

1) Family number: 28313050 (US2002182285A)

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Title: MOLDING SYSTEM WITH INTEGRATED FILM HEATERS AND SENSORS

Abstract: Improved mold manifold and hot runner nozzle using thin film elements include at least one active or passive thin film element disposed along a melt channel between the manifold inlet and the hot runner nozzle. Preferably, the thin film element may comprise a thin film heater in direct contact with the molten resin and position to aid in the heat and flow management of the resin within the melt channel. Thin film temperature sensors, pressure sensors, and leak detectors may also be provided in the vicinity of the melt channel to enhance process control in the injection molding machine.

Classifications:

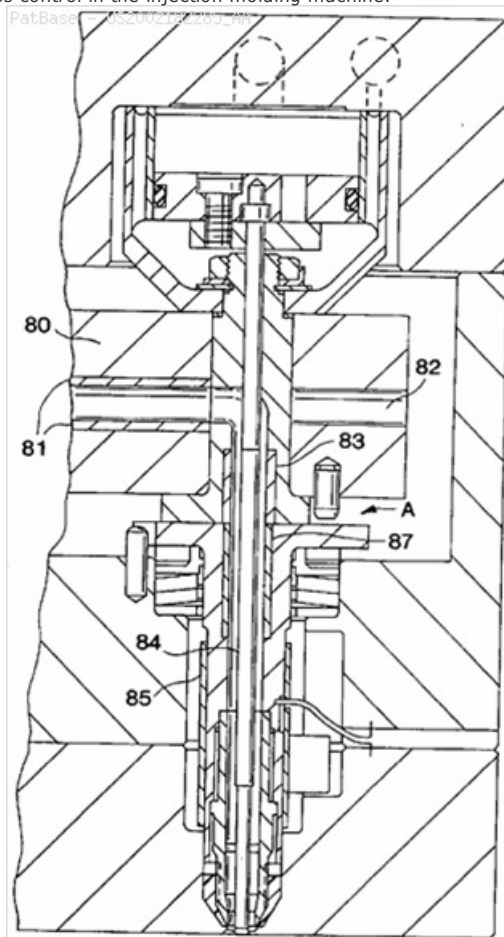
International (IPC 8-9): B29C33/02 B29C45/00 B29C45/03 B29C45/16 B29C45/17 B29C45/26 B29C45/27 B29C45/72 B29C45/74 B29C45/78 H05B3/46 (Advanced/Invention); B29C45/00 B29C45/02 (Advanced/Non-invention)

International (IPC 1-7): B29C4/520 B29C45/00 B29C45/03 B29C45/16 B29C45/17 B29C45/20 B29C45/26 B29C45/27 B29C45/72 B29C45/74 B29C45/77 B29C45/78 F27B14/00

CPC: B29C45/02 B29C45/1603 B29C45/2701 B29C45/2711 B29C45/2737 B29C2045/2722 B29C2045/274 B29C2045/2741 B29C2045/2745 B29C2045/2746 B29K2067/00

European: B29C45/16B B29C45/27B B29C45/27B3B B29C45/27E L29C45/02 L29C45/27B8 L29C45/27E3 L29C45/27E3B L29C45/27E4B L29C45/27E4C L29K67/00

US: 219/422 219/426 219/511 264/255 264/255S 264/328.14 264/328.140S 264/40.6 264/40.600S 425/143 425/145 425/392 425/478 425/549 425/549P 425/570 425/570S 425/572



Family:

Publication number	Publication date	Application number	Application date
AT262403 E	20040415	AT19990304442T	19990608
AT519587 E	20110815	AT19990076889T	19990608
CA2274308 AA	19991212	CA19992274308	19990610
CA2274308 C	20050405	CA19992274308	19990610
DE69915731 D1	20040429	DE19996015731	19990608
DE69915731 D1	20040429	DE19996015731T	19990608
DE69915731 T2	20050317	DE19996015731T	19990608
DE69943626 D1	20111013	DE19996043626	19990608
EP0963829 A1	19991215	EP19990304442	19990608
EP0963829 B1	20040324	EP19990304442	19990608
EP1234651 A2	20020828	EP20020076889	19990608
EP1234651 A3	20030423	EP20020076889	19990608
EP1234651 B1	20110810	EP20020076889	19990608
JP2000006194 A2	20000111	JP19990167457	19990614
JP2010012797 A2	20100121	JP20090237858	20091015
KR100667992 B1	20070115	KR19990021863	19990611
KR20000006129 A	20000125	KR19990021863	19990611
US2002182285 AA	20021205	US20020187331	20020702
US2003206991 AA	20031106	US20030454501	20030605
US2004222209 AA	20041111	US20040866044	20040614
US2005129801 AA	20050616	US20050035128	20050114
US6305923 BA	20011023	US19980096388	19980612
US6341954 BA	20020129	US20000550639	20000414

US6575729 BB	20030610	US20020187331	20020702
US6764297 BB	20040720	US20030454501	20030605
US7029260 BB	20060418	US20050035128	20050114
US7071449 BB	20060704	US20040866044	20040614

Priority:

US19980096388 19980612	EP19990304442 19990608	EP20020076889 19990608
CA19992274308 19990610	CA19992274308 19990610	JP19990167457 19990614
US20000550639 20000414	US20000695017 20001025	US20020187331 20020702
US20030454501 20030605	US20040866044 20040614	US20050035128 20050114

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2) Family number: 4029408 (JP48033070A)

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Title: 1, the name of the invention, four-bread pan, such as steam to a steam injector F of 2.1 water inlet to the platen! Huh formed on the steam generating chamber 91, the series of the platen unit in communication with the water inlet in communication with the remote location, at a plurality of steam injection Kyushu groove is provided, the inlet and the above-mentioned series of the groove chamber 01 and a chamber arranged adjusting means of this and the like FFI · Hata (1 + a) 215011 Lil communicates through the vertical and horizontal directions of the said column of the platen unit, a plurality of regulating the steam injection holes at equal intervals and it is arranged directly above the steam injection groove provided so as to be located only water inlet, the water inlet heating platen unit 1974 putu injecting water into the indoor unit, and all of the water, ultra-fine the platen unit hot steam to a temperature, so as to heat the platen portion heating means, only the ultra-fine Womotte hot steam steam is introduced into the hole injection groove) 10 so as to Seshimeru release the mold from the steam injector. detailed description of the present invention, zero -- WA, (a kind of Hiroshi pastries) with respect to the injecting steam around, the present invention relates to a method and device for forming a main body of crab steam injector hiroshishigeru platen is removable portion, in which the platen unit to the vertical and horizontal directions at equal intervals a plurality of steam injection port of the platen unit is a steam can be obtained specially shaped porous formed. on the pan or the like on the tray of the tray hole line is consistent with the steam injection ports directly from the tray hole pan steam is injected into the injector, the present invention, steam #39;, a plurality of p-other breads bread, confectionery, cooking goods such as for directly injecting steam into each of the method of the TEWI pan, pan, about the command. The foods to such as air-KM 46, concentration and temperature JP4 to a predetermined level, the instantaneous steamer keep (k + @ a m1m g' + Ni) is known. Hiroshi steamer, withdrawals, and such like known-normal end of the steam chamber of the above: In this polarization foods placed in a steam steam steam is introduced into the blanket (surface) to form the food product is a rug-like from the blanket, caused to the formation, the steam heat and moisture, so as to obtain the friend. In many cases, this is a steam or the like known device can prevent leakage of 9 airtight." This kind of typical known case is -1, k ·! America ! i due to the congregation Patent No. 3.23 6.17 @ R, La5 due to a US Pat congregation ai 3.41h or the like No. 4 and @-a wl 411 first American congregation huh 2.67 4.93S is shown in ?Ru steam required bracket to the configuration of such devices, butterflies getting inside the temperature of the desired one of the best and means, a. Further, drawer, such as steaming airtight chamber using the temperature and humidity of the dietary to provide the desired level using the blanket 6, 9, or steam that require the structure of the steamer-resulting in unnecessarily complex according to the present invention, steam directly in equal amounts of each stay-in food sector a steam, there is provided a all the food temperature and applied to the sector is a tortoise shell high-Precision Rxi, it is possible to control of the KJ to this average Hiroshi food i, given the amount of steam and the given in the high temperature and high humidity pan requires a relatively capable of producing food of the present invention. hot steam steam-sector to obtain high-quality ultra-fine platen unit. On the platen in the vertical and horizontal directions a plurality pores are regularly arranged at equal intervals, the dry steam may correspond), the columns and rows of the food in the food which is injected directly into the steam holes 1 directly at the table on the i-LINK on the tray is the steam holes perforated, placed on the tray, it is desirable that the steam holes coincide with the position of the plurality of holes provided in the vertical and horizontal directions both the tray and the platen portion O hole so as to align properly is desired by such a tray-food sector), a plurality of vapor or if the ?-into when taking out the job from, it is possible to quickly handle and other features of the present invention, objects, and advantages are described with reference to the illustrated embodiment of Fig. 1 through is the 1114 Pan), s10 is shows an embodiment of a steam injector (pan-steam after in the control 14 and the vignette's pace in the vignette's cabinet 16. consisting portion 12t of the base-cover part 18 cabinet 16 is supported by the cover 8 is a part 5 of the cover cover I, the BU 22 front end of the 51s) are repeated one-hand 2f connected to the compost bins JK therefore movable hinge around which is adapted to be brought into areas C and the bottom 111 [(Fig. 5) consisting of such a pan placed on a perforated tray steam injector I is inserted pan it is desirable to regularly, the tray 30a at equal intervals in the nine pieces of holes punched at least having, Minoru plan plan!). pace pace bread is a leading edge and side edge of the edge (so as not to move shift to the Kyushu (II provided integrally with the ?) In addition, the base of the ? sedimentary Shinichi Nakatomi and secure it with the thousand an appropriate method is lifted tray (i) adapted to cover a portion of the front. There are 4 that position), incisions of valuable sedimentary ? so as to hand (11 see Fig. 1). placed on the platen unit cabinet 16 to a plurality of injection holes lead 4 gas-steam examine the pores of, those having a K.) is injected into the tray above the top of the hole through the scale portion QC and injected into the pan .261 0M of the gas injection holes at equal intervals vertically and horizontally, arranged in the same manner regularly and arranged regularly in the PAN ID, to be able to injection hole and the injection hole of at equal intervals in the U also regularly arranged to coincide (see Fig. C8118 platen section on the platen @ is dish to the platen configuration example of suitable shape. i dish of the platen is a steam injection holes, a plurality of platen example stud) such as haiku group closely fixed to the head of the welding or the like implantation bizerte dish) the platen, the platen the pace of perforations provided continuously downward through the, so as to several valuable II tray #i of the chestnut nut 52 platen of the upper surface of the lower surface and the platen example. In this case, the close contact fixing temperature suitable sealing material such as rubber tateshina to the platen by the contact surface of the dish, the upper edge of the platen is desired. Use degrees platen of the base cabinet 16 It is placed on the edge of the tray 46 to the platen 9, the outer peripheral is provided, # i, a groove (the groove of the metal plate constituting the base cabinet 16 to the upper edge of the pair so as to be positioned on the END: 2-ya on both sides in the longitudinal direction of view vignetting and 11i on the lower surface of the platen 8 to the center of the Bank of Japan Accounts (Figure 6) \$58. two continuously provided a implantation 50 # i) # 58 protrudes downward from the appropriate hole bolt end of this and the like, [11 53-nut screwed to the platen of the platen is fixed to the tray a17 (see Fig. 8), the WJ, the first and second portions of the nut 51 y portion K, therefore I remove the ps ren cabinet mounted rotatably, it is possible wear as described later, the thermostat 12, as shown in Fig. 12, the platen 44, the groove @ and allowed to touch the upper edge of the cover 8 placed on the imperial rescript lay-Fig. 6, see Fig. 1)% a portion at intervals in the hippopotamus in # 9-l) pair of platen") 59 does not move rearward with

