

PATENT SPECIFICATION (11)

1 426 204

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- (21) Application No. 19816/73 (22) Filed 26 April 1973 (19)
 (31) Convention Application No. 42775/72 (32) Filed 28 April 1972 in
 (33) Japan (JA)
 (44) Complete Specification published 25 Feb. 1975
 (51) INT. CL. B63B 9/06 B66C 19/00
 (52) Index at acceptance
 B7S 60 94
 B8B 2A1



(54) APPARATUS FOR ASSEMBLING HULL MODULES

(71) We, MITSUI SHIPBUILDING AND ENGINEERING CO. LTD., a corporation organized under the laws of Japan, of 6-4 Tsukiji 5-chome, Chuoku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to apparatus for assembling hull modules in ship building. Generally, an installation equipped with cranes and scaffolds required for assembling hull modules in ship building is extremely large, but it sometimes occurs that a module to be assembled is too large to be assembled within the installation. In such a case it is uneconomical to construct another similar installation which is large enough to house such a large module.

20 According to this invention there is provided apparatus for assembling hull modules and including at least two spaced pluralities of main supports defining respective sides of the apparatus, the main supports being pivotably mounted on a base, auxiliary supports pivotably secured to said main supports and detachably secured to the base between said side of the apparatus so that the spacing between the pluralities of main supports can be adjusted.

25 A preferred embodiment of the invention will now be described by way of example only, with reference to the accompanying drawing wherein:—

35 Fig. 1 is a front elevation of apparatus for assembling hull modules, and
 Fig. 2 is a side elevation thereof.

40 As shown in the drawings each side of the apparatus is defined by two pairs of main supports 1 arranged opposite each other. The main supports are pivotably secured to the ground as at 2. Two auxiliary supports 3 are pivotably secured to each main support at 4 and are pivotably and detachably secured to the ground or base by means of a common mounting 5. Each of said auxiliary supports is provided with length adjusting means 6. On the top of the supports 1 longitudinal beams 7

and rails 8 are mounted and extend along the respective sides of the apparatus. 50

Horizontal beams 9 span the gaps between main supports opposite each other. Placed on the rails 8 is a movable beam 11 on which a trolley 12 carrying a hoist is movably mounted. Extending inwardly from each support 1 is a supporting arm 13 on which are provided means 15 for holding a hull module 14 to be assembled, a working scaffold 16 and other associated elements. Bed plates 17 are provided for bearing the weight of the hull. 55 60

If the hull module 14 is to be particularly large and cannot be placed between the main supports shown in full line in Fig. 1, the horizontal beams 9 and movable beam 11 are demounted and then the auxiliary supports 3 are detached from the mountings 5 and fastened to mountings 5a which are spaced further apart than the mountings 5, as shown by dotted lines in Fig. 1. Thus the spacing between the main supports can be expanded. When the appropriate horizontal and movable beams for the expanded spacing are mounted on the main supports the resulting apparatus (as indicated in broken line in Fig. 1) is able to accommodate larger hull modules than can be accommodated by the apparatus shown in full line in Fig. 1. 65 70 75

WHAT WE CLAIM IS:—

1. Apparatus for assembling hull modules and including at least two spaced pluralities of main supports defining respective sides of the apparatus, the main supports being pivotably mounted on a base, auxiliary supports pivotably secured to said main supports and detachably secured to the base between said sides of the apparatus so that the spacing between the pluralities of main supports can be adjusted. 80 85
2. Apparatus according to claim 1 wherein the detachable mountings for said auxiliary supports are pivotal. 90
3. Apparatus according to claim 1 or claim 2 wherein said auxiliary supports are adjustable in length. 95
4. Apparatus according to any one of the preceding claims wherein rails are mounted along the sides of the apparatus and are

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This invention relates to apparatus for assembling hull modules in ship building.

Generally, an installation equipped with cranes and scaffolds required for assembling hull modules in ship building is extremely large, but it sometimes occurs that a module to be assembled is too large to be assembled within the installation. In such a case it is uneconomical to construct another similar installation which is large enough to house such a large module.

According to this invention there is provided apparatus for assembling hull modules and including at least two spaced pluralities of main supports defining respective sides of the apparatus, the main supports being pivotably mounted on a base, auxiliary supports pivotably secured to said main supports and detachably secured to the base between said side of the apparatus so that the spacing between the pluralities of main supports can be adjusted.

A preferred embodiment of the invention will now be described by way of example only, with reference to the accompanying drawing wherein:—

Fig. 1 is a front elevation of apparatus for assembling hull modules, and

Fig. 2 is a side elevation thereof.

As shown in the drawings each side of the apparatus is defined by two pairs of main supports 1 arranged opposite each other. The main supports are pivotably secured to the ground as at 2. Two auxiliary supports 3 are pivotably secured to each main support at 4 and are pivotably and detachably secured to the ground or base by means of a common mounting 5. Each of said auxiliary supports is provided with length adjusting means 6. On the top of the supports 1 longitudinal beams 7

and rails 8 are mounted and extend along the respective sides of the apparatus.

Horizontal beams 9 span the gaps between main supports opposite each other. Placed on the rails 8 is a movable beam 11 on which a trolley 12 carrying a hoist is movably mounted. Extending inwardly from each support 1 is a supporting arm 13 on which are provided means 15 for holding a hull module 14 to be assembled, a working scaffold 16 and other associated elements. Bed plates 17 are provided for bearing the weight of the hull.

If the hull module 14 is to be particularly large and cannot be placed between the main supports shown in full line in Fig. 1, the horizontal beams 9 and movable beam 11 are demounted and then the auxiliary supports 3 are detached from the mountings 5 and fastened to mountings 5a which are spaced further apart than the mountings 5, as shown by dotted lines in Fig 1. Thus the spacing between the main supports can be expanded. When the appropriate horizontal and movable beams for the expanded spacing are mounted on the main supports the resulting apparatus (as indicated in broken line in Fig. 1) is able to accommodate larger hull modules than can be accommodated by the apparatus shown in full line in Fig. 1.

WHAT WE CLAIM IS:—

1. Apparatus for assembling hull modules and including at least two spaced pluralities of main supports defining respective sides of the apparatus, the main supports being pivotably mounted on a base, auxiliary supports pivotably secured to said main supports and detachably secured to the base between said sides of the apparatus so that the spacing between the pluralities of main supports can be adjusted.
2. Apparatus according to claim 1 wherein the detachable mountings for said auxiliary supports are pivotal.
3. Apparatus according to claim 1 or claim 2 wherein said auxiliary supports are adjustable in length.
4. Apparatus according to any one of the preceding claims wherein rails are mounted along the sides of the apparatus and are



supported at elevated positions relative to the base by means of said main supports.

5 5. Apparatus according to claim 4 wherein there is provided a plurality of movable beams capable of running on said rails for different respective spacings of said pluralities of main supports.

10 6. Apparatus according to claim 5 wherein a trolley is movable along each of said movable beams.

7. Apparatus according to any one of the

preceding claims wherein scaffolds are provided on said main supports.

8. Apparatus for assembling hull modules and substantially as herein described with reference to the accompanying drawing.

For the Applicants,
MARKS & CLERK,
Chartered Patent Agents,
19 Royal Exchange Square,
Glasgow G1 3AE.

Printed for Her Majesty's Stationery Office by Burgess & Son (Abingdon), Ltd.—1976.
Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY,
from which copies may be obtained.



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