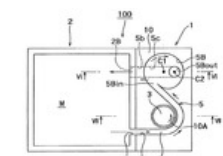
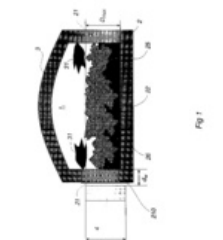
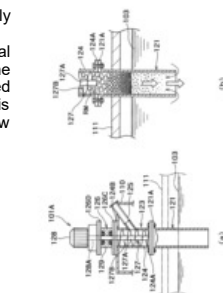
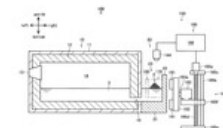
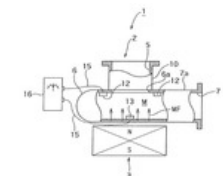
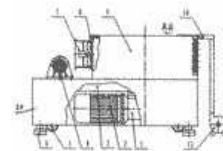


#	Title	Publication number	1st app. date	Applicant/Assignee	
1.	Agitator, agitating method, and melting furnace with agitator	US20060133194	2005-01-07	Takahashi Kenzou	100 %
An agitator for agitating a melt includes a heat-resistive container having a blast opening through which cooling air is blown and an exhaust opening for exhausting air having been subjected to heat exchange, and a rotating magnet assembly composed of a permanent magnet housed in the heat-resistive container in a rotatable manner, magnetic lines of force emitted from the permanent magnet penetrating through the heat-resistive container to exit outside, and then penetrating the heat-resistive container again to return to the permanent magnet.					
2.	Melting furnace with magnetic agitator	CA2653612	2008-06-27	TAKAHASHI KENZO	100 %
There is provided a melting furnace with an agitator. The melting furnace with an agitator includes a melting furnace that contains melt, and an agitator that agitates the melt by an electromagnetic force. The agitator includes a first electrode that is provided at an arbitrary position of the melting furnace so as to come in contact with the melt contained in the melting furnace, a second electrode that is provided near a bottom wall of the melting furnace so as to come in contact with the melt, a first magnetic field device that is provided outside the melting furnace so as to face the bottom wall of the melting furnace and makes a north pole face the bottom wall, and a second magnetic field device that is provided outside the melting furnace so as to face the bottom wall of the melting furnace and makes a south pole face the bottom wall. The first and second magnetic field devices are disposed with a gap in a certain direction.					
3.	Agitator and melting furnace with agitator	EP1612498	2004-06-30	TAKAHASHI KENZO;Takahashi Kenzo	100 %
An agitator for applying an alternating field to a melting furnace main body in order to melt a row material to form a melt includes a plurality of magnets, which are arranged so that magnetic lines of force emitted from one of the magnets pass through the melt in the melting furnace main body and return to another magnet, the magnets being fixed to an inclined surface which is inclined by an angle with respect to a horizontal surface, and being rotatable around an axis substantially perpendicular to the inclined surface.					
4.	Agitator, agitating method, and melting furnace with agitator	CA2549629	2006-06-06	TAKAHASHI KENZO	100 %
An agitator for agitating a melt includes a heat-resistive container having a blast opening through which cooling air is blown and an exhaust opening for exhausting air having been subjected to heat exchange, and a rotating magnet assembly composed of a permanent magnet housed in the heat-resistive container in a rotatable manner, magnetic lines of force emitted from the permanent magnet penetrating through the heat-resistive container to exit outside, and then penetrating the heat-resistive container again to return to the permanent magnet.					
5.	Permanent magnet type cylindrical molten metal stirring device, and melting furnace	CA2831598	2012-08-08	GAO QIAOQIAN THREE*	99 %
There is provided an energy-saving agitator that suppresses the amount of generated heat, is easy to use and carry out maintenance, has flexibility in an installation position, and can also adjust an agitating ability. The agitator includes a furnace body that includes a molten metal room storing a molten metal, and an agitating unit that agitates the molten metal stored in the furnace body. The agitating unit includes a molten-metal driving room-forming part that is disposed in the molten metal room, applies a driving force to the molten metal, and forms a driving room of which both ends are opened; a pair of electrodes that is disposed in the driving room and makes current flow in the driving room under the presence of the molten metal; and a magnetic field unit which is formed of a permanent magnet disposed outside the furnace body, of which one pole of an N pole and an S pole faces the furnace body so that magnetic lines of force generated from the one pole cross the current, and which generates an electromagnetic force for driving the molten metal from one end toward the other end in the driving room.					
6.	Melting furnace with agitator	WO200043029	1999-01-21	COLUMBIA UNIVERSITY*	99 %
There are provided a melting furnace including a containing space for containing a melt of nonferrous metal, a magnetic field generating device, a magnetic flux therefrom, from outside penetrates the melting furnace for containing the melt to run through the containing space in a direction; and at least one pair of electrode terminals, the electrode terminals facing each other with a predetermined distance in a direction crossing the direction of the magnetic flux at a certain angle, and being capable of connecting to a power supply.					
7.	A stirring molten bath, an online stirring apparatus and the method of laying out the apparatus	CN101082081	2007-07-10	SHANDONG HUATE MAGNET TECHNOLO* SHANDONG HUATE MAGNET TECHNOLOGY	99 %
A stirring molten bath, an online stirring apparatus and the method of laying out the apparatus are illustrated. The online stirring apparatus includes a smelting furnace (1) connected with an online chute (2), wherein the chute is connected with the internal cavity of the furnace. The stirring molten bath having a heat insulating bath body is installed on the online chute (2). The bath body has a molten metal inlet (45) and a molten metal outlet (46) on its side wall and is connected with the online chute (2) through the molten metal inlet (45) and the molten metal outlet (46). A non-magnetic bottom plate (47) is mounted on the bottom shell of the bath body. A magnetic stirrer (5) is laid out under the plate (47) of the stirring molten bath.					

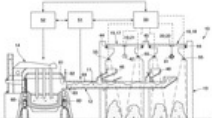
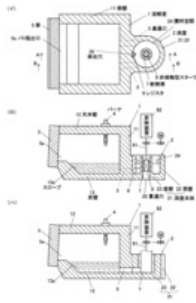
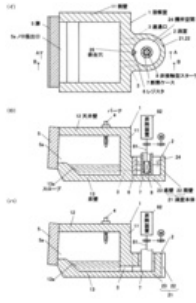
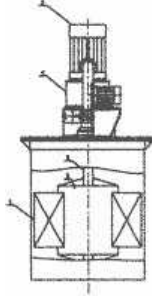
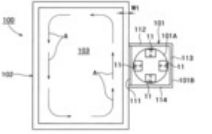
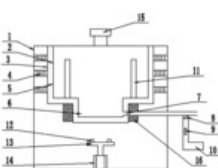
8.	Agitation device	CN1793765	2004-12-22	TAKAHASHI KENZO;Takahashi Kenzo	99 %
PROBLEM TO BE SOLVED: To provide an inexpensively adoptable agitation device even when electric power is used as motive power. SOLUTION: The agitation device is for agitating molten aluminum in an aluminum melting furnace, and it is provided with a case having a case body made of a non-magnetic material, and an upper lid covering the case body and having a first opening for blowing air and a second opening for exhaust, and a rotary magnet body housed in the case, journaled so it can rotate around a substantially perpendicular shaft, having an upper side shaft and a lower side shaft used as rotary shafts, composed such that at least the upper side shaft is a hollow body, the upper side shaft is communicated with the outside of the case through the first opening, and air can be sent from the outside into the case, and magnetized such that different magnetic poles are alternately provided along an outer circumference. COPYRIGHT: (C)2006,JPO&NCIP					
9.	Ultra-strong permanent-magnetic vortex agitator	CN1821695	2006-01-16	HUATE ELECTRIC MAGNET EQUIPM* SHANDONG HUATE MAGNET TECHNOLO SHANDONG HUATE MAGNET TECHNOLOGY	99 %
An ultra-strong permanent-magnetic vortex agitator comprises a frame (3), a main shaft (14), a rotary disc (13), permanent magnets (15) and a non-magnetic safety cover (9). The main shaft (14) is vertical to horizon, and its top end extends through the frame (3) and is provided with a rotary disc (13). The rotary disc (13) is placed horizontally with multiple permanent magnets (15) fixed on the top of it. The permanent magnets (15) are arranged in such a manner that there is at least one closed loop from N-pole to S-pole. The permanent magnets (15) are Nd-Fe-B permanent magnets that are placed in the inner chamber of the non-magnetic safety cover (9) fixed on the frame (3). The non-magnetic safety cover (9) is provided with a round non-metal heat-resistant plate (12) on the top surface of it and is provided with an air-cooling device. The lower end of the main shaft (14) is attached to a decelerating mechanism (1) fixed on the bottom surface of the frame (3), and the power input shaft of the decelerating mechanism (1) is attached to the rotary shaft of a frequency-modulated variable-speed motor (2). The frequency-modulated variable-speed motor (2) is controlled by a programmable logic controller (21) in a controlling-cabinet according to operational program to realize rotation in forward and reverse directions alternately, and to drive the multiple permanent magnets (15) to rotate in forward and reverse directions synchronously through the decelerating mechanism (1), the main shaft (14) and the rotary disc (13). The ultra-strong permanent-magnetic vortex agitator is excellent in energy saving and safety, and is suitable for smelting furnace with flat bottom which is widely utilized.					
10.	Permanent magnet-type molten metal stirring device and melting furnace and continuous casting device comprising same	CA2935648	2014-01-31	TAKAHASHI KENZO;Takahashi Kenzo	99 %
A permanent magnet-type molten metal stirring device includes: a support body that is capable of suppressing transfer of heat from molten metal; a magnetic field unit that is provided above the support body and includes a permanent magnet allowing magnetic lines of force to vertically extend in the molten metal; and a drive unit that is provided below the support body and drives the molten metal with an electromagnetic force generated by the magnetic lines of force generated from the permanent magnet and current allowed to flow through the molten metal by the drive unit, wherein the drive unit includes: -a cylindrical drive unit main body that is mounted on a lower portion of the support body and includes a passage formed therein and laterally extending in a longitudinal direction, and -a pair of electrodes that are provided at positions where the pair of electrodes being opposed each other along a width direction via the passage, the pair of electrodes being exposed to the passage, and the pair of electrodes allowing current in the molten metal, the current intersecting the magnetic lines of force.					
11.	Agitation blade	WO9831456	1997-01-20	AJINOMOTO* SUZUKI SANEI	99 %
In order to improve the gas absorption property in a gas-liquid mixing tank, the stirring power and aeration volume may be increased. In an actual commercial scale, however, such measures will cause the equipment to be expanded and the necessary energy to be increased. Thus, it is not so easy to improve the gas absorption property. Furthermore, when operating a stirring blade unit developed recently in a commercial scale, the rotation speed of the blade unit must be much increased to obtain a certain level of stirring. And, increasing of the rotation speed will also arise other problems that the equipment structure becomes complicated and expanded (the blade unit cannot be fixed in the stirring tank easily). Under such the circumstances, it is an object of the present invention to solve such the prior art problems and provide a gas-liquid mixing blade unit that can absorb a gas efficiently, as well as it can reduce both the manufacturing cost and installation space. In order to achieve the above object, the stirring blade unit of the present invention is characterized by a perforated cylinder 2 formed around the discharge type internal stirring blade 1 so as to be rotated together with the stirring shaft. The numerical aperture of the perforated cylinder is 30 to 50%. The internal stirring blade unit 1 uses a discharge type stirring blade unit used for gas-liquid mixing of a general fermentation tank. Thus, the gas-liquid flow discharged from the blade unit in the horizontal direction hits the perforated cylinder formed around the blade unit certainly. Due to this hitting of the gas-liquid flow against the perforated cylinder, the pressure of the flow is changed significantly to refine the gas bubbles so that the gas absorption property is improved. The stirring blade unit of the present invention will thus be suitable for gas-liquid mixing necessary for fermentation, aeration, reaction (hydrogenation and oxidation) tanks, etc. <IMAGE>					
12.	Smelting process of electrically-conductive materials in an induction smelting furnace with a cold crucible and furnace therefor	CA2128936	1993-07-29	COLPO PASCAL DRIOLE JEAN IMPHY TECPHY* WITZKE SYLVAIN	99 %
The subject of the invention is a process for melting (smelting) an electrically conductive material (1) in a cold-crucible induction melting (smelting) furnace (10) in which a mass of the electrically conductive material (1) is electromagnetically confined, up to its melting point, the inclusionary particles contained in the liquid electrically conductive material (1) are separated off by creating at least one vortex in the said material by electromagnetic stirring, part of the mass of the liquid electrically conductive mass (1) is poured off into a pouring pipe (15) placed underneath the said melting furnace (10), the pouring stream of the liquid electrically conductive material (1) is subjected to radial electromagnetic confinement and there is provision for vertical coaxial alignment of the electromagnetic fields acting on the mass of liquid electrically conductive material (1) and on the pouring stream of the said mass. The subject of the invention is also a cold-crucible induction melting furnace for the implementation of this process. <IMAGE>					
13.	Vortex chamber body for metal melting furnace, and metal melting furnace using said vortex chamber body	CA2834154	2011-09-30	Kenzo Takahashi;TAKAHASHI KENZO;Takahashi Kenzo	99 %
A metal melting furnace includes: a furnace body which includes a storage space storing molten metal;a vortex chamber body which includes a vortex chamber capable of communicating with the storage space of the furnace body; and a drop weir part which changes a communication state and an interruption state between the storage space and the vortex chamber, wherein the drop weir part includes a blind drop weir and an opening type drop weir which are formed as separate members, wherein at least the blind drop weir is movable up and down with respect to the vortex chamber body and is selectively positioned at an upward movement position and a downward movement position so as to switch the communication state and the interruption state, and wherein the opening type drop weir includes notches which communicate the vortex chamber and the storage space with each other in the communication state.					

