

AUTOMATED PIPE TRIPPING APPARATUS AND METHODS

Abstract

An automated pipe tripping apparatus includes an outer frame and an inner frame. The inner frame includes a tripping slips and iron roughneck. The automated pipe tripping apparatus may, in concert with an elevator and drawworks, trip in a tubular string in a continuous motion. The tripping slips and iron roughneck, along with the inner frame, may travel vertically within the outer frame. The weight of the tubular string is transferred between the tripping slips and the elevator. The iron roughneck may make up or break out threaded connections between tubular segments, the upper tubular segment supported by the elevator and the lower by the tripping slips. An automated pipe handling apparatus may remove or supply sections of pipe from or to the elevator. A control system may control both the automated pipe tripping apparatus and the elevator and drawworks.

FIG. 1