FAR-UVC LIGHT DISINFECTION STATION

BACKGROUND OF THE INVENTION

A. Field of The Invention

The present invention relates to FAR-UVC light, and in particular, a FAR-UVC light with 222nm wavelength disinfection station with rotating base platform with variable programmable speed, and stationary frame.

B. Description of Prior Art

The present invention relates in general to a new area of germicidal disinfection of devices with FAR-UVC wavelength lights, more particularly, 200nm to 222nm wavelength of UV lights. With the discovery of the FAR_UVC light with wavelength in the 222nm range has shown to be human-safe, its has enable a new area of commercial application of germicidal disinfection system. This invention is related to the design of the disinfection station with 2 main components, a stationary frame in the shape of arc, rectangular or squares that is standing above the second component, which is the rotating base platform, that is rotating at a programmable speed, the FAR-UVC lights is setup and mounted on the stationary frame, at different angles and interval, with 1 to 17 points of FAR-UVC lights, along the stationary frame, at various interval, to provide a 540 degree of angle of access or coverage, for the FAR-UVC light to shine(disinfect)and expose the FAR-UVC light onto the object or human and human in wheel chair, on the rotating base platform beneath the frame, to achieve a consistent exposure duration on the object and human on the platform.

BRIEF SUMMARY OF THE INVENTION

A main object of the present invention is to provide a FAR-UVC light, 222nm wavelength disinfection station with a rotating base platform with variable programmable speed, and

stationary frame, where the FAR-UVC 222 nm light points are setup to cover, to allow 360 degree horizontal line-of-sight exposure to the human or object, with height of up to 2 meters, that are placed on top of the rotating base platform.

Yet another object of the present invention is to provide a FAR-UVC light disinfection station, comprising a stationary frame; a rotating base platform; a plurality of disinfection lights sources or radiation sources; and an object or animate surface to be disinfected.

Still a further object of the present invention is to provide a FAR-UVC light disinfection station, wherein the radiation sources or the disinfecting light sources include an excimer lamp, and a plurality of LED/solid state light sources.

Yet still another object of the present invention is to provide a FAR-UVC light disinfection station, wherein the rotating base platform rotates in clockwise, anti-clockwise and oscillating between clockwise and anti-clockwise direction, with speed in the range of 50mm/sec to 600mm/sec, or 0.1 to 6 RPM, and further comprises a rotating frame which rotates in clockwise, anti-clockwise and oscillating between clockwise and anti-clockwise direction, with speed in the range of about 0.1 to 20 RPM(revolution per minute).

Another object of the present invention is to provide a FAR-UVC light disinfection station, wherein the rotating base platform is provided with a mirror finished surface on the base thereof to act as a reflector of the disinfecting light onto the object on the base platform.

Yet still another object of the present invention is to provide a FAR-UVC light disinfection station, wherein the radiation source or disinfecting light source is configured to selectively harm or damage at least one virus on a surface, animate or inanimate; and at least one bacteria on a surface, animate or inanimate, and the radiation source or disinfecting light source has one of more wavelengths range from 190nm to 300 nm, and preferably 222 to 230 nm.

Still a further object of the present invention is to provide a FAR-UVC light disinfection station, wherein the station has the capabilities of covering 540 degree-of-access in 3D for the FAR-UVC light to achieve 540 degree of line-of-sight exposure onto the object, or human standing or sitting in wheel chair on the rotating base platform.

These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects, features and advantages of the present disclosure will become apparent from the following details description taken in conjunction with the accompanying Figures showing illustrative embodiments of the present disclosure, in which

Figure 1 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, where the apparatus, comprising : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected.

Figure 2 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, the object to be disinfected rotating at different angle, second angle, on the rotating platform.

Figure 3 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, the object to be disinfected rotating at different angle, third angle, on the rotating platform.

Figure 4 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, the object to be disinfected rotating at different angle on the rotating platform.

Figure 5 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises: a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary half-arc shape frame setup above the rotating base platform.

Figure 6 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary two-arc shape frame setup above the rotating base platform.

Figure 7 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary multiple-arc shape frame setup above the rotating base platform.

Figure 8 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary ROOM-shape frame setup above the rotating base platform.

Figure 9 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary platform; a rotating frame; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of rotating Half-Arc-shape frame setup above the stationary base platform.