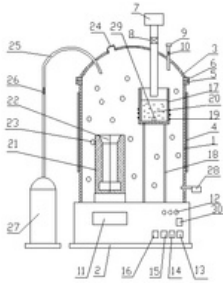
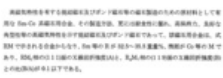
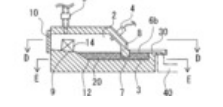
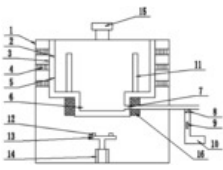
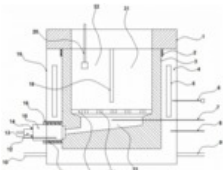
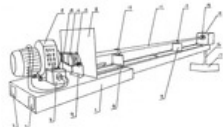
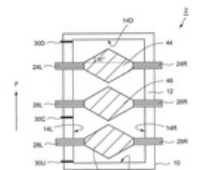
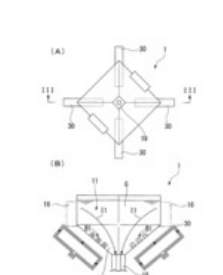
14.	Furnace bottom window structure of aluminum melting furnace with bottom agitating device	CN101639327	2009-08-26	SUZHOU LONGRAY THERMAL TECHNOLOGY*	99 %
The invention provides a furnace bottom window structure of an aluminum melting furnace with a bottom agitating device. Four upright stiffened plates are sequentially connected end to end to form a square frame support which is welded with a rectangular stainless steel plate, the rectangular stainless steel plate is horizontally welded with a horizontal stiffened plate and longitudinally welded with a longitudinal stiffened plate, and the horizontal stiffened plate and the longitudinal stiffened plate are in mesh arrangement, thus forming an integrated furnace bottom window structure. The furnace bottom window structure has advantages of being capable of improving serviceability of the agitating device, avoiding sagging and deformation of the steel plate of the window after long-time use and reducing risk of equipment in use, novel and reliable structure, no maintenance, being capable of slowing down demagnetization of the agitating device, improving agitating effect of the agitating device and being widely applicable to the aluminum melting furnaces with the bottom agitating devices.					
15.	Vortex chamber body for metal melting furnace and metal melting furnace using same	CA2840774	2012-09-27	TAKAHASHI KENZO;TAKAHASHI Kenzo;Takahashi Kenzo	99 %
To provide a device which is compact, requires a small installation space, and is easily maintained at low cost. A metal melting furnace includes: a furnace body which includes a storage space storing molten metal; and a vortex chamber body which includes a vortex chamber communicating with the storage space of the furnace body, wherein the vortex chamber body includes a partition plate which serves as a drop weir uprightly formed inside the vortex chamber, wherein the partition plate is disposed at a communication side with respect to the storage space in the vortex chamber so that the longitudinal direction of the partition plate follows the communication direction and divides the communication side so as to form first and second vortex chamber openings positioned at both sides of the partition plate and communicating with both the storage space and the vortex chamber, and wherein a molten metal whirling gap is formed between a front end portion of the partition plate positioned at the inside of the vortex chamber in the longitudinal direction and an inner wall of the vortex chamber body facing the front end portion.					
16.	Plant and relative procedure for the continuous feeding of heated metallic material to a melting furnace for the production of steel	ITMI20121257	2012-07-19	NOVA TENOVA* TENOVA SOCIETA PER ATIONI	99 %
A plant (IM) and relative process for continuously feeding heated metallic material (5) to a melting furnace (1), according to which on at least one feeding line (L) defined by a conveyor (2) for continuously advancing said material (5) to said furnace (1), there is one pair (C) of operative modules (17', 17'') defined by a first (17') and a second (17'') operative feeding and heating module, said first (17') and second (17'') operative modules being positioned in succession with respect to each other along said line (L); said first module (17') being suitable for forming and directly heating a first layer (5') of said material (5) arranged on said line (L), and said second module (17'') being suitable for forming and directly heating a second layer (5'') of said material (5) arranged superimposed with respect to said first layer (5').					
17.	Swirl chamber of melting furnace and melting furnace	CN108332569	2017-01-20	MIYAMOTO KOGYOSHO*	99 %
The invention provides a swirl chamber of a melting furnace and the melting furnace. Under the situation that a block mass is put into the swirl chamber of the melting furnace, splashing of molten metal can be prevented as much as possible. The swirl chamber of the melting furnace is provided with an outer circumferential wall (21) arranged on the side face of a melting chamber (1), an inner circumferential wall (22) arranged on the inner side of the outer circumferential wall in the radius direction, a bottom wall (23) closing the lower end of the outer circumferential wall and a stirring space which is a stirring space (24) formed between the outer circumferential wall and the inner circumferential wall for melting metal, and by means of the action of a non-contact type stirrer (3) arranged on the exterior, the metal is stirred and melted. Moreover, the outer circumferential wall is provided with an outer circumferential wall body (21a) with the inner surface in a cylindrical shape and an inwards-protruding wall (21b) protruding in the circumferential direction at the position closer to the lower side than the upper end of the inner surface of the outer circumferential wall body in the inner surface of the outer circumferential wall body.					
18.	Aluminum alloy melting furnace able to self stir and remove slag	CN2911574	2006-06-27	AILUMI INDUSTRY FURNACES MANUFACTURING*	99 %
The utility model relates to an auto agitation slug cleaning aluminum alloy founding furnace, which is characterized in that a permanent magnetic rotation agitator is arranged on the bottom of the founding furnace body, a silicon carbide aluminum liquid block plate with a cut is arranged close to the liquid output chamber bottom side in the aluminum alloy founding furnace inside chamber; the aluminum block plate is connected rigidly on the two sides of the furnace body, the height of the plate is higher than the normal aluminum liquid level. Because of the permanent magnetic agitator action, the aluminum liquid inside the furnace become the agitating status, not only to make the aluminum liquid temperature evenly, but also to distribute the slug cleaning agent automatically, to improve the heating efficiency, to even the aluminum liquid temperature and the content, and to reduce the operator labor effort.					
19.	Bottom mounted type electric permanent magnet stirrer for smelting furnace	CN202770247	2012-09-14	YUEYANG HISCIENCE ELECTROMAGNET TECHNOLOGY*	99 %
The utility model relates to a bottom mounted type electric permanent magnet stirrer for a smelting furnace of a direct current excitation. The bottom mounted type electric permanent magnet stirrer for the smelting furnace is arranged at the furnace bottom of the smelting furnace and comprises a walking trolley, a rotating mechanism, a lifting mechanism and an electric permanent magnet which is fixed on a tray of the rotating mechanism. The electric permanent magnet comprises a magnetic core which is uprightly or horizontally arranged on a magnetic yoke iron, a coil which is arranged on the magnetic core in a wound mode and an auxiliary magnetic steel which is arranged between magnetic poles formed by the magnetic core and the coil to enhance magnetic field. The magnetic core, the coil, the magnetic poles and the auxiliary magnetic steel are all arranged inside a shell of the electric permanent magnet. The outer wall of the shell is evenly provided with radiating ribs. The magnetic poles of the auxiliary magnetic steel and the magnetic poles of a magnetic iron are homopolar and installed in a corresponding mode, wherein the magnetic poles of the magnetic iron are formed by the magnetic core and the coil. The magnetic core and the magnetic poles are composed of whole magnetic steels or the magnetic core and the magnetic poles are composed of a part of yoke irons and a part of the magnetic steels. The magnetic field direction generated by the coil and the magnetic field direction of the magnetic steel in the magnetic core are the same. The bottom mounted type electric permanent magnet stirrer for the smelting furnace has the advantages of being good in stirrer effect, energy-efficient and long in service life.					
20.	Waste-gasified fusion furnace and method of operating the fusion furnace	WO200221047	2000-09-05	KAWASAKI HEAVY INDUSTRIES*	99 %
A waste gasification-melting furnace comprises a gasifying furnace body 2 of a shaft furnace type, for drying and thermally decomposing waste sequentially supplied from above into the furnace 1 by using a high-temperature gas; and a melting chamber furnace 3 provided integrally with a lower end discharge port 2b of the gasifying furnace body 2, for receiving residue of the waste A resulting from pyrolysis, the melting chamber furnace 3 being provided with a heating and melting burner directed toward a slope of the residue, wherein the melting chamber furnace 3 is provided with a discharge port 6 through which molten substances containing molten slag and molten metal are discharged, and a gas feeding pipe 8 connected to a header duct 9, for feeding the high-temperature gas generated during heating and melting the residue inside the melting chamber furnace 3 to the gasifying furnace body 2. <IMAGE>					

