape, the operator telescopes the platform into the storage chamber until the legs 40 engage the bottom 5 of the storage chamber 6. Then, urging the end portions outwardly, he permits the platform to rise under the biasing effect of the spring 35. This causes the latch bars 43 to engage the keeper bars 44, retaining the platform in depressed position. To complete the storage of the typewriter and its concealment, the cover 48 is closed.

The platform 20, when folded for storage fits closely within the storage chamber 6. This close fit, while permitting vertical sliding movement of the platform, prevents it from tipping as it is raised and lowered. This eliminates the necessity for guides or tracks to accomplish this purpose, thus, contributing to its lower basic cost.

Modifications

Figs. 11 and 12 illustrate a modification of this invention. The clamping of the platform 20 about the top edges of the sides 2 causes some unavoidable damage to the exterior finish of the sides. In the arrangement illustrated in Figs. 1 through 5 this damage is exposed when the platform has been lowered and the cover 48 closed.

To eliminate this problem, that portion of the sides 2 between the hinges 23 may be raised to form a ridge 50 having a height equal to the thickness of the platform 20. Thus, the top surface of the ridge 50 is flush with the top surface of the platform. The hinges 23 fit closely adjacent each end of the ridge.

Since the ridges 50 project above the top surface of the housing 1, the under surface of the cover 48a is provided with a pair of slots 51 to receive the ridges. Thus, when

the cover 48a is closed, the ridges 50 are entirely received into the cover and the damage to their exterior surfaces is completely concealed.

Figs. 13 and 14 illustrate a modification of the joint between the platform's central portion 21 and the end portion 22. The platform 20 still rests upon and clamps about the top of the side wall 2 of the housing 1 but these side walls project only partially through the platform. Instead of providing a gap between the central and end portions of the platform 20, the lower surface of each end portion 22a is provided with a notch 60 extending approximately half way through the platform. This leaves a lap 61 on the end portion 22a which conceals the top of the side wall 2. This structure provides both a positive support under the platform and enables the platform to clamp about the side wall 2. It will be recognized that the portion of the side wall 2 entering the notch 60 may be the top of the side wall or it may be a ridge on the side wall such as that illustrated in Fig. 11.

Figs. 15 and 16 illustrate an arrangement by which the platform and its necessary operating structure may be fabricated as a self-contained unit ready for installation in a piece of furniture. In this case the platform is mounted in a chassis or skeleton framework 70 having a base 71 and four corner posts 72. The tops of the posts 72 along each side are connected by bars 73. The keeper plates 44 or the hold down latches are secured to bars 73 adjacent their lower margins. The discs 36 for the springs are mounted to the base 71.

It will be recognized that panels may be substituted for the posts 72 and bars 73. However, in either case the structure serves as the side standards of the framework 70.

The posts 72 are rigidly secured to the base 71. The framework 70 is designed to be seated in the storage chamber 6 with the base 71 resting upon the floor 5 (Fig. 16). The framework 70 is secured to the housing 1 by screws installed through the holes 74 in the posts 72. It will be recognized that these fasteners may be relocated at any other point on the framework such as through the base 71 or the bars 73.

The platform 20 is mounted in the framework in the same manner as it would be in the housing 1. Thus, the platform and framework become a complete self-contained package which may be installed in a storage chamber such as that formed by the housing 1.

The bars 73 project above the top of the housing 1 the thickness of the platform if the platform is of the design illustrated in Fig. 5 or only a portion of this distance if it is of the design illustrated in Fig. 13. Thus, the end portions 22, when open, rest upon the top of the housing. Since the top of the framework projects above the housing it is necessary to provide a cover having slots in it such as the cover 48a and slots 51 (Fig. 11).

The construction illustrated in Figs. 15 and 16 makes it possible to fabricate the platform and its associated operating 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 is identical to that of the platform illustrated in Figs. 1 through 4.

To eliminate interference between the central and end portions as the end portions 22 are folded, the central portion 21 is slightly radiused at 62. This radiusing should be kept at minimum to maintain as smooth a top surface as possible.

To reduce the size of the radius 62, a modified hinge 64 is used. The hinge bars each have an upturned arm 65. These overlap and are joined by a pivot pin 66. The hinge bars are narrower than the platform and are mounted flush with the platform's bottom surface. The tops of the arms 65 are flush with the top surface of the platform and the pivot pin 66 is located just below the

top surface and close to the outer end of the central portion 21. This type of hinge produces a somewhat increased clamping against the front wall 2, if the major portion of the weight is applied to the end portion 22. Because of the relocation of the pivot point of the hinge, the radius 62 can be substantially reduced.

The simplicity of the various components used in this invention adapts it to inexpensive manufacture. Despite this, the invention simultaneously provides both complete storage and positive support for the typewriter when in operation. It provides a complete and satisfactory solution to the storage and use of typewriters and similar office equipment in the home. It also provides a unit which may be adapted to incorporation in various types of furniture normally designed for an entirely different purpose.

While I have described a preferred embodiment, together with several modifications of my invention, it will be recognized that other modifications may be made. Such of these modifications as incorporate the principles of this invention are to be considered as included in the hereinafter appended claims unless these claims, by their language, expressly state otherwise.

I claim:

1. A combination work and storage unit, comprising: a hollow housing open at the top for defining a storage chamber; a platform having a center portion and a pair of end portions; said portions being hingedly joined whereby said platform is flat when open and U-shaped when closed; said end portions each having a lap at the upper surface thereof at the joint between said end portions and said center portion; the free edge of said lap when said platform is open abutting said center portion; said lap being thinner than said platform for providing

a notch in the lower surface of said end portions bounded on one side by an edge of said center portion for receiving the tops of the side walls of said housing when said platform is open; the width of said notches being such that said platform clamps against both the inner and outer surfaces of said side walls when said platform is open.

2. A piece of furniture having front, back, side walls and a bottom defining a storage chamber open at the top; leg elements supporting said piece of furniture; a cover hingedly secured to said back wall for closing said open top of said storage chamber; a platform having a center portion and a pair of end portions; said portions being hingedly joined whereby said platform is flat when open and U-shaped when closed; said end portions each having a lap at the upper surface thereof at the joint between said end portions and said center portion; the free edge of said lap when said platform is open abutting said center portion; said lap being thinner than said platform for providing a notch in the lower surface of said end portions bounded on one side by an edge of said center portion for receiving the top of the side walls of said housing when said platform is open; the width of said notches being such that said platform clamps against both the inner and outer surfaces of said side walls when said platform is open.

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