Machine Translation

FEDERAL SUPREME COURT

IN THE NAME OF THE PEOPLE

JUDGMENT

X ZR 88/19

Pronounced on:
November 9, 2021
Schönthal
Judicial Employee
as Clerk of the
Court Registry

in the patent nullity case

ECLI:DE:BGH:2021:091121UXZR88.19.0

At the oral proceedings on November 9, 2021 the X. Civil Senate of the Federal Supreme Court by the Presiding Judge Dr. Bacher, Judges Hoffmann and Dr. Deichfuß, Judge Dr. Kober-Dehm and Judge Dr. Crummenerl

has ruled as follows:

The appeal against the judgment of the 5th Senate (Nullity Senate) of the Federal Patent Court of July 9, 2019, is dismissed at the defendant's expense.

By law

Facts of the Case:

1 The defendant is the owner of German patent 10 2012 008 262 (patent in suit), which was filed on April 25, 2012 and relates to an apparatus for molding a heated plate or a heated foil web segment of thermoplastic material into a molded part. Claim 1, to which nine further claims are referred back, reads:

> Apparatus for molding a heated plate (1) or a heated foil web segment of thermoplastic material into a molded part, comprising a molding station (2) with a heating device (3) for heating a plate (1) or a foil web segment of thermoplastic material, an upper and lower clamping frame (4, 5) for clamping the heated plate (1) or the foil web segment, a vertically movable mold table (6) for receiving a deep-drawing mold (7), and devices (8) for pneumatic cooling of the molded plate (1) or the deformed foil web segment, characterized in that guiding elements (9) for air flows, which supply cooling air to the devices (8) for pneumatic cooling of the side of the molded plate (1) or of the molded foil web segment facing away from the deep-drawing mold (7), are provided in a collecting station (10) with a supply air pipe (12), in which at least one flow machine (11) for conveying the cooling air is arranged, and in that the guiding elements (9) are each equipped with devices (16) for varying air quantities at the individual cooling points as a function of the shape of the molded part.

2 The plaintiff claimed that the subject-matter of the patent in suit was not patentable and went beyond the content of the documents originally filed. The defendant defended the patent in suit as granted and, in the alternative, in an amended version.

3 The patent court declared the patent in suit invalid. Defendant's appeal is directed against this and continues to pursue its first-instance claims. The plaintiff opposes the appeal.

Reasons for Decision:

4 The admissible appeal is unsuccessful.

5 I. The patent in suit relates to an apparatus for molding a heated plate or a heated foil web segment of thermoplastic material into a molded part.

6 1. According to the statements in the patent in suit, devices of this type known in the prior art have water-cooled molding tools.

7 After completion of the molding process, the molded parts are cooled by the cooling water on the side adjacent to the tool, while the upper side facing away from the tool is cooled pneumatically. For this purpose, fans are used, usually several of them arranged in the superstructure of the device, which accelerate the cooling air and direct it to the hot upper side of the molded parts while increasing the pressure. The operator switches on the fans that are suitable from the point of view of their position and directs their outlet nozzles according to the requirements for cooling the relevant molded part.

8 The fans sucked in the air used for cooling from the upper structure of the apparatus. Because of the heating device, the temperature in this area - as in the entire apparatus - is above the temperature in the production area. Therefore, sufficient cooling of the upper side of the molded parts could only be achieved slowly or, under certain circumstances, not at all. The asymmetrical cooling could also easily lead to deformation of the molded parts (para. 2).

9 2. Against this background, the patent in suit concerns the technical problem of providing an apparatus which enables sufficient, rapid and uniform cooling.

10 3. To solve the task, the patent in suit proposes in claim 1 an apparatus whose features can be broken down as follows:

1. The apparatus is used to mold a heated plate (1) or a heated foil web segment of thermoplastic material into a molded part.