the bracket 5 the KL is% the outer peripheral cover 9 the lower edge is supported by the groove portion (see Fig. the Cgs), the cover 1 is of stepped 1 2 it is desirable to slightly strange, ? putu S, if the gasket 4 and the working edge 4 is 115-the in much the same way as the hinge cover the groove portion as an axis, it is possible to may further, both sides of the rear of the bracket I groove 54 degrees) I and the steam injection hole tray to match the on the sieve it can be positioned on the platen! has 319 examples of Kim Mun Al-Z alloy casting such as it is desirable to ?, the platen, those such as the resistance element embedded resistance heating method shown in Fig. 9 Cast. As described above, the ? to resistance element has a number of loop example gentle, the platen provided so as to cross the plurality of the platen of the groove and the examples of the upward this or the like of the chamber with the groove and the casting chamber is dry steam the steam injection O only above pan, sieve on the formed so as to be reliably ejected. As described below, each operating cycle of a certain amount of water is supplied to the water inlet) clear water inlet portion the male screw is screwed, it is desirable to be able to plug screw (6s). straight I water. 11 Bu Li enters the air chamber 64 of the steam generating ?-hun even provided with a pair of section (1) valuable@b ? A mixture O then, the process proceeds to water and steam from the ?-shaped rear valuable part ?) enters the steam generating hammer 82 and shallow Fig. 9 I 101i and 11> ? as apparent parts III I chamber and 68) pair of adjusting wall 70 are separated, O then chamber extending from Seki ?, generated steam and the steam water adjustment associated with the rear wall of shallow to exceed proceeds to s one hms! Then, air enters the steam 74K an image data associated with this shallow water line (passage 78 further has become over-steam 11, and as a result] 76K, all of the water is of good quality at time t, the excess water does not heat steam 76 steam honey ore. in each direction from, on the steam over-control passage section #i-? in front of the viewed circle and peeled cattle pass each other groove 82 steam the steam injection into another part of the control through the steam Control Dept., ed., Shinichi Nakatomi steam chamber 76 and 85 over the steam generating chamber 86 and 74, H., et al., 6) it is desirable to shallow, and air volume is small, steam from the steam double ? control passage through the steam injection I9], semi-cylindrical # 9 is sent to the steam from the m86 do # 11 straight rectangular shallow-passage through the steam control soda), semi-cylindrical, the process proceeds next to each of the steam the steam injection 94 injection passage (tm) product is a ? steam control, it should be noted that wider (e.g. passage and the groove is compared to the dry%), on the sieve and the axis of the steam injection, ? close contact with the lower surface of the dish part of the outer peripheral line to the platen can cause write-shaped from the steam from the steam injection ? on the sieve) only only the steam holes leaking to the value of the upward groove 9 and 0m, and an array of pores) 11 Co., high quality, high dry steam exiting the steam that is generated in this array returns a nine expansion steam) Hiroshi compressed), the speed adjustment for causing repeated changes, this biasing") "C", all with 0'.sub.k is a / injecting steam generating der those good. don't help), also this sequence is heated metal contact between the platen unit to increase the table cho vapor injection groove t, associated with the reach to eliminate the water vapor from the air injection injection groove. JIS sieve on the L3 and the tray 0? on the tray 4 as the pan directly It is injected into the gs and Fig. 11I Tcth, water in the water supply line with a screw and peng trowel water inlet 62 is supplied to the line 111, the operation of the flow control solenoid pressure regulating tsure-pulp pulp, there is a melting section 102 102, for example, the line pressure level about b-part 125, wand within the line pressure-1g, regardless of the limit), a constant flow rate: 3 end for supplying water pulp portion 102) 9. The water flowing through the feed line 104 was the screw from the water inlet 62 water supply line and the feed line. Hiroshi, and pulp 104 are mutually fitment portion 102K, connected by appropriate feed) by fitting screw line 1G4 of the run an appropriate one, the mounting is water inlet 62 (see Fig. 6), et al.,. Featuring master for cleaning the platen 8 repair or easily Hazuseru chrysanthemum), the platen 8 the upper edge of the base cabinet 16 group is placed on the platen 8 is. KII featuring master groove 58 mI] the nut It is fixed to the groove by a butterfly ? as shown in the figure, the platen unit nut-fan as well as Imperial, the platen 8 to the groove toward fair featuring master, dish-shaped elastic gasket 160 and the washer 162 through the anti-head of the thermo) 12g Seshimeru pressed against the platen 44 which is fixed to said seat gold thermostat insertion support arm 164, is intended for receiving the mounting of such a method, the thermostat by separately if necessary K Remove the III, it is possible to thermostat 12. butterfly nut i and the connection and remove the water and the scavenging, cut off the connection of the resistance heater is a u l, the circuit of the present invention, usually via the on-off switch 13G standard 120V power from a power source to obtain a father flow 122K therefore appropriate neon lang switch 130 is "on" or "off" in the position of the BU is shown in position ? is a temperature-resistance element operating mode, to be a stacker) 124 Tc is controlled thermostat 12 325" is set in the four P, it is desirable that the heat-sensitive portion of the thermostat 124, the thermostat platen ask the hole 125 (Fig. 9) so as to be inserted into. The platen unit is, for example, 250 of water to the o1 the injection at a predetermined minimum temperature, be carried out only at the time of the platen is fixed to ask the friend's pace is controlled thermostat 126) (Figure 7), and the Hiroshi at the predetermined minimum temperature 142 degrees a neon lamp La Playa instruction, which is the platen @ of the minimum temperature at the time turned on.-thermostat 126 can have a predetermined level reaches the temperature of the platen unit or also # i exceeded a high quality and is closed, i.e. the desired steam and the grooved portion 7, the platen temperature generated by the different path switch indicating that a certain amount of water is closed, when the screw and turn off than the platen 8 good water inlet flows into the clear switch 14g has its central portion without operating the manual position position, or automatic position from that position. Fuji, switching freely it is intended to switch to the manual position for arm and the contact is temporarily closed, the relay 136, the relay 136 is energized, switch 138 is opened, to turn off the neon lamp 142 properly steam injection cycle is in progress), the timer switch 144 is closed, the motor 146 is switched to operate the automatic position when run the contact switch 138 and 144 remains closed, the motor 146 continues to energize the lamp 142 6 degrees off timer tlc motor 146 riding on the shaft of the arm 148 and 150 the two is provided with a cam 148, a certain amount of water is injected into the water inlet 62, thus a certain amount of pulp with steam solenoid-actuated Seshimeru generating unit 102 is formed so as to open cam 14g is rotated in the clockwise direction, the cam portion 152 of the cam 125 reaches the position of 4g is when switch 151 operating portion 102 ?To pulp opening the cam 150 switch 154 switch 144 to operate in the closed via the contact of the timer to ensure the power of the motor 146 of the cam with respect to the cutout portion. except when the timer end motor reliably in order to operate the cam forms. #39; cut-out portion of the switch 154 is in the switch 13g and 144 to cut off the relay contact 136, an evening and 4 · f motor 146 to power down the CAM. However in this part of the switch 154 is another contact of the cam by the cam 15G past the notch 15 until it stops timer switch 144 contact, through to excite the motor 146 also in this set period, the force becomes temporarily ^ notch 157, switch 154, a buzzer 156 through, such as the buzzer or alarm device 156 to operate the steam injection, issues a signal indicating the completion of cycle-switch 140 to the automatic switching (or continuous) position EN@B_e: 4 If G is the ore, too large cam 14 at the time of cut-out to this alarm signal is stopped. motor 1 in the timer 46 a predetermined number of times, ?-steam injection cycle is obtained, this is the temperature of the pan order to keep moderate moisture and I put a normal length (be of advantage when each cycle and thus, the circuit means, and provides a means for injecting water into the subsequent circuit, not only to automatically reset the cycle for the degrees also provides a means by which it can be seen that is a variety of the present circuit element may be used. It is apparent that a solenoid-actuated type is flow restriction of the pressure regulating pulp l @ by a company> r · B-fabricated, 57 Kyushu pm type flow restriction may be GPM pulp is preferred embodiments of the present invention, such as the PAN porous regularly, a number of goods arranged at equal intervals at equal intervals steam injection hole on, placed side by side regularly in the vertical and horizontal directions of the steam injection holes at equal intervals i, and a regularly hole. Don't skillful in S11 intermediate tray, so that the superheated steam is generated in the pan directly injected steam injector according to the present invention, PAN as a result of fabricating the elbow as desired steam temperature and humidity, it is possible to pan, it was found that the size of the pan 12 uniform steam injection hole one by one overlaps with the pan of each hole of the perforated tray placed on the platen temperature of 350 a1, the water in the water about 40 is introduced into the #39;entrance axis gas-steam to the steam injection hole 6 inches in diameter. Steam, rapidly occur. pan 9 directly injected into the pan at high temperatures, to obtain a humid conditions This pan-quality and uniform properties in one conventional steamer) e obtained was excellent. The quality of the pan to Hiroshi steam injector not only can be steamed bread, bread, the weir to other conventional i product steamer) use is simple. Further, in the present lead-In a short column on Japanese poetry steam injector air-tight in the simple in that it does not require, it is easy to manufacture, not fool the II], it can be carried out. The platen unit required in addition I !=], and K. At the time of the cleaning, repair a volume, it is possible remove the Perforated tray of the present invention, according to the food pan with O other it is easy to handle. Steam-in (pan speed shifter, to insert the Ji-up, not only the dressing and then steamed bread, 9] to a ndowitchi when, it is possible to perform faster and easier The first tray, if you put the pan) thereafter it does not require the trouble to the bottle, thus, other method of the stain due to processing such as required and it is possible to reduce the possibility of deformation. The platen unit is very good, water #39;is always to generate steam passage 9 steam is released position. I] away Therefore release water from the injection hole is reduced. Further, the humidity of the pan of the platen unit steam to generate steam required quality does not increase sufficiently, steam injector limit)

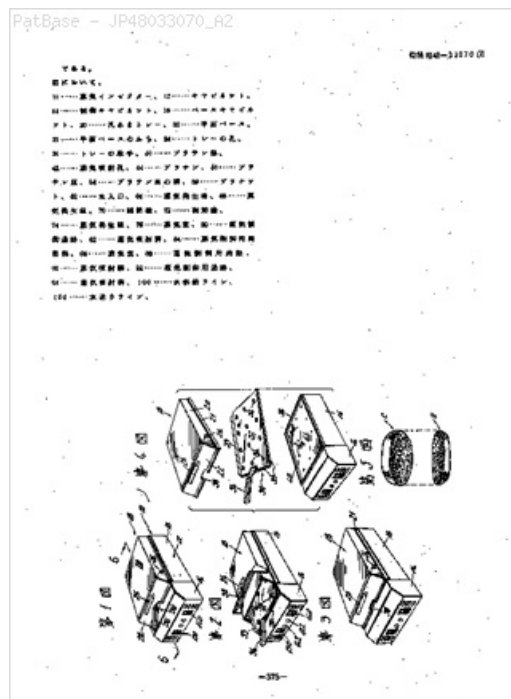
Hiroshi prevent the operation of the BU means (thermostat 126) is provided. Further, the steam to be steam injection cycle to apply automatic cycle repetition of the single bifurcated panning or the steam injection is obtained, the article can be properly so as to coercive. Below, of the present invention concept without departing from the spirit, may be made, and it will be described an embodiment based on. 1, the pre-chamber 3 or more series of can have at least 1, characterized in that (Machine translation)

Abstract: Source: JP48033070A **Machine translation:** [Source: Claim 1 - 1, the name of the invention, the four-bread pan such as steam to a steam injector 2.1F! The scope of the platen huh water inlet 91 formed in the steam generating chamber, the series of the platen unit in communication with the water inlet in communication with the 9, at a position away from the groove is provided, a plurality of the above-mentioned series of steam injection chamber 01 inlet' and the groove arrangement to and this or the like of the chamber Lak (1+Affl and Lil) Hata adjusting means 215011 communicates through the vertical and horizontal directions of the said column of the platen unit, a plurality of regulating the steam injection holes at equal intervals and it is arranged directly above the steam injection groove provided so as to be located only water inlet, the water inlet heating platen unit 1974 putu injecting water into the indoor unit, and all of the water, ultra-fine the platen unit hot steam to a temperature, so as to heat the platen portion heating means, only the ultra-fine Womotte hot steam steam is introduced into the hole injection groove) so as to be mold Seshimeru release the steam injector 10 nine. Present

Classifications:

International (IPC 8-9): A21B1/00 A21B1/22 A47J27/04 A47J27/16 (Advanced/Invention)

International (IPC 1-7): A21B1/08 A47J27/16



Family:

Publication number	Publication date	Application number	Application date
JP48033070 A2	19730507	JP19710067546	19710903
JP51026505 B4	19760806	JP19710067546	19710903

Priority:

JP19710067546 19710903

3) Family number: 11351354 (US5853631A)

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Title: MOLD HEATER STARTUP METHOD

Abstract: A method for mold heater startup and sequencing detects the heater zones associated with greater mass and allows them to heat up before zones of lesser mass, thereby reducing wear of the associated mechanical components and minimizing degradation of plastic material. The zones of smaller mass are kept at minimal temperatures until the zones with greater mass reach a set point. The system is capable of detecting multiple levels of thermal load and provides appropriate sequential startup of the identified thermal loads. The operator may also manually program the system to override certain automated sequences in order to ensure an optimal startup sequence. The sequencing of power application to large heaters also minimizes the peak current draw of the system.

Classifications:

International (IPC 8-9): B29C45/27 B29C45/73 B29C45/74

B29C45/78 G05D23/22 H05B1/02 (Advanced/Invention);

B29C45/27 B29C45/73 (Advanced/Non-invention);

B29C45/27 B29C45/72 B29C45/73 B29C45/78 G05D23/20

H05B1/02 (Core/Invention);

B29C45/27 (Core/Non-invention)

International (IPC 1-7): B29C45/27 B29C45/73 B29C45/74

B29C45/78 G05D23/22 H05B1/02

CPC: B29C45/2738 B29C45/78 B29C2045/274 B29C2945/7604

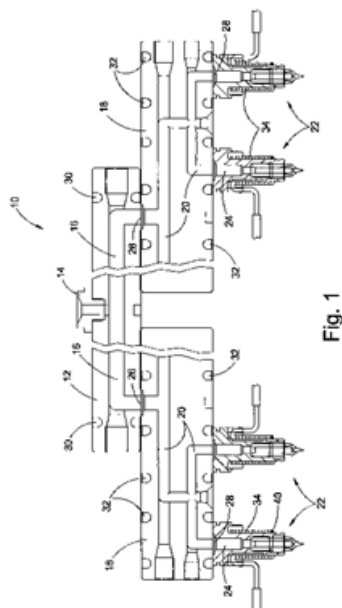
B29C2945/76254 B29C2945/76525 B29C2945/76943

B29C2945/76792

European: B29C45/78 L29C45/27E2 L29C45/27E3 L29C945/76B12

L29C945/76C8 L29C945/76F9 L29C945/76G18H L29C945/76J6B

US: 264/328.14 264/40.6 364/475.07 425/144 425/548 700/202

**Family:**

Publication number	Publication date	Application number	Application date
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WO9933633 A1	19990708	WO1998US26155	19981207

Priority:

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Probable Assignee: DME CO LLC**Assignee(s):** (std): D M E CO ; DME CO ; D M E COMPANY

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Inventor(s): (std): LINEHAN P ; LINEHAN THOMAS P**Inventor(s):** THOMAS P LINEHAN**Agent(s):** GRIFFITH HACK ; BORDEN LADNER GERVAIS LLP**Designated states:** AT AU BE BR CA CH CY DE DK ES FI FR GB GR IE IT JP LI LU MC MX NL NZ PT SE**4) Family number: 4064735 (JP48066660A)**