21.	Super strong permanent magnet cyclone stirrer	CN2861927	2006-01-16	HUATE ELECTRIC MAGNETIC EQUIPMENT*	99 %
The present utility model relates to a strong permanent magnet eddy mixer comprising a frame, its spindle is to extend through two ends of the frame; and the up end of the spindle is fixed on the disc with a rotary disc and several permanent NdFeB Magnets are evenly arranged with ray pattern, where the polarity of two neighboring magnets is opposite at the end with same direction. Its spindle is vertical to horizontal plane and the rotary disc is placed horizontally. Said permanent NdFeB Magnets are located in a cavity of round non-magnetic cover made of nonmetallic heat resistant plate. On the nonmagnetic cover is fixed with air cooling device, a reducer is fixed at the frame base at the lower end, the power output shaft of such reducer coupled with the shaft of variable-frequency speed motor which is to realize alternative clockwise and counter-clockwise rotation as per the operation process by programmable controller in a control cabinet, several permanent magnet are driven synchronistically with clockwise and counter-clockwise rotation. Said strong permanent magnet eddy mixer is adaptable to flat bottom furnace with good power saving and safety property.					
22.	Non-ferrous metal melt pump and non-ferrous metal melting furnace using the same	CA2689311	2009-05-29	DJIMAGU ZMAG*	99 %
A non-ferrous metal melting furnace includes a non-ferrous metal melt pump (1), a vortex chamber body (2), and a magnetic field device formed of permanent magnets. The vortex chamber body (2) makes a non-ferrous metal melt flow into a vortex chamber (6) from an inlet (5) in a spiral shape by applying a driving force to the non-ferrous metal melt (M) melt in the vortex chamber (6), and discharges the non-ferrous metal (M) melt from the vortex chamber (6) to an outlet (7). The magnetic field device formed of permanent magnets is disposed outside the vortex chamber (6) and below a bottom plate of the vortex chamber, (6), and applies the driving force to the non-ferrous metal melt by an electromagnetic force that is generated by current flowing in the non-ferrous metal (M) melt and magnetic lines of force from the magnetic field device formed of permanent magnets (56, 56).					
23.	Melting apparatus with agitation device	WO2010050182	2009-09-04	TOYOTA MOTOR*	99 %
Provided are an agitation device, a melting apparatus, and a melting method which achieve good melting efficiency without contaminating molten metal. The agitation device (150) is provided with a traveling magnetic field generating unit (160) which is disposed outside a charging tank (20) for storing molten metal (3) and generates, inside the charging tank (20), a magnetic field that travels downward along the rear sidewall (22) of the charging tank (20), whereby a flow of the molten metal (3) that rotates longitudinally about an axis approximately parallel to the surface of the molten metal (3) is produced in the molten metal (3). By charging aluminum cutting chips (2) into the molten metal (3) in which the flow is produced, the aluminum cutting chips (2) move with the flow of the molten metal (3), get into the molten metal (3) roughly in the position where a downward flow of the molten metal (3) is produced, and are immersed in the molten metal (3), and thus the melting of the aluminum cutting chips (2) is accelerated.					
24.	Raw material push-in device for melting furnace and melting furnace system with the built-in device	JP2008196807	2007-02-14	TAKAHASHI KENZO	99 %
PROBLEM TO BE SOLVED: To provide a raw material push-in device for a melting furnace and a melting furnace system with the built-in device, surely and quickly melting raw material (non-ferrous metal chip or the like). SOLUTION: In this raw material push-in device 101A for the melting furnace, raw material RM such as non-ferrous metal chip as a melting object is pushed in molten metal 103 in the melting furnace from above, with the lower end sunk in the insertion state in the molten metal 103 in the melting furnace, thereby melting the raw material. The device includes: a cylindrical melting part made of heat resisting material; a container part 124 which is a push-in part 123 fitted to the upper part thereof and communicated to the melting part; and a screw part 127 inserted in the container part to rotate around the longitudinal axis, wherein the screw part includes a shaft along the longitudinal axis and a blade 127B thereto, and the blade pushes down the raw material supplied to the container part, and a driving part 128 is provided to drive the push-in part and the screw part in the push-in part in rotation. COPYRIGHT: (C)2008,JPO&INPIT					
25.	Furnace plant	SE9501562	1995-04-25	ABB* ABB VAESTERAAS	99 %
A furnace plant which comprises at least one furnace vessel (2) with side walls (21) and a bottom (22) and at least one heat source (31) which by radiation and convection heats molten metal and/or solid metal present in said furnace vessel. At least one two- or multiphase electromagnetic side stirrer (4, 24, 24a, 24b, 24c, 34, 34a, 34b) is arranged in or near the wall (21) of the furnace vessel to act through said wall and apply a stirrer field to the molten metal. The side stirrer comprises at least two phase windings arranged around an iron core which has a vertical extent, H, which essentially covers the region, Dmax, between the bottom and the upper surface of the molten metal at a maximum bath depth used in the furnace vessel. The side stirrer is arranged with a pole pitch tau which exceeds twice the distance from the iron core to the molten metal, tau > 2 dw.					
26.	Conductive metal melting furnace, conductive metal melting furnace system equipped with same, and conductive metal melting method	JP6039010	2015-06-03	TAKAHASHI KENZO;Takahashi Kenzo	99 %
To provide a technique that reliably and quickly melts conductive metal, there is provided a conductive metal melting method including: rotating a magnetic field device formed of a permanent magnet, which includes a permanent magnet, about a vertical axis near a driving flow channel of a flow channel that includes an inlet through which conductive molten metal flows into the flow channel from the outside and an outlet through which the molten metal is discharged to the outside and includes a vortex chamber provided between the driving flow channel provided on an upstream side and an outflow channel provided on a downstream side, and moving lines of magnetic force of the permanent magnet while the lines of magnetic force of the permanent magnet pass through the molten metal present in the driving flow channel; allowing the molten metal to flow into the vortex chamber by an electromagnetic force generated with the movement to generate the vortex of the molten metal in the vortex chamber into which the raw material is to be put; and discharging the molten metal to the outside from the outlet. The conductive metal melting method further includes driving the molten metal present in the outflow channel toward the outlet by an electromagnetic force generated with the movement of the lines of magnetic force as necessary.					

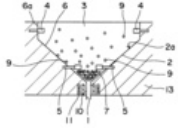
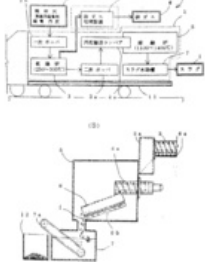
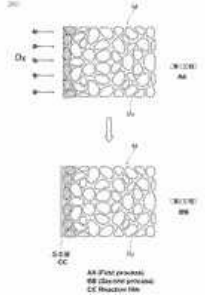
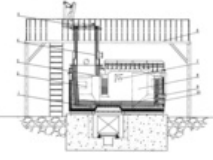
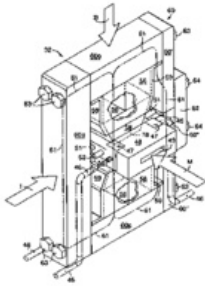
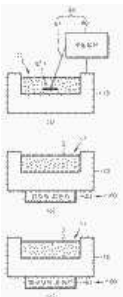


27.	Remelting of rare earth magnet scrap and/or sludge of magnet-forming r-fe-b alloy	EP1275741	2002-07-05	SHIN ETSU CHEMICAL*	99 %
Rare earth magnet scrap and/or sludge is remelted for reuse. Once a rare earth-free magnet -constituent metal feed is loaded in a melting furnace and heated into a melt, a rare earth-containing metal feed and the rare earth magnet scrap and/or sludge are added to the melt, a particulate flux of an alkali metal, alkaline earth metal or rare earth metal halide and having an average particle size of 1-50 μm , preferably wrapped in a metal foil, is added to the melt, and the resulting mixture is melted, from which an alloy ingot is obtained. The valuable elements in the scrap and/or sludge can be recycled. Better separation between the slag and the molten metal ensures that the ingot is obtained from the melt in a high yield.					
28.	Melting furnace for nonferrous metal and method for melting nonferrous metal	JP2011237056	2010-05-06	SANKEN SANGYO*	99 %
PROBLEM TO BE SOLVED: To provide a melting furnace for nonferrous metal in which a device for circulating molten metal is not space-consuming and furthermore a device for sinking submitted nonferrous metal is not space-consuming as well, and to provide a method for melting nonferrous metal.SOLUTION: A melting furnace 30 for nonferrous metal which circulates the molten metal internally and melts the submitted nonferrous metal includes a melting furnace 31 which heats the molten metal, wherein it includes at least a pair of opposite electrodes 33 spaced at a predetermined interval in a horizontal direction while being immersed in the molten metal in the melting furnace 31, and a magnet 34 to generate a magnetic field which intersects roughly perpendicular to a current flowing between the pair of electrodes 33 while being arranged at least on one side of the upper part and the lower part of the melting furnace 31, and wherein it includes a rectifier 35 which gives a thrust force to the molten metal, further connects to the pair of electrodes 33, and causes the current flowing between the pair of electrodes 33 to be a pulsating current.					
29.	Molten metal agitating device and continuous casting device system provided with same	WO2018190387	2018-04-04	TAKAHASHI KENZO	99 %
[Problem] In continuous casting, to provide a product having excellent quality with high productivity. [Solution] Molten metal from a melting furnace is agitated and driven by means of a Lorentz force resulting from an intersection of a line of magnetic force from a magnet and a direct current, and is fed to a mold while the quality of the molten metal is improved, or the molten metal immediately before solidification in the mold is agitated and driven by said Lorentz force to homogenize the temperature of the molten metal immediately before solidification in the mold, thereby ultimately obtaining a high-quality product and providing a means for cooling the magnet and maintaining the performance of the magnet .					
30.	Molding device for continuous casting having stirring device	CA2829183	2011-11-10	GAO QIAOQIAN THREE*	99 %
There is provided a molding device for continuous casting equipped with an agitator that reduces the amount of generated heat , is easy to carry out maintenance, is inexpensive, and is easy to use in practice. The molding device for continuous casting equipped with an agitator of the invention receives liquid-phase melt of a conductive material, and a solid-phase cast product is taken out from the molding device through the cooling of the melt. The molding device includes a casting mold and an agitator provided so as to correspond to the casting mold. The casting mold includes a casting space that includes an inlet and an outlet at a central portion of a substantially cylindrical side wall, and a magnetic field generation device receiving chamber that is formed in the side wall and is positioned outside the casting space. The casting mold receives the liquid-phase melt from the inlet into the casting space and discharges the solid-phase cast product from the outlet through the cooling in the casting space. The agitator includes a magnetic field generation device having an electrode unit that includes first and second electrodes supplying current to at least the liquid-phase melt present in the casting space, and a permanent magnet that applies a magnetic field to the liquid-phase melt. The magnetic field generation device is received in the magnetic field generation device receiving chamber of the casting mold, generates magnetic lines of force toward a center in a lateral direction, makes the magnetic lines of force pass through a part of the side wall of the casting mold and reach the casting space, and applies lateral magnetic lines of force, which cross the current, to the melt.					
31.	Melting furnace	EP0176296	1984-09-18	SHINKO ELECTRIC INDUSTRIES*	99 %
A melting furnace (12) includes a body (12) of a refractory material having a hollow melting portion (16) for holding a molten material and a hollow heating portion (14) disposed adjacent thereto for holding the molten material (18) and maintaining the molten material (18) at elevated temperatures. The melting portion (16) has at its upper portion an opening (15) through which a material to be melted is fed into the melting portion (16), the body (12) having a pair of generally horizontally-spaced inlet (24) and outlet ports (26) each communicating the melting portion (16) with the heating portion (14). An electromagnetic agitator (20) is disposed below the melting portion (16) for producing a shifting magnetic field (Y) in the melting portion (16) which magnetic field (Y) shifts from the inlet port (24) to the outlet port (26) to thereby cause the molten material to move from the melting portion (16) to the heating portion (14) via the outlet port (26) and then to move from the heating portion (14) to the melting portion (16) via the inlet port (24).					
32.	System to treat waste matter by pyrolysis, in pyrolysis furnace , has direct feed of hot exhaust gas from smelting furnace	KR100513932	2004-10-04	DAEWOO CONSTRUCTION DAEWOO ENGINEERING & CONSTRUCTION* HALLA ENERGY & ENVIRONMENT* HALLA ENGINEERING & INDUSTRY DEVELOPMENT KOREA INSTITUTE OF MACHINERY & MATERIALS* KOREAN MACHINERY RESEARCH INSTITUTE ADDRESS 17 1 CHUNG DONG CONUCIAN DISTRICT OTA REPUBLIC OF KOREA SOUTH KOREA INDUSTRY DEVELOPMENT KOREA REPUBLIC OF GYEONGGI PROVINCE SUWON CITY 8 A**2 TALISMAN DISTRICT 1 0 4 6 1 ADDRESS	99 %
The treatment of waste and rubbish is by pyrolysis, using a pyrolysis furnace (2) with a waste material feed (1) and with a direct feed of hot exhaust gases from a smelting furnace (4). A metal separator (12) separates combustible and non-combustible matter, composed of pyrolyzed solids (8) from pyrolyzing gas and the pyrolyzed solids from the pyrolysis furnace . The separated metal components are returned to the smelting furnace . A smelting exhaust gas recovery channel (17) feeds gas from the smelting furnace into the pyrolysis furnace . A combustion chamber (9) takes in gas (7) which has been dried and pyrolyzed in the pyrolysis furnace , to be mixed with smelting exhaust gas. A heat exchanger (11) cools the combustion gas from the combustion chamber.					

