

The  
United  
States  
of  
America



The Commissioner of  
Patents and Trademarks

*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this*

United States Patent

*Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.*

*If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.*

*If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extension.*

*T. Todd Pichini*

Acting Commissioner of Patents and Trademarks

*Margie V. Turner*

Attest



US005867954A

**United States Patent** [19]  
**Lin**

[11] **Patent Number:** **5,867,954**  
[45] **Date of Patent:** **Feb. 9, 1999**

[54] **MULTI-AXIS PRESTRESSED DOUBLE-TEE BEAM AND METHOD OF CONSTRUCTION**

[76] **Inventor:** **Wei-Hwang Lin**, Dept. of Military Engr., Chinese Military Academy 830 R.O.C. Feng - Shan, Taiwan

[21] **Appl. No.:** **929,327**

[22] **Filed:** **Sep. 6, 1997**

[51] **Int. Cl.<sup>5</sup>** ..... **E04C 3/10**

[52] **U.S. Cl.** ..... **52/223.12; 52/223.8; 52/223.9; 52/223.14; 52/231**

[58] **Field of Search** ..... **52/223.8, 223.13, 52/223.12, 223.9, 223.14, 231, 223.1**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

3,733,669	5/1973	Coho	29/155 R
4,006,523	2/1977	Mauquoy	29/452
4,047,341	9/1977	Bernardi	52/223 R

*Primary Examiner*—Carl D. Friedman

*Assistant Examiner*—Brian Glessner

[57]

**ABSTRACT**

A multi-axis prestressed double-tee beam and method for construction the same is provided, the prestressed double-tee beam includes a cantilever type and a simple-support type, the cantilever type is composed of a pair of laterally combined steel skeletons and each includes a flat elongate erect web having straight upper edge and a bowed lower edge, a pair of upward sloped upper flanges extended along the length of the web, an elongate groove of U-shaped section centrally extended between the upper flanges, a single lower flange extended along the length of the lower edge of the web, a bottom engageable with the lower end of the combined steel skeletons, a plurality of wedges inserted into the groove and a plurality of triangular reinforcement of different size spacedly secured to the lateral sides of the webs abutting the upper flanges, the simple-support type is mostly similar to the cantilever type except a slightly upward arcuate rectangular cross-section and equal sized triangular reinforcements, besides it forms no elongate groove. Nevertheless, both of them provide multi-axis prestresses.

**14 Claims, 9 Drawing Sheets**

