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(19) **United States**(12) **Patent Application Publication**
Chien(10) **Pub. No.: US 2007/0081423 A1**(43) **Pub. Date: Apr. 12, 2007**(54) **TIME PIECE WITH LED LIGHT MEANS**

Continuation of application No. 11/255,981, filed on Oct. 24, 2005.

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ALEXANDRIA, VA 22314(51) **Int. Cl.**
G04B 19/30 (2006.01)(52) **U.S. Cl.** **368/67**(21) Appl. No.: **11/527,631**(22) Filed: **Sep. 27, 2006**(57) **ABSTRACT****Related U.S. Application Data**

- (63) Continuation of application No. 10/954,189, filed on Oct. 1, 2004, now abandoned.
Continuation of application No. 11/094,155, filed on Mar. 31, 2005.
Continuation of application No. 11/094,156, filed on Mar. 31, 2005.
Continuation of application No. 10/667,787, filed on Sep. 23, 2003, now abandoned.
Continuation of application No. 10/286,871, filed on Nov. 4, 2002, now Pat. No. 6,976,762.
Continuation of application No. 10/621,513, filed on Jul. 18, 2003, now abandoned.
Continuation of application No. 11/094,215, filed on Mar. 31, 2005.

A time piece with LED light means adapted a simple light-medium body with very rough finish to allow the LED(s) pass though the input-end(s) and make majority light beams travel within the body to get very even brightness on all surface of the said light medium to be seen by viewer. Incorporating with milky/frosted front sheet overlay the said light-medium surface can get perfect photometric effects. The movement for time display for analog time piece with build-in light-medium on top cover of the said movement will get super slim LED illumination for time piece. For night light application, the sealed-unit consist of prong-means and LED related circuit to seal within a safety standard plastic material and assembly with night light body can save a lot of cost and may use all kind materials to do rest part of night light to increase the big flexibility for eye-catching design. Same as LCD display time piece.

