This disclosure is directed to a rack having detachably connected hangers to provide a two-point support for the rack on a suitable supporting surface with provision for adjusting the vertical height of the rack on such support. The rack is particularly constructed so as to be used independently or in combination with a stand, and in which a lighting means is provided for illuminating sheet music or the like supported thereon.

16 Claims, 15 Drawing Figures
RACK AND STAND THEREFOR

PRIOR ART AND PROBLEM

Heretofore considerable efforts have been made to provide a suitable support and/or lighting for sheet music, works of art, books and the like. Generally the music rack of a piano, a floor stand, or easel, were not provided with means for effecting adjustment of the height of the sheet music or article adapted to be supported thereon, or with sufficient illumination for effective reading of the music sheet or viewing of the article supported therein when used in dimly lit music rooms, concert halls, galleries or the like. A disturbing attribute incidental to existing music racks also is the tendency of the sheet or page of music or the like to hit or scratch against the supporting ledge or base of the rack resulting in a disturbing noise each time a page is turned.

OBJECTS

It is therefore an object of this invention to provide an improved rack construction which can be either independently used as a support for sheet music, works of art, such as pictures or books; or used in combination with a stand and having means to effect vertical adjustment of the rack relative to such stand.

Another object is to provide a rack construction having readily detachable and adjustable mounted hanger means whereby the rack can be suitably detachably connected to a supporting surface or support structure in any adjusted position thereof.

Another object is to provide an improved rack construction having readily detachable hanger support means connected to accommodate limited relative movement therebetween so as to compensate for any unevenness in the support on which such rack is supported.

Another object is to provide a rack construction and hanger supports therefor wherein the rack and hanger are provided with improved complementary means for detachably securing the hanger supports in relative adjusted positions with respect thereto.

Another object is to provide a stand-and-rack combination specifically constructed so as to minimize any noise incidental to turning of pages of sheet music or the like supported thereon.

BRIEF SUMMARY OF THE INVENTION

The foregoing objects and other features and advantages of this invention are attached by a rack construction comprising essentially of opposed side members interconnected by a crosspiece to define an open frame construction. Hanger means in the form of hook-shaped members are connected to each of the respective side members to provide a two-point support for the rack. The hanger means and the respective side member are provided with complementary interlocking means for rendering the hanger means readily detachably connected to its respective side member along any of a plurality of adjustable positions therealong with relatively limited movement therebetween so as to compensate for any unevenness in the supporting structure of the rack. Lighting means are provided adjacent the upper end of the rack for illuminating the article or sheet music supported therein.

The rack is constructed so that it may either be independently utilized or utilized in combination with a floor stand or the like.

Other features and advantages will become more readily apparent when considered in view of the drawings:

FIG. 1 illustrates a front elevation view of the rack construction of this invention.

FIG. 2 is a side elevation of FIG. 1.

FIG. 3 is an exploded, enlarged perspective fragmentary detail of the hanger construction of FIG. 1.

FIG. 3A is an exploded enlarged perspective detail of a modified hanger construction.

FIG. 4 is an exploded enlarged perspective detail view of a modified hanger construction.

FIG. 5 is a fragmentary detailed sectional view illustrating the assembled position of the hanger construction of FIG. 4.

FIG. 6 is a fragmentary view of a completed modified hanger construction illustrated in an exploded perspective.

FIG. 7 is a sectional view of a modified form of construction.

FIG. 8 is a fragmentary perspective of still another modified form of the invention.

FIG. 9 is a fragmentary front elevation view of the rack of this invention utilized in conjunction with a floor stand or the like.

FIG. 10 is a sectional plan view taken along line 10—10 on FIG. 9.

FIG. 11 is a detail sectional view taken along line 11—11 on FIG. 10.

FIG. 12 is a rear elevation view of FIG. 9 illustrating parts of the rack in its stowed position.

FIG. 13 is a side elevation view of FIG. 12.

FIG. 14 is a side elevation view illustrating the rack and stand of FIGS. 9 to 13 detached from the stand pedestal and with parts of the rack in operative unstowed position.

