PICK AND PLACE APPARATUS

ABSTRACT

The present invention provides a pick and place apparatus that independently performs pickup by only one servomotor and has the structure simplified using components with combined functions.

The present invention provides simple pickup units that independently perform pickup by only one servomotor, and a pick and place apparatus in which elastic forces required to fix the pickup units also prevent backlash, thereby improving the reliability and productivity of the apparatus through the simplification of the structure thereof.

According to the present invention, a lifting frame is moved upward and downward by one servomotor, a plurality of pickup units that is independently separated from one another is provided to the lifting frame, and the pickup units and the lifting frame are connected to each other by electromagnetic clutches so that the pickup units are selectively united with the lifting frame by intermitting electric power applied to the electromagnetic clutches. Therefore, the pickup units are selectively moved upward and downward by only one servomotor.

In this case, the pickup units are provided on a support block through elastic springs so as to be maintained at elevated positions, and the elastic springs also serve as backlash prevention members for preventing backlash from occurring between racks and pinions. Accordingly, a separate device for preventing backlash does not need to be added. In addition, each of the uniting units using electromagnetic clutches includes a solenoid, and a uniting core that is inserted into the solenoid and separated from the solenoid. Since the uniting units are provided between a lifting unit and the pickup units, the moving distance of the uniting core serves as a bumper with respect to the moving distance of the pickup unit.

For this reason, the bumper is provided outside the pickup unit. Therefore, the picker can be satisfactorily and firmly fixed to the lifting unit, and it is possible to prevent troubles from occurring in processes due to the twist or looseness of the picker.

(Fig.2)