

ABSTRACT

An upgraded quay crane system and an operation process, wherein a conventional quay crane girder is upgraded into a double-trapezoid four-track girder (1). An upper trolley (2) travels on upper trolley running tracks (a16) on an inner side of the double-trapezoid four-track girder (1), a lower trolley (3) is suspended upside down on lower trolley running tracks (a8) on an outer side of the double-trapezoid four-track girder (1), and a container (5) hoisted by the upper trolley (2) via a hoist (4) is able to pass through the lower trolley (3). The present quay crane system improves on the conventional quay crane having a single operation trolley by adding one more operation trolley on the outer side of the original quay crane girder. The two trolleys are vertically disposed, and the space structure for the lower trolley is cleverly designed, such that the two trolleys can operate independently without interfering with each other. The two trolleys of the upgraded quay crane have enough space to pass by each other and operate at the same time, thereby doubling loading and unloading efficiency.

Fig. 6