

Intellectual Property

Patent Basics

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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

Patent Parts

Cover Sheet



US006019524A

United States Patent [19]
Arbuckle

[11] **Patent Number:** **6,019,524**
 [45] **Date of Patent:** **Feb. 1, 2000**

[54] **SURVEILLANCE CAMERA MOUNT WITH ADJUSTABLE BASE PLATE AND PIVOTABLE TABLE**

[75] Inventor: **James F. Arbuckle**, Fresno, Calif.

[73] Assignee: **Pelco**, Clovis, Calif.

[21] Appl. No.: **09/140,268**

[22] Filed: **Aug. 26, 1998**

[51] **Int. Cl.**⁷ **G03B 17/00**

[52] **U.S. Cl.** **396/427; 248/346.06**

[58] **Field of Search** 396/419, 427, 396/428; 348/143, 144, 148, 149; 248/346.01, 346.03, 346.06

[56] **References Cited**

U.S. PATENT DOCUMENTS

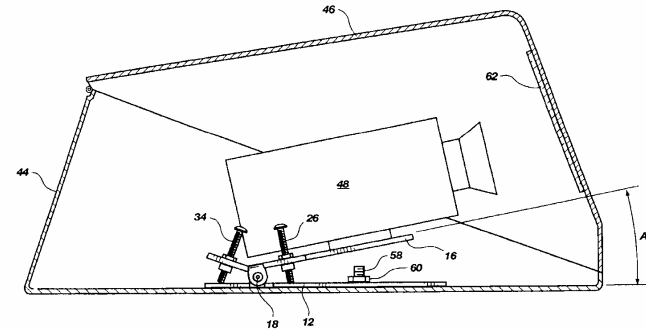
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Primary Examiner—Howard B. Blankenship
Attorney, Agent, or Firm—Prince, Yeates & Geldzahler

[57] **ABSTRACT**

A camera mount (10) for a surveillance camera provides for adjusting the tilt of the surveillance camera (48) relative to the mounting surface for the camera mount inside an environmental camera enclosure or housing (44). The camera mount (10) includes a base plate (12) that is linearly adjustably attached to a mounting surface inside the environmental camera enclosure. A camera tilt table (16) is pivotally attached to the camera mount base plate (12) 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 camera enclosure is mounted. The camera tilt table (16) includes an adjustment mechanism (26, 34) for permitting the camera installer to adjust the tilt or 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 (12) is adjustably attached to a mounting surface on the inside of the environmental camera enclosure (44) in a manner to adjust the camera (48) so that its viewing lens can be positioned close to or remote from the camera environmental housing viewing window (62). 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

U.S. Patent

Feb. 1, 2000

Sheet 1 of 5

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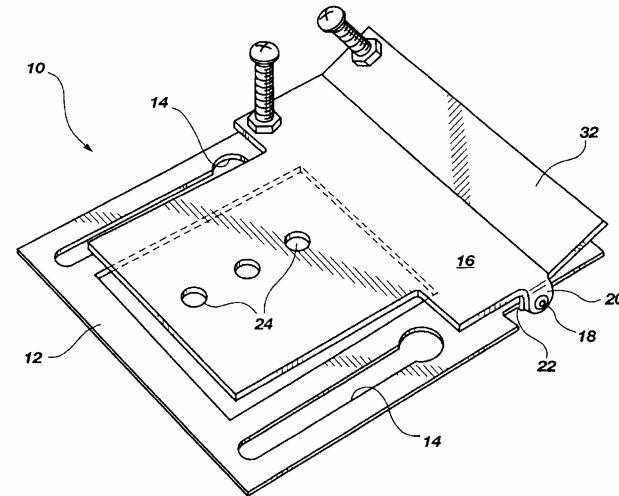


Fig. 1

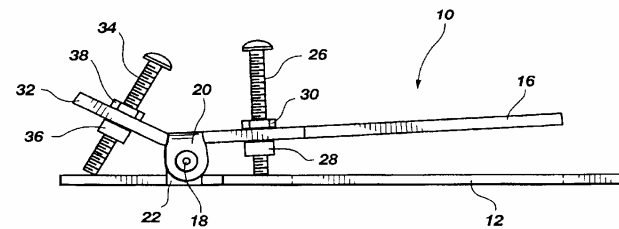


Fig. 2

Patent Parts

■ Description of Invention

◆ Enabling

◆ Best Mode of Operation

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SURVEILLANCE CAMERA MOUNT WITH ADJUSTABLE BASE PLATE AND PIVOTABLE TABLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to camera mounting devices, and more particularly relates to a mounting structure for mounting a camera within an environmental enclosure (a camera housing) in a manner to permit manual adjustment of the tilt or angle of the camera relative to the camera enclosure, and to permit manual adjustment of the proximity of the camera viewing lens relative to the viewing window of the camera enclosure.

