Supplement A

10 examples of our text generation flow as "words → title → abstract → independent claim → dependent claims" (no cherry-picking). Our favorite is "(run 6)."

(run 1)

[patent text generation] direction=both, input_text=temperature optimization
Fluid control system and surface temperature sensor system with adaptive compensation of effects associated with flow velocity, flow velocity, fluid volume, flowrate, fluid transfer rate, and surface temperature optimization system and method

[title --> abstract]
A fluid control system and a surface temperature sensor system is disclosed for use in a manufacturing process. The fluid control system has a flow path defined through a process chamber, and a surface temperature controlled actuator for controllably adjusting the temperature of the flow path. A first flow velocity of fluid flowing through the flow path is determined for each temperature, and a desired volume of fluid in the flow path is determined, based on the first flow velocity. A second flow velocity of fluid flowing through the flow path is determined, and the temperature of the desired volume of fluid is determined, based on the first and second flow velocities, for each temperature. An actuator control signal is applied to the process chamber actuator such that a surface temperature of a substrate is maintained substantially at the desired temperature and a fluid flow rate is maintained substantially higher in the flow path.

[abstract --> claim]
A temperature controlled fluid control system, comprising:
a fluid control system, comprising:
a plurality of valves adapted to control flow of a fluid through a fluid flow channel;
a plurality of pressure control valves, each of the plurality of pressure control valves being connected to both fluid flow channels of the plurality of valves such that each of the plurality of valves is connected to both fluid flow channels; and
a plurality of flow measurement instruments adapted to measure a flow velocity of the fluid, wherein each of the plurality of flow measurement instruments is connected to both fluid flow channels of the plurality of valves through the plurality of pressure control valves,
wherein each of the plurality of flow measurement instruments is adapted to measure pressure of the fluid along a measurement axis and is further adapted to transmit measurements of the pressure to first and second measurement ports of a respective flow measurement instrument,
wherein each of the plurality of pressure control valves is connected to both fluid flow channels of the plurality of valves through the respective valve such that each of the plurality of pressure control valves is connected to both fluid flow channels; and
a first temperature control system communicatively coupled to a first pressure control valve of the plurality of pressure control valves and a first flow measurement instrument of the plurality of flow measurement instruments, wherein the first temperature control system is adapted to receive temperature measurements of the fluid from the first flow measurement instrument through the first pressure control valve and transmit the temperature measurements to a control element of the first temperature control system,
wherein the first temperature control system further comprises a flow measurement module and a flow measurement control module; and
further comprising a second temperature control system communicatively coupled to a second pressure control valve of the plurality of pressure control valves and a second flow measurement instrument of the plurality of flow measurement instruments, wherein the second temperature control system is adapted to receive temperature measurements of the fluid from the second flow measurement

instrument through the second pressure control valve and transmit the temperature measurements to a control element of the second temperature control system,

wherein the first and second temperature control systems are connected along a flow path of the fluid to form a thermal loop wherein the first and second temperature control systems are each adapted to operate independently of each other; and

further comprising a flowrate control valve, wherein the flowrate control valve is adapted to control flowrate of the fluid through the fluid

[dependent claim]
Fluid control system and surface temperature sensor system with adaptive compensation of effects associated with flow velocity, flow velocity, pressure, fluid volume, flowrate, and

flowrate, and

surface temperature optimization system and method according to claim 1, wherein flow velocity is determined as a function of flow volume and flowrate.

A flow control and surface temperature sensor system for detecting fluid temperature and characteristics of the fluid flow based on a velocity input comprising:

a plurality of sensors for detecting said fluid pressure, velocity, velocity and temperature of said fluid flow and detecting temperature and said characteristics as sensor parameters;

a plurality of pressure detection circuits for sensing fluid pressure and velocity of said fluid flow and generating a flow velocity sensor input and an acceleration sensor input;

a pressure conversion circuit for converting velocity based on said sensor parameters into pressure based on said sensor parameters and for sensing pressure based on said sensor parameters and for converting pressure by means of said acceleration sensor input into one of velocity, temperature, and

volume;

a sensing temperature circuit for sensing temperature and time;

a first pressure compensation circuit for compensating pressure based on said temperature detected and time sensed; and

a second pressure compensation circuit for compensating pressure based upon said temperature detected and time sensed,

wherein said first and second pressure compensation circuits are configured and arranged to determine fluid temperature and characteristics associated with flow velocity, temperature and fluid volume.

