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KNOCK-DOWN STAND

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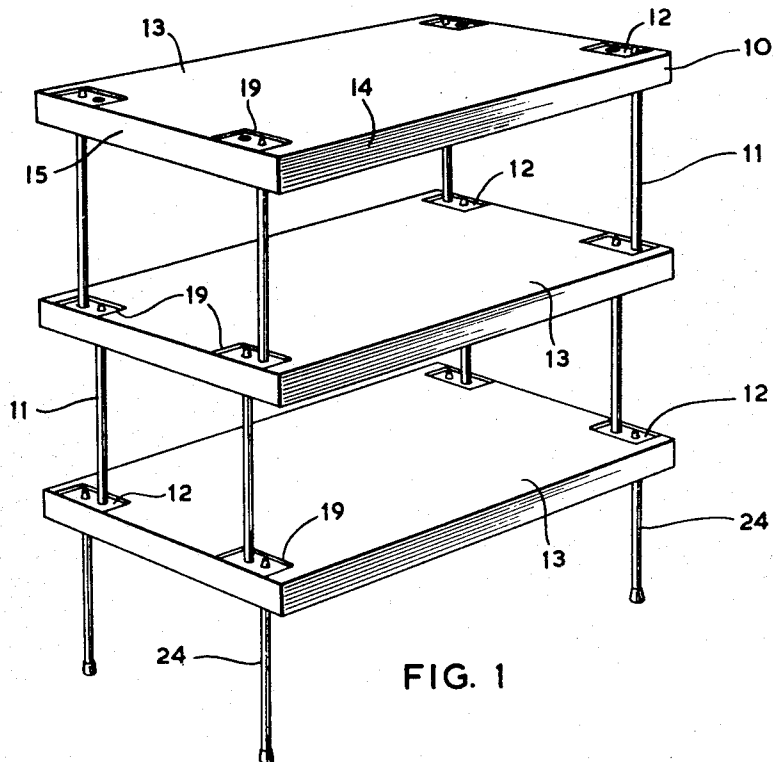


FIG. 1

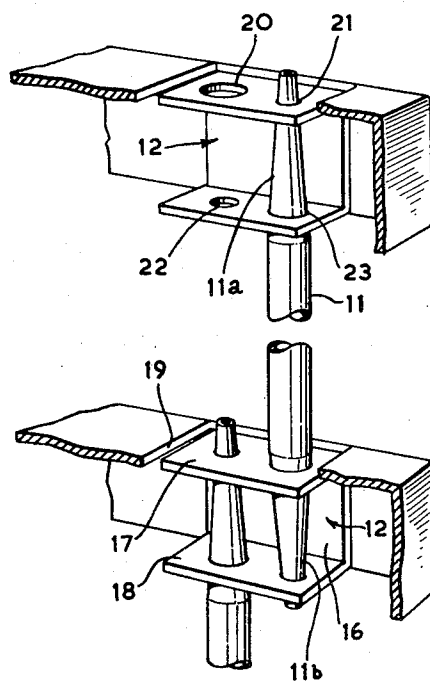


FIG. 2

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KNOCK-DOWN STAND

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4 Claims. (Cl. 108-101)

This invention relates to a knock-down stand, and in particular to a knock-down stand having a number of vertically spaced-apart platforms with separable supporting columns.

The main object of the invention is to provide a reasonably sturdy stand of attractive appearance which may be quickly erected and which also may be quickly dismantled.

The foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification taken in conjunction with the accompanying drawings, in which like reference characters indicate corresponding parts throughout the several views and in which:

FIG. 1 is a perspective view of a three-platform stand embodying the invention; and

FIG. 2 is an enlarged fragmentary perspective view of the upper righthand portion of the stand of FIG. 1.

Referring to the drawings, a knock-down stand comprises an assembly of platforms 10, preferably of sheet metal which are spaced by slender, vertical supporting columns or spacing legs 11 coupled to the platforms at junction elements 12 provided adjacent each corner of the platforms.

The platforms 10 preferably are rectangular, and each has a smooth planar upper surface 13 and downwardly extending flanges which provide side walls 14 and end walls 15. The upper surface 13 can be corrugated (not shown) to increase the rigidity of the platform; other well known reinforcing means can likewise be used to stiffen the platform when desired.

Each junction element 12 consists of a channel-like member preferably of metal having a pair of opposed spaced apart flanges 17 and 18 which are joined by a web 16. The web 16 of each junction element is spot-welded to an end wall 15 of the platform near a corner, and each platform has at each corner a rectangular opening 19 which exposes from above the flange 17 of a junction element. Each platform has an open bottom and consequently the flange 18 is exposed from below.