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 stationarily 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 (rotate about a vertical axis) and tilt (pivot about a horizontal axis) such that the camera viewing direction can be universally moved and directed by remote control. This invention pertains to only the stationary-mount or fixed-mount camera mounting.

Typical fixed-mount camera mounting 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 mounts, however, do permit the camera body to be adjusted longitudinally along the axis of the camera viewing direction. However, these fixed mount camera mounts do not permit tilt adjustment of the camera within the housing. That is to say, these fixed camera mounts do not permit the camera to be pivoted about a horizontal axis within the housing.

OBJECTS 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 of the camera relative to the housing.

It is a further object of the present invention to provide such a camera mount for an environmental enclosure that is also linearly adjustable within the housing along a linear surface that is essentially horizontal when the camera enclosure is mounted 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 thereon linearly along the axis of its 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 inside an environmental camera enclosure or housing. The camera mount comprises a base plate that is attached to a mounting surface inside the camera housing. A camera tilt table is pivotally attached to the base plate in a manner to pivot about an axis parallel to the plane of the base plate and spaced outwardly from the base plate. The camera tilt table includes adjustment mechanism for adjusting the tilt or angle of the camera tilt table relative to the base plate,

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such adjustment mechanism also forming the locking mechanism for locking the camera tilt table, with the camera thereon, in a specifically desired attitude or angle relative to the base plate and environmental camera enclosure mounting surface. The camera tilt table also includes mounting holes for mounting a number of different surveillance camera configurations thereto. Inasmuch as the camera tilt table is necessarily in close proximity to the camera mount base plate, the camera mount base plate includes an access aperture for accessing mounting screws for retaining the surveillance camera on the tilt table. The camera mount base plate is also linearly adjustable along the mounting surface of the environmental camera enclosure in a manner to position the surveillance camera viewing lens close to or remote from the environmental camera 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 camera enclosure.

FIG. 5 is a side elevation view of the camera mount of the present invention mounted within a camera enclosure, the camera enclosure shown in section to illustrate the camera mount and mounted camera therein.

FIG. 6 is a view similar to FIG. 2, illustrating a first design 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 pair of keyhole slots 14 for adjustably attaching the base plate, and therefore, the entire camera mount and camera, to a mounting surface within the camera enclosure. As will be explained in greater detail hereinafter, the keyhole slots 14 permit the camera mount to be installed within the camera enclosure on pre-installed mounting screws, or on mounting studs with pre-installed nuts thereon, in order to facilitate ease of assembly and installation.

The camera mount includes a generally planar camera tilt table 16 that is pivotally mounted to the base plate 12 at in-line pivot axes 18 formed by cooperating downwardly oriented camera tilt table pivot tabs 20 and upwardly oriented base plate pivot tabs 22. The in-line pivot axes 18 typically comprise pivot pins, rivets, or shouldered screws. The camera tilt table 16 includes a plurality of mounting holes 24 through which mounting screws pass into the mounting base of various configurations of surveillance cameras.

FIG. 2 illustrates the adjustment mechanism for the camera tilt or pivot about the in-line axes 18. The camera tilt

Patent Parts

■ Claims

◆ Define Protected Subject Matter

nism can take one of two or more designs. A first design is shown in FIG. 6 and incorporates a coil spring 70 mounted concentrically around the in-line pivot axes 18 of the camera tilt table. The coil spring 70 includes a base plate finger 72 and a camera tilt table finger 74 that engage the base plate and camera tilt table respectively to urge the camera tilt table away from the base plate, in the counterclockwise direction as shown in FIG. 6.

A second design of the spring-biased embodiment of the adjustable camera mount of the present invention is shown in FIG. 7, and utilizes a coil compression spring 80 that is concentrically mounted around a respective base plate pintle 82 and camera tilt table pintle 84 in order to retain the coil compression spring in functional position relative to the base plate and camera tilt table. As can be appreciated, both designs of resilient springs function to oppose pivoting 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 installer to adjust only a single screw that controls the camera tilt, the single screw being the second adjusting screw 34 which threadedly engages the second flange 36 in the inclined shelf 32.

When the camera, camera mount, and camera housing are mounted in functional position to a ceiling, the weight of the camera will be acting in a downward direction (upward 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 urge the camera tilt table downwardly (counterclockwise as shown in FIGS. 2, 6, and 7). Therefore, the force of the spring need be only sufficient 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 one well adapted to attain all of the ends and objectives herein set forth, together with other advantages which are obvious and which are inherent to the invention. It will be understood that certain features and subcombinations are of utility and may be employed with reference to other features and subcombinations. This is contemplated by and is within the scope of the claims. As many possible embodiments 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 in a limiting sense.