1.1 The apparatus comprises a molding station (2) with

1.1.1 a heating device (3) for heating a plate (1) or a foil web segment made of thermoplastic material,

1.1.2 an upper and lower clamping frame (4, 5) for clamping the heated plate (1) or the foil web segment,

1.1.3 a vertically movable molding table (6) for receiving a deep-drawing mold (7),

1.1.4 devices (8) for pneumatic cooling of the deformed plate (1) or the deformed foil web segment and

1.1.5 guiding elements (9) for air flows, which

1.1.5.1 supply the devices (8) for pneumatic cooling of that side of the deformed plate (1) or of the deformed film web section which faces away from the deep-drawing mold (7) with cooling air,

1.1.5.2 open out into a collecting station (10) with a supply air pipe (12),

1.1.5.2.1 in which at least one flow machine (11) for conveying the cooling air is arranged, and

1.1.5.3 are each equipped with devices (16) for varying air quantities at the individual cooling points as a function of the shape of the molded part.

11 4. Central importance is attached to the elements defined in feature group 1.1.5 for conveying and supplying the cooling air.

12 a) The elements described in feature group 1.1.5 are intended, according to feature 1.1.5.1, to supply cooling air to those devices (8) which are provided for pneumatic cooling of the side of the molded part (1) facing away from the deep-drawing mold (7).

13 According to the description of the patent in suit, these cooling devices can, for example, be designed as movable nozzles which can be adjusted by the operator of the apparatus according to the requirements for cooling the molded part in question (para. 7). However, claim 1 does not contain any mandatory specifications in this respect.

14 An example of an embodiment is shown in the (single) figure of the patent in suit reproduced below.

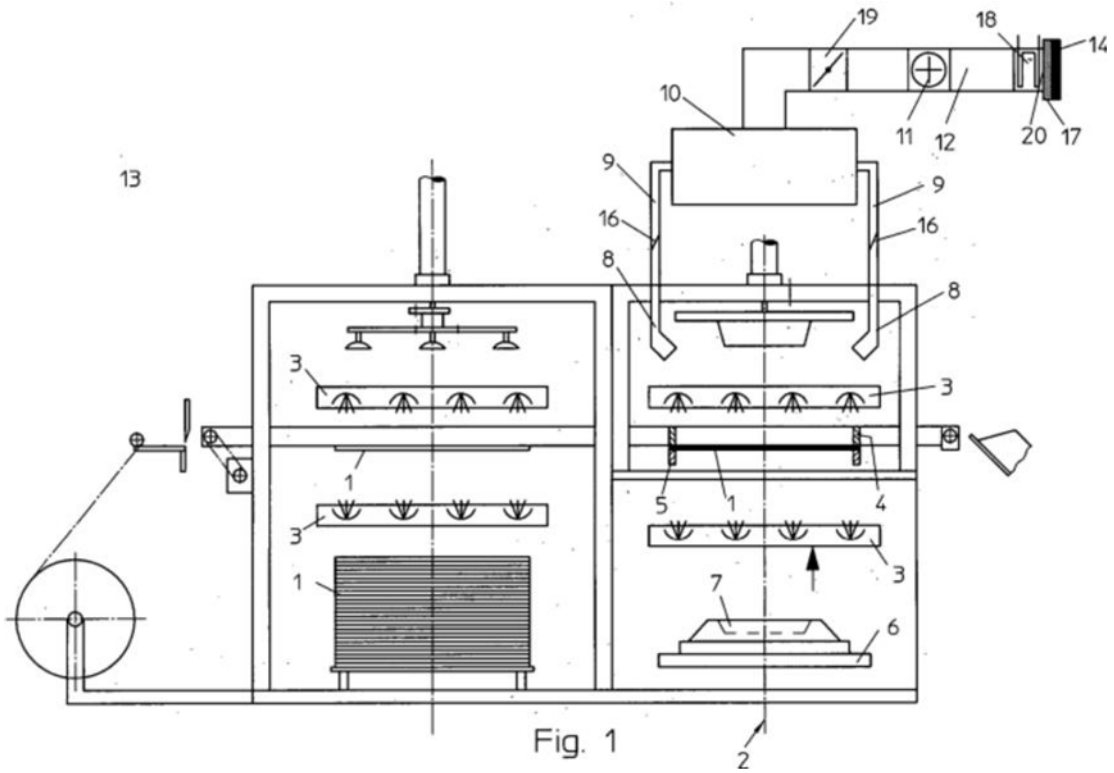

Fig. 1

15 b) As one of the means of achieving more favorable cooling conditions, the description of the patent in suit mentions the possibility of arranging the suction opening (20) of the supply air pipe (12) provided in feature 1.1.5.2 in an area where lower temperatures prevail than in the upper structure of the molding apparatus (para. 8).