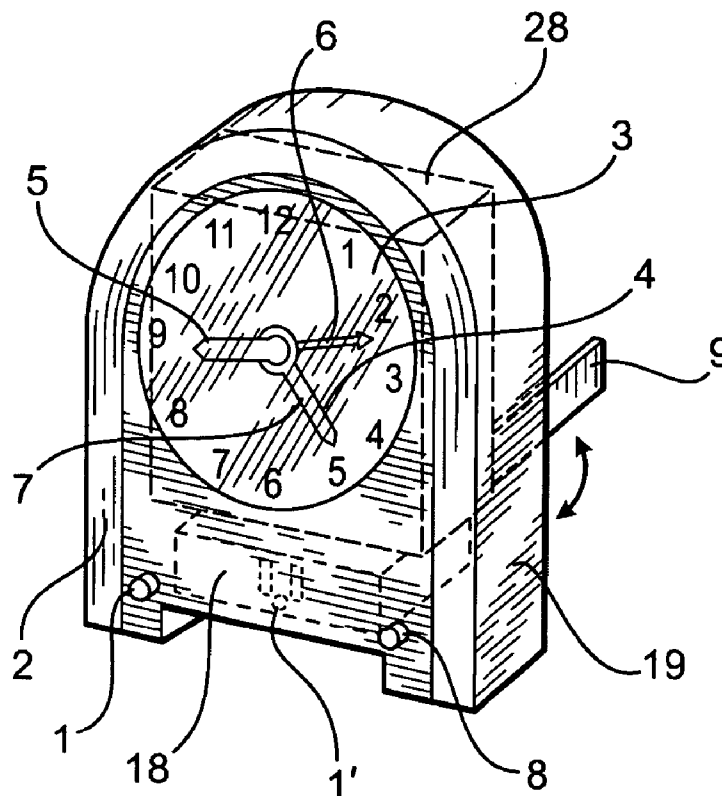


FIG. 1

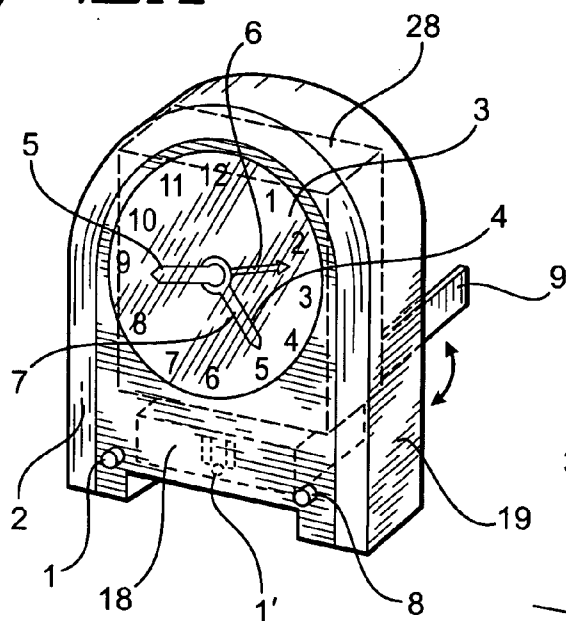


FIG. 2

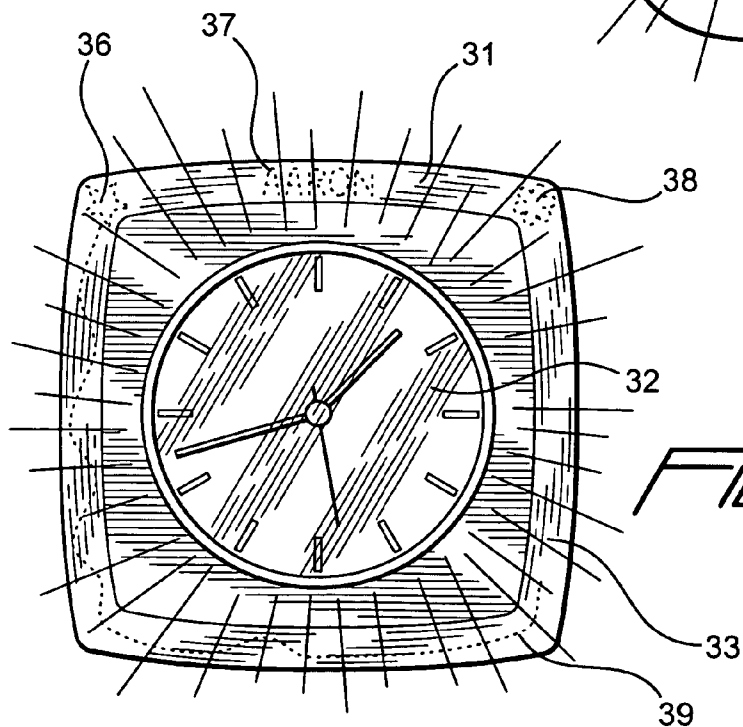
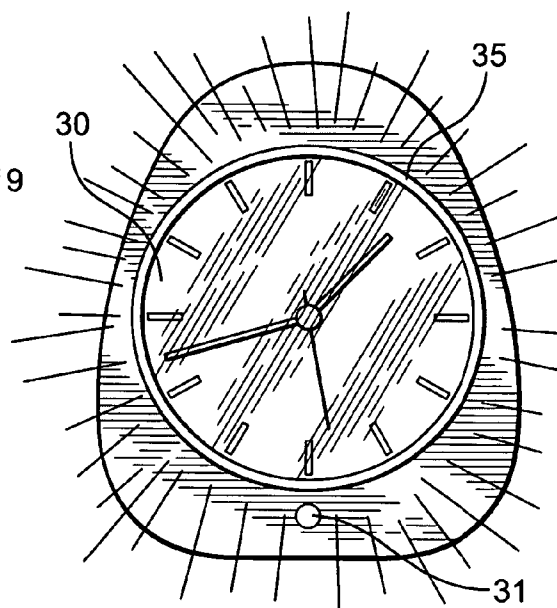


