Sept. 5, 1967 E. J. KUSEL ETAL 3,339,895

ADJUSTABLE WROUGHT IRON RAILING

Filed March 10, 1965 2 Sheets-Sheet 1

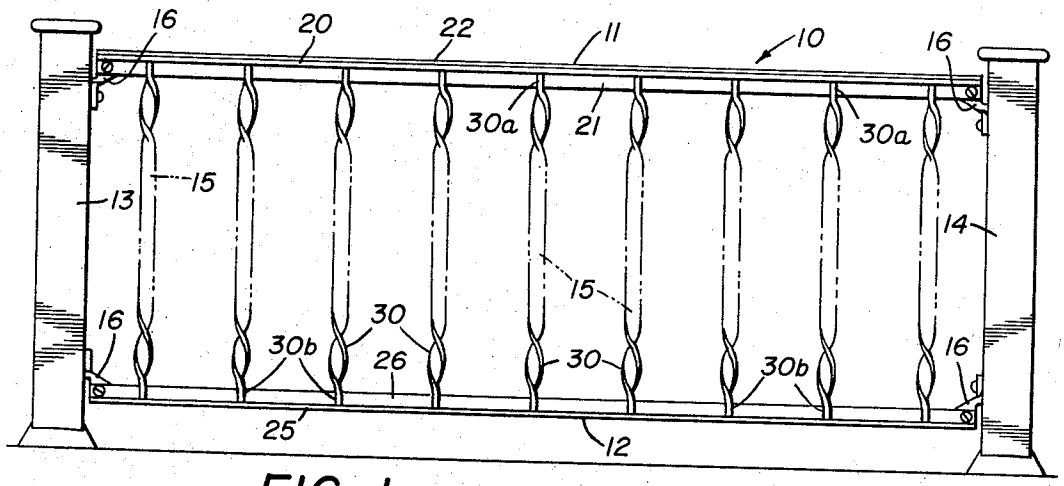


FIG. 1

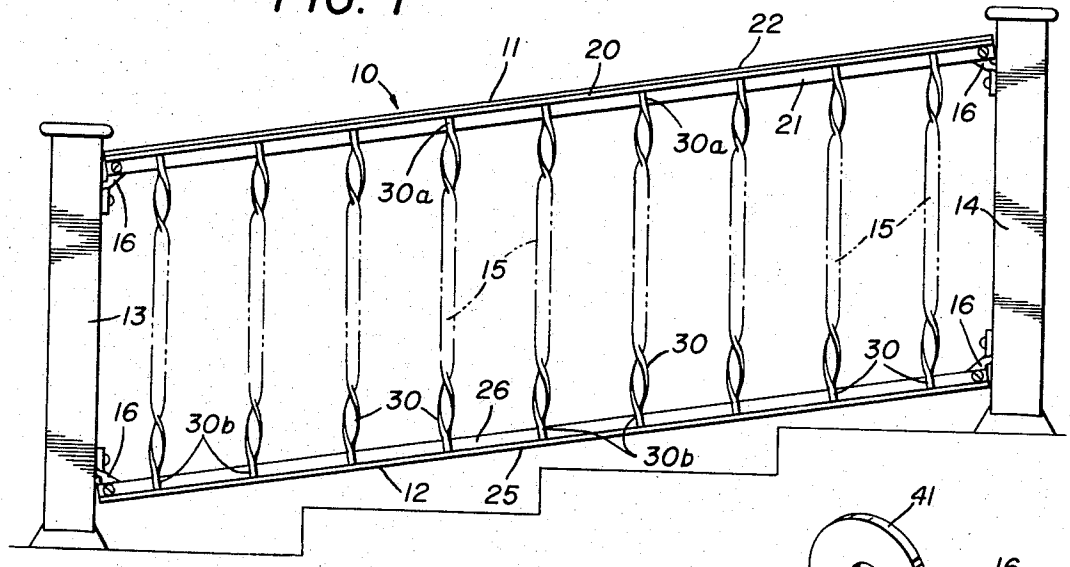


FIG. 2

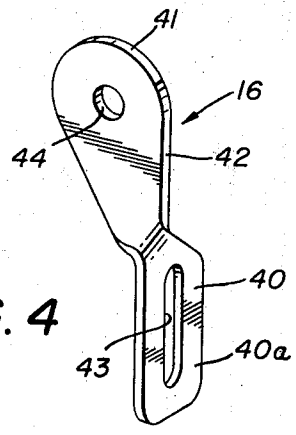


FIG. 4

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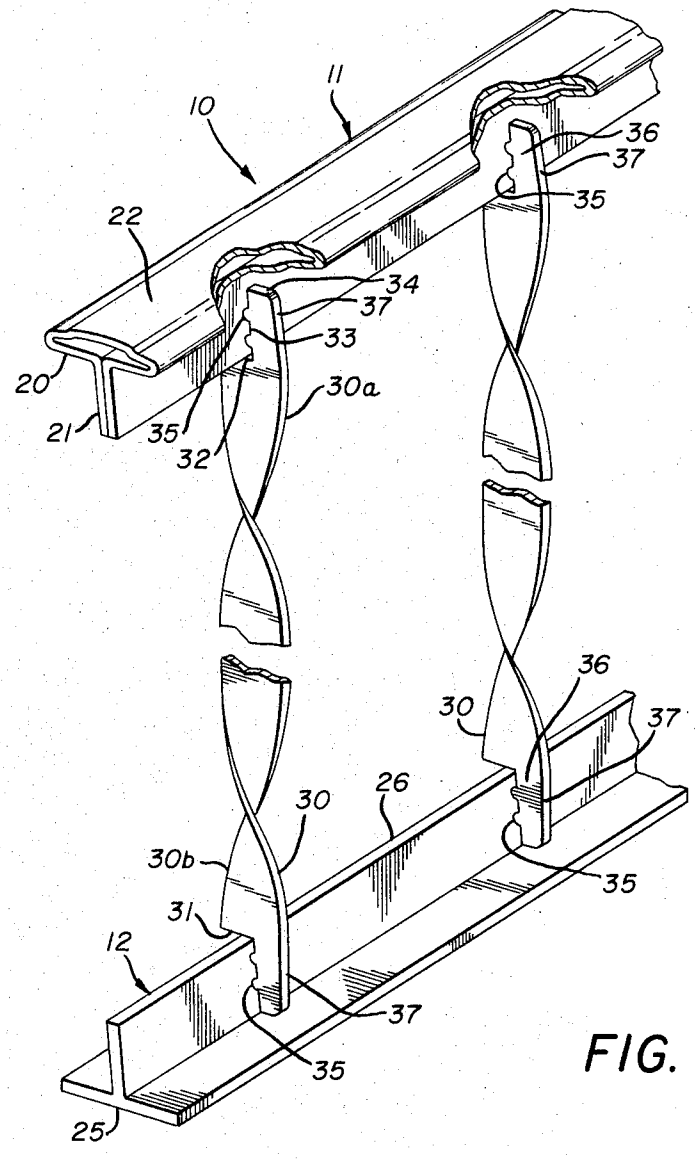


FIG. 3

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ADJUSTABLE WROUGHT IRON RAILING

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3 Claims. (Cl. 256—22)

This invention relates to the art of adjustable wrought iron railing, and in particular has reference to an improved type of adjustable railing section having improved aesthetic properties.

The present known prior art of adjustable wrought iron railings is best illustrated by the following three patents:

(1) Kools U.S. Patent 2,715,513
(2) Berish U.S. Patent 2,982,521
(3) Kusel U.S. Patent 3,005,623

In U.S. Patent 2,715,513, a rigid assembly was provided that included a top and bottom rail section interconnected by spindles that were provided with weakening holes adjacent the top and bottom portions thereof, with these weakening holes serving to permit "pitching" of the railing section.

In U.S. Patent 2,982,521, a "do-it-yourself" type of assemby was provided wherein the spindle ends were interconnected during assembly by use of conventional fastening means.

In U.S. Patent 3,005,623, an improved type of adaptor bracket was provided for the "do-it-yourself" type of railing to facilitate greater rigidity, while simplifying assembly of the railing in question.

While all of the prior art structures above discussed have enjoyed commercial success, it is nonetheless believed that the existing state of the prior art is deficient in several respects, as follows.

First, from an appearance standpoint, the use of stock type of extruded parts has precluded attainment of the requisite aesthetic appearance normally associated with wrought iron railings of this type. Second, and from a strength standpoint, it has been found that "do-it-yourself" types of railings cannot achieve the degree of rigidity and strength that is normally associated with pre-assembled railings wherein a welded or brazed type or connection has been effectuated between spindle and rail at the time of manufacture. Third, it has been found that adjustment or "pitching" of the welded assembly type rail is made difficult in the event that the owner is required to perform any type of precision drilling or deforming operation to effectuate assembly.