33.	Method for managing the charge in a melting furnace and corresponding loading apparatus	ITUD20120009	2012-01-23	DANIELI AUTOMATION* DANIELI AUTOMATION SOCIETA PER ATIONI	99 %	
Method for managing the metal charge (1 1) in a melting furnace (14) comprising at least a step of depositing metal materials to be melted in a storage zone (13), a step of picking up and loading the metal materials from the storage zone (13) onto feed means (12) by means of loading means (19-22), and a feed step in which the feed means (12) feed the materials toward the melting furnace (14). The deposit step provides to divide the storage zone (13) into a plurality of specialized areas (33-40) in each of which a differentiated type of the metal materials (23-30) is deposited, and during the pick-up and loading step, a processing device (50) controls and commands the actuation of the loading means (19-22) which pick up the types of materials (23-30) from the specialized areas (33-40) and load them onto the feed means (12) according to a desired modality and quantity.						
34.	Melting furnace	JP2011012951	2010-04-28	MIYAMOTO KOGYOSHO*	99 %	
PROBLEM TO BE SOLVED: To provide a melting furnace that locates somewhere but around a vortex chamber a contactless stirrer installed for melting aluminum or other feedstock in a stirring vortex of molten metal in the melting furnace.SOLUTION: The vortex chamber of the melting furnace for aluminum or other scrap is doughnut-shaped, and the stirrer 8 is, for example, vertically movably arranged in the center. More specifically, in a melting furnace having a melting chamber 1 for storing molten metal and a vortex chamber 2 for melting feedstock in a vortex, where the vortex chamber 2 is arranged on a side of the melting chamber 1 and molten metal moves from the vortex chamber 2 to the melting chamber 1 via a communication opening 3, a refractory insulated cylinder 7 is irremovably raised in a center portion of a bottom wall 23 of the vortex chamber 2 having a peripheral wall 22 doughnut-shaped in plan view, such that the vortex chamber 2 and the insulated cylinder 7 form a stirring space 24 doughnut-shaped in plan view, and a contactless stirrer 8 is housed in the insulated cylinder 7.						
35.	Melting furnace	JP2011012950	2010-04-28	MIYAMOTO KOGYOSHO*	99 %	
PROBLEM TO BE SOLVED: To locate anywhere but around a vortex chamber a contactless stirrer installed for melting aluminum or other feedstock in a stirring vortex of molten metal in a melting furnace.SOLUTION: The vortex chamber of the melting furnace for aluminum or other scrap is doughnut-shaped, and the stirrer is, for example, removably arranged in the center of the doughnut. More specifically, in a melting furnace having a melting chamber 1 for storing molten metal and a vortex chamber 2 for melting feedstock in a vortex, where the vortex chamber is arranged on a side of the melting chamber and molten metal moves from the vortex chamber to the melting chamber via a communication opening 3, a refractory hollow insulated case 7 is removably arranged in a center portion of the vortex chamber 2, whose internal space is circular in plan view, such that the vortex chamber and the insulated case form a stirring space 24 doughnut-shaped in plan view, and a contactless stirrer 8 is housed in the insulated case.						
36.	Permanent-magnet mixer	CN2894819	2006-04-30	ZHOU SHAOFANG	99 %	
This utility model is related with a permanent magnet agitator, belonging to nonferrous metal smelting technology field. Main features of this technology are: a permanent magnet is provided inside the body of the agitator, the permanent magnet is brought to revolve by the electric motor and the driving unit, thereby a revolving magnetic field is formed, and revolved magnetic lines of flux cut the metal liquid to produce an induced current, so as to achieve the purpose of agitating the metal liquid. This utility model is simple in structure and low in cost for spare parts, as well as energy economizing and convenient in operation.						
37.	Melting furnace system	JP2011106689	2009-11-12	TAKAHASHI KENZO	99 %	
PROBLEM TO BE SOLVED: To provide a melting furnace system feasible at a low cost. SOLUTION: This melting furnace system includes a melting furnace 102 storing molten aluminum 103, and a stirring device 101 opposed to a side wall and the bottom wall of the melting furnace, and includes first magnet bodies 11 and second magnet bodies 11 made of permanent magnets and disposed around the certain axis, and a driving mechanism rotating the first and second magnet bodies, and in which the first and second magnet bodies are respectively magnetized to have N-poles and S-poles on the outer peripheral face side and the inner peripheral face side, the first magnet bodies and the second magnet bodies are alternately disposed around the axis, and magnetic field intensities of the first magnetic bodies and second magnetic bodies are determined so that a magnetic line from the first or second magnetic bodies reaches the storage space through the side wall or the bottom wall, and a magnetic line from the storage space reaches the second or first magnetic bodies through the side wall or the bottom wall.						
38.	Electromagnetic stirring shield electric melting furnace	CN104197709	2014-09-02	SHANDONG HENGYUAN COPPER*	99 %	
The invention discloses an electromagnetic stirring shield electric melting furnace which comprises an electric melting furnace shell. The electric melting furnace shell is divided into an inner electric melting furnace shell body and an outer electric melting furnace shell body. A heat shield layer is arranged between the inner shell body and the outer shell body. A heat insulation layer is arranged between the heat shield layer and the outer shell body. The upper portion of the electric melting furnace is a melting furnace and the lower portion of the electric melting furnace is a settling basin. The cross sectional area of the melting furnace is larger than that of the settling basin. A rotary magnetic field coil is arranged on the circumference of the settling basin. The settling basin is communicated with a holding furnace through a dog hole. The dog hole is provided with a sampling valve which is connected with a sample check meter. The electromagnetic stirring shield electric melting furnace has the advantages that electric energy loss of the electric melting furnace is reduced and product quality is improved.						

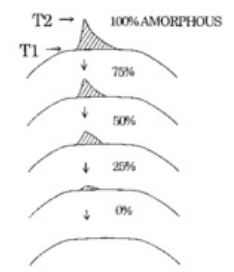
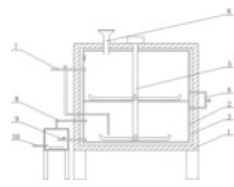
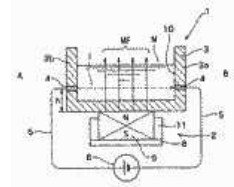
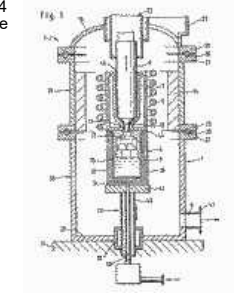
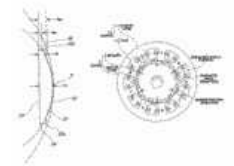
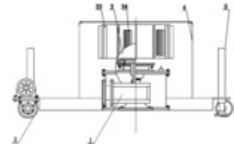
39.	Preparation method for alkaline earth heatproof magnesium alloy	CN102899515	2012-09-13	TAIYUAN UNIVERSITY OF TECHNOLOGY*	99 %
The invention relates to a preparation method for alkaline earth heatproof magnesium alloy. According to the invention, magnesium and aluminum are used raw materials, and magnesium-strontium intermediate alloy, magnesium-calcium intermediate alloy, magnesium-yttrium intermediate alloy, magnesium-lanthanum intermediate alloy and alkaline earth magnesium-strontium intermediate alloy and magnesium-calcium intermediate alloy are added as a main addition chain; and then melting at a vacuum melting furnace under the protection of argon, casting for formation of an ingot, cutting and low temperature tempering are carried out so as to prepare an alkaline earth heatproof magnesium alloy ingot. The preparation method provided by the invention has the advantages of an advanced process, reasonable proportioning, detailed and accurate data, no pollution to the environment, safety, stability and reliability; the prepared alkaline earth heatproof magnesium alloy ingot has a compact metallographic structure and high strength and has a tensile strength of 190 MPa, a yield strength of 140 MPa and elongation of 4.0% after insulation at a temperature of 200 DEG C for 20 min; and the preparation method is an ideal preparation method for the alkaline earth heatproof magnesium alloy.					
					
40.	Alloy for sm-co based magnet, method for production thereof, sintered magnet and bonded magnet	WO03040421	2002-11-08	SANTOKU*	99 %
An alloy for a Sm-Co based magnet which comprises an alloy represented by the formula: RM, wherein R such as Sm accounts for 32.5 to 35.5 wt % of the alloy and M such as Co accounts for the balanced percentage, and wherein the X-ray diffraction pattern thereof exhibits a ratio B/A of the intensity of the peak A ascribed to 111 plane of RM5 phase to the intensity of the peak B ascribed to 119 plane of R2M7 phase of 0.1 or less a method for producing the alloy and a sintered magnet and a bonded magnet produced from the alloy. The sintered magnet and the bonded magnet are excellent in corrosion resistance and exhibit high magnetic characteristics such as high coercive force and good square property.					
					
