



(86) Date de dépôt PCT/PCT Filing Date: 2006/11/28
(87) Date publication PCT/PCT Publication Date: 2007/08/09
(45) Date de délivrance/Issue Date: 2013/10/15
(85) Entrée phase nationale/National Entry: 2008/07/11
(86) N° demande PCT/PCT Application No.: EP 2006/069004
(87) N° publication PCT/PCT Publication No.: 2007/087913
(30) Priorité/Priority: 2006/02/01 (DE10 2006 004928.4)

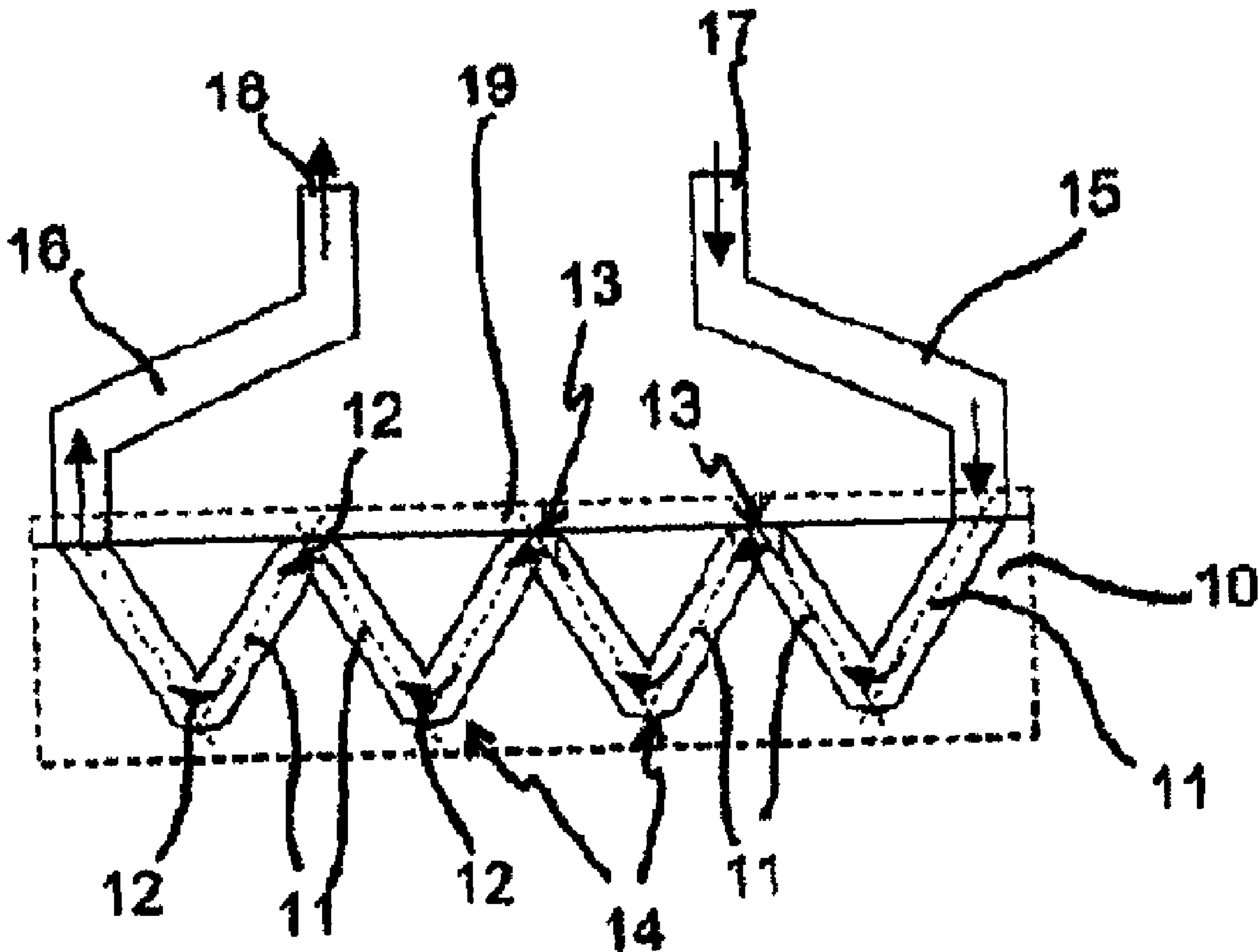
(51) Cl.Int./Int.Cl. *B29C 45/73* (2006.01),
B23P 15/00 (2006.01), *B29C 33/04* (2006.01),
B29C 45/33 (2006.01)