Referring to the drawings there is shown in FIGS. 1 to 3 an embodiment of a rack construction 20 of this invention. As shown the rack 20 is utilized in conjunction with or to supplement the music rack 21 of a piano. Generally the music rack 21 of a piano comprises a backplate 21A having a connected forwardly extending ledge 21B on which the sheet music is supported. As a rule the backplate 21A and connected ledge 21B can be tilted slightly to facilitate the positioning and/or maintaining of the sheet music in position thereof.

The rack construction 20 adapted to be utilized in conjunction with the piano rack 21 comprises a pair of opposite side members 22, 23 interconnected by a bottom crosspiece 24 to define an open frame. If desired, a suitable ornamental design 25 may be disposed between the side members 22, 23 and above the crosspiece 24. Connected across the top of the frame between the side members 22, 23 is a lamp assembly 26. The lamp assembly 26 includes a shade 27 which is suitably pivoted to side members 22, 23 about thumbscrew fasteners 28. Supported within the lampshade 27 is a lamp socket 29 for receiving an electric bulb 30. Accordingly it will be noted that the lamp assembly 26 may be readily tilted relative to the rack 20 to any desired angle, and maintained in the adjusted position by tightening of the thumbscrews 28.

Means are provided for adjustable supporting the rack 20 on the upper edge 21C of the piano rack 21. Referring more specifically to FIGS. 1 and 2, the adjustable supporting means comprises a pair of similarly constructed hanger means 31 which are constructed to be each detachably secured to the respective side members 22, 23 of rack 20.

Referring more specifically to FIG. 3 each side member 22 or 23 is provided with a longitudinally extending groove 32 over which there is secured a plate member 33 formed with a plurality of spaced openings 34 formed therein. It will be understood that plate 33 may be suitably secured to the respective side members 22 or 23 by any suitable means such as screws, adhesive and the like. In the illustrated embodiment each opening 34 is shown as being substantially rectangular in which the lateral width X is greater than the vertical height Y.

The hanger means 31 comprises a member formed of suitable flat stock material having its upper end portion 31A reversely bent to define a hook 35. The arrangement is such that the hook end portion of hanger 31 is sized so as to accommodate the thickness of the backplate 21A of a piano rack 21. In accordance with this invention the reversely bent portion 35 of the hanger is provided with a means complementary to the openings 34 whereby the respective hanger 31 may be detachably interlocked thereto. In the illustrated form of FIGS. 1 to 3 the reversely bent portion 35 is provided in a tab 36 which is spaced from the plane of the hook portion 35. Preferably the tab is blanked or notched out of the plane or material of the hook 35. It is to be noted that the tab 36 is constructed so as to be received in any of the openings 34. As shown the tab 35 is disposed so that the vertical height "H" is
slightly less than dimension X of openings 34 and the width "W" of tab 36 is slightly less than dimension Y of opening 34. Therefore in order to detachably secure hanger 31 to the respective side members 22 or 23 the hanger must be positioned relative to its respective side member so that tab 36 may be received within one of the openings 34. As viewed in FIG. 3, the hanger must be disposed or rotated 90° relative to plate 33. With tab 36 oriented to be received within opening 34 and placed therein, the hanger may then be rotated to its normal position at which time the tab 36 is interlocked to the respective side member, as best shown in FIG. 2. With the respective hangers 31 thus interlocked in a particular opening 34, the rack 20 is suitably supported on a piano rack 21 by hooking the hangers 31 over the upper edge of the backplate 21. Depending upon the particular opening 34 with which the hangers 31 are engaged, the position or vertical height of the rack 20 may be adjusted relative to the backplate 21A.

To protect marring or scratching of the backplate, each hanger may be provided with a felt liner or other suitable protective covering 37.

With the construction described, it will be noted that the rack 20 is supported on the backplate 21A by a two-point support, viz. the two hangers detachably secured to the respective side member 22, 23. Because the respective hangers 31 are provided for limited relative movement with respect to the rack 20 in the interlocked position thereof, the rack assembly will adjust to any unevenness of the support member, e.g., the backplate 21A of a piano.