41.	Metal melting furnace and metal melting method	JP2012193922	2011-03-17	AICHI CERRTEC*	99 %
PROBLEM TO BE SOLVED: To provide a metal melting furnace for melting a metal material to manufacture a molten metal efficiently, and a metal melting method.SOLUTION: The metal melting furnace 1 manufactures a molten metal 20 by melting a metal material 14 containing aluminum, and includes a melting chamber 2 in which the metal material 14 is melted into the molten metal 20 by a heating means 4, and a hot water supply chamber 3 which communicates with the melting chamber 2 and has a hot water supply port 6. The melting chamber 2 includes the heating means 4, and a furnace internal pressure control means 5 which controls an internal pressure of the melting chamber 2 at a position higher than the hot water supply port 6. The molten metal 20 is oscillated by varying the internal pressure of the furnace in the melting chamber 2 through the furnace internal pressure control means 5. A metal melting method includes: a melting step of obtaining the molten metal 20 by mounting the metal material 14 containing aluminum in the melting chamber 2 and melting the metal material 14 using the metal melting furnace 1; and an agitating step of oscillating the molten metal 20 while varying the internal pressure of the furnace in the melting chamber 2.					
					
42.	Electromagnetic stirring shielding electric melting furnace	CN204063928	2014-09-02	SHANDONG HENGYUAN COPPER*	99 %
The utility model discloses an electromagnetic stirring shielding electric melting furnace which comprises an electric melting furnace shell. The electric melting furnace shell is divided into an inner electric melting furnace shell body and an outer electric melting furnace shell body, a heat shielding layer is arranged between the outer shell body and the inner shell body, and a heat insulation layer is arranged between the heat shielding layer and the outer shell body. A melting furnace is arranged on the upper portion of the electric melting furnace, a settling basin is arranged on the lower portion of the electric melting furnace, the cross sectional area of the melting furnace is larger than that of the settling basin, a rotary magnetic field coil is arranged around the settling basin, and the settling basin is communicated with a heat preservation furnace through a throat. The throat is provided with a sampling valve, and the sampling valve is connected with a sample check meter. The electromagnetic stirring shielding electric melting furnace has the advantages of reducing electric energy consumption of the electric melting furnace and improving product quality.					
					
43.	Melting furnace, device and method for casting and producing high-performance cu-ag alloy	CN104596243	2014-05-04	SHANGHAI KANGCHENG COPPER*	99 %
The invention discloses a melting furnace for casting and producing high-performance Cu-Ag alloy. The melting furnace comprises a graphite crucible and graphite heating elements which are arranged in a hearth. A separated graphite diaphragm, graphite buffering diaphragms, an air blow hole and the like are arranged in the graphite crucible, and the melting furnace further comprises a horizontal crystallizer or the horizontal crystallizer and an upcasting crystallizer. The invention further discloses a device with the melting furnace, and the device is used for casting and producing a high-performance Cu-Ag alloy conductor. The invention further discloses a method for casting and producing the high-performance Cu-Ag alloy. By using the device, upcasting continuous casting production or horizontal continuous casting production can be carried out separately and simultaneously, the production is flexible, the method is not only suitable for the production of the Cu-Ag alloy but also different types of alloy, therefore, antivacuum continuous casting volume production and production cost reduction can be achieved, no molten metal remains in the crucible of the melting furnace, and copper alloy with low impurity content and uniform alloy compositions is obtained.					
					
44.	Mixer applied for aluminum melting furnace	CN203489725	2013-08-13	PINGGUO BAIHE ALUMINIUM BAR*	99 %
The utility model specially relates to a mixer applied for an aluminum melting furnace. The mixer comprises a support frame, a rotation shaft, a rear axle bevel gear, a stirring handle, a motor and a motor switch. The motor and the motor switch are arranged at the front end of the support frame; the rear axle bevel gear and the stirring handle are arranged at the tail end of the support frame; the rotation shaft is arranged on three bearings and bearing supports thereof arranged along the support frame; the stirring handle is connected with the rear axle bevel gear; the rear axle bevel gear is arranged in a heat insulation guard box and controlled by the rotation shaft; the rotation shaft is controlled by the motor; the motor is controlled by the motor switch; and when the mixer is used, the vertical and horizontal elongation and height of the mixer are controlled and adjusted by a fork truck. The structures of all components are simple, all components match each other well, and a stirring blade can rotate forward or backward. Simultaneously, the application process is characterized by being energy saving, environmental friendly, safe, easy to operate, etc.					
					
45.	Manufacturing of glass	US20110041557	2010-08-03	HOYA*	99 %
Glass is mass-produced with a glass melting furnace comprising a melting tank, at least a wall surface in contact with molten glass thereof being made of refractory material, at least one pair of electrodes placed so as to be in contact with the molten glass held in the melting tank for ohmically heating the molten glass held in the melting tank; and at least one metallic member, at least a surface of which is made of metal and placed so as to be substantially always in contact with the molten glass held in the melting tank. Every metallic member is, when the melting tank is filled with the molten glass, placed so as to be substantially always outside an electric current flowing region which is formed by the electrodes into the molten glass held in the melting tank.					
					
46.	Method for controlling deposition of conductive substance, and glass melting furnace	JP2013212989	2013-07-16	IHI*	99 %
PROBLEM TO BE SOLVED: To provide a deposition control method for a conductive substance in a glass melting furnace capable of efficiently controlling the deposition of the conductive substance such as a metal in the glass melting furnace, and to provide also the glass melting furnace.SOLUTION: There is provided a glass melting furnace 1 which is configured to dispose a pair of electrodes 16 exposed to a melting space 11 formed with refractory bricks to directly energize and heat a molten glass G stored in the melting space, and to be able to discharge the molten glass G from a flowdown nozzle. The glass melting furnace 1 has a magnetic force source for giving an electrified state of the molten glass G a magnetic field in a direction orthogonal to the power supply current.					
					

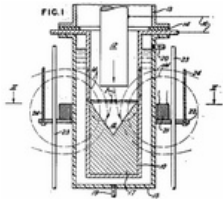
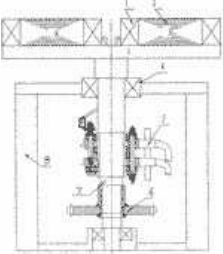
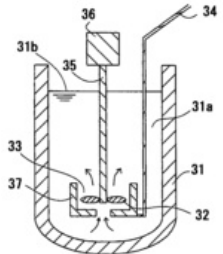
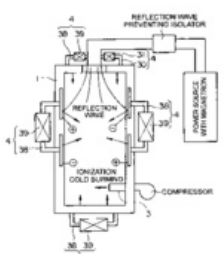
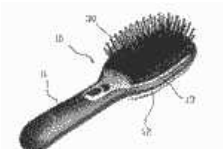
53.	Furnace bottom window structure of aluminum melting furnace with bottom-mounted stirring device	CN201575715	2009-08-26	SUZHOU HONGRAY THERMAL TECHNOLOGY*	99 %
The utility model provides a furnace bottom window structure of an aluminum melting furnace with a bottom-mounted stirring device, which is characterized in that four vertical rib plates are connected in sequence from end to end to form a square frame-type bracket; the square frame-type bracket is welded with a rectangular stainless steel plate which is transversely welded with transverse rib plates and longitudinally welded with longitudinal rib plates; and the transverse rib plates and the longitudinal rib plates are distributed in a grid manner so as to form an integrated furnace bottom window structure. The furnace bottom window structure can improve the use reliability of the stirring device, avoid the downward-concave transformation of a window steel plate after being used for a long time, and reduce the risk of the device in the use process. The structure is novel and reliable, does not need maintenance, can slow down the demagnetization of the stirring device, improve the stirring effect of the stirring device, and is widely applied in the aluminum melting furnace with the bottom-mounted stirring device.					
54.	Permanent magnetism agitating apparatus	CN201125262	2007-11-03	SHANDONG HUATE MAGNET TECHNOLOGY*	99 %
The utility model relates to a permanent magnetism stirring apparatus which includes at least two permanent magnetism stirrers, adjacent two permanent magnetism stirrers are connected with 'L' shape through movable connecting mechanism. Each permanent magnetism stirrer is composed of a movable chassis assembly, a lifting mechanism, a machine frame, an inductor assembly and a main drive mechanism. The permanent magnetism stirring apparatus has benefits in that: 1. the inductor has high magnetic field intensity and large molten nonferrous metal induction region in a smelting furnace, and can form more than two induction regions, has rapid stirring speed for nonferrous metal and better uniformity without stirring dead angle; 2. the apparatus saves energy, only is 5% of electromagnetism stirrer, has obvious energy saving effect; 3. the apparatus is suitable for large scale round nonferrous metal smelting furnace and large scale rectangle nonferrous metal smelting furnace.					
55.	Melting furnace, continuous casting apparatus, and casting method for continuous casting apparatus	JP2010017749	2008-07-11	SINFONIA TECHNOLOGY*	99 %
PROBLEM TO BE SOLVED: To attain unidirectional crystal growth of large size grains by making the recessed surface of a solid-liquid interface into a horizontal surface within a melting furnace. SOLUTION: In the melting furnace 10, a molten metal 18 is prepared by heating a conductive material 13 to be melted while adding the material 13 from above, the melting furnace 10 is provided with an induction heating coil 18 for preparing a molten metal by inductively heating the material 13 to be melted. Further, there are provided a magnetic body 21 (magnetic poles 21N and 21S) for applying a DC magnetic field in a horizontal direction to a molten metal 14 from the side below the induction heating coil 18, and around which the induction heating coil 18 is not wound. COPYRIGHT: (C)2010,JPO&INPIT					
56.	Method for suppressing deposition of electroconductive substance and glass melting furnace	JP2010090016	2008-10-10	IHI*	99 %
PROBLEM TO BE SOLVED: To provide a method for suppressing the deposition of electroconductive substances in a glass melting furnace, by which the deposition of the electroconductive substances such as metals in the glass melting furnace can be efficiently suppressed, and to provide the glass melting furnace. SOLUTION: In the glass melting furnace 1, a couple of electrodes 16 are arranged so as to be exposed in a melting space 11 formed by refractory bricks, an electric current is directly applied to molten glass G stored in the melting space 11 to heat the molten glass G, and the molten glass G is discharged from a flow-down nozzle. Further, the glass melting furnace 1 has a magnetic force source for imparting a magnetic field in a direction orthogonal to the direction of the applied current to the molten glass G in an energized state. COPYRIGHT: (C)2010,JPO&INPIT					
57.	Aluminum melting furnace with stirring device, molten aluminum stirring device and method for stirring molten aluminum	JPH10146650	1996-11-14	Kenzo Takahashi; Chuo-ken Matsudo-shi, Hokkaidai 9 - chome 1 4 9	99 %
PROBLEM TO BE SOLVED: To reduce the manufacturing cost and the running cost of an aluminum melting furnace with a stirring device. SOLUTION: A burner 4 is arranged at the upper part of a furnace body 20 for storing the molten aluminum 22, and a disk-like magnet base 31 fitting a permanent magnet 32 is arranged near the furnace body 20, e.g. at the lower part of the bottom part 20a. Magnetic field generated with the permanent magnet 32 is rotated by rotating the magnet base 31 with a motor 43 to stir the molten aluminum 22. By this method, a cooling device for electromagnetic coil needed in the conventional device is unnecessitated and also, the consumption of electric power is restrained.					
58.	Retractable vacuum induction smelting furnace agitating unit	CN206803736	2016-11-18	SOUTHWEST PETROLEUM UNIVERSITY*	99 %
The utility model provides a retractable vacuum induction smelting furnace agitating unit, the device include that the outer electro -magnet of a stove is right, the outer metallic disc of a stove, and a rigid coupling can be around the rotatory cavity pole of its center pin in the lower extreme of bell high temperature and high pressure glass internal surface, a rigid coupling in the round magnetic disc of cavity pole bottom, a rigid coupling in the concentric drum of circle magnetic disc lower surface has the magnet of the followed drum inner wall up -and -down motion that a diameter ratio inner diameter of the cylinder is slightly little, a rigid coupling agitator below the magnet in the barrel. The circular telegram of during operation induction coil makes the interior melting of metal of stove, and the electro -magnet is to cutting off the power supply, and in the agitator dropped to metal melt, metallic disc circular telegram and rotatory production induced magnetic field drive circle magnetic disc rotated to it stirs to drive the agitator rotation. Back metallic disc outage is accomplished in the stirring, and the electro -magnet produces the electromagnetic force to the circular telegram and attracts drum internal magnet along drum inner wall upward movement, peak when making the agitator lower extreme be higher than the crucible upset, and the crucible that fascinates, assurance pouring process is gone on smoothly.					