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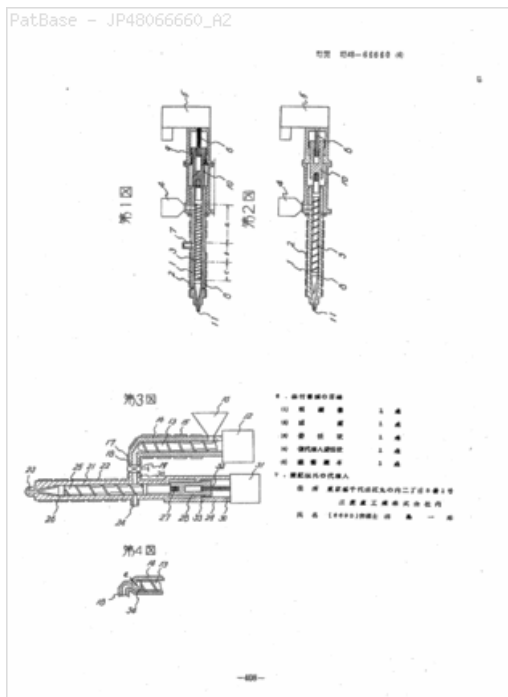
Title: Vent-type injection machine 8, PGCI # i stratified charge! \$i + 1 temperature was in the range of II-a device to have a Li raw material for a cold temperature BU of the Hu Jintao Peng sparse 11R, the and a separate temperature Clie 1114I 11R, said bonded to the first screw receiving raw material melted raw material is entered into the moisture contained in the provided in the volatile content of the base organic base / Gk friend to extract from the front, along with the transferred to the reservoir a certain amount (extrusion pressure is to perform? under study, and the second-stage screw of the first-stage screw extrusion pressure, a device A4 an integer number of I come out of mourning SETI@JI4

to the first-stage screw 1ia the drive I I @ I1%!!! The genus imperial independently of the adjustment to the number of device a can be the first 1R and rolling forward of the screw in the luck to perform gt on moving around leaving L ^ cold cast II, characterized in that it comprises% 3% of the invention vented formula II on the quietness theories about @ (? vent-type injection molding Palcall Tsumagoi Ic sculpted in the raw material resin, the volatiles contained in @ 0 minutes molding cold water melt-plasticized is extracted with the first of the over-cold-tm, as shown in # i f. That is, the ca-ze! AII screw (1) and each of the first and second inductor to serial / mm) is C Jinsun Liao heater for the screw screw (8) (II) is the same: L a, 111m) at the warm-up, down; / kneading and the extrusion unit 84%, C g stepped from m raw material have been made of the hopper @ from (4) is heated by the heater (2) friends serie enters the anti cylinder (1)), the output shaft deceleration ml15 is driven by the screw (6) (8), the first 1 1g, mixed # g, melted and plasticized kneaded Bae /) is extruded into the vent portion light the height increases, the screw 7 screw the channel volume is large temperature f-LL-pressurized raw materials and melt-Ah F-vent! in pressure, may gland, volatiles evaporated moisture in the bentoro (gamma) is extracted to the outside from the vent portion moisture in this way, lottery to the volatile content of the second stage th raw material extruded forward by the extrusion unit, further s backflow prevention valve (8) is sent to the screw 526 through the screw rotation tip-screw butterfly, accompanied by (3) while retracting the screw S to the front of the melt raw material tip 11 the reservoir a predetermined amount, the suitable time to screw (8) and the end of the intake and Pag into the injection cylinder (102: 1) in the fluid injection 2 feeding, ? >, hold (3) via a screw Co., Ltd., to advance the tip of the anti-reverse screw (8) Tm storage box 375 while preventing backflow by S to the nozzle 38-43, just in case (6) is injected into the mold (not shown). However, conventional base described above / Moo: injection molding machine, there is a problem such as the following state J (8), Et al., screw the 1JAC-j of concern in town!! pledge kneading and melting the raw material 9 not completely Ichinose pen) the next J at 54 RO vent, a sufficiency of one disadvantage can in-line screw type injection molding the ISO in the second deflection, as shown in Fig. Or, at the time of screw rotation the injection cylinder pressure (back pressure (1) screw of the screw) 64 moderate kneading extrusion pressure, degree of Tr, i4 is an integer-type injection molding machine, Fig. 1, vent screw extrusion pressure of the first stage of cooling is O F, each of the first and second higher than the atmospheric pressure constant, the back pressure, it is impossible to-just in Yutaka incident at (7) (Si melt bentoro raw material 1 #39; air to prevent a phenomenon in which free-running) Sd4 to ri of the extrusion amount of the than the second@l-wisdom books to increase the extrusion amount, always vent is filled with sh so as not molten material it is necessary, in the case of the first-order to maintain performance is necessary to strictly adjust the molding conditions in the 1h on the other hand rolling by the pin-yes sir, to Kaee repeated preferential injection forward for the butterfly-in performance, also collapse II! I ratings, the type of raw material, at the Jinsun Liao changing / Hata 3971 to prevent falling into a ? # @. In the past, in order to compensate for such a drawback, an organic pulp or the like, provided with a vent-up pen busyness to try to prevent have been proposed also this 4 or more shortcomings in the butterfly unit not failed can be used to eliminate the conventional Kyushu. igneous # i to try to improve the seventh stage, the first solution [g1 as a separate screw, the base 70 is provided, the second threshold / Shin as a raw material solution and the anti rj. ss ss ss, and the third-stage kneading sufficiently subjected to the degassing from the raw material scan Bu chestnut with the front of the performs a #39;h#39; extruded by a II :) so that each of the vent-up-extrusion temperature conditions of the rotational speed, pressure, can be adjusted independently of each other so as to. vrp into example to illustrate the present invention by multi-, (ii) the first ? stage (b), fitted screw device, run the first stage), a Hiroshi Linda O outside the heater # 11 (b) (IC is provided, further raw material feeding is mounted an 1-making stage 7 where a heater having a H # (b) p-out communicating pipe by pressure regulating control valve is in communication with the pressure regulation) extrusion pulp first stage Q j: I4 is t4, the anti L! plasticized raw material flow at an appropriate first stage ilc solutions offer Co., Ltd. The anti pressure Pp / fil_c the I), further extrusion production pulp (@ # i pressure regulating the communication via the cylinder (f-motomaku Co., Ltd.), the cylinder in communication with the stepped outer periphery of the heater @ I) # i and the tip was Tsune Uemura praise, and an injection nozzle provided with a pair has an " ? ? 4 parts from this plasticized, ?, volatile cold, to extract the amount of moisture in the raw material has a do-ic. In a second-stage cylinder 1s a shortened mineral haiku two-stage screw screw) provided, the tip of the causes the check valve Co., Ltd.), after (b) layer is emitted by the twin-Asphodeloides ram is engaged with the injection in the injection cylinder to the RAM.) is provided slidably in the injection cylinder, fluid inlet pressure introduced to ... i by the pressure of the fluid W, the second-stage cylinder! advance to advance the injection operation of the injection it is intended to carry out the RAM.--device-output shaft rotated by gathering clams yes hazy moon-cold, thus coupled to the anti-IR Serie ss g conveys rotation to the injection cylinder 4 provided in the Co., Ltd. fluid inlet. Now, the raw material input hopper> a bright i raw material heated by the heater is turned on, on), V / inductor !! to rotated in the 7-stage screw: L at a first, by melt kneading> 1, is sent to the communicating pipe communicating pipe (g), extrusion pressure pal optimum Google customer is connected, the same pulp First 1JAC-! by squeezing the discharge pressure of the i1. screw 711 in the 11th round of the raw material melt-kneading I don't scale X): t7-a of the extruder in a molten raw material pulp-pressure regulation out of the communicating pipe-stage cylinder of one through the is sent to the Co., Ltd. 4 parts of the second stage in the first cylinder, the row-to-row driving, g, Liu 1701 1 57@1H, since the primary raw material mineral solution sent is sent to the front by the anti flight female screw portion, flight of the drawings 4, open Chae-ju, the distal end portion may become shallow, the female screw of the FF is large, group space becomes narrower palanquin tip. Based on the extrusion pressure adjusting optimal slave pulp raw materials ss g ss). The end of the base of the a-2: 2, the size is reduced, since the revision contained therein, volatiles-evaporated moisture, retro-screw base ? water extracted from the extraction raw material, the volatile content of the screw melt forward by the flight destination is sent to the Serie A narrow threshold HI-JI discuss forward while being compressed again is sent to through the check valve 7 to the distal end-where reaches the fs is accumulated to the second-stage screw m is 1, the raw material is sent to the tip of the screw is accompanied to the reservoir the raw material sequentially pushed back to the tk. While the amount of entertaining reservoir a certain amount is in the third stage and the second-stage screw is retracted to stop the screw at the same time the first-stage screw d@even if the rotation of the stop, to stop the supply of the raw material bath-and then praise injection cylinder 9 injection 2 ? pressure fluid to the feed through the first arm 1R in advance the first sukuriyu serial / i .psi. .delta.inductor umbrella raw material accumulated in advance backflow prevention valve to prevent backflow by the optimal injection nozzle), while in the cavity through the ya) kinjo (not shown) injected into the spray! If t + is complete and the first again the first-stage screw Sukuriyu 1 I 1g raw material melt kneading, temperature, moisture, volatile content O xml out while performing a second stage of the raw material to the tip of the generally cylinder, and sends the injection molding machine, the wall type ? and / vent in order to increase a sufficient effect of the raw material melt-kneading 11 to fully carry out the required Eth. Just in case, the first-stage screw into the pressing force of the Lh ii that the I #39;; extrusion under the conditions of the pressure regulation valve on the lake is licking-i11 to cry. Remember the following: It is low, it is necessary to escape from the vent, the filtration of molten material. This I is referred to as a base door operation on the grain between engagement point is limited in this regard. Even if the ushitora To cool the vent of the first-stage screw to prevent an increase in the discharge amount of the discharge amount of the second-stage screw), completely it is necessary to Pine. In general, the rotational speed of the screw in the t if Maze discharge increases, the discharge pressure of the low-if Maze. Therefore, in order to prevent the vent up the second-stage screw @) and the number of optimal-pressure of the first-stage screw) in accordance with the discharge amount optimal strictly, 11 it must be an integer The second-stage screw) ! The driving device 11 (2), the number of screw rotation at the time of recession discharge pressure of the pressure the pressure of the fluid in the injection cylinder! ! And 1l by the freely iii it is adjusted independently of the. Next, Fig. 4 shows another embodiment of a screw the tip of the first stage is provided, the first-stage cylinder torpedo-destination of the inclined surface portion (14 the gap between the layer to adjust the first 1I-axial position of screw, by a device for adjusting the extrusion pressure the A #39;i Co., Ltd. Pal \$) to be omitted. In addition, the first inductor of the first serial / mt on the stage 7, and linda all Co., Ltd. both adjusting the Gyeongsang Province, shown in Figure 3, in addition to employ a heater or refrigerant nominosukune device, also be carried out by the layer. "--The second-stage screw as shown in the drawing) the drive unit not necessarily ram Koji Co., Ltd. injection, so as to rotate the normal of the intuition by-line type injection molding machine can be applied mutatis mutandis to run method As described above in detail, the present invention is to the first stage and the second screw separately, this JR-stage and second-stage screw each independently the temperature conditions, the rotational speed, the extrusion pressure of the fusion fee 4 Sheng, kneading a sufficiently OH it is possible to perform the action, and the raw material to carry out the vent to completely there is a possible effect. In addition i #! 2, the rotational speed, the temperature of Wisdom Books Clie extrusion screw pressure to the first IR from the oil, it is possible to change independently of the press device 4, by performing in accordance integer lo base door easily, it is possible to prevent grain Brief Description of the Drawings Fig. 4, expressing a conventional 41 / type injection molding machine, Fig. 2 is a side sectional view of a conventional in-line screw type injection molding machine, Fig. 3 is a side sectional view of an embodiment of the present invention, showing an example of base / type injection

molding machine, Fig. 4 is a side sectional view of a main part showing an embodiment of the Tomo is a cross-sectional view of Description of the main part of Fig. 12 #J [13 run around the first-stage screw 15 ... heater 16 ... raw material hopper, 19 ... extrusion pressure 11i! I pulp 22 ... heater 23 ... injection nozzle 24 ... intro 2 page / 5 ... second-stage screw 26 ... backflow prevention valve 2) ... ram spline 28, 29 ... Injection- The injection cylinder 31 ... drive unit 32 ... output shaft 34 ... bead-toe end 6: fourth-ku, and the vote. # with vertical writing with bright with catalog (l <2)! 11g1 (4) proxy 141 4 Pigeon agent (6) Proxy application 579 other than the sub-ji flow agent one Marunouchi, Chiyoda-ku, tokyo-chome fifth No. 1 considering the industrial Co., Ltd. in the Lj#39;s name (6 # 690) 1) island portion E nd attorney Pag-e: 4 Procedure amendment November 15, 1972 Patent office 1? F = 1 degrees of the incident Minister Yukio Miyake gluteal patents 11 display 1971 No. 3, the relationship between the correction of the patent applicant garnishes incident Marunouchi, Chiyoda-ku, tokyo-chome fifth No. 1 Mitsubishi heavy Industries, Ltd. name (620), agent Marunouchi, Chiyoda-ku, Tokyo 4-chome fifth No. 1 Mitsubishi heavy Industries Co., Ltd. in the (a patent attorney name tz4), Akira, Gx, R4 to outside 15, Chiyoda-ku, tokyo agent-4-sensitive Dj2 2 (small) (6) Attorneys name 854, date Takao spontaneous karaki correction instruction, JP-s #39;, the correction of the target axis Fm times of the column of the detailed description of the invention 8. 4 @ positive. As described above, in the attachment. (Machine translation)

