April 5, 1932. A. R. NELSON 1,852,471

DISPLAY RACK OR SHELF

Filed March 5, 1931

Fig. 1

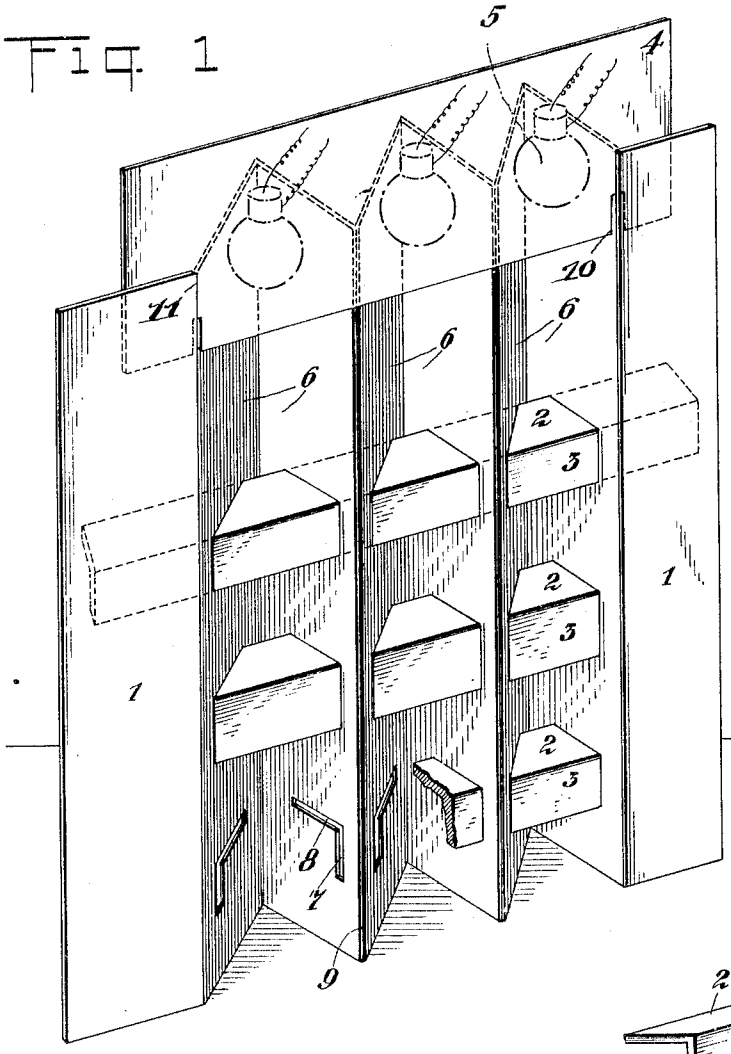


Fig. 2

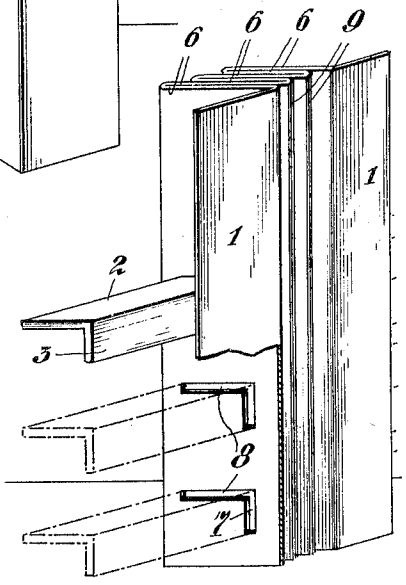
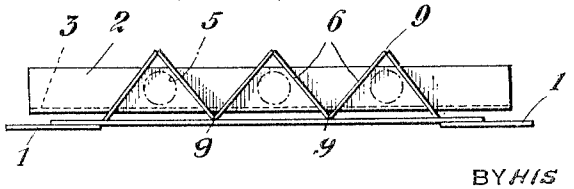


Fig. 3



INVENTOR

ARVID R. NELSON

BY HIS ATTORNEYS

Mason, Fenwick & Lawrence

Patented Apr. 5, 1932

1,852,471

UNITED STATES PATENT OFFICE

ARVID R. NELSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE UNITED STATES PRINTING & LITHOGRAPH COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF OHIO

DISPLAY RACK OR SHELF

Application filed March 5, 1931. Serial No. 520,378.

This invention relates to improvements in display racks or shelves and has more particular relation to improvements in knock-down racks or shelves constructed of paper board and capable of being disassembled and shipped in flat packages.

One of the objects of the invention is to provide a knock-down display stand having, when set up, a series of independent display niches or alcoves forming recesses closed on all sides except the front.

Another object of the invention is to provide a series of display shelves formed of flat paper board and constructed when set up to form recesses with shelves therein of considerable depth.

Another object of the invention is to provide a knock-down structure of flat paper board so formed as to provide a series of deep alcoves and having shelf supporting slots with shelves applied through the slots to hold the entire rack rigidly in position so that it may stand on a flat base.

The invention also has other objects, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings forming part of the specification,

Figure 1 is a perspective view of my improved rack set up in position ready for use.

Figure 2 is a perspective view of the leaf portion proper in closed position with one of the shelves shown in full lines and the remainder in dotted lines, and

Figure 3 represents a top plan view of the rack set up in position.

Heretofore it has been old to provide a series of supporting shelves for display purposes, but the present applicant desires to form a knock-down display rack which, when set up, will give the effect of a series of tiers of individual niches or alcoves for receiving the goods to be displayed, such as perfume bottles and other displays that are best shown as single units.

