

National Workshop on the Patent Cooperation Treaty (PCT) System

# Case Study 2

PCT/JP2015/123456  
(Imaginary Application)

November 29, 2016  
Japan Patent Office

## **International Preliminary Examination Stage**

- (Step 1) Understanding the Invention
- (Step 2) Confirmation of the Amendment
- (Step 3) Check the Application
- (Step 4) Understanding the Relevant Documents (D1 and D2)
- (Step 5) Examining Novelty and Inventive Step  
(Lecture: Drafting IPRP Chapter II)
- (Step 6) Drafting IPRP Chapter II

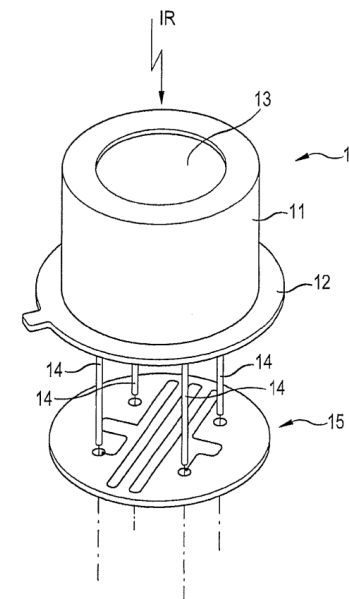
# 1. Understanding the Invention

## A. Bibliographic Information

Application Number: PCT/JP2015/123456  
Title : HEATED RADIATION SENSOR  
Applicant : PATENT CORPORATION  
Priority date : 15.09.2014  
International filing date: 15.09.2015  
IPC: G01J1/02, G01J5/16

### [Abstract]

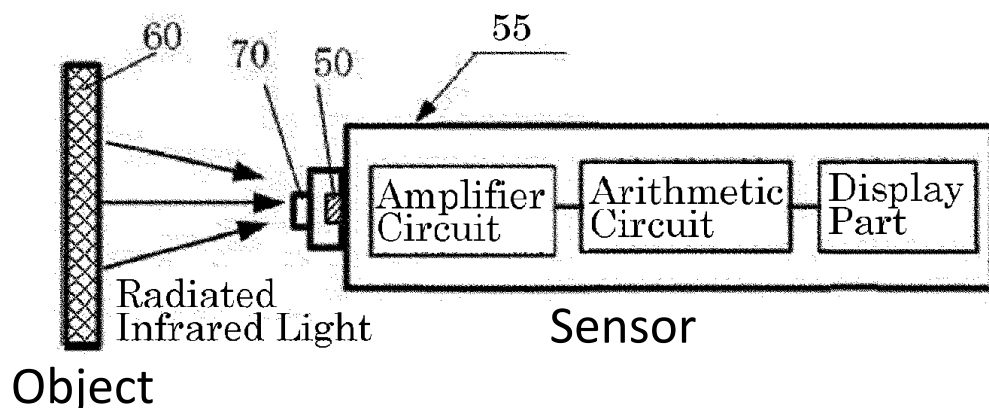
A radiation sensor comprises a sensing portion configured to generate an electrical signal in accordance with incident radiation, a housing (11-13) accommodating the sensing portion and having a radiation window (13) permitting radiation to enter the housing and reach the sensing portion and a heater (15) configured to heat the sensor. The heater (15) is attached to, and thermally connected with, a wall portion of the housing (11-13).



# 1. Understanding the Invention

## B. Technical Background of Radiation Sensor (1/2)

### ◆ What is Radiation Sensor?



US 2014/0036953 A1

Objects emit infrared depending on the temperature. By knowing the amount of infrared energy emitted by the object, the following can be determined.