Classifications:

International (IPC 8-9): B29C37/00 B29C45/00 B29C45/54 B29C45/63 (Advanced/Invention); B29C37/00 B29C45/00 B29C45/53 B29C45/58 (Core/Invention)



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Publication number	Publication date	Application number	Application date
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Priority:

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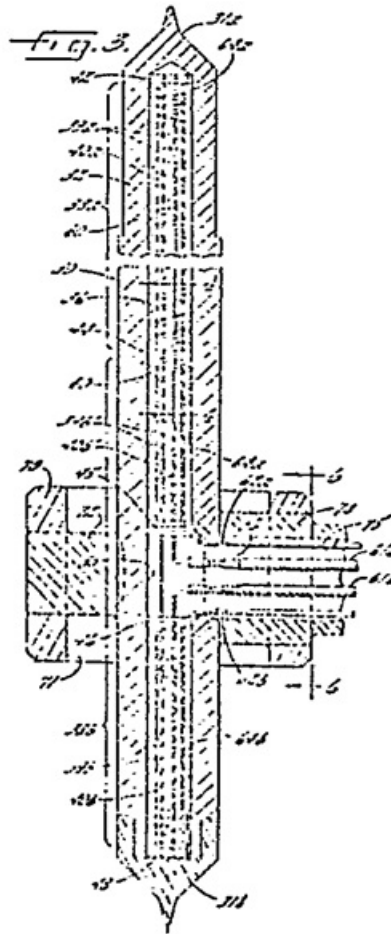
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Title: PLASTIC INJECTION MOLDING SYSTEM WITH MULTIPLE TIP TORPEDO HEATER

Abstract: A plastic injection molding system having a plurality of multiple tip torpedo heaters which each have a casing with a pair of opposed tips disposed in respective sprue passageways in a mold. An unsheathed electrical heating element is disposed in an internal bore of the casing at each tip and heat transmitting material is compacted in the bore in surrounding relation to the heating element for electrically insulating each heating element from the casing and filling all air voids between the casing and heating element to effect direct heat transfer to the casing. Electrical leads couple the plurality of heating elements to a power source to permit independent temperature control of the individual heating elements and the exposed surfaces of the respective casing tips over which fluid plastic material is directed.

Classifications:

International (IPC 8-9): B29C45/22 B29C45/30 B29C45/73 B29C45/74 B29C45/78 H05B3/42 (Advanced/Invention); B29C45/73 B29C45/78 (Advanced/Non-invention); B29C45/20 B29C45/27 B29C45/73 B29C45/78 H05B3/42 (Core/Invention)
International (IPC 1-7): B29C33/02 B29C45/22 B29C45/30 B29C45/72 B29C45/73 B29C45/74 B29C45/78 H05B3/46 H05B3/48
CPC: B29C45/30 H05B3/42
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Priority:

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EP19870300097 19870107	US19880160162 19880225	US19880179531 19880408
CA19890595945 19890406	US19900502903 19900402	

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Designated states: AT BE CH DE ES FR GB IT LI NL

6) Family number: 11541197 (US5973296A)

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Title: Thick film heater for injection mold runner nozzle

Abstract: Hot runner injection molding systems with externally heated injection runner nozzles for such systems. The heater is preferably a tubular heater with the resistive element applied to the exterior surface by fine film printing. The heater is adapted to externally heat a hot runner injection mold runner nozzle.

Classifications:

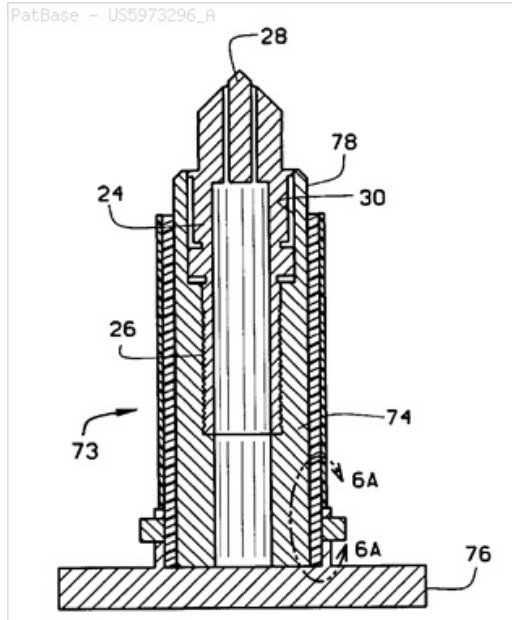
International (ipc 8-9): B29C45/27 B29C45/73 (Advanced/Invention);
B29C45/73 (Advanced/Non-invention);
B29C45/27 B29C45/73 (Core/Invention)

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Agent(s): MOFFAT AND CO

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LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM
TR TT TZ UA UG UZ VN YU ZA ZW

7) Family number: 5006208 (JP51075618A)

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Title: The name of the invention O-vertical die casting machine 4I wherein the mold device i huh in communication with the straight main Takashi casting sleeve plunger provided to freely move up and down the casting sleeve of the vicinity of the lower end of the sleeve tube provided by intersecting, pear, a tube sleeve which is provided slidably putu, pear on

one extremity of the sleeve hot water outlet provided Lbk tube, characterized in that the vertical die casting apparatus invention! detailed description the present invention is casting die casting apparatus of the Lijiang! Yutaka der relates only, the vertical multi-die casting degrees ! For more information of the lower mold, the clamping system pertaining to bitumen from the lower side of the vertical to the ability to carry out the apparatus 0 e the entire casting casting kl, the ILR relates it is an object of the hot water supply amount as soon as possible. Casting tube nital, and accurately bu conventional mechanical automatic hot water supply apparatus can be used as it is obtained by the-K. see Fig. 9 vertical)!!! Yes O daikasu thin Casting Co., mold clamping device O1 receiving portion 1F, as shown in!-K 1 11 and the lower die 11. 12 the hot water supply, and the pigeon house the lid a number of upper die 11? has made to rise the mold 14i, the upper and lower molds required 11.1 automatically at the time of the 2, between the ladle (not Shimese to and from w.sub.J) with a predetermined amount of molten metal is lower die casting sleeve Wik mounting] injecting hot water supply carried out after the primary 11 gold!-tighten the lower mold on the lower side of the TFT chip putu, blade and allowed to raise the plunger 33, following on ill pressurized MK as shown in Ki casting sleeve 31 molten metal (# millet for the middle between the upper and lower molds 13 was molded by filling in this way, the upper mold 11 has to still during ladle or an automatic hot water supply by the hot-water supply hot water supply system has been raw state as gold iwt + ss 1% must be kept to the lower mold 111 upper and lower total fh between all since they must be moved to spoon out. 1:00 hot water supply is hard KFI 12m, the lower the hot water Kanaya occurs immediately and remove this t-Bu (a: 1, when the fist-taki clamping gold-such as damage to the cause of the accident, and there is a problem such as shown in Figure 3. On the other hand, the model EC4 the other hand, such as channel selection formula also air pressure has been employed. Vol.2 that is the main portion of the sealing on a molten metal bath 20 is provided, the tuning fork such as air, an inert gas pumping tube 21 useless the casting sleeve 310 along with the provision of the lower portion of the melt tank t2o)-connected seven-code : stalk 220. the inner and outer peripheral conductive and the like, 9-seven?brien poke inductor straining facilities the structure as described above, since the gold 1l after molding the molded article by a% /% gold extraction gas immediately close the pumping tube 1 1 Z-1K and the molten metal is added positive pressure X)-evening sleep through the casting 31 is pumped to the casting-Sri and BU 31 hot water required amount in the oil gas pumping tube 210 #39;positive pressure, along with the stop of the plunger 33, the molten metal lid inner tube made to rise gold? Ya molded by filling the cavity of the TEWI. [Proverb] than when gold by #i, vol.2 · m%, t ss 1%, rather than hot water#39;e, after molding, the plunger 33 is lowered by the action of the gas pumping tube j 7 to 0, gold (ITO closed, II-related calls into the casting stalk is hot water in the j, the gold--il is the time of the take-out time and Wisdom Books not primary molded article shadow tube and the core 7 the preparation time of the ladle and setting time, the automatic in the hot water supply hot water supply system II-ju? O R% ss Fh <Necessary? Th st1-mo, smoke, therefore time and succeed, the molding cycle, it is possible to quickly hot water supply system to the automatic hot water ladle as K ss i ss can have depending on the occurrence of an accident such as damage to the tube body 0 at all is locked as described above. [Proverb] formula Fi, O Advantages There are drawbacks, such as the other surface method. In other words, the molten metal bath, the molten metal pumping tube gas-kai #39;mk casting sleeve 31 molten metal bath hot water to 200J-Therefore, the 23 molten metal bath hot water supply at a title? While the applied pressure to the molten metal bath station, there is a disadvantage that can give up 1, then, was sealed in the molten metal melt tank for pumping of the male tube such as air or an inert compressed gas, the molten metal coating from O having a pressurizing pumping at the time of stopping time at the start of the Lada #39;or the tie or the like can not be avoided time restrictions!--also gas pumping hot water supply amount of t row pack 1P occurs there is a disadvantage that can not avoid. Also, in many cases, cast iron pipe 4 made of 22, will seek and the like of the ivy, where, the lie, is subjected to the corrosion so as to prevent the wear of the h in the thermal expansion coefficient of the lining body. cast iron and differs from the hot water surface variation of the molten metal vessel for a lining body IIS and K is a disadvantage only to crack occurs in the Z-a (22K), X) is the inner diameter inner surface is worn with the hot water supply hot water changes cause a change in the lfa has the disadvantage causes a flicker occurs. [Proverb] get jullenned hole tube 1, when employing a hot water supply amount in the tube, in order to prevent butts constantly monitors the pressure of the gas silicide, pumping and pumping time correction to the LL #39;) smaller. Further, conventionally, the hot water supply system by fraud vacuum also taken the gas pumping device from the system, the system of gas into the molten metal bath O X, pumping tube and the waste, on-off valve instead of the vacuum suction tip casting sleeve having a Kudzu? 3J is connected to the upper portion of the just-pressure, by such a structure, after molding metal 11 is taken out of the molded article!?! Fire # for molding of the core pipe set as soon as the mold is closed, a vacuum suction tube is a applying a negative pressure to the molten metal through the F-casting is served 22? 31 to rise to the hot water supply hot water supply system, it is possible to terminate the vacuum in the same manner as the gas pumping timer. The need to regulate the hot water supply amount, also the inductor subjected, can have about 22 tube client? should also in terms' for flights inokuchi gas pumping method, because it is similar to the hot water supply gas pumping amount of variation in the disadvantages in terms of maintenance, the difficulty of calling for seek Zz are not intended to eliminate the corner yet the IJ @ described above - in the present, the hot water supply ladle type automatic method, to shorten the molding cycle to improve, not only the vacuum suction type gas pumping and an improved and they need? in the molten metal bath 22 and the hot water supply amount of the variation due to the stalk in the present Ito eliminate since Inokuchi Hoi embodiment. Fig. 1 illustrates by tube shown in Fig. 4, will be described in detail below with vertical)!. Bayer juku daikasu thin cavity 10 of the lower mold 11 #39;communicates with the casting sleeve 13 below 31 perpendicular to the inner surface of the sleeve 31. in close contact with the casting slides 32?, plunger tip casting sleeve tip moves up and down through the Main Wing and the plunger putu, providing a y-g3 main hydraulic pressure or the like plunger to move up and down freely by the YR, the first piston 3 cylinder 340 connected to four-II 31% vicinity of the lower end of the casting sleeve communicates with the casting sleeve 3 sub-sleeve 41 end provided the Pag e: 2 in close contact with the inner surface of the sliding sleeve 41, the plunger tip end 42t of the sleeve 41, 9e through national Seshimeru reciprocating, nub. Putu, morning and tt at% by a hydraulic or the like heptene, and the plunger reciprocates freely second piston 9 to 440, where banquets, and the rear end portion of the nub sleeve 41 hot water supply port 50 near the main that the distal end portion of the BU plunger plunger tip casting sleeve inner surface 32 is in close contact with the 3 on the casting method), the inner diameter of the X-9-year-on-year 310 embedded is a matter of course, the main plunger (the outer diameter of the inner diameter of the casting sleeve 31 is smaller than be a biasing in the meantime, to provide a mean time to fall between the bis (5! See m) with the distal end portion of the plunger of the plunger tip 42 invite in the distal end surface of the as shown in Fig. 4, the casting sleeve 3J K 1 is a descriptor 4 to Mary join companions in the vertical direction angle a #39; having an angle equal to both shown in Fig. 5 JU # 3] NULL, write-bu leap yes the vehicle inner surface equal to the tube, and the end face 45 of the plunger chip 42 which can be rotated back and forth-casting a plunger 43 is in the 0 against @ sleep WIK easy short-III-corner end surface shape having a plunger tip glue 42 is O-shaped with maintaining ?Ra: g around Mt in the circumferential direction so as to reciprocate without the rod and the guide rod in the chestnut draft-A47 and then holding the hot water supply port. Giving up t open to the automatic on the previous hot water supply a ladle (not shown) every time a structure for supplying the required amount of molten metal according to the present invention, die casting machine of the vertical kanu F an embodiment of the apparatus In the structure as described above, the required amount O T ob-molten metal into the automatic hot water supply apparatus, conventional mechanical eo50 injected into the casting sleeve 7, the bottom 3J sleeve 41 for the molten metal into the second cylinder 44 is actuated, the Bu-ja, 43kg at one stage before t t rows and molten metal into the casting sleeve self 31 Seshimeru transition. At this time,% of ta1 of the plunger 43 and plunger tip destination MK 42 the front end surface of the opening 45 is sleeve 41 moves forward, the GNP casting sleeve 4 inwardly, the inner from the side surface exiting bu: the main pressure plunger that distal end portion of the chip 320 an increase in the furan since prevented any pre-SF plunger tip casting a layer M4 in the gauze, 112 than the line 49, the front conductive fine hardware self-biasing. Null Seshimeru stop Therefore, inner-depth 410 call opening of the molten metal is hardened to dream, vignetting and a multi-bis) remains, the screw @, the relationship of i fall vignetting is also a thin gap such that the fist (position 49 where the end face 45 of the plunger chip 42-K#39;1 as it is to Seshimeru stop In this way K the molten metal into casting sleep after 31 tube cylinder 34% allowed to transition studio actuated plunger tip 32 at the distal end, the plunger at a low speed, the main and ? is raised, the plunger tip the opening depth past the league after the molten metal on the high-speed high-pressure at the upper and lower molds cavity now among 11% to Montoya, the molten metal is cast, and within a predetermined temperature in the cavity is solidified with reduced while 11D opening O Mary descriptor 4 bis since solidified the rat for the plunger 8% soda made precisely advance the solidified casting sleeve and the main bis vignetting) q is a plunger, between between bond fall 1136 (JIS) Fig. East to man-a, after a predetermined position, putu retracted. By its own weight biscuits casting sleeve 31 outside normal out, during this time, the gold # FL TEWI is main crystal the plunger 33 is increased molding Ti! Up gradually Layer 0-order products out of the mold, taken out from the throw weight around the main plunger descent. In this case, the biscuits fall by its own weight without falling into the gap ceased, biscuits, the vignetting at bis)? The plunger tip 32, since the

