Feb. 15, 1966 W. J. NEILL 3,235,095

ARTICLE SUPPORTING RACK

Filed Jan. 16, 1964 2 Sheets-Sheet 1

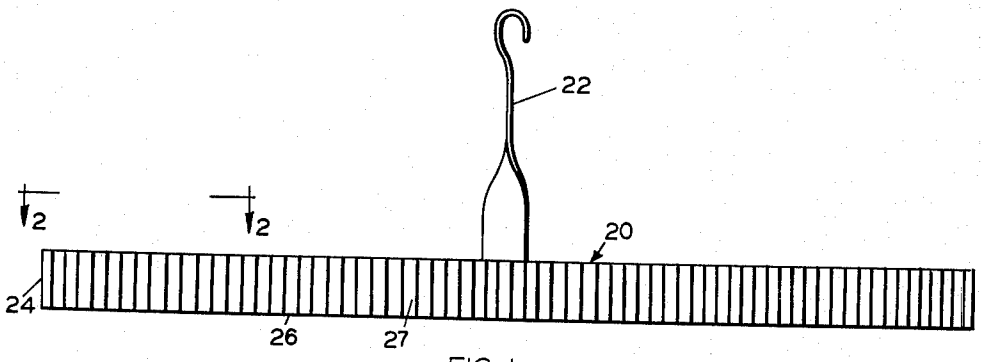


FIG. 1

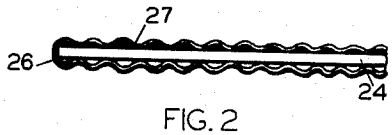


FIG. 2

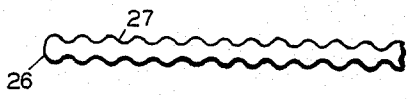


FIG. 3

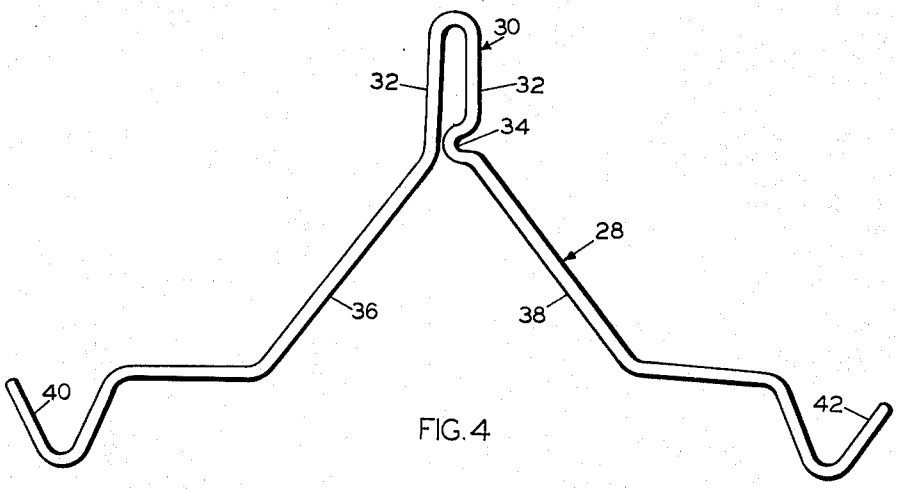


FIG. 4

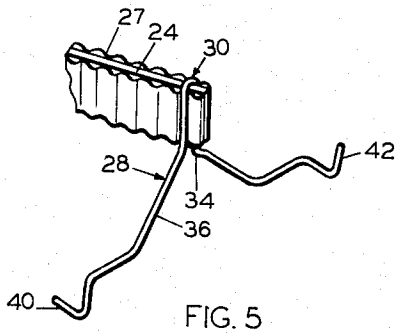


FIG. 5

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ARTICLE SUPPORTING RACK

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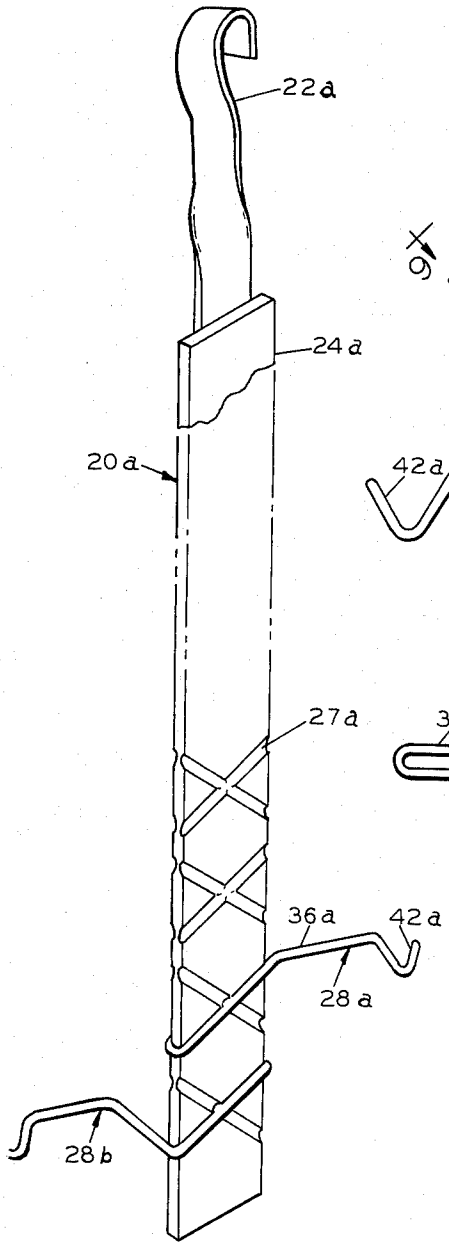