It has been discovered that the aforementioned disadvantages can be obviated by producing a railing section of the welded type construction wherein the top rail portion that is normally gripped by the user is provided with an additional hand receiving surface that is smooth to the touch and presents an appearance similar to that of custom made wrought iron railing. The above advantage can be further enhanced by additionally providing adaptor brackets that have offsetting means that permit limited adjustment or "pitching" without the need for bending or deforming of the same. Finally the rigidity requirements deemed advantageous can be achieved by forming the spindles with support pockets that serve to rigidify the unit at all times, even though the same may have been "pitched" at the time of installation.

Production of an improved railing having the above advantages accordingly becomes the principal object of this invention, with other objects thereof becoming more apparent upon a reading of the following brief specification, considered and interpreted in the light of the accompanying drawings.

On the drawings:

FIGURE 1 is a side elevational view of the improved adjustable railing.

FIGURE 2 is a similar side elevational view but showing the railing in "pitched" condition.

FIGURE 3 is a perspective view of the railing and spindle sections and showing the interconnection thereof in the preferred form of the invention.

FIGURE 4 is a perspective view of the improved bracket.

Referring now to the drawings and in particular to FIGURE 1 thereof, the improved railing assembly, generally designated by the numeral **10**, is shown including a top rail **11** and a bottom rail **12**, with the ends of these top and bottom rails **11** and **12** being connected to upright newel posts **13** and **14** by a plurality of identical brackets **16**, **16**, and with spindles **15**, **15**, being interconnected at their opposed ends to the top and bottom rails so as to form a complete railing assembly of the type shown in FIGURES 1 and 2.

Turning next to FIGURE 3, the top rail section **11** is shown being of generally T-shaped cross section, and includes, in the preferred form of the invention, a continuous strip of stock material that is formed to include a base section **20**, a leg portion **21** and a hand engaging surface **22**, with the hand engaging surface **22** being contoured to form an aesthetically pleasing smooth surface that is intended to be gripped by the user. Rigidity with respect to this railing section is provided by the double web thickness of the leg portion **21**, while the base **20** provides rigidity in connection with the spindle ends as will be described.

With reference to the bottom rail **12**, as shown in FIGURE 3, the same is shown as being of one piece construction and generally T-shaped in cross-section so as to include a base **25** and a leg portion **26**.

Referring again to FIGURE 3 for a detailed description of the interconnecting spindles **15**, **15**, it will first be noted that each spindle emanates from a flat piece of stock material **30** that is twisted to assume the spiral condition shown in FIGURES 1, 2 and 3, with the upper end **30***a* and the lower end **30***b* being disposed in parallel so as to facilitate interconnection with the top and bottom rails, as will now be described.

In this regard, each spindle end **30***a* and **30***b* is notched or cut away, as at **31**, to provide an L-shaped support pocket defined by wall surfaces **32**, **33** and **34**, with the arrangement being such that the surface **32** will seat against depending bottom edge of leg **21**, while surface **33** will abut the side surface of the leg **21**. Preferably the surface **34** is spaced slightly with respect to the surface **20** of the top rail and the equivalent surface that is provided on the bottom railing with this arrangement being preferable so as to localize the point of fusion with respect to the ribs **35** while facilitating easier pitching due to elimination of possible interference.

Simultaneously this reduces the number of spindle rejects which would otherwise be too long because of the nominal tolerances employed.

For the purpose of facilitating assembly, surface **33** of the spindle is shown provided with projecting ribs **35**, **35**, with these ribs **35**, **35** serving as a localized fusion point for the welding connection of the spindle with respect to the railing section and particularly with the side surface of the leg portion **21** thereof.

Additionally, and as shown in FIGURE 3, the utilization of the support pocket **31** has the result of creating a tongue **36**, on the end of the spindle with it being apparent that the width of the tongue **36** can be reduced as by use of a tapered surface **37** so as to make the

tongue portion more readily bendable to the position of FIGURE 2 for "pitching" purposes.