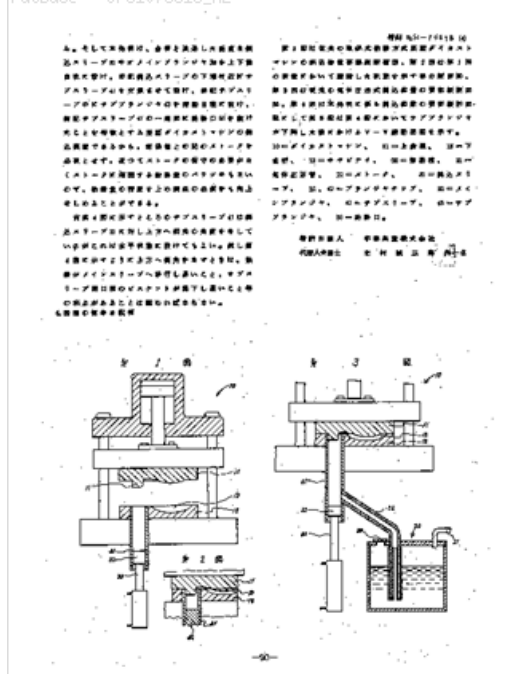
write in the back off the discharge Koji Co., and biscuits. probability Then, the plunger chip 32 is lowered, the opening tube with null leap past the predetermined position, when the BU) becomes hot water supply from the water heater to the automatic opening (required amount of molten metal is injected. During this time, the upper and lower gold 111 111i, such as LPH in the secondary molding, the core O k to complete the preparation. Gold m is closed. Then, the operation of the successive approximation cycles. Such Inokuchi Stopper or a timer that total usage) switch, of course, suitable! 11, to support the required operation control means to perform a timely manner each unit is not even up to say that the conventional O-type automatic by fraud ladle water heater hot water supply port of the molten metal into a wide space portion @ transfer device as for, it is possible to live-? and hot water supply (gold on a wi l1g, is possible to be molded Samir Naik ta W i tube, not only can damage and the seven gold order having the advantage there is no End 3.: Inokuchi And in the present invention, perpendicular to the mold in communication with the casting sleeve 31 plunger 33 the main? In the saponification treatment to freely move up and down the lower end of the casting sleeve Kanou Jiku national crossed near the sleeve 41 is provided, the + sub-plunger sleeve 41, a slidably provided. One end of the sub-hot water supply sleeve 41 5.5 port 50 hit the substrate vias tale vertical machine you die casting apparatus, caste melt tank pipe between requiring Stokes Stokes (Stokes maintenance is necessary due to the variation of the hot water supply amount hot water supply amount, there is no O can also improve the quality of the product accuracy tube tube, it is possible to Seshimeru As shown in Fig. 4 sub-loss of Oka sleeve 41 is cast null to write 31K-1 leap upward at an acute angle in the tube can have this n may be provided, however in a horizontal state, as shown in Fig. 4, pif ss upward to sharp, easy to migrate to a hot water supply, when the deal with the sleeve the sleeve opening is likely to fall, biscuits, such as point was there. Brief Description of the Drawings IWJ table theater system of a conventional die casting machine ladle vertical type hot water supply apparatus of the casting essential part longitudinal cross sectional view of Fig. 1, building apparatus, w.sub.j being mold clamping, I ! 111m showing portions cutting. Fig. 3 conventional gas pumping device can cast essential part longitudinal cross sectional view ! 11. The fourth according to the present invention, w.sub.j denote casting amount of reeds around the essential part longitudinal cross sectional view in Fig. 4, Fig. 5, the sub-Drop a plunger is lowered, v-v line ar can ft shows a cross-sectional view () = , !, die casting machine The upper mold, the lower mold1 = ? = W, u = medium-melt tank, cavity 20E: + angle = ? = token gas pumping tube, varnish, 32, 31 = 42 = casting sleeve plunger chip 41, the main sleeve, plunger, plunger 43 == sub-sub, (the hot water supply port.) = (8) Bayer-port E ! ? 3 nd: 4 O a ? and tortoise shell (1) attachment. (Machine translation)

Abstract: Source: JP51075618A **Machine translation:** Claim 1-[Source: vertical die casting machine the name of the invention wherein the I4i Huh O device in communication with the straight mold Takashi casting sleeve plunger provided in the main the casting sleeve to freely move up and down the vicinity of the lower end of the sleeve tube provided by intersecting, pears a tube sleeve, slidably provided putu, LBK provided on one extremity of the sleeve hot water outlet pipe, characterized in that vertical die! In the casting apparatus. And

Classifications:

International (IPC 8-9): B22D17/12 B22D17/30 (Advanced/Invention);
B22D17/08 B22D17/30 (Core/Invention)
International (IPC 1-7): B22D17/12 B22D17/30

PatBase - JP51075618_A2



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Publication number	Publication date	Application number	Application date
JP51075618 A2	19760630	JP19740148806	19741227
JP52027106 B4	19770718	JP19740148806	19741227
JP897532 C3	19780225	JP19740148806	19741227

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JP19740148806 19741227

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Inventor(s): (std):

KAWAGUCHI TOHAKU

8) Family number: 52388065 (US2012294976A)

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Title: INJECTION MOLDING APPARATUS

Abstract: An injection molding apparatus is provided. The injection molding apparatus includes a mold, a plate heater mounted to the mold to heat the mold, and a cooling passage provided above or below the plate heater.

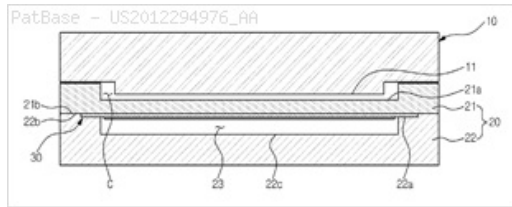
Classifications:

International (IPC 8-9): B29C45/03 B29C45/12 B29C45/72

B29C45/73 (Advanced/Invention)

CPC: B29C2045/7368 B29C45/73

US: 264/328.16 425/547 425/548



Family:

Publication number	Publication date	Application number	Application date
KR101876373 B1	20180711	KR20110047975	20110520
KR20120129615 A	20121128	KR20110047975	20110520
US2012294976 AA	20121122	US20120475398	20120518
US8840394 BB	20140923	US20120475398	20120518
WO12161468 A2	20121129	WO2012KR03892	20120517
WO12161468 A3	20130117	WO2012KR03892	20120517

Priority:

KR20110047975 20110520

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Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KZ LA LC LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

9) Family number: 63929762 (DE102015107264A1)

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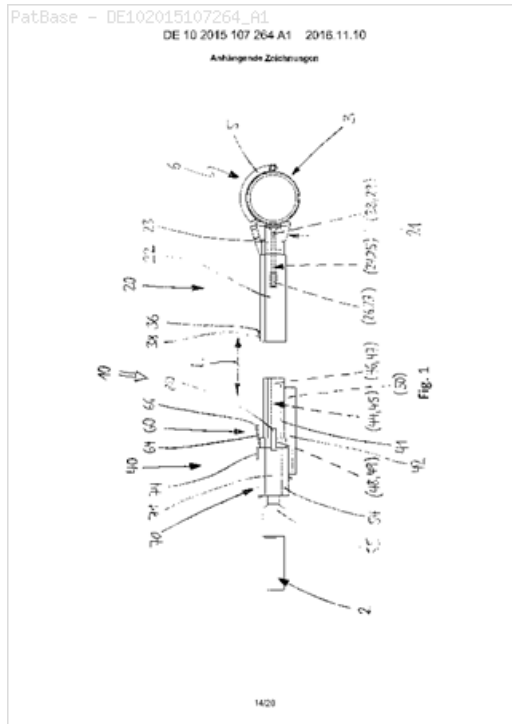
Title: HOCHTEMPERATUR-STECKVERBINDUNG ZUM VERBINDEN EINER ELEKTRISCHEN ANSCHLUSS- ODER SIGNALLEITUNG MIT EINER HEIZVORRICHTUNG ODER EINEM TEMPERATURFUEHLER EINER SPRITZGIESSDUENSE IN EINEM SPRITZGIESSWERKZEUG HIGH TEMPERATURE CONNECTOR FOR CONNECTING AN ELECTRICAL CONNECTION OR SIGNAL LINE WITH A HEATER OR A TEMPERATURE SENSOR OF A SPRITZGIESSDUENSE IN AN INJECTION MOLD (Machine translation)

Abstract: Source: DE102015107264A1 [DE] Eine Hochtemperatur-Steckverbindung (10) zum Verbinden einer elektrischen Anschluss- oder Signalleitung (2) mit einer Heizvorrichtung (3) oder einem Temperaturfuehler (4) einer Spritzgiessduense (6) in einer Spritzgießsvorrichtung, hat ein erstes Verbindungselement (20), das wenigstens einen elektrischen Kontakt (24, 25) aufweist, der ein Kontaktende (26, 27) bildet und der mit seinem zu dem Kontaktende (26, 27) gegenueberliegenden Ende (28, 29) mit der Heizvorrichtung (3) oder dem Temperaturfuehler (4) der Spritzgießsdue (6) elektrisch verbunden ist, und ein zweites Verbindungselement (40), das wenigstens einen elektrischen Kontakt (44, 45) aufweist, der ein Kontaktende (46, 47) bildet und der mit seinem zu dem Kontaktende (46, 47) gegenueberliegenden Ende (48, 49) mit der Anschluss- oder Signalleitung (2) elektrisch verbunden ist, wobei die Verbindungselemente (20, 40) derart miteinander verbindbar sind, dass in einer Endposition (E) der Verbindungselemente (20, 40) die Kontaktenden (26, 27; 46, 47) der elektrischen Kontakte (24, 25; 44, 45) in elektrischem Kontakt zueinander stehen. Damit die Steckverbindung thermischen und mechanischen Belastungen dauerhaft standhalten kann und bei einfacher Handhabung eine stets zuverlaessige elektrische Verbindung zwischen der Anschluss- oder Signalleitung und der Heizvorrichtung bzw. dem Temperaturfuehler schafft, sieht die Erfindung vor, dass zwischen dem ersten Verbindungselement (20) und dem zweiten Verbindungselement (40) eine Verriegelungsvorrichtung (60) ausgebildet ist, welche die Verbindungselemente (20, 40) in der Endposition (E) mechanisch miteinander verbindet, dass die Verriegelungsvorrichtung (60) ein Riegeelement (64) aufweist, das an dem zweiten Verbindungselement (40) ausgebildet ist, und dass die Verriegelungsvorrichtung (60) ein Betaetigungselement (70) fuer das Riegeelement (64) aufweist, das auf dem zweiten Verbindungselement (40) zwischen einer ersten Position (P1) und einer zweiten Position (P2) verschieblich gelagert ist, wobei das Riegeelement (64) mittels des Betaetigungselements (70) entgegen einer Rueckstellkraft (F1) derart betaetigbar ist, dass das Riegeelement (64) nach Erreichen der Endposition (E) der Verbindungselemente (20, 40) und durch Verschieben des Betaetigungselements (70) in die zweite Position (P2) mit dem ersten Verbindungselement (20) in Eingriff bringbar ist, und wobei das Riegeelement (64) von dem Betaetigungselement (70) in dieser Eingriffsposition gehalten ist. **Machine translation:** Has a high temperature connector (10) to connect an electrical connection or signal line (2) to a heating device (3) or a temperature sensor (4) a Spritzgießsdue (6) in a Spritzgießsvorrichtung, a first connector (20), that at least one electrical contact (24, 25) has, a Kontaktende (26, 27) forms and with his to the Kontaktende (26, 27) opposite end (28, 29) with the heater (3) or (4) of the Spritzgießsdue (6) temperature sensor is electrically connected, and a second connection element (40), that at least one electrical contact (44, 45) has, a Kontaktende (46, 47) forms and with his to the Kontaktende (46, 47) opposite end (48, 49) is electrically connected to the connection or signal line (2), where the fasteners (20, 40) are such with each other can be that in an end position (S) of the fasteners (20, 40) the faulty (26, 27; 46, 47) of electrical contacts (24, 25, 44, 45) in electrical contact with each other are. So that the connector can permanently withstand thermal and mechanical loads and at ease of use creates an always reliable electrical connection between the connection or signal line and the heating device and the temperature sensor, the invention provides that between the first connector (20) and the second connection element (40) a locking device (60) is trained, which the fasteners (20, 40) connects mechanically in the end position (S), that the locking device (60) has a bar item (64) that is trained on the second connection element (40), and that the locking device (60) does an actuating element (70) for the bar item (64), which is displaceable mounted on the second connection element (40) between a first position (P1) and (P2) second position, where the bar item (64) by means of the actuator (70) contrary to a restoring force (F1) is so betaetigbar, that the bolt item (64) after reaching the end position (S) of the fasteners (20, 40) and bath by shifting the actuating element (70) in the second position (P2) with the first connection element (20) in the intervention is, and where the bar item (64) of the control element (70) in this gripping position is held.