FIG. 3A illustrates a modified form of the invention. In this form of the invention the side member, as for example, 22 is provided with a longitudinally extending groove 32 over which a plate member 33 is secured. Plate member 33 is provided with a plurality of spaced openings 34 formed therein. Plate 33 is suitable secured to the side member 22 by any suitable means as hereinbefore described. As shown each opening 34 is shown as being substantially rectangular in shape in which the longer dimension extends vertically.

The hanger means comprises a member formed of suitable stock material having the upper end thereof reversely bent at 31A to define a hook 35. The hook end portion 35 is sized so as to accommodate the thickness of a backplate 21A of a piano rack 21. The reversely bent portion 35' of the hanger is provided with a means which is complementary to the openings 34 so that the hanger may be detachably interlocked thereto. As shown in FIG. 3A the reversely bent portion 35' is provided with a tab 36 which is blanked from the plane of the hooked portion 35. The tab 36 is constructed so as to be received in any one of the openings 34. It will be noted that the width of the tab 36 is slightly less than the smaller dimension of the rectangular opening 34 so that the height of the tab 36 is slightly greater than the longer dimension of the opening 34'. To detachably secure the hanger of FIG. 3A to the side member 22 the hanger must be positioned relative thereto so that the tab 36 may be received in one of the openings 34'. As viewed in FIG. 3A this can be attained without requiring rotation of the hanger 90° as previously described with respect to FIG. 3. With the hanger of FIG. 3A thus interlocked in a particular opening 34', the rack 20 may be suitably supported on a piano rack 21 by hooking the 35' over the upper edge of the supporting plate 21. Accordingly, depending upon the particular opening 34' in which the hanger is engaged the position or vertical height of the rack may be adjusted relative to the supporting backplate.

FIG. 7 illustrates a slightly modified form of the invention. In this form the rack construction 40 is similar to the rack 20 with the exception that a ledge 41 is connected to the bottom portion 40A for supporting the sheet music thereon. Also the hanger 42 of the form of FIG. 7 is slightly modified. In this form the hanger 42 is provided with a generally rectangularly disposed portion 43 which is angled so as to be disposed contiguous to a vertical supporting wall or support means 44. Suitable fasteners, such as screws 45 extended through apertures formed in portion 43 secures the rack 40 to a vertical wall 44. In all other respects the rack 40 and hanger means 42 is similar to that described with respect to FIGS. 1 to 3. With hanger means 42 secured to the wall, it will be noted that rack 40 may be adjusted vertically in a manner similar to that hereinbefore described.

FIGS. 4 and 5 illustrate a modified detail of construction of a hanger means 47 and the manner by which it is detachably and adjustably connected to the rack 46. In this form of the invention the side members 46A of the rack 46 are constructed of flat stock material to which a hanger plate 47A is suitably secured as by fasteners or the like. As shown the hanger plate 47A is provided with a plurality of tabs 48, preferably blanked out of the plane of the plate 47A. Each such tab 48 is integrally connected to the plane of the plate 47A along an upper edge thereof so that each tab 48 is independently supported in a slightly spaced relationship to the plate 47A.

Complementing the hanger plate 47A is a hanger 47B comprising an elongated member having a reversely bent upper end portion to define a hook 47C which is adapted to receive the thickness of a support structure, e.g., the backplate 21A of a piano rack 21.

The lower edge of hook portion 47C is again reversely bent upwardly to define a friction-type clip portion 47D. Referring to FIG. 5 it will be noted that to adjustably position the hanger 47B relative to the hanger plate 47A, the clip portion 47D of the hanger 47A is positioned to frictionally engage the tab 48 in the reverse bend defined at 47D. To enhance the spring resiliency of the clip portion 47D the bend 49 is slightly pitched as best shown in FIGS. 4 and 5.

FIG. 6 illustrates another modified form of hanger construction for the rack. In this form of the invention the opposed side members 50 of the rack of the type described with respect to FIG. 1 are provided with a plurality of transversely extending pairs of slots 51, 52 vertically spaced therealong. As shown slot 51 is angled toward slot 52 of the pair of slots, and slot 52 is angled toward slot 51.

