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(54) SCAFFOLDING FOR WELDING OF PREFABRICATED HULL MODULES IN SHIPBUILDING

(71) We, MITSUI SHIPBUILDING AND ENGINEERING CO. LTD., a corporation organized under Japanese Law, 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 The present invention relates to a scaffolding for use in welding together prefabricated hull modules in shipbuilding.

15 According to this invention there is provided a scaffolding for the welding together of prefabricated hull modules in shipbuilding, said scaffolding including a vertical track secured to an inner wall of a module and a lifting platform having a scaffold and engaging the vertical track so that the platform can run up and down the track and can be stopped at any desired position on the track.

25 Embodiments of the invention will now be described with reference to the accompanying drawings wherein:-

Fig. 1 is a side view showing an embodiment of the present invention;

Fig. 2 is a sectional view taken along line A-A of Fig. 1;

30 Fig. 3 is an enlarged sectional view showing the rail holding mechanism in each lifting platform;

Figs. 4 and 5 are views showing a mode of operation of the present invention;

35 Fig. 6 is a side view showing another embodiment of the present invention; and

Fig. 7 is a sectional view taken along line B-B of Fig. 6.

40 As shown in Figs. 1 and 2, opposed L-sectional vertical rails 5, 6 forming a vertical track, are welded to respective horizontal members 3, 4 of side plating 1 and of a longitudinal bulkhead 2 of a portion of a hull module B1 which is to be welded to a module B2. Lifting platforms 7 and 8 each

provided with a suitable scaffold are movably mounted on rails 5 and 6. In each of said platforms there are provided two pairs of rollers 10 respectively engaging oppositely projecting free edge portions of flanges of the rails 5, 6 that are substantially parallel to the adjacent inner wall of the module. A chain wheel 12 of driving means of the platform engages a chain 11 which is suspended adjacent the rails 5, 6.

55 Thus each platform is arranged to be movable up and down with rotation of the wheel 12. Each platform also has a scaffold 13 which is slidable so that it can be horizontally projected by a motive power means. The platform is also provided with coupling means (not shown) for securing it to a central crossing scaffold 14.

60 In operation, each lifting platform is moved up or down to a desired position where the platform is stopped and the scaffold 13 of each platform is extended out to permit welding together of the portions of the adjacent modules B1 and B2. At a suitable time, both platforms are lowered to the lower ends of their tracks and they are secured to respective ends of the central crossing scaffold 14. Then the platforms with the crossing scaffold are again raised as shown in Fig. 4 until they reach the upper ends of their tracks, where the welding of the upper deck 17 can be performed using the crossing scaffold. If desired, the crossing scaffold alone may be temporarily anchored to the module by means of coupling elements 15, 16 as shown in Fig. 5, and the platforms may be separated from said crossing scaffold so as to allow welding at other locations using the respective scaffolds 13, 14.

85 When the welding is completed, the lifting platforms 7, 8 are again raised to be secured to the scaffold 14 and then the latter is disengaged from the module, and lowered with the platforms to the lower ends of their tracks. The platforms may be dismantled

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from the rails 5, 6 and used with the crossing scaffold for similar welding work at another section requiring such work.

In the embodiment shown in Figs. 6 and 7, each platform has a telescopic scaffold 14a which can be extended inwardly. These scaffolds 14a are projected and connected when the platforms are lifted to the top of the module and used for welding the upper deck 17.

WHAT WE CLAIM IS:-

1. A scaffolding for the welding together of prefabricated hull modules in ship-building, said scaffolding including a vertical track secured to an inner wall of a module and a lifting platform having a scaffold and engaging the vertical track so that the platform can run up and down the track and can be stopped at any desired position on the track.

2. A scaffolding according to claim 1 wherein the scaffold is horizontally slidable relative to the platform.

3. A scaffolding according to claim 1 or claim 2 wherein the platform has driving means positively engaging a vertical member of the track.

4. A scaffolding according to claim 3 wherein said driving means includes a chain wheel and said vertical member is a chain.

5. A scaffolding according to any one of the preceding claims wherein said platform has sets of rollers engaging respective flanges of the track that are substantially parallel with the adjacent inner wall of the module, said flanges having free edge portions projecting horizontally in opposite directions, each set of rollers including at least

one roller on each side of the flange.

6. A scaffolding according to any one of the preceding claims wherein vertical tracks are secured to the inner wall of the module at positions opposite each other, each vertical track being engaged by respective lifting platforms and a crossing scaffold is provided that can be secured between the lifting platforms so as to be movable with the latter along the vertical tracks.

7. A scaffolding according to claim 6 wherein said crossing scaffold is provided by respective scaffold portions carried by the platforms and which are telescopically variable in length between the lifting platforms.

8. A scaffolding according to claim 6 or claim 7 wherein said module is provided with means to which the crossing scaffolding can be secured in a predetermined elevated position so that the lifting platforms can be disconnected from the central scaffolding whereby the latter and the scaffolds of the lifting platform can be used to support workmen independently of each other.

9. A scaffolding for the welding together of prefabricated hull modules and substantially as described herein with reference to Figs. 1 to 4 only or as modified by Fig. 5 or with reference to Figs. 6 and 7 of the accompanying drawings.

10. A hull module having scaffolding according to any one of the preceding claims.

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10 deck 17.

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