Introduction

- Intellectual property:
  - Patents
  - Trademarks
  - Copyrights
  - Trade Secrets
What is a Patent?

- A right granted under the U.S. Constitution
- To prevent others from selling, making or using your invention
- For the term of the patent
  - 20 years from date of filing of earliest related patent or application
A Contract with the Government

- You give the public an invention they have not seen before
- The government gives you a limited monopoly (the patent)
Patent Property Right

- Compare to Real Property
  - Metes and bounds
- Compare to Personal Property
  - An individual right
Motivations for Patenting

- **Deterrent**
  - Maintain exclusive control over the patented invention
  - Prevent competitors from market entry

- **Defensive**
  - Prevent competitors from obtaining patents for known subject matter
  - Commit developments to the public domain that do not have strategic importance

- **Licensing and Commercialization**
  - Licensing fees and royalty income

- **Demonstration of Organizational Capabilities**
Patentable Subject Matter

Anything man-made

Articles of Manufacture

Processes or Methods

Designs

Computer Programs

Compositions of Matter

Business Methods

Plants
Non-Patentable Subject Matter

- Mathematical formulae; algorithms
- Naturally occurring organisms
- Laws of nature
- Abstract ideas
- Natural phenomenon
Unsolved Surveillance Camera Mount with Adjustable Base Plate and Pivotable Table

Abstract

A surveillance camera mount (19) for a surveillance camera provides for adjusting the tilt of the surveillance camera (40) relative to the mounting surface for the camera mount relative to environmental camera enclosure (44). The camera mount (19) includes a base plate (42) that is fully adjustable to a mounting surface inside the environmental camera enclosure. A camera tilt table (26) is pivotally attached to the camera mount base plate (42) in a manner to permit the camera tilt table to pivot relative to the base plate in order to tilt the camera to vary the viewing angle of the camera relative to the mounting surface on which the environmental enclosure is mounted. The camera tilt table (26) includes an adjustment mechanism (26, 34) for permitting the camera installer to adjust the tilt of the camera to an angle of the camera tilt table, and therefore the viewing angle of the surveillance camera, relative to the mounting surface on which the environmental camera enclosure is mounted. The camera tilt table adjusting mechanism also serves as the locking mechanism for locking the adjustment of the camera tilt table at essentially any desired viewing angle relative to the plane of the mounting surface on which the environmental camera enclosure is mounted. The camera mount base plate (42) is fully adjustable to a mounting surface on the inside of the environmental camera enclosure (44) in a manner to adjust the camera (40) so that its viewing lens can be positioned close to or remote from the camera environmental housing viewing window (82). The mounting surface for the environmental enclosure can be any number of locations, typically horizontal or inclined ceilings, or vertical walls.

28 Claims, 5 Drawing Sheets
Patent Parts

- Drawings
Patent Parts

- Description of Invention
- Enabling
- Best Mode of Operation

SURVEILLANCE CAMERA MOUNT WITH ADJUSTABLE BASE PLATE AND PIVOTABLE TABLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to surveillance camera systems, and more particularly relates to a mounting structure for mounting a camera within an environmental enclosure (a camera housing) to be inserted into a pre-threaded adjustment of the tilt or angle of the camera relative to the camera enclosure, and to permit manual adjustment of the presence of the camera viewing lens relative to the viewing window of the enclosure assembly.

2. Description of the Prior Art

In the surveillance industry, there have historically been two types of camera mounts for mounting a surveillance camera within a camera enclosure: (1) a stationary or fixed camera mount, wherein the camera is stationary or fixedly mounted within the enclosure with little or no adjustment permitted; and (2) a pan and tilt mount which permits the camera to pan (range about a vertical axis) and tilt (range about a horizontal axis) such that the camera viewing direction can be manually moved and frozen by remote control. This invention pertains to the second type of pan and tilt camera mounting.

Typical fixed-mount camera mount permits the camera to be mounted within an environmental enclosure (housing) in fixed position. That is, the camera position is fixed within the housing and is not adjustable in terms of the camera viewing angle relative to the housing. Some fixed camera enclosures, however, do permit the camera body to be adjusted longitudinally along the axis of the camera viewing direction. However, these fixed camera mounts do not permit tilt adjustment of the camera within the housing. That is, these fixed camera mounts do not permit the camera to be rotated about a horizontal axis within the housing.

OBJECTIVES OF THE INVENTION

It is therefore an object of the present invention to provide a camera mount for mounting a camera within an environmental enclosure or housing that permits manual adjustment of the tilt or the camera relative to the housing. It is a further object of the present invention to provide a camera mount for an environmental enclosure that is also manually adjustable within the housing along a linear axis that is essentially horizontal within the camera enclosure and is responsive to a horizontal ceiling.

It is a further object of the present invention to provide such a camera mount within an environmental enclosure that also permits the camera to be adjusted horizontally along the axis of the camera viewing direction.