The complementary hanger 53 comprises an elongated member 53A reversely bent to define a hook portion 53B to provide the support for the rack 50. Connected to the reverse bend of the hook portion 53B is a clip 54 adapted to detachably connect the hanger 53 to side member 50 of the rack. As shown clip 54 comprises a member which is suitably secured to the hook end 53B of hanger 53. The top and bottom portions of the clip are provided with laterally bent flanges 55, 56 which are adapted to be received in slots 51, 52 respectively. Accordingly the slope of flanges 55, 56 complements the angle of slots 51, 52.

To effect adjustment of the hanger 53 relative to the rack having a side member 50 constructed in accordance with FIG. 6, the flanges 55, 56 of the clip 54 are slid into the respective slots 51, 52 from the side of member 50. To limit the position of the hanger laterally when flanges 55, 56 are positioned in slots 51, 52, there is provided a vertical stop flange 57 along one vertical edge of the clip 54. Thus by positioning the flanges of the clip in any one of the paired slots 51, 52, the rack may be vertically adjusted relative to a support.

It will be understood that while the rack and various hanger supports have been herein described with reference to a rack for sheet music, the rack may also be used in conjunction with an easel for supporting and/or illuminating a painting thereon, or the rack may form a display for a book or other similar article.

FIG. 8 illustrates another modified construction. In this form the rack 60 comprises an open frame member formed of opposed side members 61, 62 interconnected by a bottom crosspiece 63. The rack 60 is supported on a base means 64 comprising a pair of opposed end members 65, 65 interconnected by front and rear members 66, 67. The upper edge of the respective side members 65, 65 are provided with a plurality of corresponding notches 68 adapted to support therebetween the bottom piece 63 of the rack. Suitable leg members 69 are connected to the base means 64 to support the same on a suitable supporting surface 70.
FIGS. 9 to 13 illustrate the rack construction of the type herein described utilized in conjunction with a floor stand 71. The rack construction 72 may be constructed similar to any of the rack constructions hereinbefore described. However, for purposes of illustration, the rack 72 is similar to that described with respect to FIGS. 1 to 3. The rack comprises therefore opposite side members 73', 74' interconnected by a bottom crosspiece 75'. The hanger means comprises a structure as described and shown with respect to FIG. 3.

The illustrated stand 71 to be utilized in conjunction with rack 72 comprises a base member 73 having connected thereto an angularly disposed back support 74. As shown the back support 74 is provided with a curvilinear upper edge 74A which serves to facilitate the turning of pages of sheet music or the like supported thereon. As shown the top surface 73A is inclined downward toward the back support 74.

The base member 73 is detachably supported on a pedestal or stanchion 75. In the illustrated form of the invention the base member 73 is provided with a threaded socket or coupling 76 adapted to receive the threaded end portion of stanchion 75.

Connected to the backside of the back support 74 are a pair of spaced-apart guide rails 76, 76 interconnected by a bottom member 77. As best seen in FIG. 12, each guide rail is provided with an L-shape cross section to define with the back support sideway 78 for receiving and supporting therein the open frame rack 72.

The rack 72 is adjustably supported in the sideway by engaging the respective hangers 79 over the upper edge of the corresponding guide rail as shown in FIGS. 12 and 13. The hangers 79 as hereinbefore stated are similar in construction and operation as the hangers of FIG. 3.

In accordance with this invention means are provided for utilizing the base 73 and back support 74 with the rack 72 as a unit detached from its pedestal or stanchion. The latter means comprises a support structure in the form of opposed leg members 80 and 81 pivotally connected to the guide rails 76—76 about pivots 82, 83. A bottom crossmember 84 is interconnected between leg members 80, 81. The arrangement of the supporting leg members 80, 81 is such that they can be readily pivoted between a stowed inoperative position as seen in FIG. 12 wherein the leg members are disposed contiguous of the guide rails and an operative unstowed position as viewed in FIG. 14, when the base and its support is utilized as a table unit.