16 Claim 1 does not specify a concrete position for the suction opening (20) and does not otherwise contain any more detailed specifications for the design of the supply air pipe (12).

17 c) The central flow machine (11) provided in feature 1.1.5.2.1 and arranged in the supply air pipe (12) replaces the locally arranged individual fans provided in the state of the art. If required, several flow machines (11) can also be arranged in the supply air pipe (12) (para. 8).

18 The flow machine can be equipped with a control device (15) with which the volume of the cooling air flow can be adapted to the requirements for cooling the molded parts (para. 8). However, such equipment is not mandatory according to claim 1. A corresponding specification is contained only in claim 6.

19 d) The guiding elements (9) provided in feature 1.1.5 guide the cooling air conveyed by the flow machine (11) via the supply air pipe (12) into a collection station (10) to several cooling devices (8) which serve to cool the molded parts on their side facing away from the deep-drawing mold.

20 Specifications for the position and the more detailed design of the collection station (10) are not contained in claim 1. In particular, feature 1.1.5.2 also leaves open how the collection station (10) and the supply air pipe (12) are connected to each other.

21 With regard to the design of the guiding elements (9), feature 1.1.5.3 merely specifies that these have devices (16) for varying air volumes at the individual

cooling points. The more detailed design of these elements is also left open by claim 1.

22 II. The patent court gave the following main reasons for its decision:

23 The subject-matter of claim 1 as granted was not patentable. Although it was new, it was suggested to the skilled person, a graduate engineer with a technical college degree in mechanical engineering or plastics technology with several years of professional experience in the field of developing thermoforming machines or in manufacturing in the production of corresponding molded parts, by the German 'Offenlegungsschrift' (application documents) 10 2005 033 014 (E3).

24 E3 would disclose an apparatus for molding a heated plate or a heated foil web portion of thermoplastic material into a molded part having the features 1 to 1.1.5.2.

25 Guiding elements for air flows in the sense of feature 1.1.5 were not explicitly described in E3, but were implicitly disclosed. Instead of blowers, the cooling device of the apparatus according to E3 could also consist of several nozzles - possibly designed as wide-slot nozzles - which are connected to a pressure source or an external blower. For this fluidic connection, the skilled person would read the presence of tubes and thus of guiding elements for air flows according to the invention in the sense of feature 1.1.5.

26 A collection station in the fluidic sense, as provided for in feature 1.1.5.2, was also not described directly and unambiguously, but could nevertheless be inferred from E3. The reference in the description that in the case of a design with blowing nozzles instead of blowers, these could be connected to a compressed air source or to an external blower was to be understood as meaning that there was a connection

only to a single external blower even if the cooling device had not only one but several blowing nozzles. The fact that, in the case of several nozzles, each nozzle was connected to a separate blower could not be deduced from the description and also made no sense from a technical point of view. In an embodiment in which several nozzles were connected to a single blower, the blower was located upstream in the direction of flow of a point corresponding to the collection station within the meaning of feature 1.1.5.2 and was connected to it via a pipe, while air pipes within the meaning of feature 1.1.5 led from the corresponding point to the nozzles. In any case, a pure series connection was not possible with several nozzles if - as provided in one of the embodiments shown in E3 - individual wide-slot nozzles could be switched on and off.

27 Whether the skilled person would also read feature 1.1.5.2.1 could be left open, since it would usually install a blower connected to several blowing nozzles, as described in E3, with the blower or impeller in a supply air pipe and would rather not consider other variants, such as a radial impeller connected upstream of the supply air pipe or only partially engaging in the supply air pipe. In addition, the US patent specification 5 620 715 (E2) proved that an arrangement of a fan in a supply air pipe according to feature 1.1.5.2.1 was part of the general knowledge of the skilled person.