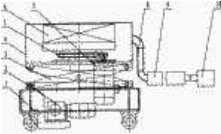
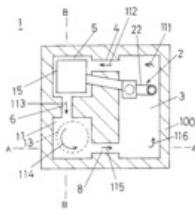
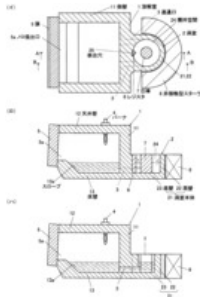
65.	Glass melting furnace	JP2010037143	2008-08-05	CENTRAL RESEARCH INSTITUTE OF ELECTRIC POWER INDUSTRY*	98 %
PROBLEM TO BE SOLVED: To prevent the sedimentation and deposit of metal particles contained in a high level radioactive waste liquid. SOLUTION: A glass melting furnace has a melting vessel 6 equipped with an inclined furnace bottom portion 2 whose inside diameter is gradually narrowed toward a flow down nozzle 1 located at a lower end, main electrodes 4 to generate Joule heat by applying an electric current to molten glass in which the high level radioactive waste liquid is mixed and auxiliary electrodes 5 locating at a lower position than the main electrodes 4 and generating Joule heat by applying an electric current to a portion where sufficient temperature cannot be obtained by being heated with the Joule heat of the main electrodes 4. A ferromagnetic member 7 where the molten glass can pass is placed in the stream of the molten glass in the melting vessel 6. A magnetic force generating device 8 to impart a magnetic field to the ferromagnetic member 7 is placed at the outside of the melting vessel 6. The metal particles 9 contained in the high level radioactive waste liquid are attached to the ferromagnetic member 7 by magnetic force. COPYRIGHT: (C)2010,JPO&INPIT					
					
66.	Movable melting furnace for incinerated ash	JP2004184055	2002-12-03	ACCORD SYSTEM*	98 %
PROBLEM TO BE SOLVED: To provide a movable melting furnace for melting incinerated ash until rendering it detoxified, while moving around the incinerated ash placed at different sites. SOLUTION: A melting furnace 5 for giving ash melting to incinerated ash sludge (d), obtained by previously reacting the incinerated ash (a) with an inorganic coagulant (c) containing aluminum or iron based metallic components, in a ceramic tube 6 having a heater 6b attached thereto for temperature rise to about 1,450°C, after heating and drying it at about 300°C or lower using a drying furnace 3, ash melting facilities including a slag water crushing tank 7 for cooling the ash in the melted condition directly with water, and exhaust gas treatment facilities 20 for rendering exhaust gas (g) detoxified and deodorized into a lower temperature are arranged on a chassis 11 in a movable manner. Otherwise, a sludge delivery device 2 inversely L-shaped for upwardly supplying the incinerated ash sludge (d) is additionally formed on a primary hopper 2b located at a high position and attached to the on-vehicle ash melting facilities 1. COPYRIGHT: (C)2004,JPO&NCIPI					
					
67.	Method for the production of permanent magnets and a permanent magnet	WO2009104640	2009-02-18	ULVAC*	98 %
Provided is a method for the production of permanent magnets whereby permanent magnets having effectively improved or restored magnetic characteristics such as coercive force which are corrosion resistant and weather resistant can be produced at low cost and in a way which is suitable for mass production. An iron - boron - rare earth sintered magnet and a metal vaporization material which contains at least one of Dy and Tb are arranged in a treatment chamber and heated to vaporization. An inert gas is introduced into the treatment chamber where the sintered magnet has been arranged while the metal vaporization material is being vaporized. Metal atoms are deposited while the quantity of vaporized metal atoms being supplied to the surface of the sintered magnet is adjusted by controlling the partial pressure of the inert gas and the metal atoms are diffused into the crystal grain boundaries and/or crystal grain boundary phase of the sintered magnet before a thin film comprised of deposited metal atoms is formed. Cold gas is then introduced into the treatment chamber where the sintered magnet has been arranged and a reaction gas is introduced while the treatment chamber is being cooled, and the surface of the sintered magnet is covered with a reaction film and set in a fixed state.					
					
68.	Vertical double-chamber regenerative melting furnace	CN201787806	2010-07-27	YOU SHUHUAL	98 %
The utility model relates to smelting equipment, in particular to a vertical double-chamber regenerative melting furnace which comprises a permanent magnet stirrer, a double-chamber furnace bottom furnace, a hot blast furnace hearth, a furnace top operating platform, an air supply system and a combustion system. The melting furnace is characterized in that the double-chamber furnace bottom furnace comprises a material feeding chamber and a melting chamber; the material feeding chamber and the melting chamber are separated by a wall, and the two chambers are connected with each other at the bottom of the separating wall; a flue gas channel is arranged at the upper part of the separating wall; the upper part of the material feeding chamber is communicated with the hot blast furnace hearth; the furnace top operating platform is supported above a furnace body and the hot blast furnace hearth; a combustor and the air supply system are arranged on one side of the furnace body; and the permanent magnet stirrer is arranged below the double-chamber furnace bottom furnace. The vertical furnace provided by the utility model adopting a hot blast furnace hearth structure has a long service life, and can pre-heat furnace materials as well as combustion-supporting air; and compared with other regenerative aluminum melting furnaces, the structure is simpler, neither complicated heat exchange systems nor flue gas systems are used, and the whole life of the equipment is greatly prolonged.					
					
69.	Methods employing permanent magnets having reach-out magnet ic fields for electromagnetically pumping, breaking, and metering molten metal casting machines	US20020190444	2002-02-26	HAZELETT STRIP CASTING HAZELETT STRIP CASTING HEYJJEULRET STRIP CASTING KHEJZELETT STRIP KASTING KLA*	98 %
Method precisely, quickly controls flow of molten metal to metal casting apparatus by pumping, braking or throttling. The Faraday-Ampere principle of current flow in a unidirectional magnetic field is employed. Permanent magnets comprising neodymium or similar high-energy, rare earth materials provide "reach out" magnetism. These neo-magnets, usually shown as cubes, are arranged in various powerful configurations driving intense unidirectional magnetic field B across a non-magnetic gap (44) many times larger than economically feasible otherwise. This gap (44) accommodates a conduit (43) for pressurizing and moving a flow of molten metal (M). In making multiple identical castings, a controlled, intermittent, predetermined flow of molten metal (M) is fed to a series of identical individual molds. The invention obviates needs for operating metallurgical valves or expensive tilting mechanisms for metallurgical furnaces. Existing furnaces too low to permit inflow by gravity may be rendered usable by embodiments of this invention.					
					
70.	Casting system stirring molten metal for manufacturing sacrificial anodes of ship	KR20120121300	2011-04-26	HAEDONG METAL*	98 %
PURPOSE: A molten metal agitating system for manufacturing a sacrificial anode for preventing ship corrosion is provided to obtain standardized cast products by controlling the operation of a stirrer according to the material of a sacrificial anode. CONSTITUTION: A molten metal agitating system for manufacturing a sacrificial anode for preventing ship corrosion comprises: a melting furnace(10) accommodating predetermined kinds of metal materials constituting a sacrificial anode and provided with a heater for creating molten metal and a stirrer to induce forcible stirring of molten metal; a mold which forms a cavity in the same shape as the sacrificial anode and injected with molten metal to cast a cast product of a sacrificial anode; a cooling unit which is connected to the mold and cool the molten metal and the mold; and a controller controlling the operation of the melting furnace, the mold, and the cooling unit. [Reference numerals] (62) Drive motor; (63) Electromagnet agitator; (64) Permanent magnet agitator					
					