Turning now to FIGURE 4 for a description of the bracket **16** per se, it will first be noted that the same is a unitary plate-like member appropriately deformed to provide a post mounting portion **40** and a rail connection portion **41**, with the plane of the portions **40** and **41** being at right angles to each other to facilitate connection with the rail sections, as shown at FIGURES 1 and 2. In this regard it is further to be noted that the mounting portion **41** has an edge surface **42** that is parallel to the plane of the portion **41** but is offset with respect to the surface **40***a* thereof so as to facilitate a limited amount of adjustment as shown in FIGURE 2 without the need for precision drilling of either rail section.

A longitudinal slot **43** and a hole **44** are provided in the portions **40** and **41** respectively for reception of the usual bolt connection, as clearly shown in FIGURES 1 and 2.

In use or operation of the improved railing assembly, the assembly, which includes top rail **11**, bottom rail **12** and the interconnected spindles will usually arrive at the construction site in the rectangular arrangement shown in FIGURE 1, with brackets **16, 16** preferably being separately packaged.

In the event that the installation is on a flat surface, such as in FIGURE 1, then and in that event, the newel posts only need be set so that the spacing therebetween corresponds to the length of the rails **11** and **12**, and upon setting of the newel posts the railing may be securely attached thereto by first cutting to the required length and then placing bolts through slots **43, 43** of the various brackets **16, 16** for engagement with appropriate openings in the walls of the newel posts **13** and **14**.

Upon tightening of the remaining components, the rail section is complete, as shown in FIGURE 1.

In the event that a "pitched" installation is required, as shown in FIGURE 2, the installer will merely place the lower rail **12** on the ground, with the remainder of the railing being upright in a vertical plane. At this time a longitudinal pressure applied to the top rail will cause the top rail **11** to move longiudinally of the bottom rail **12**, with parallelism at all times being maintained by the interconnecting spindles **15, 15**. When the railing has been deformed to the approximate shape that is required, the newel posts may be set, following by mitre cutting and attachment of the formed railing as above described. In this regard, it will be noted that drawing up of the connecting bolts will cause the railing to assume its final condition of the type shown in FIGURE 2.

It is important to note in FIGURE 2 that a certain degree of latitude is permitted with respect to locating the holes in webs **21** and **26** adjacent the ends of top and bottom rails **11** and **12**, since the offsetting of the surface **42** with respect to the surface **40***a* permits attainment of the usual pitching required without the need for precision locating and drilling.

It should also be noted with reference to the deforming operation above described that the same is readily facilitated by the fact that the tongue **36** of the spindles has a lesser resistance to transverse deformation than would the overall spindle plate **30**, with such improved bending being further facilitated by the welded contact limited to the rib portions **35, 35**. It should be further noted that even though deformation occurs that each spindle

15, 15 by virtue of the support pocket **31** provides support in at least three directions.

In this regard, the surfaces **32** and **34** provide two positions of support by preventing movement of rail sections **11** and **12** towards each other while the surface **33** prevents transverse shifting of the rail.

While a full and complete description of the invention has been set forth in accordance with the dictates of the patent statutes, it is to be understood that the invention is not intended to be limited to the specific embodiment herein shown.

Accordingly, modifications of the invention may be resorted to without departing from the spirit hereof or the scope of the appended claims.

What is claimed is:

1. An adjustable railing for mounting on spaced upright support surfaces of the character described, comprising;

(A) a top rail
  (1) of generally T-shaped configuration and
  (2) including a base and a leg section;

(B) a bottom rail
  (1) of generally T-shaped configuration and
  (2) including a base and a leg portion;

(C) a plurality of identical spindles
  (1) having parallel flat strap-like end portions
  (2) being notched to define an L-shaped support pocket that is in turn defined by edge surfaces of said end portions
  (3) the edge surfaces of said L-shaped support pockets being fixedly secured in edge abutted relationship to the projecting end and sidewall surfaces of said leg portions whereby the planar surfaces of said end portions are at right angles to the planar surfaces of said leg portions;

(D) and adaptor brackets connecting the ends of said top and bottom rails to said spaced upright support surfaces.

2. The railing of claim **1** further characterized by the fact that the extreme end portion of said spindles are spaced from the base portions of said top and bottom rails whereby pitching of said rail sections may be effectuated.

3. The railing of claim **1** further characterized by the presence of at least one rib member projecting outwardly from the longitudinally extending edge surface of said L-shaped support surface.

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