Jan. 14, 1941. C. M. ANDERSON 2,228,806

FOLDING RACK

Filed March 22, 1939

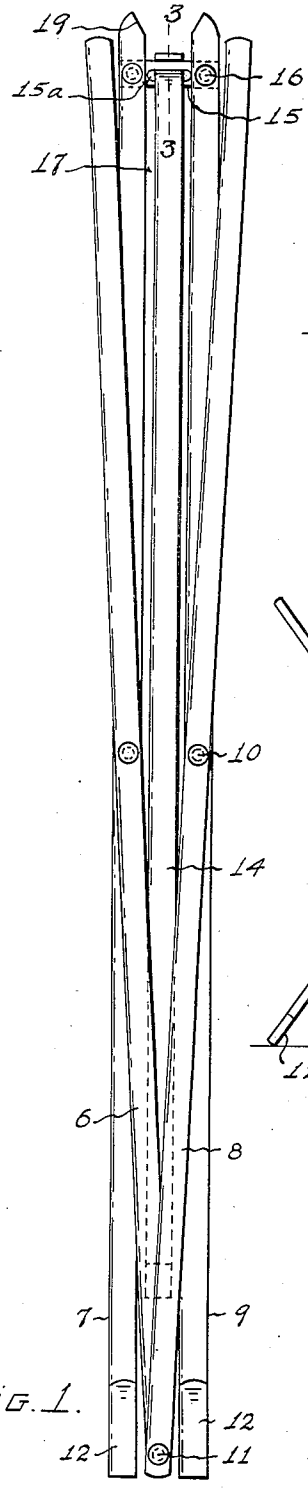


Fig. 1.

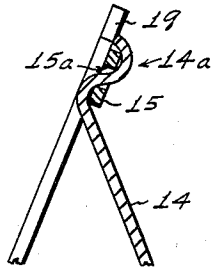


Fig 3

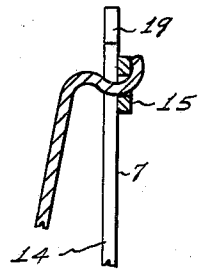


Fig. 4.

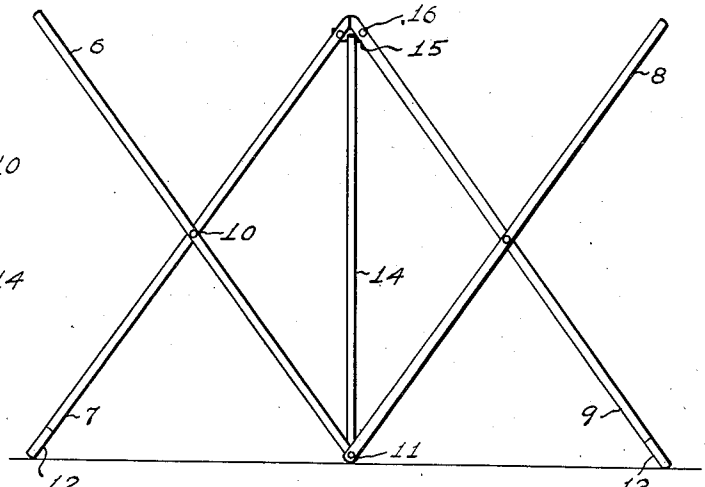


Fig. 2.

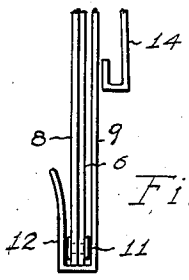


Fig. 5

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FOLDING RACK

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4 Claims. (Cl. 45—57)

My invention relates to an article of manufacture in the form of a folding rack or stand for supporting articles in an upright visible position and for use in supporting an article such as a newspaper, book, sheet music, show-card, picture, map, stenographer's or artist's copy, etc., etc.

An object of the invention is the provision of a substantial and dependable article of the class described adapted for low cost production and to be sold in stores specializing in large volume, low cost articles, or suitable for novelties to be given away for advertising purposes.

Another object of the invention is the provision of a light weight but substantial article of the class described which may be quickly folded into a very compact position so that it may be easily stowed away when not in use, and in fact to provide an article which while capable of supporting a newspaper in readable position, will fit in an envelope of not more than one inch in width and less than one foot in length.

Also it is an object of the invention to provide for low manufacture and assembly costs and to reduce hinges and hinged joints to the practical minimum. This invention provides a particularly compact and readily assembled article of the class described and in explaining hereinafter the features of this invention other objects and advantages will appear.

I have illustrated by the accompanying drawing one practical embodiment of my invention, and in the said drawing:

Figure 1 is an approximately full size face view of the article or rack shown in folded position.

Figure 2 is a smaller scale front elevation thereof showing the rack or article in operative position.

Figures 3 and 4 respectively are enlarged detail sections seen on line 3—3 of Fig. 1.

Figure 5 is a fragmentary side elevation of the lower part of the folded article.

The numerals 6, 7, 8 and 9 respectively indicate flat bars arranged in double-X or lazy-tong arrangement such as is common to music racks and the like and bars 6 and 7 are connected centrally by the usual pivot pin 10 while bars 8 and 9 respectively are joined by a similar pivot pin centrally thereof so that each pair of bars form an expanding X. The bars 6 and 8 respectively near their lower ends are joined by a pivot pin 11.

One feature of the invention is the provision at the lower end of each of bars 7 and 9, of a hooked end 12, 12. These provide for holding any of the above named articles in place and it is a feature of the invention that these are adjusted as to distance between them by expanding or contracting the rack as a whole so that the rack may be used for articles of varying width.