As shown, the base member 73 extends slightly to the rear of the back support 72 to define a ledge 85 for accommodating the leg members in the stowed position. At an intermediate point along ledge 85 there is provided a detent 86 for frictionally maintaining the folding leg structure in the stowed position to the back of the support 74.

To stabilize the leg members in the operative position, a brace 87 is pivotally connected to the bottom member 84 about pivot 88. The other end of brace 87 is provided with a notch out portion 89 which is adapted to receive the corner edge of ledge 85, in the operative or unstowed position of leg members 80, 81. In the stowed position the brace 87 is pivoted to overlie the crosspiece 84 of the leg structure. A detent 89A on the crosspiece 84 is provided to frictionally secure the brace thereto in the stowed position.

In operation the rack herein described can be utilized as an auxiliary rack, e.g., on a piano or the like, or independently as a wall rack as shown in FIG. 7. Also the rack may be utilized in conjunction with a floor stand 71 or easel wherein the base 73 and back support 74 may be utilized with the rack either as a floor unit of FIG. 9 or table unit as per FIG. 14. In either event the rack is rendered vertically adjustable relative to its supporting structure.

To minimize noise or scratching in turning the pages of sheet music or the like supported on the illustrated construction of FIGS. 9 to 14, the top surface 73A of the base 73 is inclined toward the back support at an angle of approximately 7° to 10° with respect to the horizontal. Also the top surface 73A is formed with a plurality of spaced longitudinally extending grooves 90. The grooves formed in surface 73A are thus stepped relative to one another, and each groove 90 is defined by a substantially vertical wall 90A and a horizontal bottom wall 90B which intersects the plane of the inclined surface 73A at a point intermediate the vertical wall 90A of adjacent notches 90. See FIG. 11.

The sheet music or article is supported on the base 73 so that the lower edge of the back page or sheet rests on a portion of the base so that as the pages are turned they do not hit or scratch the top surface of the base, thereby eliminating the noise heretofore encountered with known stands or rack constructions.

While the invention has been described with respect to several embodiments thereof, it will be readily appreciated and understood that variations and modifications may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. A rack comprising an open frame having opposed side members and a transversely extending crossmember interconnected between said side members, a hanger means comprised to the back side of each of said side members for effecting a two-point detachable gravity support for said frame, means for detachably connecting each of said hanger means to its respective side member, said latter means including a longitudinally extending groove formed in each of said side members, and means having a plurality of spaced openings connected to each of said side members in spaced relationship to the bottom of the groove defined therein, said hanger means having a reversely bent end portion to define an inverted hook adapted to hook over the edge of a supporting surface whereby said rack and associated hanger means are readily detachable from the supporting surface, and means on said hook end adapted to detachably engaged with one of the spaced openings for adjustably positioning said hanger along its respective side member, said latter means including a tab blanked out of the plane of said hooked end, said tab having a length greater than the length of said opening, and said tab being adapted to be received in said opening whereby said hook end may be interlocked to said side members of said rack so that said rack and associated hanger means are detachably supported on a supporting surface.

2. A rack or the like comprising an open frame having side members and a transversely extending crossmember interconnected between said opposed side members, hanger means connected to the back of each of said side members for detachably supporting said open frame on a suitable support, means for detachably connecting and adjustably supporting said hanger means along its corresponding side members, said latter means including means defining a longitudinally extending groove formed in each of said side members, a plate member having a plurality of spaced-apart openings formed therein, said plate member being secured to the respective side members so that said plate member is spaced from the bottom of said longitudinally extending groove, said hanger means adapted to be gravity supporting on a supporting surface, said hanger means having a reversely bent hook end portion adapted to hook over the edge of a supporting surface, and a tab blanked out of said plane of said reversely bent portion whereby the shape of said tab complements the shape of said opening so that said tab is
adapted to be received in one of said openings for detachably securing and interlocking said hanger means to said plate member.

3. The invention as defined in claim 2 wherein each of said openings and blanked-out tab of said hanger means are substantially rectangular in shape.