28 Feature 1.1.5.3 was not disclosed directly and unambiguously. In the embodiments of cooling devices disclosed in E3, devices were provided by which the cooling air could be either switched on or off. Insofar as the skilled person did not in any case read into E3 the presence of volume control devices within the meaning of feature 1.1.5.3, the equipping of air ducts with such devices was at least within his/her grasp. The design of valves and air flaps that can be switched on and off as control valves or control flaps, with which the cooling air can not only be switched on or off by switching the corresponding devices on and off, but with which the volume flows can also be varied, represents a simple technical measure for

the skilled person, which belongs to his/her technical knowledge and for which the E3 also gives him/her cause. According to E3, the cooling device can be designed in such a way that, depending on the geometry of the molded part, the cooling air flow can be controlled unilaterally, diagonally via two sides lying next to each other at right angles, or alternately diagonally by switching the wide-slot nozzles on and off via the side opposite the mold. Furthermore, it is envisaged in E3 that the wide-slot nozzles can be swiveled by means of drives. Against this background, the skilled person is encouraged to provide devices with which the volume flow can also be varied. Irrespective of this, E2 proved that equipping air ducts in accordance with feature 1.1.5.3 was part of the general expertise of the skilled person.

29 The subject-matter of claim 1 in the version of the auxiliary request was also not patentable. The additionally provided feature 1.1.4.1, according to which the devices for pneumatic cooling are designed as movable nozzles which can be adjusted to the molded part by the operator, is known from E3. Feature 1.1.4.1 left open whether the adjustment was made manually or by programming. In any case, E3 discloses an apparatus in the control system of which it can be programmed and stored to swivel the blow nozzles during the cooling process via suitable drives in order to change the direction and effect of the air flow.

30 III This assessment withstands review in the appeal proceedings.

31 1. The subject matter of claim 1 as granted is suggested by the prior art.

32 a) In the result, the patent court rightly decided that E3 does not fully disclose the subject-matter of claim 1.

33 aa) E3, like the patent in suit, deals with the task of achieving a more uniform and rapid cooling of the surface of molded parts (para. 6).

34 E3 starts from known devices with multiple blowers and criticizes that this leads to a different temperature distribution (para. 3). Furthermore, the flow velocity is drastically reduced when individual blowers blow against each other (para. 4).

35 For solution, E3 proposes to improve the flow conditions.

36 In a first embodiment, shown in Figure 2 reproduced below, a flow is generated for this purpose which runs transversely or diagonally over the surface of the molded part.