To support the rack in suitably upright but slightly inclined position I provide a rest or prop in the form of a rod 14 which is connected, by means explained hereinafter, to the back of the rack near the top thereof so that it can extend rearwardly angularly with respect thereto as shown particularly in Figure 4.

To expedite assembly, to make the construction as simple and rugged as possible consistent with light weight, and to provide for disposing the respective parts in peculiarly advantageous folded position as will appear hereinafter I provide the yoke 15. This yoke is provided with a transverse slot 15*a*.

This yoke is employed to connect the two adjacent bars 7 and 9 to each other at the upper end, and this is accomplished by two pivot pins such as 16 which connect the corresponding end of each bar to the corresponding end of the transverse yoke. The pins 16 are so positioned however that the bars 7 and 9 are spaced apart to provide an intermediate space 17 which may be occupied by the rest or prop 14. This spacing also provides that when the article is completely folded as shown in Figure 1, the bars 7 and 9 are parallel to each other in spaced relationship with the prop 14 disposed between them and mainly on the same plane.

The upper end of the prop is bent into a double-bend or S-shape with the axis of the S practically normal to the prop. Thus the upper end of the prop extends from the plane of bars 7 and 9 rearwardly thru slot 15*a* then curves upwardly again at the rear of the yoke. In assembly this hooked end of the prop or rest is easily inserted into the slot as shown in Figure 4 and then by rocking the lower end of the prop inwardly toward the plane of the rack this hooked end becomes locked against dislodgment.

However the prop must then be disposed to the rear of the rack. This is done by expanding the rack only slightly from closed position whereupon it will be found that the lower end of the prop will just barely pass between the bars 6 and 8. When the rack is expanded beyond such degree the prop will prove to be too long to pass between bars 6 and 8, while if the rack is not expanded to that degree the space between bars

6 and 8 will prove too narrow near the lower end to pass the lower end of the prop. This novel feature provides easy assembly and interconnection of the prop with the rack proper but the position of respective parts necessary to so pass the lower end of the prop from the front to the back is so critical that there is practically no possibility of the prop ever becoming detached accidentally.

As shown in Figure 3 particularly, the prop, when in position to support the rack, becomes so disposed that the extreme end of the S portion thereof abuts the rear surfaces of the corresponding ends of bars 7 and 9 and so becomes locked against further movement. These ends of bars 7 and 9 are mitered as at 19 to abut each other to limit the degree to which the device may be expanded. It will be understood that as the device is expanded its transverse dimension increases at the expense of a decrease in the vertical dimension, while the prop of course remains of constant length. Therefore, to allow the rack to be expanded beyond a position determined by the abutment of surfaces 19 would be to allow the rack to become foreshortened vertically to an extent that the prop would not dispose itself at such angle as to provide for the rack as a whole assuming a self-supporting angle or angle of repose.

It will be apparent now that there are several objects, advantages and multi-purpose functions to the combination of the yoke and adjacent parts. When the device is in folded position bars 7 and 9 are in spaced parallel relationship with the prop 14 disposed mainly in the same plane and in the space between bars 7 and 9. This parallel spacing is further assured by reason of the lower hooked ends 12, 12 of the bars 7 and 9 abutting the adjacent ends of bars 6 and 8. This provides a decidedly flat and compact folded arrangement and assures against the end of any bar moving to a point where it might tangle with other bars and interfere with rapid opening of the device. In folded position prop 14 is central; bars 7 and 9 are disposed one to each side the prop and all in spaced parallel relationship to each other and in substantially the same plane, while bars 6 and 8 form a very acute V superimposed over the plane of the three parallel bars; the apex of the V acting as an abutment or stop for the lower hooked ends of bars 7 and 9, respectively.

It will be seen now that I have provided for attaining the objects of the invention and that I have provided a compact, durable, light-weight and readily assembled device of the class described and having a peculiarly low manufacturing cost; and it is also now apparent that bars 7 and 9 together with the yoke 15 and prop 14 form the essential combination while other bars such as 6 and 8, common to many racks, may be added.

I claim:

1. In a rack of the class described a pair of upwardly converging bars, a yoke provided with a slot, pivot means connecting the upper end of each bar pivotally to the yoke in spaced relationship to each other to leave the slot of said yoke unobstructed normally, and a prop extending from rearwardly of the rack upwardly to the forward side of said yoke, thence rearwardly thru said slot and thence curving upwardly forwardly toward the rear surfaces of the said upper ends of said bars.

2. The rack as in claim 1 and in which said prop is detachable from said yoke only by being moved hingedly with respect to said yoke to a plane forwardly of said bars.

3. The rack as in claim 1 and further including a pair of downwardly converging bars pivotally connected to each other at their lower ends and pivotally connected at points intermediate to their ends to corresponding points on the first named bars.

4. In a rack, a pair of bars, a yoke provided with an opening, pivot means connecting the upper end of each bar to the yoke in spaced relationship to each other to leave the slot normally unobstructed, and a prop extending rearwardly from the rack, the upper end of said prop passing through the opening in the yoke between the bars and having its terminal bent to retain the same detachably connected to said yoke, a second pair of bars pivotally connected to each other at their lower ends and each pivotally connected at points intermediate their ends to corresponding points on the first named bar, the lower ends of said second named bars lying in the path of movement necessary to detach the prop from the yoke, whereby said prop is prevented from becoming accidentally detached from the rack.

CHARLES M. ANDERSON.