- ✓ Object's temperature
- ✓ Existence of the object



Ear thermometer



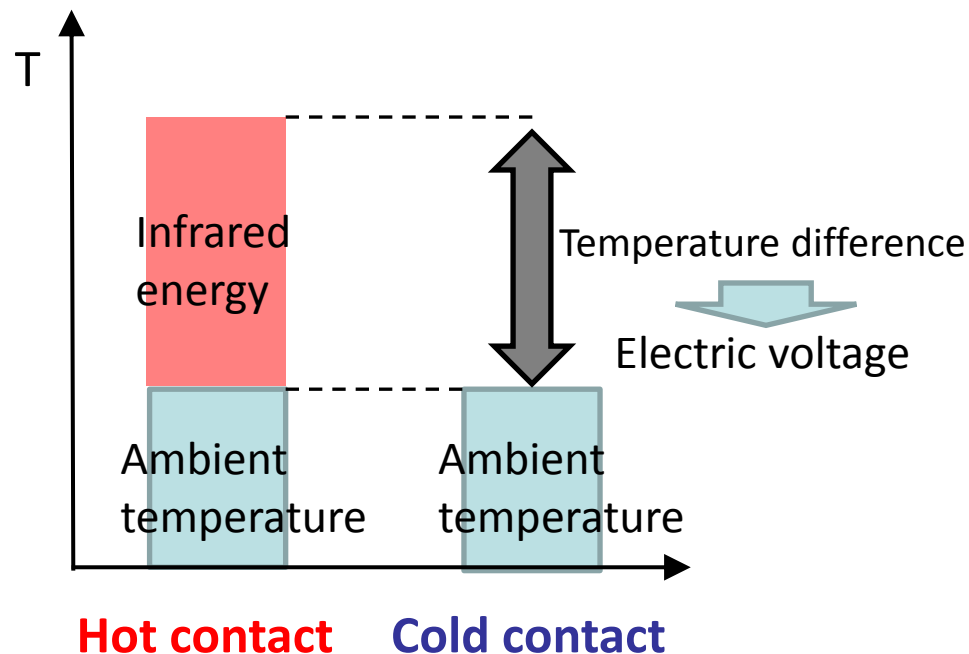
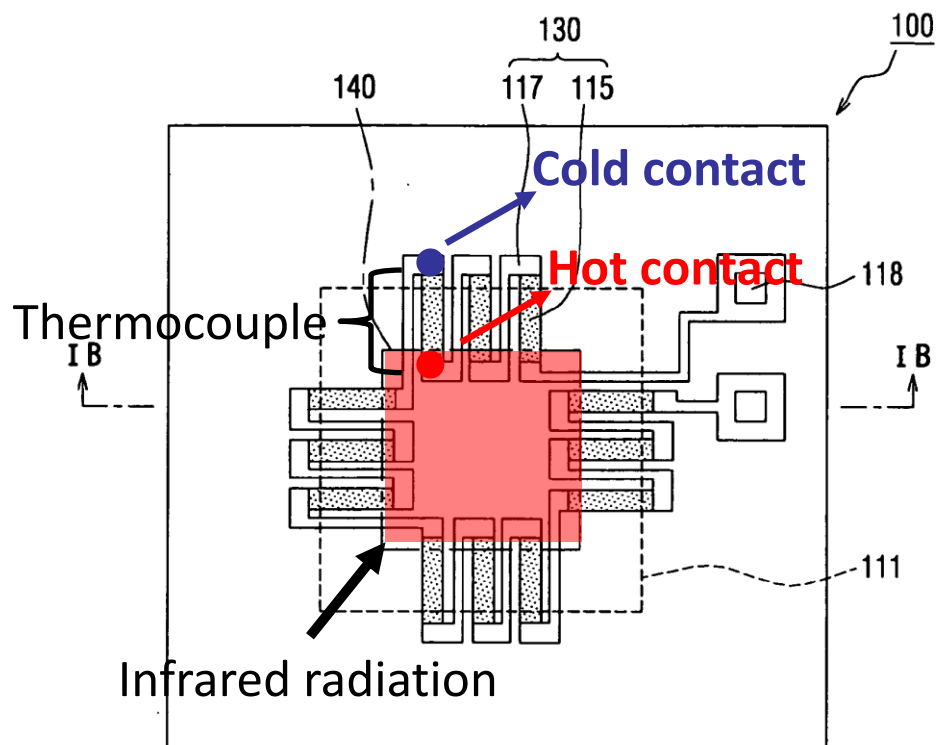
Sensor for detecting human body

Applications

# 1. Understanding the Invention

## B. Technical Background of Radiation Sensors (2/2)

### ◆ How to know the amount of infrared energy (in case of thermocouple)



Thermocouple: Electric device that generates electric voltage depending on temperature difference between the cold and hot contact.