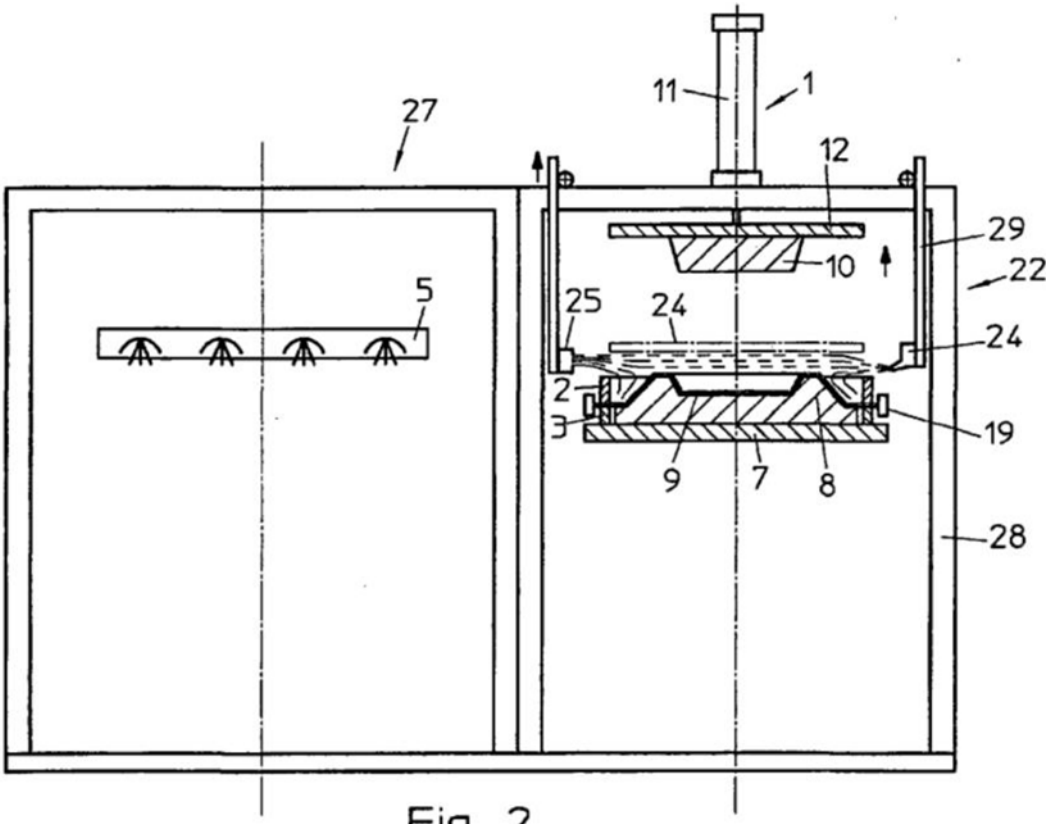

Fig. 2

37 The deep-drawn molded part is cooled by a cooling device (22) consisting of individual blowers (23) or of one or more blowing nozzles (24), preferably in the form of wide-slot nozzles. These are made of a hollow section and connected to a source of compressed air or an external blower (para. 16). A disadvantage of blowers (23) is that they usually draw air directly from the environment (heated by the heater), while blowing nozzles are connected to a more distant blower (para. 21).

38 In the first of the variants shown in Figure 2, the cooling device (22) consists of a wide-slot nozzle (24) (drawn on the right edge of the figure) (para. 17) and optionally a suction device (25) arranged on the opposite side, which further increases the flow velocity (para. 20).

39 In a second variant, a second blowing nozzle (24) (shown dashed in the figure) is used, which is arranged on the adjacent side of the molded part. This results in an air stream which runs diagonally across the molded part (para. 18). Optionally, one or more suction devices (25) can be provided (para. 20).

40 In a further variation, blowers (23) or blowing nozzles (24) can be fitted on all four sides of the molded part (9). Then, during cooling, only the blowers or nozzles on one or two adjacent sides are switched on in each case (para. 19).

41 bb) Thus, as the patent court correctly assumed and the defendant also does not question, features 1 to 1.1.4 are disclosed.

42 cc) The patent court also correctly decided that features 1.1.5 and 1.1.5.1 are also disclosed.

43 What may also be disclosed by prior publication is that which is not expressly mentioned in the patent claim and in the description but which, from the point of view of a person skilled in the art, is self-evident for the implementation of the protected teaching and therefore does not require special disclosure but is "read in" (BGH, judgment of 18. March 2014 - X ZR 77/12, GRUR 2014, 758 marginal no. 39 - Proteintrennung; judgment of December 16, 2008 - X ZR 89/07, BGHZ 179, 168 = GRUR 2009, 382 marginal no. 26 - Olanzapin).

44 These conditions are met with regard to features 1.1.5 and 1.1.5.1.

45 From the juxtaposition of blowers and blowing nozzles and the indication that blowing nozzles are connected to a source of compressed air or an external blower, it follows without further ado that there must be components which ensure that the air flows from the source of compressed air or the blower to the blowing nozzles. This is sufficient to disclose features 1.1.5 and 1.1.5.1.

46 dd) In contrast, the feature group 1.1.5.2 is not directly and unambiguously disclosed - contrary to the patent court's assumption.

47 It is not explicitly disclosed in E3 whether, in embodiments with multiple blowing nozzles, each nozzle is assigned to a separate compressed air source or a separate external blower, or whether there is a common device that requires at least distribution via a collection station within the meaning of feature 1.1.5.2. Even if the number of construction principles that can be considered in principle may be manageable in this respect, additional technical considerations were required in order to arrive at an embodiment with a common air source and a collection station. This applies all the more to the arrangement of the turbomachine in the supply air pipe connected to the collection station.

48 ee) Also not disclosed is feature 1.1.5.3.

49 It can be left open whether it is sufficient for the realization of this feature if individual nozzles can be selectively switched on or off. As the appellate response does not fail to recognize, even if this question were answered in the affirmative, feature 1.1.5.3 would at most be directly and unambiguously disclosed in E3 for such embodiments in which several blowing nozzles are supplied by a common compressed air source or a common blower. However, this embodiment is not disclosed in E3 for the reasons mentioned above.

50 b) As a result, the patent court rightly decided that the subject-matter of claim 1 is not based on inventive step. It was in any case suggested by a combination of E3 with E2.