4. The invention as defined in claim 3 wherein the major axes of said opening and said blanked-out tab are normally displaced by substantially 90° in the interlocking relationship therebetween.

5. A rack comprising an open frame defined by a pair of opposed side members interconnected by a bottom crosspiece, each of said opposed side members having a longitudinally extending groove formed therein, a plate member secured to each of said side members so as to be spaced from the bottom of its corresponding groove, said plate member each having a plurality of vertically spaced openings formed therein, each of said openings having a lateral width which is greater than its vertical height thereof, hanger means adapted to be detachably connected to each of said plates for adjustably supporting said rack on a supporting surface, said hanger means each including an elongated base portion and a connected reversely bent end portion to define a hook, and a tab connected to said hook end portion and displaced laterally therefrom, said tab being sized and shaped so as to be received in one of said openings in said plates, said tab having a vertical height slightly less than the lateral width of said opening, and a lateral width slightly less than the height of said opening whereby said hanger means is detachably secured to said plate by orienting said tab to be received in a selected opening and thereafter rotating the hanger relative to said plate member substantially 90° to detachably interlock said hanger means to said plate member.

6. The invention as defined in claim 5 and including: a lampshade interconnected between the upper ends of said opposed side member, and an electric lamp supported under said shade.

7. A rack stand comprising a base member having an inclined upper surface, a back support connected to said base member, said back support being disposed at an angle to the incline of said base member, means defining a plurality of spaced-apart, longitudinally extending notches formed in the plane of said inclined surface, a pair of opposed support rail members connected to the said back support, a rack supported between said rail members, and means for adjustably supporting said rack between said rail members, wherein each notch comprises a vertical surface and a horizontal surface, said horizontal surface intersecting the plane of said incline surface at a point intermediate the vertical surfaces of adjacent notches.

8. The invention as defined in claim 7 wherein said longitudinally extending notches are stepped along said inclined surface.

9. The invention as defined in claim 7 and including: a pedestal means for supporting said base member on a supporting surface, and means for detachably connecting said pedestal means to said base member.

10. The invention as defined in claim 9 and including: back support means operatively connected to said back support for supporting said back support when said rack stand is detached from said pedestal means.

11. The invention as defined in claim 10 wherein said back support means comprises: a pair of leg members, means for hingedly connecting each of said leg members to one of said rail members, for movement between an inoperative stowed position and operative support position, and a brace means operative connected between said leg means and said rack stand for limiting the movement of said leg members in both the operative and inoperative positions thereof.

12. The invention as defined in claim 11 wherein said brace means comprises: a transversely extending crosspiece interconnected between said leg members, an elongated brace member, means for pivoting connecting one end of said brace member to said crosspiece, and complementary holding means formed on the other end of said brace member and said base member for maintaining said leg members and associated brace means in either the inoperative stowed position or the operative unstowed position.

13. The invention as defined in claim 12 wherein said complementary means comprises: a detent catch formed on the other end of said brace member, and a first detent means mounted on said crosspiece adapted to engage said catch of said brace member in the stowed position of said rack stand, and a second detent means formed on said base member to engage said catch in the operative unstowed position of said leg members, said second detent means being operative to engage the crosspiece of said leg members to maintain the same in the inoperative stowed position.

14. The invention as defined in claim 13 and includes a lampshade connected to said music rack, and a lamp hold mounted in said shade.

15. The invention as defined in claim 7 wherein said rack comprises an open frame defined by a pair of opposed side members and an interconnecting bottom member, said opposed side members being disposed in sliding relationship with said rail members, and said adjusting means comprising a plurality of vertically spaced means mounted on each of said side members of said rack, and a complementary hanger means adapted to be detachably connected to said vertically spaced means.

16. The invention as defined in claim 15 wherein said vertically spaced means comprises means defining a plurality of vertically spaced openings on each of said side members, and said hanger means comprising a member having a hooked-shaped upper end portion, and means on said hooked-shaped end portion for detachably engaging with one of the spaced openings on said side member.