

Title (en)

CONSTRUCTOR FOR RAPIDLY ERECTABLE DISMOUNTABLE ASSEMBLED SHELL-TYPE STRUCTURES

Title (de)

KONSTRUKTOR FÜR SCHNELL AUFSTELLBARE UND DEMONTIERBARE STRUKTUREN AUS ZUSAMMENGESETZTEN HÜLLEN

Title (fr)

DISPOSITIF DE CONSTRUCTION DE STRUCTURES MONTABLES-DÉMONTABLES À ASSEMBLAGE RAPIDE ET DE TYPE ENVELOPPE

Publication

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Application

EP 11801206 A 20110124

Priority

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- RU 2011000047 W 20110124

Abstract (en)

The invention belongs to the construction area, namely, to enclosing structures of exhibition stands, pavilions and other temporary buildings and structures. The meccano of fast-erectable prefabricated demountable structures of the shell type contains bearing elements (ribs) and connecting joints (connectors) with the help of which uniform frame modules are assembled in the form of spatial isosceles triangles, the hypotenuses of which are one-type arched ribs, and the legs are either rectilinear or arched, depending on the type of the created module, and the frame modules are interconnected by one-type elements (hypotenuses or legs). Arched ribs are formed by circular arcs with the radius R , and central angles of the arcs in the axes of vertexes of spatial triangles are connected by the correlation $\alpha = \arcsin 2 \cdot \sin \pm / 2$, where \pm - central angle of arched hypotenuse, α - central angle of arched leg, and the length of the rectilinear leg in the axes of vertexes of spatial triangles is $2 \cdot R \cdot \sin \pm / 2$, connecting joints of the frame ribs are made of elements of 9 types: a central two-plane element (with the bend angle equal to $\hat{A}/2$) for interconnection of one-type legs, as well as left and right two-plane elements (with the bend angle equal to $\hat{A}/4$) and three-plane elements (with the bend angles equal to $\hat{A}/2$ and $3\hat{A}/4$ respectively and the turn of bend axes by the angle of $\pm/2$) for connection of the arched hypotenuse with arched and rectilinear legs, bend angles and turn of bend axes of connecting joints are made so that planes of longitudinal sections of legs are perpendicular to each other, and the plane of the longitudinal section of the hypotenuse is either parallel to the line of intersection of planes of longitudinal sections of legs (two-plane elements), or has the turn with regard to it by the angle of $\pm/2$ (three-plane elements). Technical result: creation of the meccano of fast-erectable prefabricated demountable structures of the shell type of the minimum quantity of uniform elements, simplification of assembly and disassembly, transportation and storage.

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