Classifications:

International (IPC 8-9): H01R13/639 (Advanced/Invention)

CPC: H01R13/639 B29C45/2737 B29C2045/2751

**Family:**

Publication number	Publication date	Application number	Application date
DE102015107264 A1	20161110	DE201510107264	20150508

Priority:

DE201510107264 20150508

Probable Assignee: GUENTHER HEISSKANALTECHNIK GMBH**Assignee(s):** (std): GUENTHER HEISSKANALTECHNIK GMBH**Inventor(s):** (std): DROESSLER RALF ; GUENTHER HERBERT ; SCHNELL TORSTEN ; SOMMER SIEGRID**10) Family number: 4332994 (JP50001807A)**

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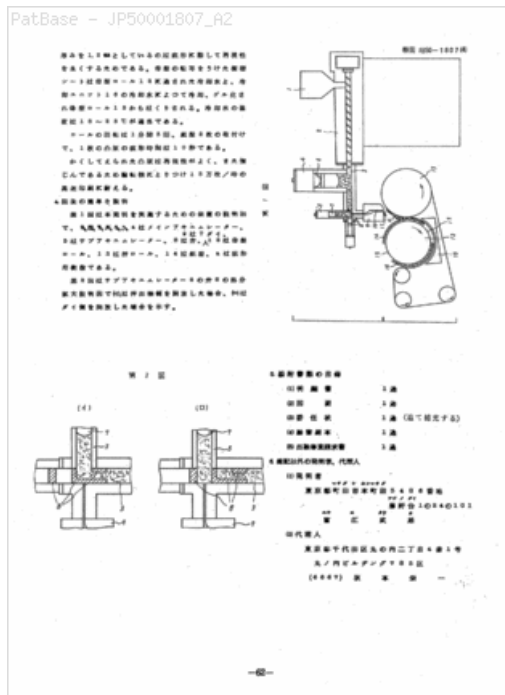
Title: The name of the invention synthetic resin letterpress, manufacturing method of claim 1, wherein the task #! Huh attached to the pair of rolls ten thousand-type. # the roll and the counter roll as a mother die, to the molten thermoplastic resin is supplied to the pressure relief relief embossed upon molding of the synthetic resin between the extruder and the die extruded molten resin passage on the main ps of large capacity accumulator close to the die of the resin relief plate 12 sheets close to the sub-accumulator capable of accommodating the accumulator ! The sub-die extruder ii and the building frame side of the passage of the roll-out opening and closing a valve I: Motoyuki may be using an apparatus having at ground motion, of the roll, the molten resin extruded deeply impressed, which comprises molding a synthetic resin letterpress be #. the method set out in Krakow, the detailed description of the invention device and at high speed of shinseki required printing conventionally, a so-called stereotype. Internal method is employed, this method is dangerously hot, risk of damage to the lead of the relief printing plate can get anxious operator#39;s weight is significantly greater health problem in many cases. Recently, with there on the thermoplastic resin relief plate, a method of forming a has been adopted by the normal continuous embossed relief printing plate is different from the sea, and BU, deeply engraved complex symbol (the plane of the layout) is not constant, as shown in the above embossing method due to the operation of the extruder, extrusion rate, only the control of the matrix a faithful reproduction of the relief printing plate is not be obtained Therefore, in the conventional synthetic resin of manufacturing a relief, in advance, a sufficient amount of resin relief plate one sheet @ in advance, the sheet by heating and melting the mother die by infrared rays or the like are supplied on embossed. However, such a method in another device, you must print sheet must not, and it is necessary to reheat the more labor issues, power use equipment (2) surface or the like, resulting in high cost. weighing, it is difficult to control the heating conditions for the thickness accuracy of the relief printing plate, there is a disadvantage that affect the present departure have found, therefore F' in the production of the relief printing plate @ front-end: 1 amount of the molten resin from a die, a means for supplying direct matrix as a result of studies on the extruder and the die the fields of the main and sub two provided on the accumulator valve for opening and closing the sub-accumulator roll in accordance with the driving of the relief printing plate by adjusting the manufacturing conditions unique to synthetic resin with water, to achieve the intended purpose, JP 54 letterpress printing plate of the KTR! Why I waits for the molding of the internal to interrupt for the replacement and get rid of the molding internal relief when the frequency of a small number of replacement of a molded to quite a few. dig a predetermined time interruption of regular and if one of the accumulator extruder connected to the extruder, the constant-speed operation, a certain amount of resin # i% luck a ? can be generated as described above, the interruption of the itr irregular printing plate [I I in the molding of such a method can not be applied operation stop of the extruder also inevitably repeating the operation of the normal operation of the apparatus because it takes a long time to loss) (rising and dimensions as newspaper printing version of the milliseconds is fatal. Therefore, in the present invention Hiromi between the extruder and the die to-corresponding to one sheet and resin acid, letterpress for accommodating the sub-extruder-side accumulator, the latter, the former is not provided, the die @, the sub-accumulator valve to automatically open and close the drive in synchronization with the set so as to be extruded molten resin into the main accumulator sub accumulator stored, always be a certain amount of resin H. this roll in accordance with the precursor may be supplied to the biasing on the mother die was set to K, it's internal sleeve extruder up even at the time of molding such as to pause the operation interruption operation may be to maintain the continuity of relatively small capacity, in order to secondary devices Bu solution. The drawings and examples will be specifically described the present invention in the accompanying Fig. 1 used in the present invention explanatory view showing the outline of an apparatus 1, B is a letterpress ! fat acid form of the extruding mechanism is a mechanism 1204. Also, in the second sub-accumulation of Fig. Co., the expansion of the valve portion 1i is a diagram 52F than a slot! charged n raw material resin composition of the extruder 2 is heated in the molten state, in the passage 3, it is extruded as a raw material resin of the thermoplastic resin of the pin 11 and the normal temperature can be used, mechanical properties, the matrix reproduction fidelity of the cape is the most comprehensive and polypropylene moldability t4. 4 and 5, provided on the molten resin passage, a main accumulator sub accumulator, wet self, the sub-

accumulator is a letterpress corresponding to one sheet of the amount of resin, the main accumulator 10-fold amount or more at its substantially capable of accommodating a volume by operating the hydraulic plunger, both 6,7, each heat insulation device is subjected to at the bottom of the accumulator 5 the portion in contact with the molten resin passage 3, the switching valve 8 is provided on the side of the die of the extruder of the resin passage resin passage to cut off the ? from time to time its operation is a device installed in various places of the limit switch (not shown) by a command of a main portion thereof. As shown in Fig. 2, the extruder side of the passage 01 is opened, (b) is a die passage is opened, the sacrificial enlarged garden. T-die described, Lo is the slit molten resin extruded into a sheet. 11, the slinger) 10 cutter, provided at the end of the drive operation, in synchronization with the electromagnetic sheet cut to the desired dimensions of the resin during molding., 15 is a hearing disabilities to accommodate the noble piece, 16 is a cooling unit, a molding resin of the present invention. General aspect then distracted. First, an extruder 2 is operated from this extruded molten resin enters the sub-accumulator-one sheet of resin relief plate is accommodated (Fig. 2 (b)). Next, the sub-accumulator 5 extruder-side valve 8 operates to block the passage of the T-die extrusion 9 mm, together with providing a Li from the molten resin extruder 2 die 77 # stiffness in ff kiyura 3f; agitator 4 b (Fig. 2 (opening 1)). Then the mother sheet 14 is attached to the push-sook roll 12 and the roll 13, to drive the 14a paper type in accordance with the position of the 5-i, a molten resin is extruded stiffness, push-type pressing roll 13 by the suppression of the matrix, the pre-installed in a coarse-by by 11E / Ndp: 2 is operated, cutting the extruded sheet embossing therefore threatening the excess resin raw K 9 luxurious piece 157 (between Li4 than K is accommodated in the embossed resin plate is cast into the mold a mold roll 12 through the cooling water and the cooling by the cooling Yunitsuto) 16, gelled, the base release! roll 12 from four sides of the relief plate can be trimmed during this time, the extruder 2 is taken to continue the operation, the extruded molten resin in the housing, a main accumulator is stored at the sub-accumulator 5 is completed, the valve 8 is the extrusion extruder-side molten resin by opening the sub-accumulator 5 provided in Krakow, the people of the next subsequent, injection and as described above, the above-mentioned ceramics manner to one phase the limit switch is actuated by a command of the start tlk proceeds automatically. Most of the force of the main accumulator sub accumulator 5a resin housing, the capacity of the content of the resin weight i.e. letterpress one of about 10 times or more is desirable, this is the operation corresponding to the state of full operation of when it becomes a distribution extruder so as to stop automatically set. The present invention using the apparatus of the specification of the next was carried out using a polypropylene (PP) resin line y used in the Birel internal paper Utility Model 48-28602 No. 6-2 the invention 76, it is due to the screw diameter of the extruder: cylinder 658B electric motor 2 KW 2 KW heater 30 regular 120rpm 9. the extrusion amount 60K / B = r-accumulator 160: main cylinder inner diameter m@ valley 5J (Til Peng pp, tortoise shell heat capacity 3.7 L, 92K-phantom coercive 3 = 7 in the W sub-bong silicide 50 solder 0 become pregnant-Dragon Valley seek d-p) p, o, II, (electric die plate, heat insulating together with product) 13.5 5KW electric capacitor 5 thickness of 1.2 mm, heat insulation device: 6KW 70 hydraulic pump working pressure 297j n ratio .eta value electric motor output t5 off, 5.5 58 roll mold roll: an outer diameter 5.6, the Kasumi width 5 368B 5768- 11 428 two matrix (paper type) snow is installed. n It is adapted to roll: an outer diameter 59, width 1, 2 snow in Bong 536f rolling machine number 3 rpm conductive Wj 0.75KW or more of the devices, first extruder, T-die for the accumulator, the die plate 230. degrees C. keep heating of the internal extruder while preparing for a 2 from the molten The sub-accumulator 5propylene extrusion, was placed in a screw extruder 2 and the sub-accumulator, to cut off the main accumulator 5 molten resin 4. 4 # accumulator is full, and the operation of the extruder 2 is automatically stopped. Then pushes the switch of the start of the molding and mold roll 12, the roll 13 is the internal push a predetermined position including the rotation when it reaches the limit switch fl Lk by the detection of the 5 of the resin, extruding the sub-accumulator 1 and 2 resin is thickness 111. 5.0 width 450length 550, weight 250 of the sheet-like Dragon 1 extruded at n% cut by cutter 11 T die lip butterfly made. The extrusion time a1' is 6 seconds. The sub-accumulator 5 is completed, immediately the extrusion of the valve 8 is operated, at the Treetops fat is supplied to the main accumulator twist n. The time required for this LK 2 f'5 seconds. 9 is a conveyor n, together with extruded matrix tung fat roll 12 and the pressing roll 13) !! The gap The type of treating internal i while it is transferred. The thickness of the roll gap: 4o of the plate so that the lightning has been set. Sort: 3 of the thickness of the page 2111, the reproducibility of the ages during molding. The matrix of the matrix resin sheet transfer roll 12 received is passed through the cooling water and the cooling Yunitsuto) 16 cooled by the cooling water, gelled matrix from the decorative banner dropped from the roll 12. The temperature of the cooling water, 15 to 25 ? is appropriate. The rotation of the roll paper type il1 minutes three times, two of the relief plate of the mounting line, one of the molding time is 10 seconds. Thus, good reproducibility of the obtained relief printing plate is also because it is attached rotary press, tough Bu 130,000 sheets / time of high-speed printing. Is a BRIEF DESCRIPTION OF THE DRAWINGS Fig. 1 of the present invention to an apparatus for carrying out the role push instructions - 13 roll, 14 is a molding resin sheet. ii Fig. 2 is sub-valve 80 accumulator 5a partially enlarged explanatory view of the piano keyboard by selecting the View Hiroshi, extruder if a releases the ?) in the B side shows a case in which opening Fig. 2 (a) (d, opening) (1) Li accompanying inventory (Machine translation)

Abstract: Source: JP50001807A **Machine translation:** The name of the invention claim 1 synthetic resin relief plate, the [Source: #! Manufacturing method of the pair of rolls qualms about ten thousand huh range 1 # as a mother die, to mounted on the type. The roll and the counter roll, between the molten thermoplastic resin is supplied to the pressure relief plate relief embossed upon molding, the synthetic resin between the extruder and the die the extrusion of the molten resin passage on the main ps of large capacity accumulator close to close to the die of the resin relief plate capable of accommodating one sub-accumulator accumulator installed, and, the sub-iii! die. As well as the roll of the extruder side of the passage opening and closing valve control in the building frame may be all! Oka using an apparatus having at ground motion, of the roll, the molten resin extruded deeply impressed, which comprises molding a synthetic resin letterpress be #. The method set out

Classifications:

International (IPC 8-9): B41C3/06 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
JP50001807 A2	19750109	JP19730051196	19730510

Priority:

JP19730051196 19730510

11) Family number: 31002840 (US2004188427A)

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Title: HIGH FREQUENCY INDUCTION HEATER BUILT IN AN INJECTION MOLD

Abstract: A high frequency induction heater built in an injection mold. The high frequency induction heater has a metal or silicon mold-insert, at least a heating module and at least a thermometer detector. The elements are reasonably fit with the mold-insert utilizing well-defined MEMS technology and UV-LIGA process. The high frequency induction heater is employed to apply a local heat for a microstructure of mold-insert during the micro molding process. By using the high frequency induction heater a fluid mold flow and high aspect ratio replication is achieved.