Two circular openings are provided in each flange of the junction elements, the openings in one flange being aligned with the openings in the other flange, each set of aligned openings constituting a pair of openings. More specifically, the flange 17 has a relatively large circular opening 20 and a relatively small circular opening 21. The flange 18 has a circular opening 22 aligned with the larger circular opening 20 of the flange 17 and of the same diameter as the smaller circular opening 21; the flange 18 also has a circular opening 23 aligned with the smaller circular opening 22 of the flange 17 and of the same diameter as the larger circular opening 20.

The supporting columns 11 consist of identical slender steel tubes, each having tapered upper and lower end portions 11a and 11b; the tapered end portions are formed by swaging the steel tubes in a known manner. The pairs of openings in the junction elements are so proportioned to each other and to the tapered end portions of the supporting columns that when the tapered end portions are inserted into the openings they are held therein in wedging engagement and are firmly but removably coupled to the platform.

The junction elements are of two different types and for convenience, they are denoted "righthand" and "lefthand," one type being the mirror image of the other, i.e.,

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the position of the openings in the "lefthand" type is the reverse of that of the openings in the "righthand" type. Thus, as an examination of FIG. 2 will show, the junction elements which are coupled to the two ends of the same supporting column are of opposite hand.

For symmetry, junction elements of the same hand are located near one side wall of the platform and junction elements of the opposite hand are located near the opposite side wall of the platform. Adjacent platforms have junction elements of opposite hand. If the junction elements are permanently secured to the platforms, it follows that the platforms are also of two types, and it is necessary to alternate the two types of platforms when erecting the stand.

Preferably a knock-down stand constructed in accordance with the invention comprises a lowermost platform, one or more intermediate platforms and an uppermost platform. It will be observed that all of the supporting columns 11 are similar to each other, with the exception of the columns or legs 24 which support the lowermost platform. The upper ends of the legs 24 have the same taper as the ends of the other columns, but their lower ends need not be tapered; preferably, protective feet 25 are secured to the lower ends of the legs 24.

To assemble the stand, the legs 24 are inserted into the appropriate openings of a first platform selected to be the lowermost platform of the stand, and the legs are pressed in place so that they are held in firm wedging engagement. Four supporting columns are then inserted in the remaining openings of each junction element of the first platform; they extend upwardly therefrom. A second platform is then placed directly above the first platform and lowered so that the tapered upper ends of the columns below are inserted into the appropriate openings of the junction elements of the second platform. These steps can be repeated with additional platforms, and in this manner a stand of any desired height can be quickly erected; the stand can be dismantled just as quickly.

It will be understood that the form of the invention herewith shown and described is a preferred example and that various modifications can be carried out without departing from the spirit of the invention or the scope of the appended claims.

What I claim as my invention is:

1. A knock-down stand comprising an assembly of spaced-apart platforms, each platform having a plurality of junction elements, supporting columns providing spacing legs for the platforms and having tapered end portions, each junction element having a web and a pair of opposed spaced-apart flanges joined by the web, each flange having two openings which are aligned with openings in the opposed flange, each set of aligned openings constituting a pair of openings, one pair of openings in a junction element being adapted to receive the tapered upper end portion of a supporting column extending downwardly therefrom and the other pair of openings in the said junction element being adapted to receive the tapered lower end portion of a supporting column extending upwardly therefrom, the openings of each pair being so proportioned to each other and to the tapered end portions of the supporting columns that when the tapered end portions are inserted into a pair of openings they are held therein in wedging engagement and firmly but removably coupled to the platform.

2. The invention claimed in claim 1 wherein the tapered end portions of the supporting columns are substantially conical in shape and wherein the openings in the flanges are circular.

3. A knock-down stand comprising an assembly of generally rectangular spaced-apart platforms including a lowermost platform, at least one intermediate platform,

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and an uppermost platform, the platforms having a junction element adjacent each corner, supporting columns providing spacing legs for the platforms and having tapered end portions, each junction element having a web and a pair of opposed spaced-apart flanges joined by the web, each flange having two openings which are aligned with openings in the opposed flange, each set of aligned openings constituting a pair of openings, one pair of openings in each junction element of an intermediate platform being adapted to receive the tapered upper end portion of a supporting column extending from the platform next adjacent below, and the other pair of openings being adapted to receive the tapered lower end portion of a supporting column extending to the platform next adjacent above, the openings of each pair being so proportioned to each other and to the tapered end portions of the supporting columns that when the tapered end portions are inserted into the openings they are held therein in wedging

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engagement and are firmly but removably coupled to the platform.

4. The invention claimed in claim 3 wherein the downwardly extending columns from the lowermost platform constitute legs for the stand.

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