

[54] **BUILT-UP RAIL POST BY WHICH THE STEPS OF SPIRAL STAIRS ARE CONNECTED WITH THE HAND RAIL, AND COMPONENTS OF SUCH RAIL POST**

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[58] Field of Search 256/65, 47; 52/227, 52/228, 229, 187, 185, 632

[56] **References Cited**

UNITED STATES PATENTS

1,385,606	7/1921	Christensen	52/227
3,114,941	12/1963	Blum	256/65 X
336,196	2/1886	Wilson	256/47

R11;032	10/1889	Rieseck	52/187
1,723,216	8/1929	Stam	52/227

FOREIGN PATENTS OR APPLICATIONS

1,061,295	11/1953	France	52/187
1,333,208	6/1963	France	52/187

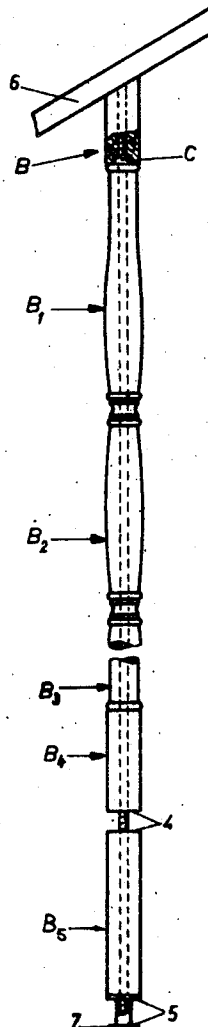
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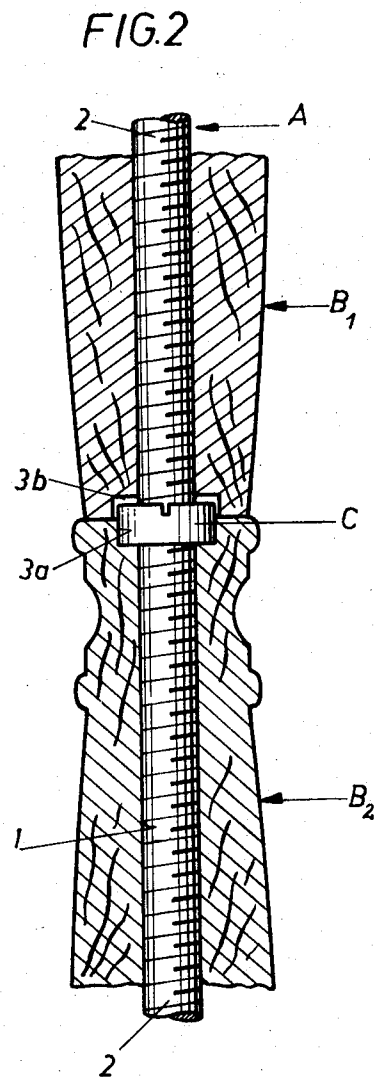
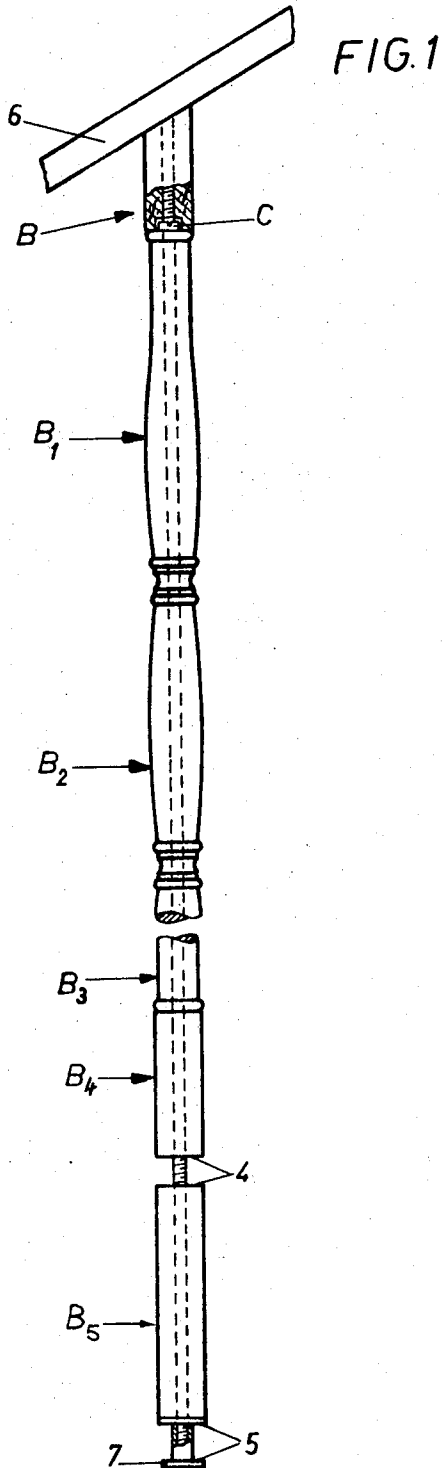
Attorney—Kirschstein, Kirschstein, Ottinger & Frank

[57] **ABSTRACT**

This invention concerns a built-up rail post, by which the steps of spiral stairs and particularly of dismountable spiral stairs, are connected with the hand rail. The invention also covers the components of same rail post, said built-up rail post consists of an allthreaded, load-bearing central rod, made preferably of a metal, and of a plurality of covering tubular elements, slipped on to said load-bearing core, being the connection between each covering element and the load-bearing core ensured by screw sockets fast with the covering element ends and screwed on the threading of load-bearing core, thus stabilizing and stiffening the assembly.

