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(54) Title: MODULAR CAISSONS FOR USE IN CONSTRUCTING, EXPANDING AND MODERNIZING PORTS AND HARBORS

(57) Abstract

A plurality of floatable modular caissons are constructed onshore, either in whole or in part, towed to a desired site for port and harbor construction, expansion or modernization, precisely trimmed and ballasted down, and assembled in different combinations to form marine structures and/or integrated marine structures/marine cargo terminals to construct breakwaters, breakwater piers, bulkhead wharves, wharves and piers. The breakwaters and/or breakwater piers are arranged to form a protected port or harbor and are designed to withstand maximum force waves and winds at the harbor site. As an integral part of the breakwater piers, modular caissons are assembled to form marine cargo terminals, such as liquid bulk terminals and LNG/LPG terminals. On the leeward side of the breakwaters and/or breakwater piers, other modular caissons are assembled to form a wide variety of marine structures (such as bulkhead wharves, wharves and piers) and/or integrated marine structures/marine cargo terminals (such as dry bulk and liquid bulk terminals, container terminals, general cargo terminals, roll-on/roll-off terminals and the like). The various marine structures and integrated marine structures/marine cargo terminals may be disassembled and the caissons ballasted up and towed away for use at another port and harbor site. The rapid deployment and assembly potential of the marine structures/marine terminals as well as their potential for rapid disassembly and removal to another site makes the modular caissons ideally suited for many naval and military applications.