Figure 10 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary platform; a rotating frame; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of rotating ARC-shape frame setup above the stationary base platform.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

Referring to FIGs. 1 to 10, broadly, the present invention relates in general to a new area of germicidal disinfection of devices with FAR-UVC wavelength lights, more particularly, 200nm to 222nm wavelength of UV lights. With the discovery of the FAR_UVC light with wavelength in the 222nm range has shown to be human-safe, its has enable a new area of commercial application of germicidal disinfection system. This invention is related to the design of the disinfection station with 2 main components, a stationary frame in the shape of arc, rectangular or squares that is standing above the second component, which is the rotating base platform, that is rotating at a programmable speed, the FAR-UVC lights is setup and mounted on the stationary frame, at different angles and interval, with 1 to 17 points of FAR-UVC lights, along the stationary frame, at various interval, to provide a 540 degree of angle of access or coverage, for the FAR-UVC light to shine(disinfect)and expose the FAR-UVC light onto the object or human and human in wheel chair, on the rotating base platform beneath the frame, to achieve a consistent exposure duration on the object and human on the platform.

Referring to FIG. 1 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, where the apparatus, comprising : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected.

Figure 2 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, the object to be disinfected rotating at different angle, second angle, on the rotating platform.

\Figure 3 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, the object to be disinfected rotating at different angle, third angle, on the rotating platform.

Figure 4 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, the object to be disinfected rotating at different angle on the rotating platform.

Figure 5 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises: a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary half-arc shape frame setup above the rotating base platform.

Figure 6 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary two-arc shape frame setup above the rotating base platform.

Figure 7 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary multiple-arc shape frame setup above the rotating base platform.

Figure 8 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary frame; a rotating base platform; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of stationary ROOM-shape frame setup above the rotating base platform.

Figure 9 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary platform; a rotating frame; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of rotating Half-Arc-shape frame setup above the stationary base platform.

Figure 10 is an exemplary illustration of the outline of an exemplary embodiment of the present invention, wherein the apparatus, comprises : a stationary platform; a rotating frame; disinfection lights; and an object to be disinfected. The preferred embodiment illustrates the outline of rotating ARC-shape frame setup above the stationary base platform.

Since certain changes may be made in the foregoing disclosure without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description and depicted in the accompanying drawings be construed in an illustrative and not limiting sense.

Claims

What is claimed:

1. A FAR-UVC light disinfection apparatus, comprising : a stationary frame (105); a rotating base platform (115); disinfection lights sources or radiation sources (405,410,415,420,425); and an object, or animate surface to be disinfected (110,205,305).

2. The apparatus of claim 1, wherein the radiation source, disinfecting light sources includes an excimer lamp; LED/solid state light sources.

3. The apparatus of claim 1, wherein the method of disinfection, sanitizing includes rotating the disinfecting object on the platform in the center, under the stationary frame with light sources.

4. The apparatus of claim 1, wherein the method of disinfection, sanitizing includes the object to be disinfected is stationary on the platform, around the center and the disinfecting light sources on the rotating frame is rotating around the platform, the object.

5. The apparatus of claim 3, wherein the stationary frame shape includes Arc, Semi-Arc, dual-Arc, multiple-arc, Rectangular, Square, Room, Door over-arching, stationary above, the rotating platform.

6. The apparatus of claim 3, includes rotating platform in the clockwise, anti-clockwise and oscillating between clockwise and anti-clockwise direction, with speed in the range of 50mm/sec to 600mm/sec, or 0.1 to 6 RPM.

7. The apparatus of claim 4, includes the rotating frame in the clockwise, anti-clockwise and oscillating between clockwise and anti-clockwise direction, with speed in the range of about 0.1 to 20 RPM(revolution per minute).

8. The apparatus of claim 1, includes rotating platforms with mirror finish surfaces on the base to act as a reflector of the disinfecting light onto the object on the platform.

9. The apparatus of claim 2, wherein the radiation source or disinfecting light source is configured to selectively harm or damage at least one virus on a surface, animate or inanimate; and at least one bacteria on a surface, animate or inanimate.

10. The apparatus of claim 6, wherein the radiation source or disinfecting light source has one of more wavelengths range from 190nm to 230nm.

11. The apparatus of claim 6, wherein the radiation source or disinfecting light source has one of more wavelengths range from 230nm to 300nm.

12. The apparatus of claim 6, wherein the radiation source or disinfecting light source has a single wavelength of about 222nm.

13. The apparatus of claim 1, wherein the inanimate surface includes at least one fomite surface.

14. The apparatus of claim 1, wherein the object size to be disinfected could range from 10mm(L)x10mm(W)x10mm(H) to 10m(L)x10m(W)x10m(H).

15. The apparatus of claim 1, wherein the object size to be disinfected could range from 10mm(L)x10mm(W)x10mm(H) to 10m(L)x10m(W)x10m(H).

16. The apparatus of claim 1, wherein the animate surfaces include pets, and animals.