51 aa) As already explained above, E3 classifies the combination of the use of a blower nozzle and a more distant external blower as advantageous because it allows to suck in colder air. This gave reason to take a closer look at this variant.

52 E3 does not contain any more detailed information on the design and arrangement of the blowing nozzles and external blowers. In view of the advantages of this embodiment described there, however, there was reason to search the prior art for possibilities that could be considered for this.

53 bb) Whether the subject-matter of claim 1 was already suggested against this background by the additional use of general technical knowledge can be left open. In any case, sufficient suggestions resulted from E2.

54 (1) E2 discloses a thermoforming machine designed as a rotating device with four stations, including a controlled cooling station (22).

55 In the cooling station (22), the molded part is cooled to the desired temperature from all sides by a uniform flow of air. The supply of cooling air can be provided by conventional air-conditioning systems. In a preferred embodiment, an air supply system is provided which uses outside air - possibly in combination with exhaust air (col. 7, lines 31-35).

56 An embodiment of such a system is shown in Figure 1 reproduced below.

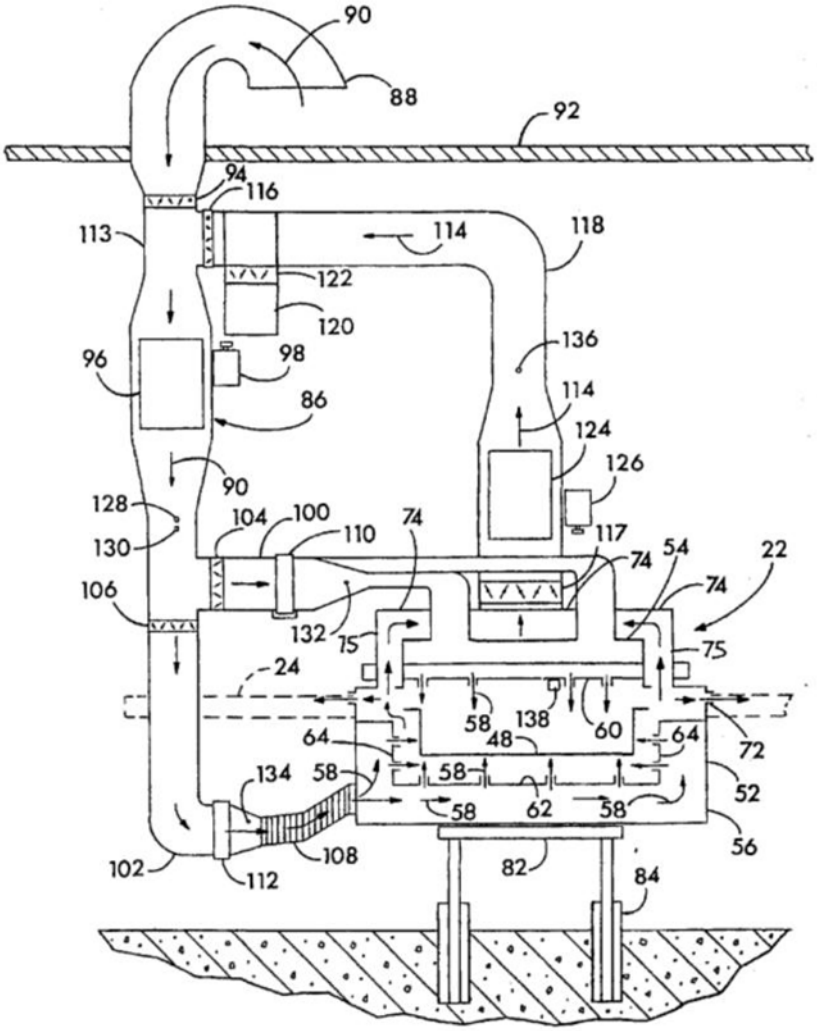

FIG. 1

57 The air supply system (86) includes an inlet port (88) through which air (90) is sucked in from outside the building (92). A motor-driven air damper (94) controls the inflow. The suction is done by means of a suction blower (96) driven by a motor (98). The air sucked in is distributed to an upper air duct (100) and a lower air duct (102) (col. 7, lines 37-46).

58 The two air ducts (100, 102) each have an air damper (104, 106) that can be adjusted manually or automatically and regulates the air supply to the respective air duct (col. 7, lines 46-52).