# 1. Understanding the Invention

## C. Problem to be Solved of the Invention

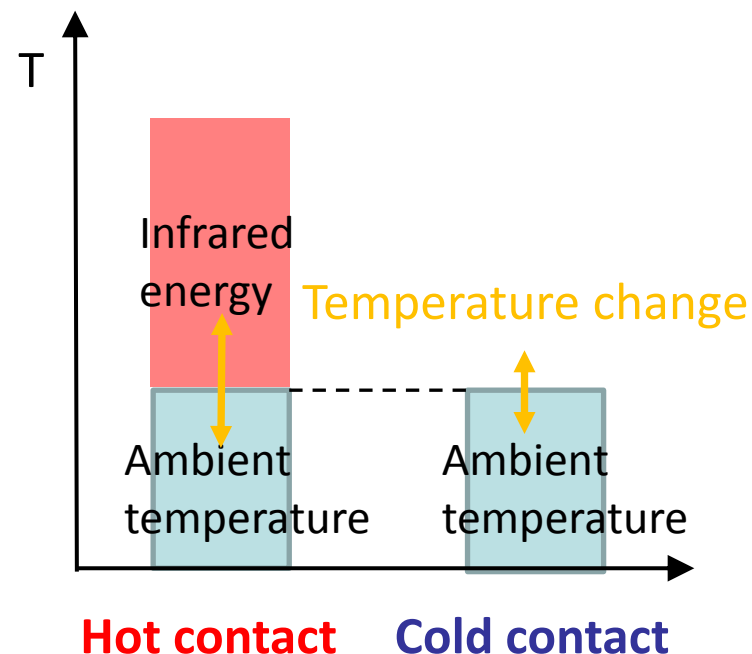
When the ambient temperature changes, the internal temperature of the sensor element will change.



The temperature change reaches the hot and cold contacts at different points of time.



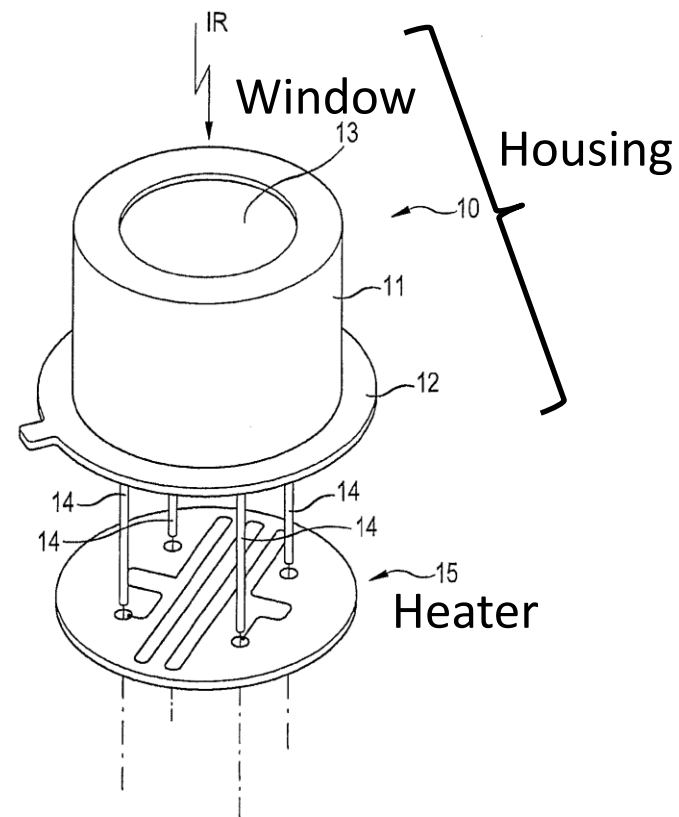
A temperature difference that is not caused by the radiation is generated.



## D. Claims

1. A radiation sensor comprising:  
a sensing portion configured to generate an electrical signal in accordance with incident radiation;  
a housing accommodating the sensing portion and having a radiation window permitting radiation to enter the housing and reach the sensing portion; and  
a heater attached to a wall portion of the housing and configured to heat the sensor.

2. The sensor of claim 1, wherein the heater comprises an electrically conductive heating structure.



## 2. Confirmation of the Amendment

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### A. Premise of the Amendment

- ✓ In WO/ISA , novelty and inventive step of claims 1-2 were denied over Document D1.
- ✓ The applicant requested international preliminary examination and filed amendments under Article 34.