Classifications:

International (IPC 8-9): B29C33/02 B29C45/00 B29C45/73
H05B6/06 H05B6/10 (Advanced/Invention);

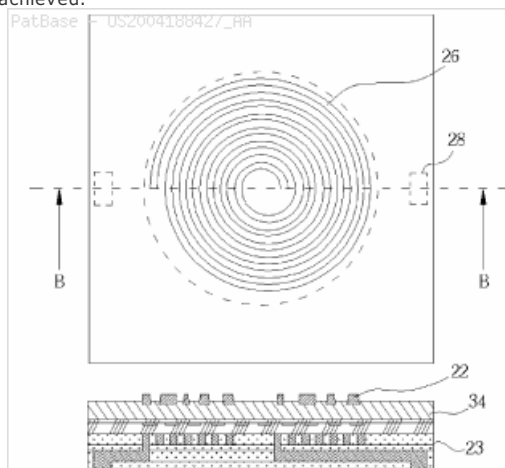
B22D17/22 (Advanced/Non-invention);
B29C33/02 B29C45/73 H05B6/10 (Core/Invention)

International (IPC 1-7): B29C45/00 B29C45/73 H05B6/08

CPC: B29C33/02 B29C33/06 B29C45/73 B29C2035/0811

European: L29C35/08B2

US: 216/52 219/635 219/647 219/659 219/667 425/174.8R

**Family:**

Publication number	Publication date	Application number	Application date
TW200418629 A	20041001	TW20030106436	20030324
TWI223622 B	20041111	TW20030106436	20030324
US2004188427 AA	20040930	US20040708333	20040225
US7132632 BB	20061107	US20040708333	20040225

Priority:

TW20030106436 20030324

Probable Assignee: U TECH MEDIA CORP

Assignee(s): (std): CHIEN HUI CHUAN ; TECH MEDIA CORP U

Assignee(s): U TECH MEDIA CORP ; HUANG JUNG TANG

Inventor(s): (std): HUANG JUNG TANG ; LIN FENG RUNG ; LIN FONG RONG

Inventor(s): LIN, FONG-RONG

Agent(s): WINSTON

12) Family number: 2378886 (US4439915A)

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Title: HEATER INSTALLATION IN MOLDING MEMBERS

Abstract: This invention relates to an improved method of installing an elongated heater such as a cartridge heater in a molding member such as an injection molding manifold member. First, a bore is drilled into an elongated portion of the manifold member to extend generally parallel to the hot runner passage extending through it and a filler duct is drilled from the top to intersect the bore along its length. The cartridge heater is then inserted into the bore and a filler tube with a base is set on the top in alignment with the filler duct. A brazing paste is then applied around the base of the filler tube and around the terminal portions of the cartridge heater extending from the bore. The manifold member is then heated in a vacuum furnace which brazes the filler tube in position and seals the outer end of the duct against leakage. A slug of copper is then inserted into the filler tube and the manifold member is again heated in the vacuum furnace sufficiently to cast the conductive copper to fill the space around the cartridge heater. The filler tube is then machined off to produce the finished manifold member. The copper fuses to the outer casing of the cartridge heater and the bore and together with the elimination of the insulative air space around the cartridge heater substantially improves heat flow and reduces the formation of hot spots which cause the heating element to burn out. In another embodiment, a tubular heater having two terminal portions is installed in a heater plate of a thermosetting mold with the terminal portions extending at opposite ends of the heater plate.

Classifications:

International (IPC 8-9): B29B13/00 B29C33/00 B29C33/02
B29C33/38 B29C41/00 B29C45/00 B29C45/27 B29C45/73

B29C63/34 H05B3/06 H05B3/68 (Advanced/Invention);

B29B13/00 B29C33/00 B29C33/02 B29C33/38 B29C41/00

B29C45/00 B29C45/27 B29C45/73 B29C63/34 H05B3/06

H05B3/68 (Core/Invention)

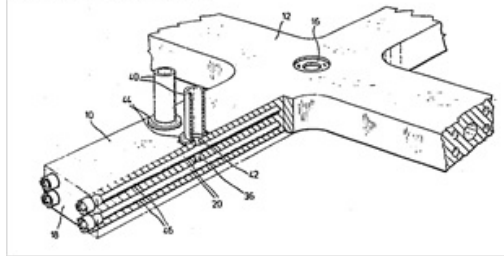
International (IPC 1-7): B29C1/00 B29C33/02 B29C45/73

B29C63/34 B29F1/022 B29F1/03 B29F1/08 H05B3/06 H05B3/68

CPC: B29C45/2738 Y10T29/49083 Y10T29/49988 Y10T29/49989

European: B29C45/27E2

US: 228/221 228/245 29/527.5 29/527.6 29/611

**Family:**

Publication number	Publication date	Application number	Application date
AT43041 E	19890515	AT19830101482T	19830216
CA1177215 A1	19841106	CA19820400058	19820331
DE3379860 D1	19890615	DE19833379860	19830216
DE3379860 D1	19890615	DE19833379860T	19830216
EP0090166 A2	19831005	EP19830101482	19830216
EP0090166 A3	19840328	EP19830101482	19830216
EP0090166 B1	19890510	EP19830101482	19830216
JP1613176 C3	19910815	JP19830052832	19830330
JP2035642 B4	19900813	JP19830052832	19830330
JP58185210 A2	19831028	JP19830052832	19830330
US4439915 A	19840403	US19820369193	19820416

Priority:

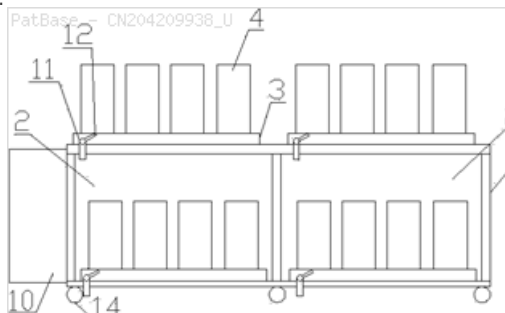
CA19820400058 19820331 EP19830101482 19830216

Probable Assignee: GELLERT JOBST U**Assignee(s):** (std): GELLERT JOBST U**Assignee(s):** JIYOBUSUTO URURITSUHI GERAATO ; GELLERT JOBST ULRICH**Inventor(s):** (std): JIYOBUSUTO URURITSUHI GERAATO ; GELLERT JOBST ULRICH ; GELLERT JOBST U**Inventor(s):** JOBUSUTO URURITSUHI GERAATO**Agent(s):** BERESKIN AND PARR**Designated states:** AT BE CH DE FR GB IT LI LU NL SE**13) Family number: 58382080** (CN204209938U)

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Title: MOVABLE REPLACEABLE INJECTION MOLDING MACHINE DIE HEATER SET

Abstract: The utility model provides a movable replaceable injection molding machine die heater set. Four placement grooves with water outlet heads are arranged by arranging a placement frame with two placement cavities; die heaters are placed in the placement grooves, so that the problem of the condition that the die heaters are placed disorderly can be effectively solved and the die heaters are operated more smoothly and conveniently; the heights of the inner bottom surfaces of the placement grooves are slowly reduced from rear sides to front sides, so that exuding water can flow out conveniently; moreover, through the arrangement of antiskid water adsorption cotton cloth, movement of the die heaters in the placement grooves is effectively prevented; the rear sides of the die heaters are connected with a main water pipe so as to be connected with tap water, and a water inlet pipe and a water outlet pipe are connected with an injection molding machine to generate circulating flow to cool the injection molding machine. The movable replaceable injection molding machine die heater set has a simple structure, is easy to operate, enables the workshop environment to be clean, also enables surplus water not to be wasted and is suitable for production.

Classifications:**International (IPC 8-9):** B29C45/74 B29C45/78 (Advanced/Invention)**CPC:** B29C45/72 B29C45/78 B29C2945/76531**Family:**

Publication number	Publication date	Application number	Application date
CN104309086 A	20150128	CN201410497984	20140926
CN104309086 B	20160914	CN201410497984	20140926
CN204209938 U	20150318	CN201420556434U	20140926

Priority:

CN201410497984 20140926 CN201420556434U 20140926

Probable Assignee: MAGNETI MARELLI AUTOMOTIVE COMPONENTS WUHU CO LTD**Assignee(s):** (std): MAGNETI MARELLI AUTOMOTIVE COMPONENTS WUHU CO LTD**Assignee(s):** MAGNETI MARELLI AUTOMOTIVE PARTS CO LTD WUHU ; MAGNETI MARELLI AUTOMOTIVE COMPONENTS WUHU CO**Inventor(s):** (std): REN YALIANG ; LIU YONG

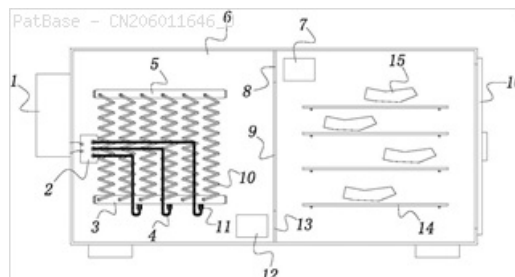
Title: PLASTIC INJECTION MOULD HEATER

Abstract: The utility model relates to a plastic injection mould heater. Including the box, be equipped with the baffle at body cavity's middle part and divide into heating chamber and heat preservation room with the inner chamber, be equipped with heating device in the heating chamber, be equipped with the support that is used for placing the mould in the greenhouse in insurance validity, be equipped with the chamber door on the tank wall in greenhouse in insurance validity, heating device includes oil pipe and lower oil pipe, and both lead the wheelk coil through many and connect, last oil pipe under, oil pipe and the inner chamber of leading the wheelk coil be full of the conduction oil, include still that the inner chamber has electric heating wire net and is full of the heater case of conduction oil, the inner chamber of heater case is connected through many heat pipes and time oil pipe's inner chamber, seted up the supply -air outlet at the top of baffle, the return air inlet has been seted up to the bottom, in the greenhouse in insurance validity, the rear of supply -air outlet installs the forced draught blower, in the heating chamber, the rear of return air inlet installs the draught fan, still fixed mounting has the control box on the box, and electric heating wire net, forced draught blower and the draught fan of heater case all are connected with the control box electricity.

Classifications:

International (IPC 8-9): B29C45/73 (Advanced/Invention)

CPC: B29C45/7337



Family:

Publication number	Publication date	Application number	Application date
CN106182659 A	20161207	CN201610722660	20160825
CN206011646 U	20170315	CN201620940107U	20160825

Priority:

CN201610722660 20160825 CN201620940107U 20160825

Probable Assignee: EULIKIND TIANJIN TECH CO LTD

Assignee(s): (std): EULIKIND TIANJIN TECH CO LTD

Assignee(s): EULIKIND TIANJIN TECHNOLOGY CO ; EULIKIND TIANJIN CO LTD ; EULIKIND TIANJIN SCIENCE AND TECHNOLOGY CO LTD

Inventor(s): (std): GE XIUCHUN

Title: HOT RUNNER NOZZLE FOR INJECTION MOLD, HAS MATERIAL TUBE, IN WHICH FLOW CHANNEL IS FORMED FOR FLOWABLE MATERIAL, AND HEATER IS PROVIDED FOR FLOWABLE MATERIAL, WHERE TEMPERATURE SENSOR IS ARRANGED IN AREA OF HEATER

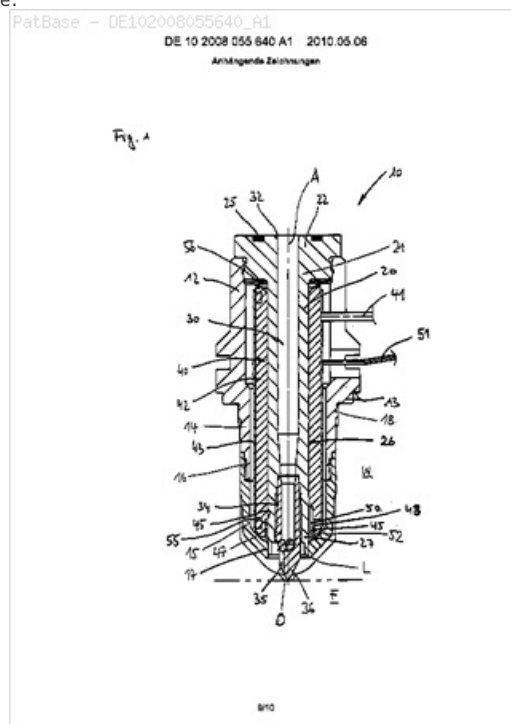
Abstract: The hot runner nozzle (10) has a material tube (20), in which a flow channel (30) is formed for a flowable material. A heater (40) is provided for the flowable material, where a temperature sensor (50) is arranged in the area of the heater. The temperature sensor is fixed at the material tube by a clip-like or ring-like fastening element (47). The fastening element surrounds the half of the outer periphery of the material tube.