1 Claim, 2 Drawing Figures





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BUILT-UP RAIL POST BY WHICH THE STEPS OF SPIRAL STAIRS ARE CONNECTED WITH THE HAND RAIL, AND COMPONENTS OF SUCH RAIL POST

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention concerns a built-up rail post, by which the steps of spiral stairs and particularly of dismountable spiral stairs, are connected with the hand rail. The invention also covers the components of same rail post. This invention relates such rail posts — of which one for each step are needed in the dismountable spiral stairs — are built-up by at least two components, since their lower section shall act as a spacer between two adjacent steps, while their upper section is designed to support the hand rail, being both sections made by tubular members, which are slipped on a core consisting of a metal round.

2. Description of the Prior Art

It is known that a fair agreement between the static requirements and the aesthetic requirements has never been reached in the heretofore known embodiment forms. On this point it can be stated that while metal components, having an adequate strength are required if a strong and rigid structure is to be attained, the use of all-metal members is however excluded by reasons concerning the decoration, whereby wooden components have been substituted until now for the metal ones. In point of fact, the trouble caused by the axial shrinkage which occurs in all tubular wooden covering elements has not yet been adequately counteracted.

SUMMARY OF THE INVENTION

The purpose of this invention consists in the prevention of above stated drawbacks by the provision of a built-up rail post, by which the steps of dismountable spiral stairs are connected with the hand rail, and that shows superior properties of strength and rigidity, allowing also an easy and proper assembly and disassembly.

A further purpose of the invention is the provision of a built-up post of the above defined type wherein a thorough connection between the single components is ensured, with possibility of an adequate adjustment of the assemblage force, whereby to take due account of the unavoidable axial shrinkage.

The above and further purposes are attained by the built-up post, by which the steps of spiral stairs and particularly of dismountable spiral stairs are connected with the hand rail, said built-up post consists of an all-threaded, load-bearing central rod, made preferably of a metal, and of a plurality of covering tubular elements, slipped on to said load-bearing core, being the connection between each covering element and the load-bearing core ensured by screw sockets fast with the covering element ends and screwed on the threading of load-bearing core, thus stabilizing and stiffening the assembly.

The length of lowest covering element is conveniently equal to the rise of a step, and all covering elements can be made either of wood, or of a suitable plastics.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be disclosed in the following description of an embodiment form thereof, taken with

the accompanying drawing, being both description and drawing given as a not restrictive example only. In same drawing:

FIG. 1 is a side elevation of a built-up rail post, fast with the upper end of which is a portion of hand rail, and:

FIG. 2 is an enlarged cross-section of a detail, wherein the connection between the load-bearing core and the covering elements is shown more clearly.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to accompanying drawing, A is the load bearing core, consisting of an iron round, while B, B₁, B₂, B₃, B₄ and B₅ are the covering tubular components slipped on to said load-bearing core A (see FIG. 1).

Said covering elements, having an inside diameter of bore 1 slightly larger than the outside diameter of A, are differently shaped, i.e., some of them (B₁, B₄ and B₅) show a square cross section, while all other (B₃, B₂ and B₄, situated between the former ones) have a round cross-section. As previously stated, they can be made either of wood and of plastics.

According to main feature of the invention, the load carrying core A is connected with the covering elements B, B₁, B₂, B₃, B₄ and B₅ by means of the threading 2, that extends across the whole length of iron round A, and of the threaded bushes C (see FIG. 2), that are accommodated in corresponding counterbored portions 3a-3b, formed on top end of underlying element and on the bottom end of overlying element, respectively.

The covering elements B₁ and B₂ only are shown in the FIG. 2, however the connection system is the same for all other elements, too.

FIG. 1 shows how a tread can be clamped in the adjustable space 4, while the underlying tread is clamped in the space 5, whereby the step rise is defined by the element B₅.

The element B₄ having a square cross-sectional area equal to that of underlying element, acts as a base for the row of elements (B₁, B₂, B₃) having a circular cross-section. The top covering element B, having a square cross-section, is connected with the inclined hand rail 6.

A flanged metal bush 7 is screwed on to the lower end of load-bearing core A, thus allowing to adjust the core length to be covered with the elements B and ensuring therefore an adjustable assembling of the whole structure.

What I claim is:

1. An inclined handrail support arrangement comprising an elongated metallic load-bearing cylindrical core, said elongated load-bearing core being threaded for its entire length, a plurality of tubular covering elements with each tubular covering element having a top end and a bottom end, each of said tubular covering elements having an elongated internal bore, the internal bore of each of said tubular covering elements having a diameter slightly larger than the diameter of said load-bearing core, the load-bearing core passing through the internal bore of each of said tubular covering elements, a first tread, the bottom end of the lowermost of said tubular covering elements supported on said first tread, a second tread higher in elevation than said first tread, the bottom end of the next lowest of said tubular covering elements being supported on said

3

second tread, said next lowest of said tubular covering elements and all of said tubular covering elements thereabove being in a stacked relation with respect to each other with the bottom end of certain of said tubular covering elements above said next lowest tubular covering element being in contact with the top end of the tubular covering element immediately therebelow, a counterbore located at the end of each of said tubular covering elements which is in contact with another of said tubular covering elements, a plurality of threaded 10

4

bushes screwed on the load-bearing core, each threaded bush resting on the upper end of one tubular covering element and received in the counterbore at the upper end thereof and also being received in the counterbore at the lower end of the next higher tubular covering element, a flange metal bush being screwed on to the lower end of the load-bearing core, and an inclined handrail being secured to the uppermost tubular element.

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