(run 2)

[patent text generation] direction=both, input_text=temperature optimization
Method for pressure control and /pressure temperature optimization method for a heat exchanger of a water heater system

[title --> abstract]
A method for pressure control to maintain a desired water temperature in a heat exchanger of a water heater system which includes a pump/motor and a water inlet line. The method includes measuring the pressure difference between the inlet line and the outlet line of the pump/motor and calculating a pressure difference correction factor which is proportional to a temperature difference for an inlet line and for an outlet line. The temperature difference correction is divided by the pressure difference in order to produce a temperature difference correction factor. The temperature difference correction factor is applied to a pump/motor control system for controlling the rotational speed of the pump/motor.

[abstract --> claim]
A method, comprising: controlling a heat exchanger of a water heater system with a control system to maintain thermal energy for a selected temperature level by reducing a rate of energy supply to the heat

exchanger to a rate of operation that corresponds to the selected temperature level, wherein the rate of energy supply to the heat exchanger is reduced to a level lower than a rate of energy supply to the heat exchanger corresponding to the selected temperature level in response to whether the selected temperature level is below an upper temperature limit and if the selected temperature level is above the upper temperature limit.

[dependent claim]
A method as claimed in claim 1 comprising:
determining the maximum temperature of the water heater;
determining the maximum water flow through the heat exchanger;
determining the minimum flow required for the water flow through the heat exchanger and the maximum total flow required at the maximum water flow;
comparing the total water flow and the set desired total flow to calculate an initial water temperature, an initial flow rate, and
an initial temperature differential;
determining if the water temperature and flow rate are acceptable; and
adjusting the water flow through the heat exchanger and the total water flow through the heater if the water temperature and flow rate is not acceptable.

Method according to claim 1, characterized in that the flow of fluid to be heated is regulated by regulating the pressure at an inlet of a water heater.

(run 3)

[patent text generation] direction=both, input_text=temperature optimization
Apparatus and method for temperature optimization using thermoelectric material

[title --> abstract]
The present invention provides a process for selectively controlling, at discrete points in time, the temperature of materials that would otherwise be heated in the process. To control the heating during heating, electrical power is transmitted to a material to cause heating thereof. A plurality of heating elements are disposed close to the material, said heaters disposed to direct heat to respective selected areas of the material. To control the heating, the electrical power is controlled individually or in groups of power, to minimize a total loss of heating power generated by the heating at any selected point in time. A temperature sensor is disposed between adjacent heating elements.

[abstract --> claim]
An apparatus for temperature sensing and heating comprising:
thermoelectric material comprising two pairs of materials for converting thermal energy into electrical energy,
at least one first electrode attached to said thermoelectric material where said thermoelectric material is connected to said at least one first electrode,
a second electrode attached to said thermoelectric material such that said thermoelectric material is between said first pair of materials and said second pair of materials,
a source of DC electrical energy providing a flow of electrical energy across said first set of materials and said second set of materials to produce said flow of electrical energy,
heating means comprising a resistor located proximate to and in thermal communication with said two sets of materials to heat said two sets of materials during said heating of said thermoelectric material and wherein said two sets of materials form a diode to protect said two sets of materials from static discharges.

[dependent claim]
Apparatus as in claim 1 including a heater located exterior to the thermoelectric material.

The method of claim 21 wherein said thermoelectric material is comprised of one of the group of materials selected from the group: silicon, bismuth, lead and germanium and alloys and mixtures thereof.

(run 4)

[patent text generation] direction=both, input_text=temperature optimization
System and method for temperature optimization for a turbine

[title --> abstract]
A system for operating an aircraft of the present invention includes at least one computer; one or more sensors that measure an operating variable of the aircraft and produce one or more signals relating to the operating variable that are indicative of the operating variable; one or more computers that are coupled to the sensors and the at least one computer are configured to identify an operating condition and a predetermined operating condition, and to identify a value of the operating variable that has a critical value in the predetermined operating condition. The operating condition may include an operating condition where the value of the operating variable is a predetermined value. Additionally, the operating condition may include a predetermined operating condition where the value of the operating variable is below the predetermined value. Further, the system may include one or more of a plurality of computers, which are coupled to the sensors. At least one of the plurality of computers is configured to identify an operating condition and a predetermined operating condition in order to control the operating of the aircraft.

