

METHOD AND APPARATUS FOR THE INJECTION MOLDING OF
VARIOUS ELEMENTS, SUCH AS SEMICONDUCTOR ELEMENTS

Abstract of the Disclosure

An injection molding apparatus includes a nozzle which is directly connected to a mold for injecting a molding material into the mold. The mold defines at least one cavity in the shape of a element to be molded and at least one gate passage, each gate passage interconnecting a separate cavity with the nozzle. The shape of the gate passage permits a rapid curing of any residual molding material, and permits separation of the mold and the nozzle before the molding material in each cavity is cured. The nozzle is then used for a subsequent procedure or molding process while the molding material in the cavity cures. The nozzle defines a first bore and a second bore arranged longitudinally in sequence, and a side hole for introducing the molding material into the first bore. The nozzle includes a first plunger which is selectively reciprocally movable in the first bore, and a second plunger which is selectively reciprocally movable in the second bore and in a central bore defined in the first plunger. To charge a mold, the first plunger is moved to expose the side hole and control the flow of molding material into the second bore while the second plunger is extended into the second bore. The second plunger is raised to permit the first plunger to inject the molding material into each cavity via the second bore and each gate passage. The second plunger is then extended to purge any residue molding material from the nozzle and into the mold.

FIGURE 3 IS SUGGESTED FOR PUBLICATION