SUMMARY OF THE INVENTION

These and other objects of the present invention are accomplished by a camera mount for mounting a surveillance camera within an environmental enclosure or housing. The camera mount comprises a base plate 12 that is essentially planar, and includes a pivot (typically pivot pin 14 for a spherical joint) for mounting the camera. A camera housing 16 is pivotally mounted to the base plate 12, to permit the camera to be manually adjusted within the housing along a linear axis that is essentially horizontal within the camera enclosure. The camera housing 16 includes a plurality of mounting holes 18 through which mounting screws pass into the mounting base of various configurations of surveillance cameras. The camera housing 16 includes adjustment mechanisms for adjusting the tilt or angle of the camera housing relative to the base plate 12, such adjustment mechanism also forming the locking mechanism for locking the camera tilt 16, with the camera housing, in a specifically desired attitude or angle relative to the base plate and environmental enclosure housing mounting surface. The camera tilt 16 also includes mounting holes for mounting a number of different surveillance camera configurations therein. Inasmuch as the camera tilt 16 is essentially a cone-shaped housing to the camera mount base plate, the camera mount base plate includes an arcuate slot for accommodating a screw for retaining the surveillance camera on the tilt table. The camera mount base plate 12 is also manually adjustable along the remaining surface of the environmental enclosure in a manner to position the surveillance camera viewing lens close to or within the environmental enclosure viewing window.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the camera mount of the present invention.

FIG. 2 is a side elevation view of the camera mount of the present invention.

FIG. 3 is a bottom view of the camera mount of the present invention.

FIG. 4 is a perspective view of the camera mount shown mounted inside an environmental enclosure.

FIG. 5 is a side elevation view of the camera mount in a environmental enclosure.

FIG. 6 is a view similar to FIG. 2, illustrating a first embodiment of an alternative embodiment of the camera tilt adjusting mechanism.

FIG. 7 is a view similar to FIGS. 2 and 6, illustrating a second design of an alternative embodiment of the camera tilt adjusting mechanism.

DETAILED DESCRIPTION OF THE INVENTION

Turning now to the drawings and initially to FIG. 1, an adjustable surveillance camera mount is illustrated in perspective, and is generally illustrated by the numeral 10. The camera mount 10 comprises a base plate 12 that is designed to be mounted within a surveillance camera enclosure (shown in FIGS. 4 and 5). The base plate 12 is essentially planar, and includes a pivot (typically pivot pin 14 for a spherical joint) for mounting the camera. The camera enclosure 16 includes a pivotally mounted camera housing 18, to mount the camera within the enclosure. The camera housing 16 is essentially planar, and includes a pivot (typically pivot pin 14 for a spherical joint) for mounting the camera. The camera housing 16 includes a plurality of mounting holes 18 through which mounting screws pass into the mounting base of various configurations of surveillance cameras. The camera housing 16 includes adjustment mechanisms for adjusting the tilt or angle of the camera housing relative to the camera mount base plate 12, such adjustment mechanism also forming the locking mechanism for locking the camera tilt 16, with the camera housing, in a specifically desired attitude or angle relative to the base plate and environmental enclosure housing mounting surface.
**Claims**

- Define Protected Subject Matter

A novel design is shown in FIG. 6 and incorporates a coil spring 78 concentrically mounted around a respective base plate post 82 and camera tilt table 84 in order to return the coil compression spring, in functional position relative to the base plate and camera tilt table. As can be appreciated, both designs of resilient spring fixtures to oppose providing of the camera tilt table relative to the base plate in the clockwise direction as shown in FIGS. 2, 6, and 7. Each of these designs facilitates adjustment of the tilt of the camera within the camera enclosure by enabling the camera to rotate to adjust only a single screw that controls the camera tilt, the single screw being the second adjusting screw 34 which simultaneously engages the second flanged nut 36 in the eccentric shaft 32.

When the camera, camera mount, and camera housing are maintained in functional position in a ceiling, the weight of the camera will be acting in a downward direction (forward in FIGS. 2, 6, and 7) such that the second adjusting screw 34 will receive all of the force of both the weight of the camera and the spring force that will be acting to rotate the camera tilt table downwardly (counter clockwise as shown in FIGS. 2, 6, and 7). Therefore, the force of the spring need only be adjusted to maintain the contact between the end of the second adjusting screw 34 and the base plate 12 such that the adjusting screw will always be tight against the base plate. In this regard, the spring need not supply sufficient force to support the weight of the camera within the camera housing once the camera and housing are functionally mounted to a ceiling.

From the foregoing it will be seen that this invention is well adapted to attain all of the ends and objections herein set forth, together with other advantages which are obvious and which are inherent in the invention. It will be understood that certain features and subtechniques are of utility and may be employed with reference to other features and subtechniques. This is contemplated by and is within the scope of the claims. As many possible combinations may be made of the invention without departing from the scope of the claims, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not as forming a limiting sense.