59 (2) This discloses feature group 1.1.5.2.

60 The suction blower (96) is located in an area that acts as a collection station as defined in feature 1.1.5.2 because the air delivered by the blower can flow out through two different channels.

61 (3) Also disclosed is feature 1.1.5.3.

62 As explained above, the amount of air in the two air ducts (100, 102) can be regulated by dampers (104, 106).

63 (4) As the appellate response rightly argues, based on E3, there was reason to design the connection between an external blower and several blowing nozzles as disclosed in E2.

64 There was particular reason to use E2 as a source of information on the more detailed design of this connection because E2 also emphasizes that an arrangement of the inlet opening of the air supply system outside the device offers the possibility of supplying sufficiently cool air to the system, and thus of using the outside air in northern climates, for example (col. 7, lines 55-59).

65 Contrary to the appellant's view, E3 did not merely give rise to a search for solutions for an air supply system in which each nozzle is connected to a separate blower. As has been pointed out, E3 does not expressly disclose whether, in embodiments with multiple blowing nozzles, each nozzle is associated with a separate blower or whether a supply to the nozzles is provided by a common blower. Therefore, this citation did not result in a pre-determination of one of these two variants. Consequently, there was reason to also consider solutions with only

one - central - blower, especially since these offer the possibility of making the cooling equipment more cost-effective.

66 The fact that the division into two separate cooling lines (100, 102) in E2 serves the purpose of directing cooling air to the top and the bottom of the molded part, and that the latter is necessary in the device disclosed in E2 because the cooling does not take place on the mold but in a hollow chamber, does not lead to a different assessment, contrary to the view of the appeal. Neither from E3 nor from E2 is there any indication that the points to which the air is to be directed and the flow path of the air after exit from the nozzles have any influence on the question of how the elements for the air supply from the blower to the nozzles must be designed.

67 The fact that the cooling device of E2, in addition to a system for supplying outside air, also provides a system for using the exhaust air for cooling the molded part does not preclude the use of the citation in finding ways to connect the blower and nozzle in the cooling device disclosed in E3. The recirculation of exhaust air for mixing with the outside air is disclosed in E2 only as an option. From this alone it is clear that this feature is not necessarily related to the connection between blower and nozzles, which is the focus of interest starting from E3.

68 2. The subject-matter of claim 1 as amended by the auxiliary request was also obvious.

69 a) According to the auxiliary request, the following feature should be added to claim 1:

> 1.1.4.1 wherein the devices (8) for pneumatic cooling are designed as movable nozzles allowing adjustment to the molded part by the operator.

70 b) The patent court rightly decided that feature 1.1.4.1 is disclosed in E3.

71 The cooling device disclosed in E3 can be designed to be height-adjustable, whereby the respective desired position can be determined via a programmable controller (para. 23). Furthermore, the cooling device can be designed in such a way that the blowing nozzles can also be swiveled during the cooling process via corresponding drives in order to change the direction and effect of the air flow. This type of adaptation of the nozzles to the respective requirements can also be programmed and stored in the control system of the device (para. 24).

72 Even with the option described in E3 of programming the desired position of the nozzles in the control system of the device, the nozzles are ultimately set by an operator. The programming is carried out by an operator who can align it to the requirements of the molded part to be cooled and who, as a result, also has the option of changing the programming at any time. It can therefore also intervene in the sequence during the cooling process and make any necessary adjustments in the event of a change in conditions. Once programming has been stored for a particular molded part, it is intended to facilitate the cooling process, but after the E3 it does not necessarily have to be adopted, but can also be changed at any time as required.

73 In the light of the above, it can be left open whether feature 1.1.4.1 is to be interpreted as meaning that the operator must be able to make the setting independently of a programmable control. As the patent court correctly pointed out, the programmable control disclosed in E3 represents a more advantageous solution compared to a purely manual setting option. In view of this, the return to a manual setting cannot lead to the affirmation of an inventive step.

74 IV. The decision on costs follows from Sec. 121 (2) Patent Law and Sec. 97 (1) ZPO.

Bacher Hoffmann Deichfuß

Kober-Dehm Crummenerl

Lower court:
Federal Patent Court, decision of July 9, 2019 - 5 Ni 22/17 -