## 2. Confirmation of the Amendment

### B. Amended Claims (1/2)

1. (Amended) A radiation sensor comprising:  
a sensing portion configured to generate an electrical signal in accordance with incident radiation;  
a housing accommodating the sensing portion and having a radiation window permitting radiation to enter the housing and reach the sensing portion; and  
a heater attached to a wall portion of the housing and configured to heat the sensor,  
wherein the heater comprises an electrically conductive heating structure having an elongated conductor with a certain resistance for converting electrical power into heat and the elongated conductor meanders to cover portions desired for heating.

## 2. Confirmation of the Amendment

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### B. Amended Claims (2/2)

2. (Canceled)

3. (Amended) The sensor of claim 1, wherein the heater comprises a substrate and the electrically conductive heating structure is on the substrate surface facing the housing.

# 3. Check the Application

## A. Checklist

- Is this application qualified for the unity of invention?
- Is each claim clear?
- Is each claim supported by the description?
- Is the subject matter of each claim required to be searched?
- Are there any obvious errors?
- Are the title, the abstract and the figure appropriate?
- Are the amendments acceptable?

### <Exercise>

- Understand the invention including the amendments
- Consider whether the amendments are acceptable or not

### *Note*

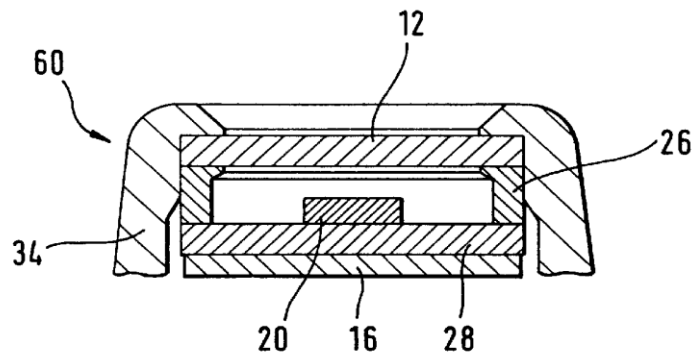
Thermopile: Electronic device that is composed of several thermocouples connected in series or parallel.

# 4. Understanding the Relevant Documents

## A. Document D1 and D2

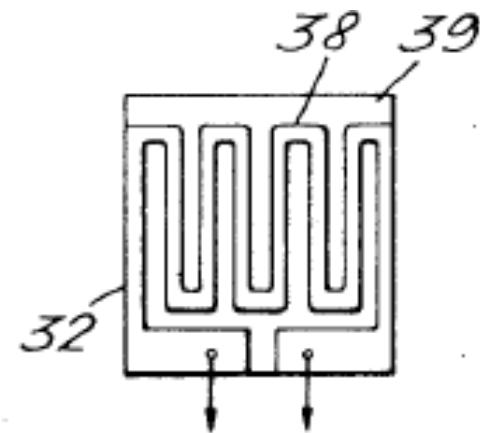
D1: JP 2010-123456 A  
(TOKYO CORPORATION), 01.04.2010

Note: D1 was cited in ISR and WO/ISA



D2: WO 2008/123456 A1  
(OSAKA CORPORATION), 01.01.2008

Note: D2 was found by Top-up search



### <Exercise>

- Understand the contents of D1 and D2
- Consider whether the amended claims 1,3 meet the requirements of novelty or inventive step over D1 and D2

### *Note*

Pyrometer: A type of remote-sensing thermometer used to measure the temperature of a surface.

## <Discussion>

- Discuss whether the amended claims 1,3 meet the requirements of novelty or inventive step over D1, 2

	<b>Novelty</b>	<b>Inventive Step</b>
Claim 1	Yes or No?	Yes or No?
Claim 3	Yes or No?	Yes or No?

### Premise

- The demand of IPE was submitted on 29. 09. 2016.
- The amendment was received on 29. 09. 2016.
- Top-up search was done on 07. 11. 2016.
- Annexes comprises 2 sheets in total.  
(Amended claims: 1 sheet, accompanying letter: 1 sheet )



### <Exercise & Discussion>

- Draft PCT/IPEA/409  
(cover sheet, Box No. I and Box No. V)
- Share your drafts with other members of your group
- Choose a draft which is the best in your group