71.	Molten metal circulation driving device and melting furnace having same	CA2861635	2013-04-23	TAKAHASHI KENZO;Takahashi Kenzo	98 %
There is provided a melt circulating drive device that is compact and obtains a large drive force. A melt circulating drive device is mounted on a side wall of a main bath and is driven to agitate nonferrous metal melt present in a melt storage room storing nonferrous metal melt of the main bath. The melt circulating drive device includes a melt drive tank, a melt drive unit, and a partition plate. The melt drive tank includes a hermetically-sealed drive chamber, the drive chamber includes an opening allowing the drive chamber to communicate with the melt storage room, and the melt drive tank stores melt, which flows from the opening, in the drive chamber. The melt drive unit is installed above the melt drive tank. The melt drive unit includes a permanent magnet unit that is rotated about a first up and down axis while making magnetic lines of force up and down pass through the melt present in the drive chamber of the melt drive tank, and a drive unit for the permanent magnet unit that rotates the melt, which is present in the drive chamber, about the first up and down axis by rotationally driving the permanent magnet unit. The partition plate is disposed upright in the drive chamber of the melt drive tank along a direction where the drive chamber and the melt storage room communicate with each other. An outer end of the partition plate is positioned in a region of the opening. An inner end thereof is positioned in the drive chamber. A melt rotating gap is formed between the inner end and an inner surface of the drive chamber facing the inner end. The partition plate divides the opening of the drive chamber into a first opening and a second opening positioned on both right and left sides of the partition plate. The partition plate is rotated by the melt drive unit, and discharges melt, which collides with one surface of the partition plate, from the first opening so as to allow external melt to be sucked into the drive chamber, in which the pressure of the melt has been reduced, from the second opening.					
72.	Bottom of an electric smelt furnace, in particular of a direct current one.	EP0217208	1985-09-28	FRIED DRUPP GESSELLSCHAFT MIT BESCHRANKTER HAFTUNG FRIED KRUPP 4300 ESSEN KRUPP MANNESMANN*	98 %
An electrically heated melting furnace, preferably a direct current electric arc furnace, having a floor provided with a lining of refractory material and with an electrode comprised of a plurality of electrically conductive paths formed of an electrically conductive material which extends through the lining of refractory material from the inner floor surface toward the exterior, wherein the service life of the lining is improved in that the electrically conductive paths are composed of layers of at least one high melting point nonmetallic material which are connected with the refractory material, and which have a thickness of at most 5 mm. (From US4692930 A)					
73.	Double-hard magnetic main phase mixed rare-earth permanent magnet and preparation method thereof	CN106128674	2016-07-08	CENTRAL IRON & STEEL RESEARCH INSTITUTE*	98 %
The invention relates to a double-hard magnetic main phase mixed rare-earth permanent magnet and a preparation method thereof. The permanent magnet comprises double hard magnetic main phases and a rear-earth-rich phase, wherein the double hard magnetic main phases are $MM<2>Fe<14>B$ and $(PrNd)<2>Fe<14>B$ respectively; the permanent magnet is prepared from the following chemical component in percentage by mass: $[MM< x1 > (PrNd)< 1 - x1 >] < x > Fe < 100 - x - y - z > B < y > TM < z > ;$ x is smaller than or equal to 31 and greater than or equal to 27; x1 is smaller than or equal to 1 and greater than or equal to 0; y is smaller than or equal to 1 and greater than or equal to 0.9; z is smaller than or equal to 1.5 and greater than 0; TM is a composition of more of the elements Al, Cu, Co, Nb, Ga, Tb and Zr; and MM is a mixed rare-earth alloy which is directly separated from raw ore and contains La, Ce, Pr and Nd. The anisotropic sintered mixed rare-earth permanent magnet with high cost performance within a range of 10-48MGOe can be prepared by adjusting the content of PrNd. A basic rare-earth raw material used by the permanent magnet is cheap mixed rare earth, so that a separation and purification technology for the rare earth can be reduced, efficient utilization of lanthanum-cerium rare earth is achieved and the double-hard magnetic main phase mixed rare-earth permanent magnet meets the requirements of low carbon economy on green production technology innovation of a rare-earth permanent magnet product.					
74.	Dust removal cooling device of melting furnace	JPH06213578	1992-12-25	HATANO AYAKO	98 %
PURPOSE:To make it possible to cool exhaust gas of high temperature in a small space at low cost by providing a plurality of storage vessels which allow exhaust gas from a melting furnace to flow therethrough and filling each storage vessel with granular porous carbon-based filtering material through a wire net. CONSTITUTION:A dust removal cooling device 1 comprises a cooling chamber 2 and a dust collecting chamber 3 and the chambers 2, 3 are separated by a partition plate 4 having an opening 4a at the lower part thereof and box-like storage vessels 6 are disposed in the chamber 2 in a vertical direction in multistage relationship. Each of the vessels 6 is filled with granular porous carbon-based filtering materials P through a wire net, and the materials P are heat exchanged with high temperature exhaust gas circulating through the vessels 6 to effect cooling, filtration and dust removal of exhaust gas. As the materials P, for example, matters which are prepared by a method wherein waste paper is mixed with clay so as to be formed into granules, which are baked and solidified, while they are being carbonized in a kiln, are used. In the dust collecting chamber 3, a plurality of cylindrical bag filters 7 each having downwardly opened bottom are suspended spaced apart a predetermined intervals.					
75.	Iron core for electromagnetic stirrer sensor for aluminum melting furnace	CN103217022	2013-03-28	HEBEI UNIQUE ELECTRIC*	98 %
The invention relates to an iron core for an electromagnetic stirrer sensor for an aluminum melting furnace. The iron core comprises a magnetic yoke and salient poles, wherein the magnetic yoke consists of magnetic yoke assemblies, the salient poles consist of salient pole assemblies, the salient poles or/and the magnetic yoke are provided with air passages, the air passages and the magnetic yoke assemblies or/and salient pole assemblies are in alternate arrangement, and the width of the air passages is 1 to 200mm. The air passages of the magnetic yokes are in structures with the same length as the magnetic yoke assemblies or are in structures in segmented arrangement on the magnetic yoke, and the air passages of the salient poles are in structures with the same height as the salient poles or are in structures passing through the magnetic yoke along the salient poles. The magnetic yoke assemblies and the salient pole assemblies are made from magnetism conducting materials, and the number of the salient poles of the iron core is 3 to 20. The air passages are arranged on the magnetic yoke and the salient poles, so coils of the sensor are cooled in an air cooling way, the cooling effect of the electromagnetic stirrer sensor and the reliability of the equipment are improved, the investment of the equipment is saved, and the equipment and maintenance operation cost is reduced. The iron core has the advantages that the manufacture is simple, the processing cost is low, and the implementation is easy.					
76.	Electrical power generation systems and methods regarding same	CA2948640	2015-05-29	BRILLIANT LIGHT POWER* BRILLIANT WRITE POWER	98 %
A solid or liquid fuel to plasma to electricity power source that provides at least; one of electrical and thermal power comprising (i) at least one reaction cell for the catalysis of atomic hydrogen to form hydridinos, (ii) a chemical fuel mixture comprising at least two components chosen from: a source of H₂O catalyst or H₂O catalyst; a source of atomic hydrogen or atomic hydrogen; reactants to form the source of H₂O catalyst or H₂O catalyst and a source of atomic hydrogen or atomic hydrogen; one or more reactants to initiate the catalysis of atomic hydrogen; and a material to cause the fuel to be highly conductive, (iii) a fuel injection system such as a railgun shot injector, (iv) at least one set of electrodes that confine the fuel and an electrical power source that provides repetitive short bursts of low-voltage, high-current electrical energy to initiate rapid kinetics of the hydridino reaction and an energy gain due to forming hydridinos to torn! a brilliant-light emitting plasma, (v) a product recovery system such as at least one of an augmented plasma railgun recovery system and a gravity recovery system (vi) a fuel pelletizer or shot maker comprising a s me Her. a source or hydrogen and a source of H₂O, a dripper and a water bath to form fuel pellets or shot, and an agitator to teed shot into the injector, and (vii) a power converter capable of converting the high-power light output of the cell into electricity such as a concentrated solar power device comprising a plurality of ultraviolet (UV) photoelectric cells or a plurality of photoelectric cells, and a UV window.					
77.	Process for producing ingot of copper-iron base alloy	WO2011142005	2010-05-12	AIM ASSET MAN*	98 %
A novel process for producing an ingot of a copper-iron base alloy is provided by which a copper-iron base alloy ingot reduced in iron segregation, i.e., iron concentration unevenness within the ingot, is obtained even when the alloy is solidified into a relatively large casting mass. The process comprises subjecting a raw material comprising 3-50 mass% iron, 97-50 mass%, excluding both 97 mass% and 50 mass%, copper, and incidental impurities as the remainder to mixing, melting, and solidification to obtain an ingot of the copper-iron base alloy. The process comprises melting the raw material in a 2,000-Hz or higher high-frequency melting furnace, introducing the melt into a tundish having a planar sectional area at least two times that of the melting furnace, holding the melt therein for 1-3 minutes, subsequently pouring the melt through the discharge port into a ladle equipped with an electromagnetic stirrer, pouring the melt into a water-cooled casting die after or while stirring the melt, and rapidly solidifying the melt at a cooling rate of 100-150°C/min.					

78.	Smelting furnace stirrer with self-cooling magnet body	CN204064007	2014-08-14	YUEYANG HISCIENCE ELECTROMAGNET TECHNOLOGY*	98 %
The utility model relates to a smelting furnace stirrer with a self-cooling magnet body. The smelting furnace stirrer is arranged at the bottom of a smelting furnace and comprises a walking mechanism, a rotating mechanism, a lifting mechanism and the magnet body, wherein the rotating mechanism and the lifting mechanism are arranged on the walking mechanism, and the magnet body is arranged on the rotating mechanism and driven by the rotating mechanism to rotate. The magnet body comprises a shell, an iron core, an electromagnetic coil and blade wing sheets, wherein the iron core and the electromagnetic coil are arranged in the shell, the blade wing sheets are evenly arranged outside the shell, one edge of each blade wing sheet is closely attached to the shell to form an extending cooling face of the shell, and the blade wing sheets and the magnet body synchronously rotate to form cooling airflow. The smelting furnace stirrer effectively achieves the purpose of cooling the interior of the magnet body, the cooling airflow directly acting on the magnet body is produced through the blade wing sheets while the heat dissipation area of the magnet body is enlarged, the heat of the magnet body can be fast discharged out of a stirrer cover, the temperature rise of the magnet exciting coil can be reduced, and the service life of equipment is prolonged.					
79.	Permanent magnet and permanent magnet rotating machine	KR20080020556	2007-08-27	SHIN ETSU CHEMICAL*	98 %
A permanent magnet has a D-shaped cross section including an arcuate top surface (22), a flat bottom surface (24), and side surfaces (26, 28). Provided that a plurality of permanent magnets are circumferentially arranged so that a great circle (S) circumscribes the apexes (P) on the arcuate top surfaces (22), the top surface (22) includes a central region which delineates an arc of a small circle (T) off-centered from the great circle, and end regions (22a, 22b) which are positioned outside the small circle (T) and inside the great circle (S).					
80.	Induction smelting furnace	EP0461306	1990-06-13	ALD VACUUM TECHNOLOGIES* LAI BOLT Å***NAME OR NAME ORIGINAL LANGUAGE NOTATIONÅ*** LEYBOLD LEYBOLD 6450 HANAU	98 %
The invention relates to an induction melting furnace 1 for metals which are difficult to melt including an induction coil 2 surrounding the crucible 3 and a mold receptacle 4 surrounded by an annular chamber 5 to hold the cooling agent. The crucible 3 is disposed in a housing 7 provided with a vacuum connection 6. In order to improve the microporous nature, the melt contained in the mold receptacle 4 is compressed by means of a pressure which is build up in the mold receptacle 4 prior to the cooling. (From US5121406 A)					
81.	Fusion stove with stirring device and stirring device used for the same	CN201196529	2007-09-30	Takahashi Kenzo	98 %
The utility model relates to a melting furnace with a stirring device and the stirring device for the melt furnace. The utility model aims to provide the stirring device which consumes less electricity, and is easily arranged and generalized with low price. The melting furnace with the stirring device comprises the melting furnace with a receiving space for receiving nonmetallic liquid, and a magnetic field generating device which allows magnetic flux to exteriorly penetrate the melting furnace for receiving the liquid and to run along a direction in the receiving space. Furthermore, at least one pair of electrode terminals is oppositely arranged at certain intervals in the mode of crossing with the running direction of the magnetic flux at a certain angle, and the electrode terminals can be connected with a power supply.					
82.	Monolithic refractory for slip casting construction of waste melting furnace and waste melting furnace using it	JP2001153321	1999-11-26	KROSAKI HARIMA*	98 %
PROBLEM TO BE SOLVED: To obtain a monolithic refractory for waste melting furnace, which is non chromium quality, and has at least the same durability as a chromium- containing quality. SOLUTION: Refractory aggregate for the monolithic refractory is mainly composed of 6-25 wt.% of magnesia, 0.1-2 wt.% of volatile silica and alumina of the rest. To 100 pts.wt. of the refractory aggregate, 0.1-5 pts.wt. of alumina cement and a dispersant are added. In the above alumina, calcinated alumina is 5-20 wt.% of the whole refractory aggregate, and magnesia of grain size of 75 µm or below out of the above magnesia is 6-20 wt.% to the whole refractory aggregate. A waste melting furnace is constructed by using the monolithic refractory.					
83.	Double-chamber melting furnace capable of isolating air at casting stage	CN107774939	2016-08-26	LIU RONGWEI	98 %
The invention discloses a double-chamber melting furnace capable of isolating air at the casting stage. The double-chamber melting furnace comprises a furnace outer shell, a furnace inner shell, an electric heating layer and a feeding opening. A baffle is arranged inside the furnace inner shell. An inner space of the furnace inner shell is divided into a melting chamber and a standing chamber through the baffle. The double-chamber melting furnace further comprises a casting box. An exhaust pipe is connected to the outer side of the casting box and communicates with an outer space and the interior of the casting box. The outer side of the furnace outer shell is provided with a connecting pipe, a discharging pipe, a gas inlet pipe and a gas delivery pipe. The connecting pipe communicates with the melting chamber and the standing chamber. The discharging pipe communicates with the casting box and the standing chamber. The gas inlet pipe communicates with the outer space, the melting chamber and the standing chamber. The gas delivery pipe communicates with the standing chamber and the casting box. The double-chamber melting furnace is provided with the melting chamber structure, so that the melting chamber and the standing chamber are integrated; the melting time and heat energy are saved; production efficiency is improved; the double-chamber melting furnace is further provided with the standing chamber, protective gas is introduced, and a workpiece is prevented from making contact with the air at the melting state, the standing state and the casting state; and casting quality is improved.					
84.	Method for preparing nanocomposite magnet powder and method for producing nanocomposite magnet	CN1289134	2000-09-13	HITACHI METALS* NEOMAX SUMITOMO SPECIAL METALS	98 %
The inventive method for preparing nanocomposite magnet powder includes the step of preparing material alloy powder for a nanocomposite magnet represented by a general formula Fe_{100-x-y-z-u}R_xByCo_zMu where R is a rare-earth element of which 90-100 atomic percent is Pr and/or Nd while 0-10 atomic percent is another lanthanoid and/or Y, and the molar fractions x, y, z and u meet the inequalities of 2<=x<=6, 16<=y<=20, 0.2<=z<=7 and 0.01<=u<=7, respectively. The powder includes a metastable phase and an amorphous structure existing in a metal structure. Heat treatment is performed for the material alloy powder to crystallize Fe₃B and Fe-R-B compounds from the amorphous structure. An integral value of the difference between a temperature-time curve represented by the temperature of the material alloy powder as a function of the heat treatment time during the heat treatment and a reference temperature-time curve is in a range from 10° C..sec to 10,000° C..sec, the reference temperature-time curve being obtained when heat treatment similar to the above heat treatment is performed for an equivalent amount of alloy that has the same composition as the material alloy but does not include the amorphous structure.					