FIG. 6

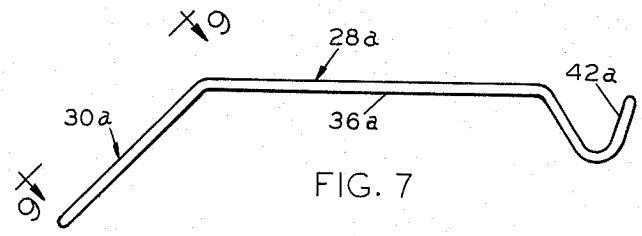


FIG. 7

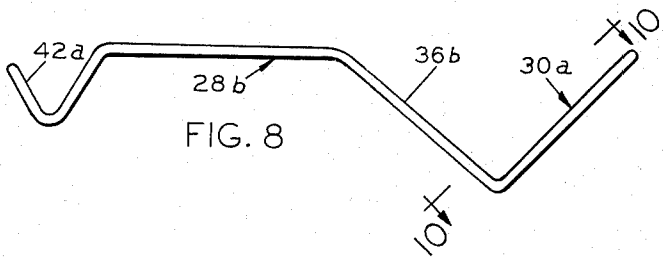


FIG. 8

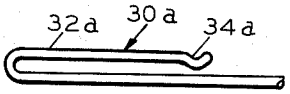


FIG. 9

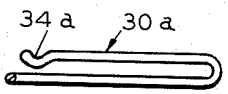


FIG. 10

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ARTICLE SUPPORTING RACK

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4 Claims. (Cl. 211—113)

The present invention relates generally to suspension devices and specifically to a novel article supporting rack for use in plating, painting, food processing and the like, in conjunction with a conveyor system.

In general, the article supporting rack of the present invention comprises a hanger portion including a bar provided with grooves, a clip portion including a novel attaching portion removably mounted in said grooves, and a support portion for supporting articles to be suspended.

As one aspect of the present invention, the novel construction of the grooves and clip portion permits the same article supporting rack to be used for a variety of different types and sizes of articles.

As another aspect of the present invention, the novel construction of the clip portion permits disassembly of the rack for cleaning purposes with a minimum of effort and time.

As a further aspect of the present invention, the novel construction of the article supporting rack permits low cost manufacture and fabrication using standard manufacturing procedures.

It is, therefore, an object of the present invention to provide a versatile article supporting rack for handling different sizes of articles as well as different types of articles.

It is another object of the present invention to provide an article supporting rack which may be disassembled with a minimum of time and effort for cleaning purposes and the like.

It is another object of the present invention to provide an article supporting rack which is so versatile in use that only a small inventory of such racks is necessary.

It is another object of the present invention to provide an article supporting rack incorporating the aforementioned advantages which may be manufactured and fabricated at minimum cost.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred forms of embodiments of the invention are clearly shown.

In the drawings:

FIG. 1 is a front elevational view of the hanger portion of the article supporting rack of the present invention;

FIG. 2 is a partial bottom view of the cross bar of the hanger portion shown in FIG. 1;

FIG. 3 is a top view of the grooved metal strip attached to the cross bar of the hanger portion shown in FIG. 1;

FIG. 4 is a front view of the clip portion of the article supporting rack of the present invention;

FIG. 5 is a partial perspective view illustrating the clip portion attached to the hanger portion shown in FIG. 1;

FIG. 6 is a perspective view of a modification of the article supporting rack of the present invention;

FIG. 7 is a side view of a modification of the clip portion of the article supporting rack of the present invention to be be used with the modification shown in FIG. 6;

FIG. 8 is a side view of a further modification of the clip portion of the present invention to be used with the modification shown in FIG. 6;

FIG. 9 is a partial oblique view of the attaching portion of the modified clip portion shown in FIG. 7 taken perpendicular to lines 9—9 of FIG. 7; and

FIG. 10 is a partial oblique view of the attaching portion of the modified clip portion shown in FIG. 8 taken perpendicular to line 10—10 in FIG. 8.