PARTS LIST

10 adjustable surveillance camera mount
12 base plate
14 keyhole slots
16 camera tilt table
18 in-line pivot axes
20 camera tilt table pivot tabs
22 base plate pivot tabs
24 camera mounting holes
26 first adjusting screw
28 first flange nut
30 first locknut
32 inclined shelf
34 second adjusting screw

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36 second flange nut
38 second locknut
40 base plate opening
44 environmental camera enclosure (housing)
46 environmental camera enclosure cover
48 surveillance camera
58 housing base plate studs
60 tightening nuts
62 camera enclosure viewing window
70 coil spring
72 base plate finger
74 camera tilt table finger
80 coil compression spring
82 base plate pintle
84 camera tilt table pintle

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 mount comprising:
a base that is adjustably attachable to the camera enclosure interior mounting surface for linear translation in a direction parallel to the camera enclosure interior mounting surface;
a camera table pivotally attached directly to the base at 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 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 translation of 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 5, 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 two 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 having an end that engages the base, and resilient means for opposing pivotal motion of the camera table.
9. An adjustable surveillance camera mount as set forth in claim 8, wherein the adjustment screw includes a locking nut.
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 adjacent and parallel to the pivot axis.

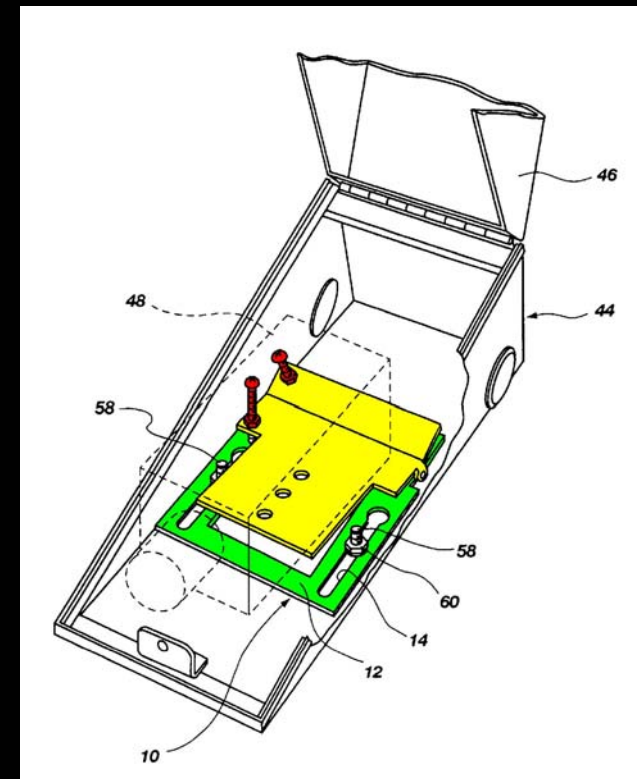
Sample Claim

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!

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Deliver to: 103 Siegel Hall

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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

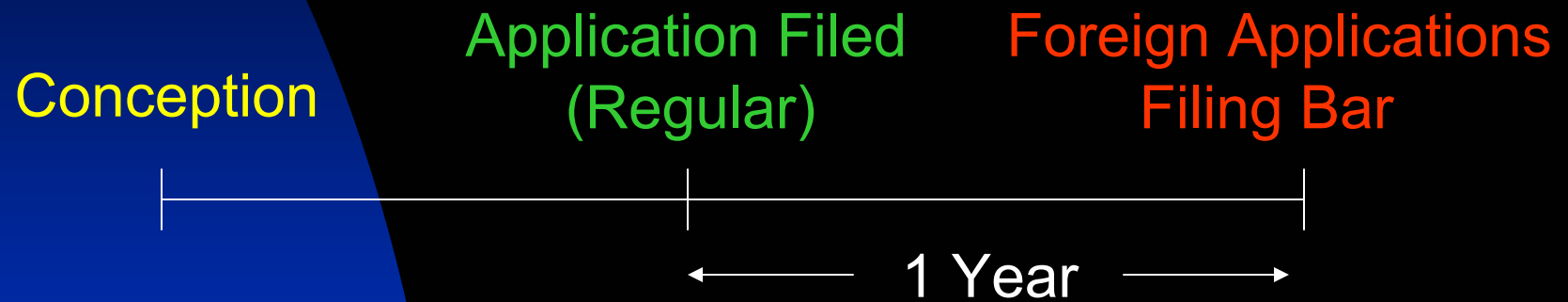
- Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Patent Office, which includes a duty to disclose to the Patent Office all information known to that individual to be material to patentability.