[abstract --> claim]
A system to support a turbine, the system comprising:
a turbine including a turbine inlet having a first flow path for a cooling fluid;
a heat exchanger thermally coupled to a cooling fluid and at least one of the turbine inlet and turbine outlet, the cooling fluid heated to a temperature greater than cooling fluid temperature;
a first fan located in flow communication with the first flow path of the turbine inlet and the heat exchanger, the first fan moving a cooling fluid and air mixture through the heat exchanger without changing rate of the cooling fluid to the turbine inlet or the turbine outlet;
a second fan located in flow communication with the heat exchanger and the turbine inlet, the second fan moving a cooling fluid through the heat exchanger without changing rate of the cooling fluid to the turbine inlet or the turbine outlet, and
the cooling fluid heated by the heat exchanger to a temperature less than the cooling fluid temperature by the first fan flowing through the heat exchanger for heating the cooling fluid that has passed through the heat exchanger; and
a control system operable to control the first fan, the control system further operable to control the second fan independently of the first fan.

[dependent claim]
The system according to claim 12, whereby the operating parameters of the turbine are measured and stored.

The system and method of claim 13, wherein the turbine is a high temperature turbine of a power generating plant.

(run 5)

[patent text generation] direction=both, input_text=temperature optimization
High wavelength laser with -dependent temperature optimization for a high power laser diode

[title --> abstract]
A high power diode laser includes an absorption cell formed by two mirror elements separated by a light path. The light path includes a gain medium and the laser diode. The light path includes a reflective element for receiving light and directing it to a wavelength-selective filter, the filter reflecting at least a portion of the light with a desired wavelength. The filter allows the diode to operate at a first wavelength but substantially prevents the signal light from traversing through, but does not allow an operation wavelength to traverse at the high power diode bias current density.

[abstract --> claim]
A high intensity pump cavity (HIM) system comprising: an HIM including; a laser cavity, wherein optical pump energy is emitted into a first end of the laser cavity including an active region; and

an active gain medium disposed within the laser cavity; a beam steering element disposed adjacent to the first end of the laser cavity to receive the optical pump energy from a second end of the laser cavity to steer and direct the optical pump energy to a third end of the laser cavity; a first beam steering element disposed at the third end of the laser cavity such that the optical pump energy is directed to the first beam steering element; a second beam steering element disposed at the third end of the laser cavity wherein the optical pump energy is directed to the beam steering element; and

a first optical detector disposed at the second end of the laser cavity wherein the optical pump energy incident to the laser cavity passes through the beam steering element and is directed at the first optical detector by the beam steering element to define a system temperature and wherein the second beam steering element is selected to be a laser beam steering element having a beam steering characteristic which is adjustable to maximize the system temperature such that the system temperature is maintained within a predetermined range.

[dependent claim]
High wavelength laser according to claim 1, wherein the laser diode has two end faces, and
the two end faces are parallel to each other,
at least one of the end faces being made of a transparent material, and
optical elements being provided on each of the two end faces of the laser diode.

High wavelength laser according to claim 8, wherein at least one of the laser mediums used for a heat-generating laser device is thermally coupled to the high power laser diode.

(run 6)

[patent text generation] direction=both, input_text=temperature optimization
Computer temperature optimization in microprocessor utilizing a multi-port logic controller

[title --> abstract]
A method of optimizing the operating parameters for a microprocessor. The method comprises the steps of: (a) determining the temperatures sensed during execution of a software program; (b) determining the minimum voltage required to achieve a desired temperature; (c) determining the maximum voltage required to maintain a predetermined operating temperature; (d) determining the temperature difference required to achieve the predetermined operating temperature; (e) adjusting the operating temperature of the microprocessor so as to meet the temperature difference at the minimum voltage. In addition, the method comprises the steps of determining an adjustment value which would achieve a desired operating temperature if the minimum voltage were not achieved; and adjusting the operating temperature of the

microprocessor as a function of the adjustment value which would improve the temperature difference at the minimum voltage.

[abstract --> claim]
A computer, comprising:

a microprocessor,

a memory operatively coupled with said microprocessor, said memory, comprising a temperature estimation circuit for estimating a temperature of at least one processor within said computer and a temperature calculation circuit for calculating a temperature of at least one memory component of said microprocessor,

a multi-port logic controller operatively coupled with said temperature estimation circuit and also operatively coupled with said temperature calculation circuit, for adjusting a temperature of said at least one processor within said computer, and

a bus operatively coupled with said microprocessor.

[dependent claim]
The computer temperature optimization of claim 1 wherein the multi-port logic controller utilizes a dual-port SRAM array having a first port that is connected to a plurality of temperature detectors coupled to a plurality of processor nodes in the microprocessor, and

wherein the plurality of processor nodes receives signals in its own form from the first port indicating temperature measurements from the plurality of temperature detectors responsive to a clock signal.

Computer temperature optimization in microprocessor utilizing a multi-port logic controller as recited in claim 1 wherein the microprocessor is comprised of a two-port memory, and

wherein said microprocessor receives the address signal and a control signal.