**PARTS LIST**

10 adjustable surveillance camera mount
12 base plate
14 keyhole slots
16 camera tilt table
18 in-line pivot axis
20 camera tilt table pivot plate
22 base plate pivot tabs
24 centering holes
26 tilt adjusting screw
28 tilt flange nut
30 flange bolt
32 eccentric shaft
34 second adjusting screw
36 second flanged nut
38 second locknut
40 base plate pivot
42 camera tilt table angle
44 environmental camera enclosure (housing)
46 environmental camera enclosure cover
48 surveillance camera
50 housing base plate stand
52 tightening nuts
62 camera enclosure viewing window
70 coil spring
72 base plate flange
74 camera tilt table flange
80 coil compression spring
82 base plate post
84 camera tilt table post

What is claimed is: 1. An adjustable surveillance camera mount for mounting a surveillance camera within a camera enclosure, the camera enclosure having an interior mounting surface, the camera enclosure comprising:

- a base that is adjustable attachable to the camera enclosure into interior mounting surface for linear translation in a direction parallel to the camera enclosure interior mounting surface;
- a camera tilt table pivotarily attached adjacent to the base in a single pivot axis in a manner to pivot about the pivot axis relative to the base, and
- camera table adjusting means for adjusting the position of the camera tilt table about the pivot axis relative to the base.

2. An adjustable surveillance camera mount as set forth in claim 1, further comprising base attaching means for attaching the base to the camera enclosure interior mounting surface.

3. An adjustable surveillance camera mount as set forth in claim 1, wherein the pivot axis is normal to the direction of linear travel by the base.

4. An adjustable surveillance camera mount as set forth in claim 1, wherein the camera table adjusting means is mounted with the camera table.

5. An adjustable surveillance camera mount as set forth in claim 1, wherein the camera table adjusting means comprises an adjustment screw threadedly connected to the camera table and having an end that engages the base.

6. An adjustable surveillance camera mount as set forth in claim 1, wherein the adjustment screw includes a locking nut.

7. An adjustable surveillance camera mount as set forth in claim 5, wherein the camera table adjusting means comprises a pair of adjustment screws.

8. An adjustable surveillance camera mount as set forth in claim 1, wherein the camera table adjusting means comprises an adjustment screw threadedly connected to the camera table and including a locknut for securing the adjustment screw.

9. An adjustable surveillance camera mount as set forth in claim 8, wherein the locknut means for opposing pivotal motion of the camera table.

10. An adjustable surveillance camera mount as set forth in claim 1, wherein the base includes an access hole for accessing mounting screws for mounting a camera to the camera table.

11. An adjustable surveillance camera mount as set forth in claim 1, wherein the camera table includes two planar surfaces intersecting at a line generally adjacently and parallel to the pivot axis.
Sample Claim

An adjustable camera mount for use in an enclosure comprising:

a base adjustably mounted in the enclosure;

a camera table attached to the base at a pivot axis; and

an adjustment means for adjusting the camera table about the pivot axis relative to the base.
Requirements for Obtaining a Patent

- Novelty
- Non-Obviousness
- Usefulness
Requirements for Obtaining a Patent

- **Novelty**
  - Public disclosures
  - Public use

- **Nonobviousness**
  - Subjective Test: whether one having ordinary skill in the art would arrive at the invention in view of the prior art

- **Usefulness**
Typical Patenting Procedures

- Invention Disclosure
- Patent Review Committee
- Prior Art Search
- Application Preparation and Filing
- Prosecution before the U.S. Patent and Trademark Office (typical examination at 13-18 months)
  - If Patentable, Typically Issues 2-3 Years after Filing Application
  - Ongoing Duty of Disclosure
Invention Disclosure

- Title
- Inventor(s)
- Object
- Description and Drawings
- Related Art
- Relevant Dates
- Signed, Dated and Witnessed
Disclosure Deposit

Bob Anderson wants your disclosures!
E-mail to: anderson@iit.edu
Deliver to: 103 Siegel Hall
Call: (56)7-3462
Inventorship

- Each individual that had a share in the ideas forming the invention as defined in the claims, even if only as to one claim, is a joint inventor.

- If one person has provided all of the ideas of the invention, and another has only followed instructions in making it, the person who contributed the ideas is the sole inventor.
Duty Of Disclosure

- Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Patent Office, which includes a duty to disclose to the Patent Office all information known to that individual to be material to patentability.
Filing Bars

- A U.S. patent application must be filed within one year following any public disclosure, sale, offering for sale or public use of the invention.
- If corresponding foreign patents are desired, the U.S. patent application should be filed before any such public disclosure, sale, offering for sale or public use.
- Foreign patent applications must be filed within one year of the corresponding U.S. patent application.
Timeline

- Important dates

Conception

Application Filed (Regular) 1 Year Foreign Applications Filing Bar
Timeline

- Important dates

- Conception
- Public Disclosure
- Application Filing Bar
- No Foreign Applications

1 Year
Timeline

Important dates

- Conception
- Application Filed (Provisional)
- 1 Year
- Regular Application Filing Bar
- Foreign Applications Filing Bar
Patentability vs. Infringement

- When infringement is a concern, focus investigation on the claims of the patent.
- When patentability is a concern focus investigation on the teachings (i.e., specification, drawings, summary, background) of the patent.
- Patentability $\neq$ Noninfringement.