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.**

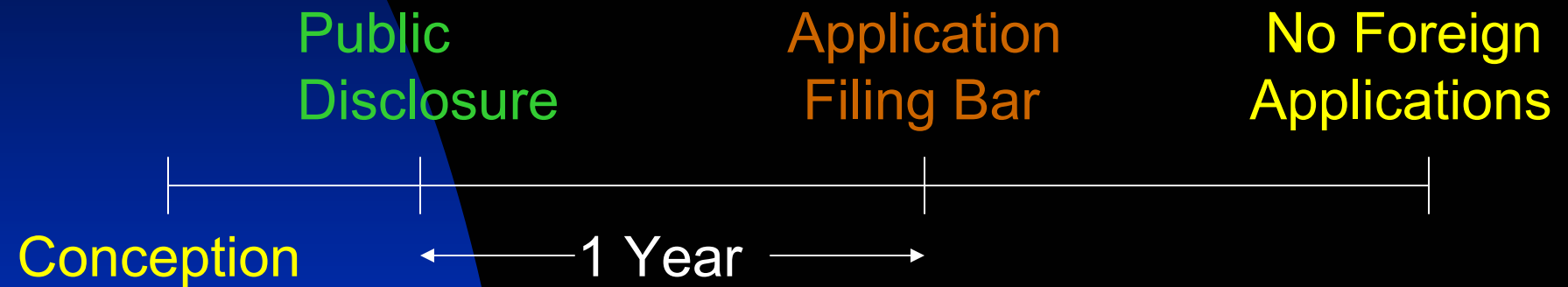
Timeline

- Important dates



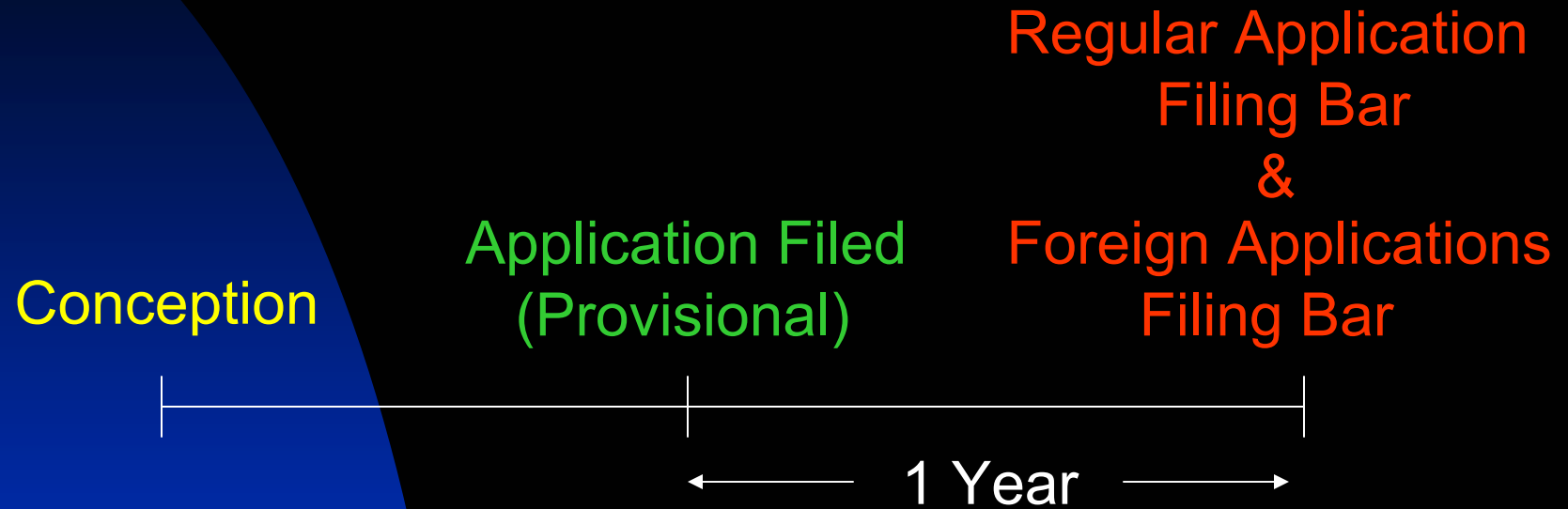
Timeline

- Important dates



Timeline

- Important dates



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.