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(54) Titre : REFROIDISSEMENT DE GOULOT AMELIORE
(54) Title: IMPROVED NECK BLOCK COOLING



(57) Abrégé/Abstract:

The invention relates to a neck block of a mold for producing a hollow perform in an injection molding process. Said neck block comprises a base (10) with a shaping surface which is adapted to the outer contour of a neck section of the hollow perform that is

(57) Abrégé(suite)/Abstract(continued):

to be produced and is to enter in contact with the neck section of the hollow perform during the injection molding process. At least one cooling duct (11) for a cooling fluid, at least some sections of which extend substantially parallel to the shaping surface, an inlet, an outlet, a supply duct and a discharge duct that connect the inlet or the outlet to the cooling duct are also provided, the cooling duct being disposed closer to the shaping surface than the inlet and the outlet. In order to create a neck block which is easy and thus inexpensive to produce while allowing for effective and homogeneous cooling especially in the vicinity of the shaping surface of the neck block, the cooling duct (11) encompasses at least one section that runs essentially parallel to the shaping surface and extends within the base (10) such that the walls of said section are formed by the base and a connecting section (13) which adjoins said section and whose walls are formed in part by the base and in part by a closing element that is placed on the base.

18468P0079CA01**ABSTRACT**

The invention relates to a neck block of a mold for producing a hollow perform in an injection molding process. Said neck block comprises a base (10) with a shaping surface which is adapted to the outer contour of a neck section of the hollow perform that is to be produced and is to enter in contact with the neck section of the hollow perform during the injection molding process. At least one cooling duct (11) for a cooling fluid, at least some sections of which extend substantially parallel to the shaping surface, an inlet, an outlet, a supply duct and a discharge duct that connect the inlet or the outlet to the cooling duct are also provided, the cooling duct being disposed closer to the shaping surface than the inlet and the outlet. In order to create a neck block which is easy and thus inexpensive to produce while allowing for effective and homogeneous cooling especially in the vicinity of the shaping surface of the neck block, the cooling duct (11) encompasses at least one section that runs essentially parallel to the shaping surface and extends within the base (10) such that the walls of said section are formed by the base and a connecting section (13) which adjoins said section and whose walls are formed in part by the based and in part by a closing element that is placed on the base.

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Improved neck block cooling

5 The present invention concerns a neck block of a moulding tool for the production of a hollow body preform by means of injection moulding, wherein the neck block has a main body with a shaping surface which is adapted to the external contour of a neck portion of the hollow body preform to be produced and is provided to come into contact in the injection moulding operation with the neck portion of the hollow
10 body preform, wherein furthermore there are provided at least one cooling passage for cooling fluid which at least portion-wise extends substantially parallel to the shaping surface, an inlet and an outlet and an inlet passage and an outlet passage which connect the inlet and the outlet respectively to the cooling passage, wherein the cooling passage is arranged closer to the shaping surface than the inlet and the outlet.

15 In injection moulding the material is plasticised and then injected under high pressure into an injection moulding tool. The material remains in the tool until it goes into a solid condition in which it can be removed from the mould. For that purpose the injection moulding tool forms a substantially closed chamber, the contour of which corresponds to the intended external contour of the casting to be produced.

20 In the production of PET bottles, firstly suitable hollow body preforms are produced by means of injection moulding, which are only then blown to give the definitive bottle shape in a further method step. The hollow body preforms produced by means of injection moulding for PET bottles are also referred to as blanks. The preform to be produced in the injection moulding tool has a screwthread in the region
25 of the subsequent bottleneck and generally a neck ring. Both the screwthread and also the neck ring form undercut configurations in the shaping tool so that the injection moulding tool must be of a multi-part structure at least in that region to permit the preform to be removed from the mould. The injection moulding tool portion forming the external contour of the bottle screwthread and the neck ring is generally of a two-
30 part structure, wherein each of the two parts is referred to as a neck block and each part has a 180° peripheral portion of the screwthread.

 In general it is desirable in regard to injection moulding for the corresponding wall thicknesses of the preforms to be reduced. Besides the saving on material and

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- example successively arranged straight portions which are not colinear with each other can approximate the configuration in respect of shape of the shaping surface and a cooling passage formed in that way is substantially parallel to the shaping surface.

In that respect it is desirable if the shaping surface comprises portions which are substantially in the form of the periphery of a partial cylinder or the shape of the periphery of a partial truncated cone, wherein preferably the axes of the part-cylindrical portions and the axes of the part-frustoconical portions are disposed on an axis, referred to as the neck block axis.