It is, of course, very desirable in all displays of this character, that they be of the so-called knock-down variety for the fundamental reason that in shipping them from point to point for use, they may be doubled flat and thus be shipped in very small parcels, whereas, on the other hand, when they are set up in position for use, they give the illusion of being constructed of very solid or massive materials with considerable bulk, and this is one of the principal ideas in the present invention, because the formation of the niches or recesses suggest considerable depth and solidity and the angular shelves again suggest to the eye great solidity and massiveness.

While devices of this character are necessarily of a flimsy construction when knocked-down, the aim in the construction of such devices is to impart rigidity to them when they are set up. The applicant in this present case has done this to a marked degree, as the rack, when set up, is very solid, and is so constructed as to withstand stresses and considerable weight, and still be firmly supported on the base with a center of gravity well within its outer supports.

To secure this extended supporting base from a flat strip of paper, the applicant has scored or cut on alternate sides of the main leaf portion, at points 9 equally distant so that when these leaf portions are bent into an accordion construction as shown in Fig. 1, they will have an extended supporting base. The cutting of the material from which the main blank leaf portion is formed first upon one side and then upon the other only part way through the material, allows the accordion construction to be secured without unduly marring the paper board and also permits the whole leaf portion to be doubled together flat, as shown in Fig. 2, for shipping.

Each leaf portion, 6, is provided with a series of angular slots, 7 and 8 arranged in tiers. When the paper board is doubled together, as shown in Fig. 2, all of these angular slots of any one tier are in alignment. In the process of assembling the device the shelves, 2, are slipped through these slots when so aligned for all three shelves and the sections 6, 6 then spread apart to draw the main leaf portion out into an accordion like position, as shown in Fig. 1.

In order that this operation may take place without any binding because of the

shelves 2, the horizontal portions 8 of the angular slots are longer than the width of the shelves 2, and when the leaves 6 are opened out they are limited in this opening movement by the length of the slots 8, because, as soon as the angularity of the leaves 6 has reached the maximum limit, the effective length of the slots 8 is equal to the width of the shelves 2, and the end walls of the slots contact with the edges of the shelf and limit any further opening and also impart rigidity to the rack.

The vertical portion 3 of each shelf projects through the vertical portion 7 of the angular slot. This gives an appearance of great solidity to the shelf and also strengthens the shelf, as any sagging of the shelf under its load would be prevented by the vertical portion 3 forming a brace for the under side of the shelf at its forward edge. These vertical walls 3 also prevent any vertical weaving of the whole unit as the upper and lower edges of the walls 3, contacting with the tops and bottoms of the vertical slots 7, brace the whole structure against any vertical misalignment.

In order to effectively display the articles on the shelves 2, and provide space for advertising material, I form the two outermost wings, 6, with supporting side wings, 1. These wings by resting on the base or support prevent any lateral tipping and also give a solid appearance to the whole rack.

I contemplate using concealed lighting upon the uppermost tier of shelves, as this has been found to be very effective for display purposes. To accomplish this result, and at the same time to form an additional surface for advertising, I mount the head board and light shield, 4, at the top of the rack. This is accomplished by forming slots 10, in the flat board, 4, and slots 11 in the outermost leaves 6. This construction permits the part 4 to be slipped down so far over the leaf 6, as best shown in Fig. 1, as to form a shield for the light bulbs 5 so that the light cannot be seen from the front, but will shine down directly upon the articles of merchandise upon the top shelf, 2, in the different niches.

The rack when set up has extreme rigidity, as the angular construction of the shelves 2 and their braces 3, prevents any undue vertical or lateral weaving. When the shelves 2 are slipped out of the leaf portion 6 and the head piece removed, the whole rack may be doubled into a very flat parcel and easily mailed or sent by express.

The peculiar construction by which the slots 8 are made longer than the width of the shelves 2 permits the leaf portions to be pulled out like an accordion until the shelves bind in the slots. This holds them in this position with so much friction that there is very little, if any, chance of the leaf portions doubling up again. Further, to hold the leaf portions in this extended position I employ the shield or head piece 4. By means of the slots 10, 11 the outermost leaves are locked a certain distance apart without any tendency to close.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a knock-down display rack, the combination with a main leaf portion having an accordion construction and formed with matched shelf slots, of angular folding shelves extending through the matched shelf slots.

2. In a knock-down display rack, the combination with a main leaf portion, having an accordion construction and formed with matched angular shelf slots in each leaf of said main portion, of angular folding shelves extending through the matched shelf slots and limiting the opening of the leaves.

3. In a knock-down display rack, the combination with a main section made up of a number of hinged leaves which when open form recesses or niches and having a shelf slot in each leaf, of shelves extending through the matched shelf slots and limiting the opening of the leaves.

4. In a knock-down display rack, the combination with a main leaf portion having an accordion construction and formed with matched shelf slots, of shelves extending through the matched slots and a display head piece for locking the main leaf portion in its extended position.

5. In a knock-down display rack, the combination with a main leaf portion having an accordion construction and formed with matched shelf slots, of shelves extending through the slots and limiting the opening movement of the leaf portion, and a locking device for preventing the leaf portion closing after it is once opened.

6. In a knock-down display rack, the combination with a main leaf portion, having an accordion construction for forming recesses and formed with matched shelf slots, of shelves extending through such slots and a combined light guard and locking device for the leaf portion.

7. In a knock-down display rack, the combination with a main leaf portion having an accordion construction and formed with matched angular shelf slots, of angular folding shelves extending through the matched shelf slots and limiting the opening movement of the leaf portion, a head piece for locking the leaf portion in its extended position and side wings extending from each end of the main leaf portion.

In testimony whereof I affix my signature.

ARVID R. NELSON.