END EFFECTOR HAVING MULTIPLE-POSITION CONTACT POINTS

ABSTRACT OF THE DISCLOSURE

An apparatus is provided for lifting a substrate. The apparatus comprises a first piece and a second piece. The apparatus further comprises a set of first contact points in a plane and a set of second contact points, where at least one contact point from each set is present on the first piece and the second piece. The apparatus also comprises an actuator that translates the first piece, substantially parallel to the plane, between a first position and a second position relative to the second piece. Additionally, the first position arranges the set of first contact points so that all of the contact points of the set of first contact points are able to engage the substrate, and the second position arranges the set of second contact points so that all of the contact points of the second set of contact points are able to engage the substrate.

Figure 1