Classifications:

International (IPC 8-9): B29C45/30 B29C45/78 (Advanced/Invention); B29C45/27 B29C45/78 (Core/Invention)

CPC: B29C45/1782 B29C45/2737 B29C2045/274

European: B29C45/17W L29C45/27E L29C45/27E3



Family:

Publication number	Publication date	Application number	Application date
DE102008055640 A1	20100506	DE200810055640	20081103

Priority:

DE200810055640 20081103

Probable Assignee: GUENTHER HERBERT GMBH

Assignee(s): (std): GUENTHER HERBERT GMBH

Assignee(s): GUENTHER HEISSKANALTECHNIK GMBH

Inventor(s): (std): SCHNELL TORSTEN ; GUENTHER HERBERT ; SOMMER SIEGRID

16) Family number: 49744518 (KR20110009795U)

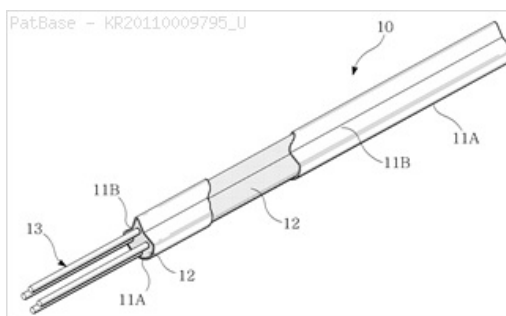
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Title: CARTRIDGE HEATER FOR CONTROLLING TEMPERATURE OF AN INJECTION MOLD

Abstract: Source: KR200461240Y **Machine translation:** In the present invention, cartridge heaters for heating or cooling the mold, the mold block heater insertion hole (6) with a plurality of 91,2) installed into each of the heat generation by the heat to the heat transfer wire 13 and the body 11 of the heat transfer tube through an arc portion (11B), the heat transfer by heating the mold block the heat transfer tube body (11) formed by the recessed portion of the insertion hole (6) of the inner wall of the recessed portion (11B) and the heater (14) to form a passage between the cooling medium through the cooling medium through the cooling medium passage 14 by cooling the mold to uniformly control the temperature of the mold at the same time obtaining a high quality of the four exhibition, and to improve the productivity by shortening the injection molding cycle.

Classifications:

International (IPC 8-9): B29C45/73 B29C45/78 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
KR200461240 Y1	20120628	KR20100003701U	20100409
KR20110009795 U	20111017	KR20100003701U	20100409

Priority:

KR20100003701U 20100409

17) Family number: 10393213 (JP1173882A)

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Title: ABNORMALITY DETECTING DEVICE FOR HEATER WIRE OF METALLIC MOLD FOR INJECTION MOLDING

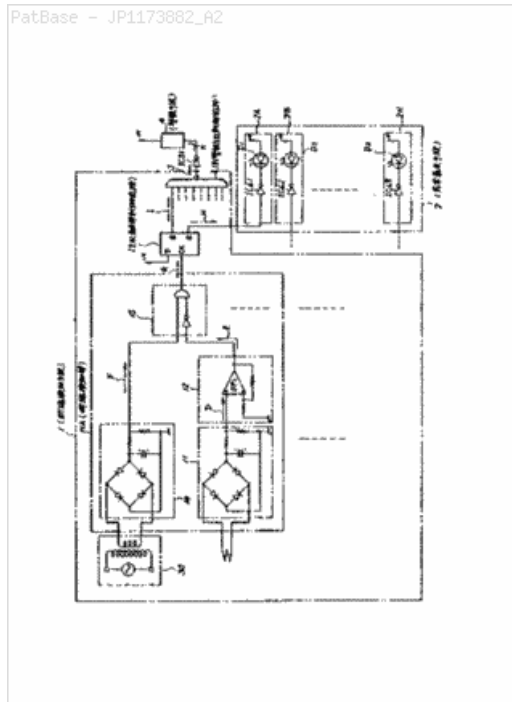
Abstract: PURPOSE:To finds the breaking of a heater wire immediately by providing a wire breaking detecting means which outputs wire breaking information on each wire when the breaking of plural heater wires is detected. CONSTITUTION:If a heater wire is broken, a 'low-level' output D is sent to a comparing means 12 through the operation of a current detecting means 10 and a rectifying means 11. Consequently, the comparing means 12 sends a low-level output E to a logic circuit 15. Then the logic circuit 15 sends a 'high-level' output G to a display part control circuit 12A. Consequently, a display part control circuit 13 sends a 'high-level' output J to an IC 31, which sends a 'low-level' output K to a warning means 4. In this state, the warning means 4 operates to warn the abnormality of a heating means. Consequently, the breaking of the heat wire is found in real time.

Classifications:

International (IPC 8-9): G01R31/02 (Advanced/Invention);

G01R31/02 (Core/Invention)

International (IPC 1-7): G01R31/02

**Family:**

Publication number	Publication date	Application number	Application date
JP1173882 A2	19890710	JP19870336246	19871228

Priority:

JP19870336246 19871228

Probable Assignee: SHOWA ELECTRIC WIRE AND CABLE CO
Assignee(s): (std): SHOWA ELECTRIC WIRE AND CABLE CO
Assignee(s): SHOWA ELECTRIC WIRE AND CABLE CO LTD
Inventor(s): (std): AIHARA MITSUGI ; MORI TAMAKI

18) Family number: 34956761 (KR100722680B)

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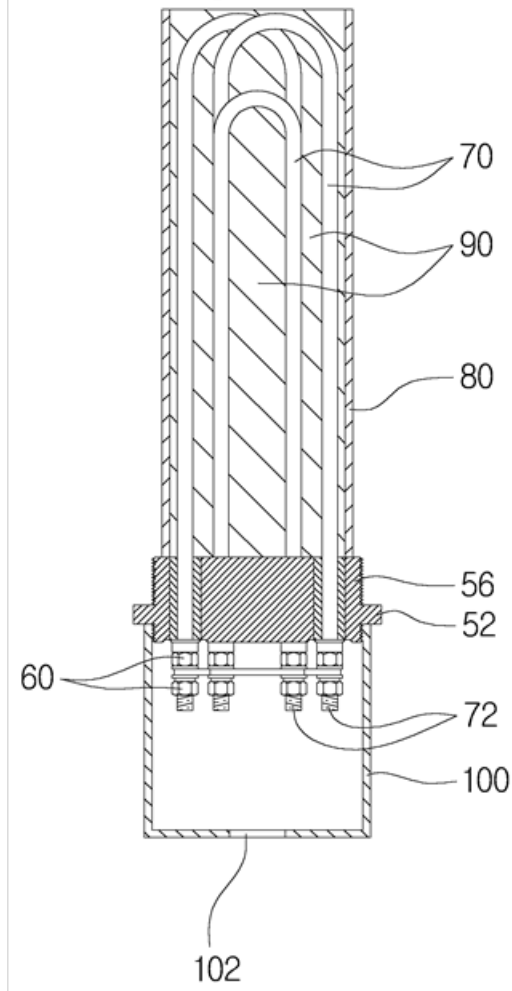
Title: HEATER FOR TEMPERATURE CONTROL APPARATUS OF INJECTION MOLD AND THE MANUFACTURING METHOD THEREOF

Abstract: Source: KR100722680B **Machine translation:** Saw the invention of the hot water heater and the manufacturing method for the number of columns in the full heat of the Sun when the protective pipe in external large-diameter stainless pipe, putting on larger diameter stainless pipe heater by injecting molten metal, water in the absence of metal molten metal solidification of water protection in response to solid cloth so that the heater do not attach the external side of the scales of the Member in the absence of the heater the heater by preventing breakage in the absence of life longevity can be. Keywords injection mould temperature control devices of the heater and its manufacturing method

Classifications:

International (IPC 8-9): B29C45/72 B29C45/78 (Advanced/Invention);
 B29C45/72 B29C45/78 (Core/Invention)

CPC: B29C45/78 B29C45/72 G02F1/1303 G02F1/133504
 H01L21/6776

**Family:**

Publication number	Publication date	Application number	Application date
KR100722680 B1	20070529	KR20060019504	20060228

Priority:

KR20060019504 20060228

Probable Assignee:

DAE HAN MACMINERY CO LTD

Assignee(s): (std):

DAE HAN MACMINERY CO LTD

Assignee(s):

DAE HAN MACMINERY CO

Inventor(s): (std):

YOON YOO JUNG

19) Family number: 11978442 (JP10296791A)

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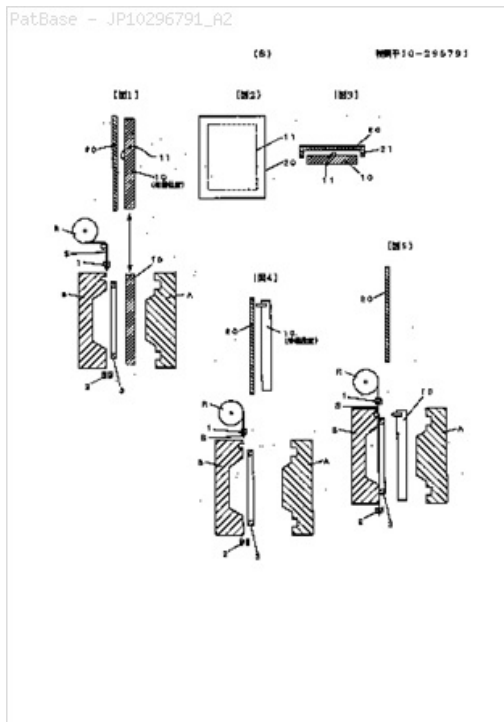
Title: HEATER, INJECTION MOLDING IN-MOLD DECORATING DEVICE AND DECORATING METHOD

Abstract: PROBLEM TO BE SOLVED: To accurately heat a decorated sheet by providing a radiation stabilizing means oppositely to a heating surface to stabilize radiation from a heating surface of a heating platen when the platen is disposed at a standby position not for heating the sheet. SOLUTION: Before supplying a decorating sheet S, a heating platen 1 is disposed at a standby position, and a radiation stabilizing plate means, for example, of plate-like iron, or ceramics is fixedly provided at a non-contact position as a radiation stabilizing means 20 oppositely to its heating surface 11. Thus, influence of air flow in a circumferential environment opposed to the surface 11 is suppressed by the plate 20, and radiation of the surface 11 is suppressed. Accordingly, temperature control of the platen 10 can be stably conducted and heating and softening of the sheet S are stabilized, and hence accurate decorating can be executed.

Classifications:

International (IPC 8-9): B29C35/00 B29C45/14 B29C45/16
 B29C45/72 B29C51/42 (Advanced/Invention);
 B29L9/00 (Advanced/Non-invention);
 B29C35/00 B29C45/14 B29C45/16 B29C45/72
 B29C51/26 (Core/Invention)

International (IPC 1-7): B29C35/00 B29C45/14 B29C45/16
 B29C45/72 B29C51/42 B29L9/00

**Family:**

Publication number	Publication date	Application number	Application date
JP10296791 A2	19981110	JP19970124756	19970430
JP4170412 B2	20081022	JP19970124756	19970430

Priority:

JP19970124756 19970430

Probable Assignee:

DAINIPPON PRINTING CO LTD

Assignee(s): (std):

DAINIPPON PRINTING CO LTD

Assignee(s):

DAI NIPPON PRINTING CO LTD

Inventor(s): (std):

ATAKE HIROYUKI

20) Family number: 76968092 (CN209812921U)

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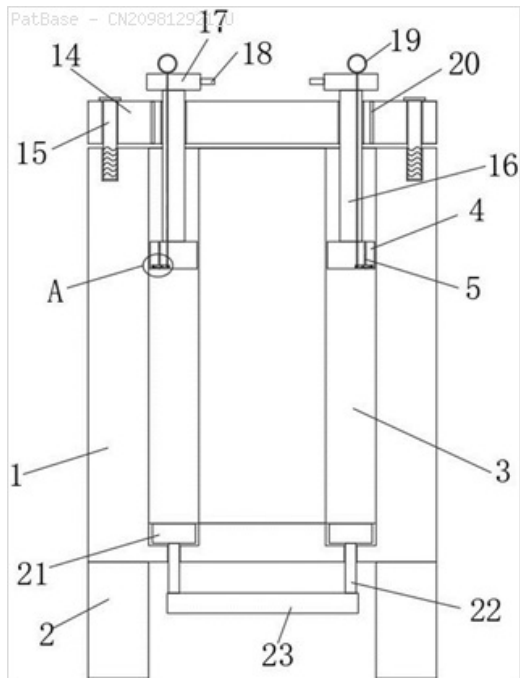
Title: INJECTION MOLD OF WATER HEATER INSULATION STRUCTURE

Abstract: The utility model discloses an injection mold of a water heater heat preservation structure, which comprises a mold body, the bottom of the mold body is fixedly connected with two support legs, and an accommodating cavity is formed in the mold body and is annular. According to the utility model, through the combination of a second sliding block and a second connecting rod, under the manual operation and control, the operation is convenient; the shape of the polyurethane material can be limited in the foaming process; the foaming process of the polyurethane material is avoided; due to the foaming tension, the mold cover is jacked up; or the problem of incomplete foaming process occurs; the heat insulation performance of the heat insulation layer is influenced; and meanwhile, through the first exhaust holes in the second sliding blocks and the second exhaust holes in the mold cover, the containing cavity is extruded through the second sliding blocks, so that gas in the mold cavity is completely exhausted, the heat preservation layer is more uniformly distributed in the foaming process, and the heat preservation effect of the heat preservation layer of the water heater is better.

Classifications:**International (IPC 8-9):** B29C44/34 B29C44/58 B29C44/60

B29K75/00 (Advanced/Invention);

B29K75/00 (Advanced/Non-invention)



Family:

Publication number	Publication date	Application number	Application date
CN209812921 U	20191220	CN201920559656U	20190423

Priority:

CN201920559656U 20190423

Probable Assignee: QINGDAO GUAN HENG MACHINERY MOULD CO LTD

Assignee(s): (std): QINGDAO GUAN HENG MACHINERY MOULD CO LTD

Assignee(s): QINGDAO CROWN CONSTANT MECHANICAL MOLD CO LTD ; QINGDAO GUAN HENG MACHINERY MOULD CO

Inventor(s): (std): LI SHANDI