(run 7)

[patent text generation] direction=both, input_text=temperature optimization
Low temperature optimization of thermionic cooling for large power output battery

[title --> abstract]
Aspects of the invention can be used with large power output battery cells for large electrical systems. In an example, an electrical system can include at least one thermionic cooling element for use with a large power output battery cell having battery cells with a first battery cell, a second battery cell, and a third battery cell. In a similar way, the electrical system can also include a thermionic cooling system for use with a large power output battery cell having battery cells with two, three, or fewer battery cells. The thermionic cooling system can include a heater assembly and a thermoelectric cooler assembly. A coolant stream is configured so that the coolant stream is passed through the thermionic cooling element and/or the thermoelectric cooler assembly during at least a portion of an electrical cycle in response to a coolant condition of the large power output battery cell.

[abstract --> claim]
A power conversion apparatus, comprising:

a plurality of thermionic cooling units, each of the thermionic cooling units having at least two thermionic electrodes, each of the thermionic electrodes having a plurality of thermionic holes;

first and second cooling ducts;

wherein the first cooling duct comprises first thermoelectric devices arranged in a first row and second thermoelectric devices arranged in a second row;

wherein the second cooling duct comprises third thermoelectric devices arranged in the second row and fourth thermoelectric devices arranged in the first row;

first and second heat transfer means for transferring heat from the first and second cooling ducts such that the temperature of the first and second cooling ducts is elevated at a ratio different than the ratio of the temperature of the first cooling duct to the temperature of the second cooling duct;

first and second heat exchangers for transferring heat from the first and second cooling ducts to cooling fluid to cool the cooling fluid;

wherein the second heat exchanger is located between the first and third thermoelectric devices in the second row;

third and fourth thermoelectric devices arranged in the second row and wherein the second heat exchanger is located between the third and fourth thermoelectric devices in the first row;

a gas turbine for driving the coolant; and

wherein a portion of the cooling fluid flows from the first heat exchanger and is supplied to the gas turbine, and

another portion of the cooling fluid flows to the second heat exchanger; and

wherein the power conversion apparatus is operable to produce power according to an operating condition.

[dependent claim]
The method of claim 11 wherein the temperature in the cell is decreased by increasing the voltage of the cell.

A power output battery operating under the battery cooling cycle, wherein said output battery contains a plurality of power cells, the individual power cells are electrically connected in parallel and are arranged so that there may be electrical connection between the anodes of two cells, each of which contains a different metal from the other, so that current is transferred from first cell to a second cell, whereby current density is increased, and

whereby the operating frequency of said cells depends on the operating temperature of the cell and on the power density of the battery, said output battery having a plurality of thermionic tubes, which extend from the anode of a first power cell to the cathode of a second power cell, the tubes are electrically connected in series, and

there are also a plurality of insulators or insulating material, and

said anodes of the respective cells are connected to two different tubes.

(run 8)

[patent text generation] direction=both, input_text=temperature optimization
Method of temperature optimization of semiconductor memory device

[title --> abstract]
In a method of temperature optimization of semiconductor memory devices, a first temperature value which includes an average temperature of the semiconductor memory device and a first variation amount which varies depending on an ambient temperature for the semiconductor memory device is obtained. A second temperature value which includes a maximum temperature and a second variation amount which varies depending on the first temperature value is obtained. A temperature compensation value which includes a third variation amount and a third temperature is obtained. The second temperature value is adjusted based on the first temperature value and the temperature compensation value by the third variation amount of the temperature compensation value and the third temperature of the semiconductor memory device. The temperature of the semiconductor memory device is adjusted based on the third variation amount with the temperature compensation amount and the second variation amount with the first temperature value by adding or subtracting the temperature compensation value into or from the third variation amount of the temperature compensation value in accordance with the adjusted temperature value.

[abstract --> claim]
A method of optimizing the temperature of, and
the power consumption of, a semiconductor memory device comprising the steps of:
providing a power supply to operate a memory device;
providing an external device which may be programmed and/or read to alter its electrical parameters, wherein the electrical parameters include voltage and/or frequency levels and are selected from the group consisting of voltage, power, and
timing;
providing the memory device with a voltage reference source means, voltage measuring means, temperature measuring means, and
power measuring means;
measuring the voltage level of the external connection when a signal from the external connection is received and stored, while the external connection is coupled to the memory device;
measuring the voltage level of the external connection at the memory device when a signal from the external connection is received and stored, while the external connection is coupled to the memory device; and
optimizing the operation of the power supply and the memory device by comparing the measured voltage level of the external connection to the set voltage level of the voltage reference source with said measured voltage level of the voltage reference source and measuring the voltage level at the external connection, while the external connection is coupled to the memory device.