Referring in detail to the drawings, the hanger portion, indicated generally at **20**, of the article supporting rack of the present invention is illustrated in FIG. 1.

Hanger portion **20** comprises a hook **22** to be attached to a conveyor system and a cross bar **24** securely fastened to metal strip **26** provided with grooves **27**. It is important to point out that cross bar **24** could be a single piece of rolled metal or other suitable material provided with grooves without departing from the spirit of the invention.

Referring to FIG. 4, the clip portion indicated generally at **28** of the article supporting rack of the present invention includes a generally U-shaped resilient attaching portion, indicated generally at **30**, having legs **32** removably mounted in grooves **27** as best illustrated in FIG. 5. One of the legs **32** is provided with an inturned loop portion **34** restricting the open end of U-shaped attaching portion **30** to provide a secure connection between clip portion **28** and hanger portion **20** but still permitting easy disassembly of the article supporting rack for the necessary purposes of cleaning and adjustment of spacing between adjacent clip portions **28**. It is important to point out that the closely adjacent grooves **27** permit a variety of spacings between adjacent clip portions **28** thereby permitting articles of different sizes to be suspended for processing with no change in the article supporting rack except adjustment of the clip portions **28**.

Still referring to FIG. 4, clip portion **28** also includes support portions **36** and **38** extending outwardly on opposite sides from bar **24** and provided with upturned end portions **40** and **42** for supporting articles to be suspended.

FIG. 6 through FIG. 10 illustrate one modification of the article support rack of the present invention.

A perspective view of a modification of the article supporting rack of the present invention is illustrated in FIG. 6, and comprises a hanger portion, indicated generally at **20***a*, including a hook **22***a* to be attached to a conveyor system and a vertical bar **24***a*. Vertical bar **24***a* is provided with pairs of oppositely inclined grooves **27***a*, bisecting each other.

Referring to FIG. 7, a modified clip portion, indicated generally at **28***a*, includes a resilient generally U-shaped attaching portion **30***a*, best illustrated in FIG. 9, having legs **32***a* removably mounted in grooves **27***a* as best illustrated in FIG. 6. Referring to FIG. 9, one of the ends of legs **32** is provided with an inturned loop portion **34***a* restricting the open end of attaching portion **30***a* to provide a secure connection between hanger portion **20***a* and clip portion **28***a* yet still permitting easy disassembly of the apparatus. Referring again to FIG. 7, clip portion **28***a* also includes support portion **36***a*, extending outwardly from bar **24***a* and provided with an upturned end portion **42***a* for supporting articles to be suspended.

FIGS. 8 and 10 illustrate a further modification of the clip portion of the present invention indicated generally at **28***b*. As best seen in FIG. 9, the modification concerns support portion **36***b* which is turned upwardly along the portion adjacent to attaching portion **36***a*, then extends outwardly from bar **24***a* adjacent upturned end portion **42***a*.

In operation, hook **22** is attached to a conveyor means with resilient clip portions **28** fitted into grooves **27** and being spaced according to the particular size and type of

articles to be processed. The articles are suspended from upturned end portions 42 and transported by the conveyor means to the equipment to be used in the particular process. The article supporting rack of the present invention may be used for plating, painting, food processing, or other dipping and article processing procedures.

When cleaning the article supporting racks becomes necessary, the clip portions 28 are simply removed and cleaned as the hanger portion need not contact the liquid in the process tank to become contaminated. As can be readily seen this eliminates much time and effort in the processing procedure as the hanger portion can be returned to the starting point and clean clip portions then attached to begin a new cycle.

While the forms of embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

I claim:

1. An article supporting rack comprising, in combination, a hanger means comprising a cross bar including side portions provided with a plurality of laterally spaced vertical side grooves; and a plurality of laterally spaced resilient clip members each of which includes a generally U-shaped attaching portion removably mounted in said vertical grooves, said attaching portion having downwardly extending legs, one of the ends of said legs being provided with an inturned shoulder portion restricting the open end of said attaching portion, each of said clip members also including support portions extending outwardly from said bar and provided with upturned end portions for supporting articles to be suspended.

2. An article supporting rack comprising, in combination, a hanger means comprising a cross bar including

side portions provided with a plurality of laterally spaced closely adjacent vertical side grooves; and a plurality of laterally spaced resilient clip members each of which includes a generally U-shaped attaching portion removably mounted in said vertical grooves, said attaching portion having downwardly extending legs, one of the ends of said legs being provided with an inturned shoulder portion restricting the open end of said attaching portion, each of said clip members also including support portions outwardly turned from said bar and provided with upturned end portions for supporting articles to be suspended.

3. The article supporting rack defined in claim 1 wherein said side portions and vertical side grooves are formed by corrugated metal strips.

4. The article supporting rack defined in claim 2 wherein said side portions and vertical side grooves are formed by corrugated metal strips.

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