Fig. 1.

Fig. 2.

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This is an invention for a knock-down shelving or shelf structure which, while not necessarily restricted thereto, is primarily designed to be sold in retail stores in knock down unpainted condition so that it may be sold and taken home by the purchaser in a compact easily carried package and then painted to suit the individual taste of the customer.

As an object, the invention comprehends a knock-down shelving which is so constructed as to be capable of being easily and readily assembled and secured in its set-up condition by any one without the use of nails, screws or other fastening devices of this nature which require the use of tools and which shelving, when set-up, provides a structure possessing the requisite strength, rigidity and stability.

It is also a feature of the invention to provide an improved knock-down shelving which is so constructed as to facilitate the disassembly thereof so that the parts are capable of being compactly stacked or nested together for packaging or storage or shipment.

The invention further embodies in a shelving of the indicated character, rear panel members which in addition to serving as a backing for the shelves, are so interengaged with the shelves and side members as to materially strengthen, brace and reinforce the structure when the same is in assembled set-up condition.

With the above recited and other objects in view, the invention is set forth in greater detail in the following specification, particularly pointed out in the appended claims and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of a shelving structure constructed in accordance with the invention and illustrating the same in set-up condition.

Fig. 2 is a perspective view of the parts of the shelving structure disassembled and arranged in compact nested relation for packaging.

Fig. 3 is a vertical sectional view through the shelving structure taken on a plane indicated approximately by the line 3—3 of Fig. 1.

Fig. 4 is a horizontal sectional view taken on a plane designated approximately by the line 4—4 of Fig. 3, with a portion of the rear panel broken away.

Fig. 5 is a vertical fragmentary sectional view taken on a transverse plane as indicated by the line 5—5 in Fig. 4.

Fig. 6 is a fragmentary vertical sectional view through a shelving structure illustrating a modification of the invention.

Fig. 7 is a top plan view of the modification shown in Fig. 6.

Fig. 8 is a diagrammatic top plan view of a plurality of shelving units illustrating a further modification.

Referring to the drawings by characters of reference, the knock-down shelving includes a pair of side members A of substantially identical construction, each of which is preferably fashioned from a length of wooden board and is provided with a plurality of spaced transverse slots 18 which are located intermediate the front and rear edges 11 and 12 of the side member, the slots of one member being adapted to register with those of the other when the members are disposed in mating relation. When in use, the side members A are adapted to be disposed vertically in spaced side-by-side relation with the widths thereof parallel so that the slots 10 are in alignment with each other. The slots 10 are usually equidistantly spaced from one another but, in practice, the uppermost slot of each side member is disposed in closer relation to the upper edge 13 thereof than the lowermost slot is to the lower edge 14 of the same.

The shelving also includes a plurality of shelf members B which are approximately of the same length as that of the side members A but of slightly greater width than the width of the side members and each shelf member is formed with a tongue 15 projecting outwardly from each of its opposite end edges 16 and 17 and located intermediate the width of the shelf member. The tongues 15 are of a cross-sectional size and shape to snugly fit within the slots 10 of the side members A and are so located as to dispose the front edges 16 of the shelf members B flush with the front edges 11 of the side members A, when the said shelf members are assembled, with the side members. This disposes the rear edge portions 19 of the shelf members B in slightly protruding relation from the rear edges 12 of the side members A and said protruding rear edge portions 19 are formed with longitudinally extending grooves 20 which are located in the lower face of the uppermost shelf member and in the upper face of the lowermost shelf member respectively, while a groove 20 is located in each of the upper and lower faces of the intermediate shelf member.

It should also be noted that the front wall 21 of each groove 20 is disposed slightly forward of the rear edges 12 of the side members A, while the rear wall 22 of each of said grooves is disposed in rearwardly spaced relation to said rear edges 12. It will be further observed that the
2. tongues 15 are of such a length that a substantial portion thereof protrudes from each of said slots 19 and beyond the outer side surface of each shelf member when the lower edges 16 and 17 of the shelf members are in abutting relation with the inner side surfaces of the side members. The tongues 15 are each provided with a vertical slot 23 extending through the thickness of the tongue and having an inclined outer wall 24 spaced outwardly from the outer side face of the side member A. While the inner wall 25 of the slot 23 is spaced inwardly from the said outer face of the side member A. A wedge element 26 is provided for each slot 23 and is formed with an inclined outer face 27 adapted to engage with the inclined outer wall 24 of the slot 23 so that when said wedge element are forced downwardly through the slots of the tongues 15, the shelf and side members B and A are secured in assembled relation.