[dependent claim]
Method of claim 4 in which a first time period is established between application of a first reference voltage and activation of a bit line of the memory device and a second time period between application of a second reference voltage and activation of a bit line of the memory device.

The method of claim 11, wherein a number of data bits is allocated for each memory block.

(run 9)

[patent text generation] direction=both, input_text=temperature optimization
Method and system for temperature optimization of an energy storage battery

[title --> abstract]
A system and method for managing a charge of an energy storage battery are presented. One example method can include determining that a battery has been charged by a vehicle including an electrical component, and determining that the charge of the battery is above a predetermined threshold from a power source of the electrical component. The example method can also include identifying, in response to determining that the charge is above the predetermined threshold from the power source, the battery as having a high charge that enables the battery to function as a battery for the vehicle. The method can additionally include controlling the power source to convert the battery to a charging current and the battery power source to convert a load current to a charging voltage to charge the battery.

[abstract --> claim]
Apparatus for maintaining a battery cell voltage between a higher voltage and a lower voltage during periods of power loss and providing power to electrical equipment during periods of no power loss comprising:
means for measuring the battery cell voltage,
means for measuring the output current and voltage of the battery cell,

means for computing the power consumption of the battery based on the measurements of the battery cell voltage and current and voltage and providing a first value for the power consumption,

means for measuring the input power and providing a second value for the power consumption,

means for calculating a ratio of the amount of power supplied to the electrical equipment by the battery cell to the amount of power consumption of the battery cell by the electrical equipment based on the results of the measurements of the battery cell voltage and current and voltage and of the input power and providing a third value, and

means responsive to the first, second and third values for adjusting the power supplied to the electrical equipment by the battery cell.

[dependent claim]
Method and system according to claim 1, wherein in case of high impedance to temperature variations the value taken by the energy storage circuit may be limited to a predetermined maximum value, and

in case of low impedance to temperature variations the value taken by the energy storage circuit may be limited to a predetermined minimum value.

The method of claim 13 wherein said method further comprises a further step:

determining a set of battery parameters at a desired charge rate, wherein battery parameters further comprise an upper limit of discharge voltage and a lower limit of charge voltage.

(run 10)

[patent text generation] direction=both, input_text=temperature optimization
Method for temperature optimization of a system

[title --> abstract]
An apparatus and method for thermally conditioning a material. An apparatus for thermally conditioning a material includes a plurality of heat exchangers, the heat exchangers being in series relationship to each other and arranged generally parallel to each other, each heat exchanger including a tube sheet in an end heat exchanger having substantially uniform thickness and a plurality of tubes extending through the tube sheet. The plurality of tubes and tube sheet has an inner surface defining an outer periphery, the outer periphery having a first width. The plurality of heat exchangers comprises a first heat exchanger and a second heat exchanger arranged in a generally parallel pattern with the first heat exchanger, the second heat exchanger having a width that is greater than the first width. In addition, each tube has an outer side having a first thickness; each heat exchanger has a first end and a second end, the first end being adjacent to the tube sheet and the second end being adjacent to the first end and located substantially opposite the first end, the first width is substantially equal to the first thickness, each heat exchanger including a plurality of fins positioned around the outer side of the tube and extending radially inwardly from the outer side of the tube; and the fins of each heat exchanger are substantially uniform in thickness.

[abstract --> claim]
A method comprising:

receiving an input set comprising a plurality of values representing a temperature of a system, each of the plurality of values associated with a respective temperature dependent temperature coefficient;

selecting a first temperature dependent temperature coefficient associated with a first temperature range;

calculating a first set of values representing the temperature associated with the first temperature dependent temperature coefficient;

receiving an input set comprising a plurality of values representing the temperature of the system, each of the plurality of values associated with a respective temperature dependent temperature coefficient;

selecting a second temperature dependent temperature coefficient associated with a second temperature range;

calculating a second set of values representing the temperature associated with the second temperature dependent temperature coefficient;

calculating a correction factor based on the second set of values and the first set of values; and

correcting the second set of values based on the correction factor to provide a corrected set of values.

[dependent claim]

A method according to claim 2, wherein for a plurality of predetermined temperatures the parameters of the respective operating states of the cooling device are recorded, the current operating state being identified, as a function of the measured values of the parameters and of the predetermined temperature, the predetermined temperatures being selected in dependence of the identified current operating state.

Method according to any one of claim 1 to claim 3 wherein said temperature sensor is a thermoelectric element.