91.	A consumable electrode melting furnace and process	GB939521	1961-03-02	US STEEL*	98 %
939,521. Electromagnetic stirring. UNITED STATES STEEL CORPORATION. March 2, 1961, No. 7720/61. Class 86. [Also in Group XI] A consumable electrode melting furnace comprising a crucible 10 having a water jacket 15 and an electrode 12 which melts and drips into the crucible when an arc is struck, is provided with an electromagnetic stirring device consisting of a coil 21 surrounding the water-jacket of the crucible; when a high amperage direct current is passed through the coil, vertical lines of magnetic force M act on the radial lines I of current flow to stir the material in the pool 18. The coil is of axial length less than its outside diameter and can be raised and lowered on guide rods 23. In a melting process primarily for magnetic material, the height of the centroid of the coil is maintained below the surface of the pool 18 by a distance preferably 1/6 to 2/3 the mean diameter of the coil, which is energized at successive stages of the melting process to produce a vertical flux density of 30 to 300 gauss at its centroid with a current of 40 to 160 amperes. U.S.A. Specifications 2,640,860 and 2,798,107 are referred to.					
					
92.	Bottom assembling electromagnetic agitator for direct current excitation smelting furnace	CN101509730	2009-02-24	ZHANG SENLIN	98 %
The invention discloses a bottom-mounted electromagnetic stirrer used for a direct current (DC) electric-excitation melting furnace, consisting of an exciter coil, an iron core, a yoke iron, a collector ring, a mainshaft, a bracket, a rectifier system and a trailing system. The electromagnetic mixer is mainly characterized in that a DC power supply supplies the power to the exciter coil, namely, the magnetic field source of the stirrer is provided by a DC electromagnet consisting of a magnetic pole which consists of the iron core and the coil with DC. The stirrer has low material cost, the magnetism is not affected by the environmental temperature, the coil can be replaced during the malfunction, and therefore, the mixer has more advantages than an electromagnetic stirrer working at low frequency and a permanent magnetic mixer which uses the permanent magnets.					
					
93.	Process for production of organic particles and unit for production thereof	WO2006121018	2005-07-22	FUJIFILM*	98 %
A process for the production of organic particles by mixing a solution of an organic material in a good solvent with a poor solvent for the organic material which solvent is compatible with the good solvent to form particles of the organic material in the liquid mixture, wherein the formation of the particles is conducted by any of the following steps (a), (b), and (c): the step (a) of feeding the solution of an organic material and the poor solvent into a mixing vessel through specified numbers of feed ports respectively, mixing both under stirring in the vessel to form organic particles, and taking out the obtained liquid mixture containing the organic particles, the step (b) of providing a stirring zone filled with the poor solvent in a container, feeding the solution of an organic material into the stirring zone, mixing the solution with the poor solvent in the stirring zone under stirring to form organic particles, and making the particles flow out of the stirring zone into another zone of the container, and the step (c) of mixing the solution of an organic material with the poor solvent under shearing.					
					
94.	Small ion-decomposing melting furnace	WO02081969	2001-04-02	MORIWAKI JUKIKO MORIWAKI YUKIKO* NAKASHIMA SHIGETO* NAKASHIMA SIGETO SACHIKO MORIWAKI SHIGETO NAKAJIMA	98 %
A magnetron for supplying a microwave and an ion burner are provided in an incinerator main body, and the microwave from the magnetron and ion flame from the ion burner are caused to resonate to create a high temperature state in the incinerator main body, whereby waste in the incinerator main body is decomposed and melted by positive (+) and negative (-) activated ions. A tokamak is also provided on the outer side of the incinerator main body so that charged particles (radiation) and electromagnetic wave in the incinerator main body may be reflected and gathered at the center of the incinerator main body to increase an ion concentration to thereby increase a plasma concentration, thereby achieving an improvement in terms of decomposition efficiency. Both or one of quartz and an acceptor level additive is mixed with a furnace wall of the incinerator main body. <IMAGE>					
					
95.	Method for manufacturing brush having magnet power	KR20110100023	2010-03-03	SIT*	98 %
PURPOSE: A manufacturing method of brush containing magnet powder is provided to remove harmful metallic materials stick to hair of a user, and to promote the growth of hair roots by improving the hair circulation of blood. CONSTITUTION: A manufacturing method of brush(10) containing magnet powder comprises the following steps: inserting a synthetic resin into a melting furnace, and heating and stirring to obtain a gel formed resin; adding 1-15% of magnet powder with the size of 300 meshes into the molten resin; stirring the mixture before cooling at room temperature; inserting the cooled resin into a crusher before transferring to an extruder, for crushing the resin; and extruding the resin using the extruder to obtain comb teeth(30). COPYRIGHT KIPO 2012					
					
96.	Method of producing an anisotropic bonded magnet	DE19605264	1996-01-22	AICHI STEEL*	98 %
Compression molding suitable anisotropic magnet powder had not been established facing the difficulty of contradiction of high density and magnet powder alignment. By applying both magnetic field and pressure at the moment when the resin is melted into liquid state by heating, both high density and a high degree of magnet powder alignment are attained. Furthermore, application of degassing and ultrasonic vibration were found to be effective. An anisotropic bonded magnet with the maximum energy of more than 20 MGOe, in other words, more than 80% of the theoretical value of maximum energy product, is obtained.					
					

97.	Bipolar permanent magnetic stirrer	CN201558681	2009-10-26	HUNAN KEMEIDA ELECTRIC*	98 %
The utility model relates to a bipolar permanent magnetic stirrer, which consists of a permanent stirrer body, an air cooling system, a driving device, a dragging and lifting system and the like. The permanent magnetic stirrer body consists of a permanent magnetic inductor and a non-magnetic-conductible outer casing, each permanent magnet is designed to have double poles, the double poles which are N and S opposite poles are assembled on a base of the inductor, the permanent inductor which is formed by a pair of permanent magnets is arranged on a supporting base with a rotary support, the permanent magnetic inductor is driven to generate a corresponding alternating magnetic field by an electromotor, the air cooling system is arranged outside the permanent magnetic stirrer without moving along with the stirrer, forced air is sent to the cooling system inside the stirrer through an air duct arranged inside a drag chain, the dragging and lifting system consists of a motor speed reducer, a lifting table and a trolley, and is disposed below the permanent magnetic stirrer body and used for leading equipment to access a furnace bottom and adjust stirring strength.					
98.	Aluminum melting furnace	JP2012137272	2010-12-28	ARIAKE SERAKO*	98 %
PROBLEM TO BE SOLVED: To provide an aluminum rapid melting furnace of high heat efficiency capable of rapidly melting an aluminum material including chips and scraps at low energy cost and small COemission, improving an aluminum yield rate by suppressing the production of an oxide, and significantly reducing energy consumption.SOLUTION: The aluminum melting furnace 1 includes an aluminum melt heating chamber 3 provided with a gas burner-type immersion heater 2, an aluminum material charging chamber 5 for charging the aluminum material to the aluminum melt, and a flow power application chamber 13 for applying flow power to the aluminum melt so that the aluminum melt circulates and flows between the aluminum melt heating chamber 3 and the aluminum material charging chamber 5.					
99.	Soaking aluminum melting furnace	CN104677108	2015-03-13	SUZHOU SHENGPULA NEW MATERIAL TECHNOLOGY*	98 %
The invention relates to a soaking aluminum melting furnace, which mainly comprises a burner, a furnace body and a smoke exhaust pipe, wherein a fixed rotary shaft is arranged at the bottom part of the furnace body, a stirring fan rotationally sleeves the rotary shaft, the directions of magnetic lines of a permanent magnet extend along the radial direction of the rotary shaft, electromagnetic brushes are distributed at the side circumferential wall of the furnace body at the same intervals to form a circular ring, the center of circle of the circular ring is positioned at the axis of the rotary shaft, an electromagnet element and a magnetic sensitive switch are arranged in each electromagnetic brush, each magnetic sensitive switch is correspondingly matched with the corresponding electromagnet element, each electromagnet element and the corresponding magnetic sensitive switch are supplied with power by a storage battery, and each electromagnet element is repelled from the same pole of a fan blade of the stirring fan in the energizing process. The soaking aluminum melting furnace has the advantages that the internal temperature of molten liquid can be effectively balanced, and the uniform temperature of the molten liquid in a kettle is maintained.					
100.	Melting furnace	JP2010281474	2009-06-02	MIYAMOTO KOGYOSHO*	98 %
PROBLEM TO BE SOLVED: To improve flow speed of a vortex when a treatment material such as aluminum is stirred and molten by the vortex of molten metal in a melting furnace. SOLUTION: A vortex chamber of the melting furnace for aluminum scraps is formed to have a doughnut shape. More specifically, the melting furnace includes a melting chamber 1 for storing the molten metal and the vortex chamber 2 for melting the treatment material by the vortex, and the vortex chamber is provided on the lateral face of the melting chamber to take in/out the molten metal from the vortex chamber to the melting chamber via a communication port 3. A core rod 7 comprising a refractory material is installed at the center of the vortex chamber having an inner space with a circular shape in plane view, and a stirring space 24 having a doughnut shape in plane view is formed by the vortex chamber and the core rod.					

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