Summary of the Invention

[0005] With regard to the above-described prior art, the invention has the object of designing a plastic injection tool as well as a method of the type in question in a further improved manner.

[0006] Object is solved in view of the plastic injection tool by the features of claim 1, which focus is on that different partial injection contours, which differ from one another, are formed in two or more sliding jaw tool parts, in such a way that individually producible and exchangeable sliding jaw tool parts are formed with a specific partial injection contour which is different from that of another sliding jaw tool part in any case and that a sliding jaw tool part is in contact with the tool core in the ejection direction prior to the ejection of the closure cap at two regions located one behind the other and at a distance form one another in the ejection direction and which areas are visible together in a section through the second mold half in which section a longitudinal axis of the closure cap runs in form of a line.

[0007] This object is solved with regard to the method for producing a closure cap by the features of claim 14 whereby is focused on that the plurality of the sliding jaw tool parts are formed identically or at least approximately identically with respect to the partial injection contour, while a sliding jaw tool part has a partial injection contour, which differs from the further sliding jaw tool

CLAIMS

1. A plastic injection tool (1) for producing a closure cap (5) with a cap body (14) and a cap cover (15) formed integrally with and of the same material as the cap body (14), wherein the cap cover (15) can be formed as cap lid, which can be moved relative to the cap body (14), wherein the injection tool (1) is further divided into first and second mold halves (2, 3), which can be displaced relative to one another, and wherein an injection nozzle (4) is formed in the first mold half (2), wherein sliding jaw tool parts (9), which can simultaneously be moved in an injection direction (r) of the produced closure cap (5) and perpendicular to the ejection direction (r), are further formed in the second mold half (3) radially outside to a central tool core (8), and a partial injection contour (16) of the cap body (14) is in each case formed in the sliding jaw tool parts (9), wherein the partial injection contours (16), combined in a circumferential direction of the closure cap (5) result in a complete injection contour of the part of the cap body (14), which is formed by the sliding jaw tool parts (9), wherein an ejector (48) is further provided assigned to the second mold half (3), for ejecting the produced closure cap (5), characterized in that partial injection contours (16), which differ from one another, are formed in two or more sliding jaw tool parts (9), in such a way that individually producible and exchangeable sliding jaw tool parts (9) are formed with a specific partial injection contour which is different from that of another sliding jaw tool part (9) in any case and that a sliding jaw tool part (9) is in contact with the tool core (8) in the ejection direction (r) prior to the ejection of the closure cap (5) on two regions (51) located one behind the other and at a distance from one another in the ejection direction (r) and which areas

are visible together in a section through the second mold half in which section a longitudinal axis of the closure cap runs in form of a line.

2. The plastic injection tool according to claim 1, characterized in that the partial injection contour (16) forms a joint formation (19), which is connected to the cap body (14) as well as to the cap cover (15), and which is formed completely in one or several partial injection contours (16).

3. The plastic injection tool according to one of the preceding claims, characterized in that the closure cap (5) has a tamper indicating band (17) and that the injection contour for the tamper indicating band (17) is formed completely in the complete injection contour of the cap body (14).

4. The plastic injection tool according to one of the preceding claims, characterized in that, engaging over two sliding jaw tool parts (9), two continuous contact regions (51) of the sliding jaw tool parts (9), which are located one on top of the other and which extend over a circumferential angle (α) of 20 degrees or more, are present, which form a band (41) of the closure cap (5) between one another, which is connected to the cap body (14) on the one end and to the cap lid (15) on the other end.

5. The plastic injection tool according to one of the preceding claims, characterized in that the ejector (48) is axially covered by the sliding jaw tool parts (9) with regard to the closure cap (5) prior to the ejection.

6. The plastic injection tool according to one of the preceding claims, characterized in that the tool core

(8) displaces into a forward position at the beginning of an ejection process by means of the sliding jaw tool parts (9) and the closure cap (5).

7. The plastic injection tool according to one of the preceding claims, characterized in that the second mold half (3) has a ring part (10), having a preferably approximately square outline, in which the sliding jaw tool parts (9) are received so as to be movable on the inner side.

8. The plastic injection tool according to one of the preceding claims, characterized in that the ring part (10) is fastened to a tool receiving part (13).

9. The plastic injection tool according to one of the preceding claims, characterized in that the ring part (10) is movably fastened to the tool receiving part (13) in a plane perpendicular to the ejection direction (r).

10. The plastic injection tool according to one of the preceding claims, characterized in that a holding element (23) for the ring part (10) is provided, which is fastened to the tool receiving part (13) by interconnecting a sleeve (28), and that a passage bore (22) of the ring part (10), through which the holding element (23) extends with the sleeve (28), leaves a free space (31) to the sleeve (28).

11. The plastic injection tool according to one of the preceding claims, characterized in that the holding element (23) is formed as screw (25).

12. The plastic injection tool according to one of the preceding claims, characterized in that the holding

element (23) is formed as bolt (26) with a protrusion (27), which can be made effective by rotating.

13. The plastic injection tool according to one of the preceding claims, characterized in that the mold halves (2, 3) have one or several protrusions (33) and recesses (34), which effect an alignment relative to one another in the course of bringing together the mold halves (2, 3).

14. A method of producing a closure cap (5) in a plastic injection tool (1), wherein the closure cap (5) has a cap body (14) and a cap cover (15) formed integrally with and of the same material as the cap body (14), wherein the cap cover (15) is further preferably formed as cap lid, which can be moved relative to the cap body (14), wherein the injection tool (1) is divided into first and second mold halves (2, 3), which can be displaced relative to one another, and wherein an injection nozzle (4) is formed in the first mold half (2) and sliding jaw tool parts (9) are formed in the second mold half (3), characterized in that the plurality of the sliding jaw tool parts (9) are formed identically or at least approximately identically with respect to the partial injection contour, while a sliding jaw tool part (9) has a partial injection contour, which differs from the further sliding jaw tool parts (9), that the cap body (14) is formed in the injection tool (1) in a same injection process with a design, which differs over the circumference, in the sliding jaw tool parts (9), and the cap cover (15) is formed in the first mold half (2), and that a sliding jaw tool part (9) is in contact two the tool core (8) in the ejection direction (r) prior to the ejection of the closure cap (5) on two regions (51) located one behind the other and spaced apart from one another in the ejection direction (r), which show themselves jointly in a cross section through the second mold half,

in which cross section a cap longitudinal axis runs linearly.