In the preferred embodiment of the invention, illustrated in Figs. 1 to 5 inclusive, the shelving structure includes in addition to the members A and B, rear panel members C, two being shown in the present disclosure and located respectively between the intermediate shelf member and the uppermost and lowermost shelf members. The said rear panel members C are preferably of thinner stock than the side and shelf members and of a width to extend across the rear of the shelving with the opposite edges 30 and 31 being disposed substantially flush with the outer side faces of the side members A. The rear panel members C are of such a height that the upper and lower edge portions 32 and 33 snugly fit against the bottom walls of the grooves 20 provided in the confronting faces of adjacent shelf members B, with the rear faces of the upper and lower edge portions 32 and 33 impinging against the rear walls 22 of the grooves and with the opposite side edge portions 30 and 31 bearing firmly against the rear edges 12 of the side members A. It will thus be appreciated that the rear panel members C, in addition to providing a means of lateral stability to the shelving and intermediate shelf members B, function to strengthen, brace and reinforce the shelving structure when set up and assembled.

In the modification of the invention shown in Figs. 6 and 7, the side members D and shelf members E are of substantially the same construction and are secured together in exactly the same manner as in the previous form of the invention, with the exception that in this instance the said side members D are slightly wider than the shelf members E, so that when assembled, the rear edge portions 35 of the side members extend slightly rearward from the rear side edges 36 of the shelf members. In this instance also, the inner faces of the rear edge portions 35 of the side members D are respectively formed with vertical grooves 37, the forward edges 38 of which grooves are disposed flush with the rear edges 36 of the uppermost and intermediate shelf members E, while the lowermost shelf member is slightly wider than the said intermediate and uppermost shelf members and extends rearwardly to slightly beyond the rear walls 39 of the grooves 37 for a purpose to be hereinafter set forth.

In this form of the invention, one or more rear panel members F are provided, two being shown in the present disclosure which are of a combined height to extend from the upper surface of the lowermost shelf member to the upper surface of the uppermost shelf member. The lower edge 40 of the lower rear panel member rests upon and is supported by the rearwardly projecting portion of the lowermost shelf member E while the lower edge 41 of the rear panel member rests upon the upper edge 42 of the lower rear panel and is supported thereby with said contacting edges 40 and 41 disposed in a horizontal plane in rear of and concealed by the intermediate shelf member E.

In the modified adaptation, shown in Fig. 8, there is disclosed a variation of the invention wherein the tongues 15 at the opposite ends of the shelf members G and their receiving slots 10 in the side members H are respectively offset forwardly and rearwardly of the vertical transverse center line of the shelving so that a number of shelving units may be installed in side-by-side relation with a minimum of space between the units. In this instance the units may be constructed without backing members, as shown in Fig. 8, although it is also within the purview of the invention to utilize the offset tongues and slot connection in shelving units of the type having backing members as disclosed in the previous forms of the invention.

From the foregoing it will be seen that shelving structure has been produced which may be readily assembled or disassembled by employing nails, screws or similar fastening devices of this nature which require the use of tools or the services of a mechanic or skilled or experienced persons to effect the assembly or disassembly. It will also be observed that the parts or elements of the shelving, when disassembled, may be closely stacked or nested together, as shown in Fig. 2, so that they may be compactly wrapped and thus conveniently carried by a purchaser or stored in a minimum of space when not in actual use.

What is claimed is:

1. A knock-down shelving including a pair of identical side members disposed vertically in spaced apart parallel relation and having a plurality of longitudinal slots, the intermediate shelf members disposed between the front and rear edges thereof, a plurality of shelf members of a width slightly exceeding the width of the side members and provided with tongues projecting outwardly from the intermediate portions of the opposite ends thereof and the same construction as the said side members with the extremities thereof protruding from the outer surfaces of the side members and which tongues are formed with slots extending through the thickness thereof, a wedge element engaging through the slot of each tongue for locking the side and shelf members in assembled relation with the rear edge portions of the shelf members protruding rearwardly beyond the rear edges of the side members, the confronting faces of the protruding rear edge portions of adjacent shelf members having parallel grooves, and rear panel members having the upper and lower edge portions thereof respectively fitted within the grooves of adjacent shelf members and with the opposite end portions of said rear panel members impinging against the rear edges of the side members.

2. In a knock-down shelving structure, a pair of side members disposed vertically with their widths arranged in spaced parallel relation, a plurality of shelf members disposed horizontally in vertically spaced spanning relation with reference to the side members and detachably connected thereto, said shelf members having the rear edge portions thereof protruding rearwardly
beyond the rear edges of the side members and the confronting faces of said protruding rear edge portions of adjacent shelf members having parallel longitudinally extending grooves the rear walls of which grooves are spaced rearwardly from the rear edges of the side members, and rear panel members having the upper and lower edge portions thereof fitted within the grooves of adjacent shelf members and said rear panel members having the opposite end portions thereof impinged against the rear edges of the side members.

3. In a knock-down shelving structure, a pair of side members disposed vertically in spaced parallel relation, a plurality of shelf members disposed horizontally in vertically spaced spanning relation with reference to the side members and detachably connected thereto, said side members having the rear edge portions thereof protruding rearwardly beyond the rear edges of the shelf members with the confronting faces of said protruding portions having vertically extending grooves the rear walls of which grooves are disposed rearwardly of the rear edges of the shelf members, and rear panel members each having the side edge portions thereof fitted within the grooves with at least one of the remaining ends of each panel member impinged against the rear edge of a side member.

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