FIG. 3

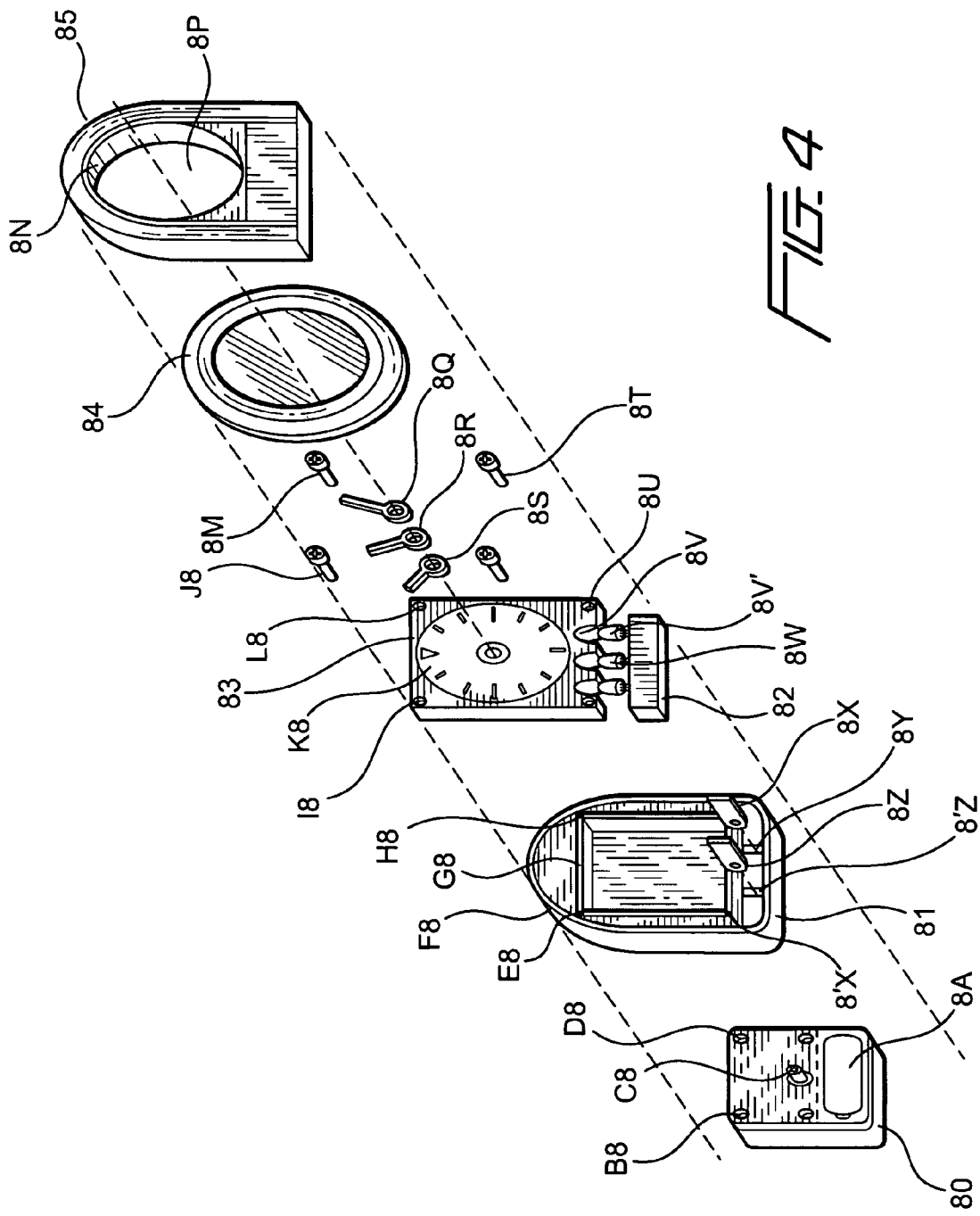


FIG. 4

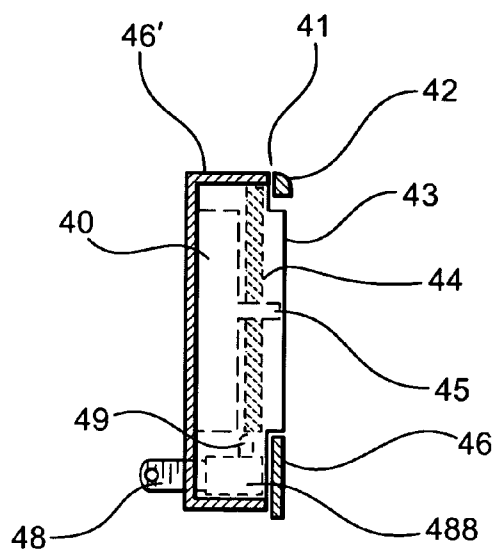


FIG. 5

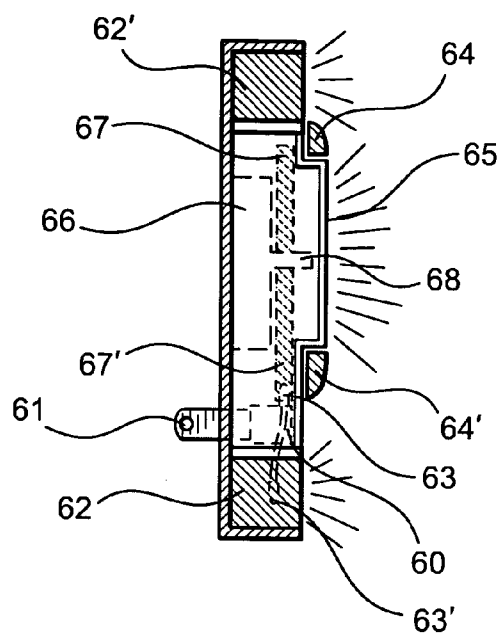


FIG. 6

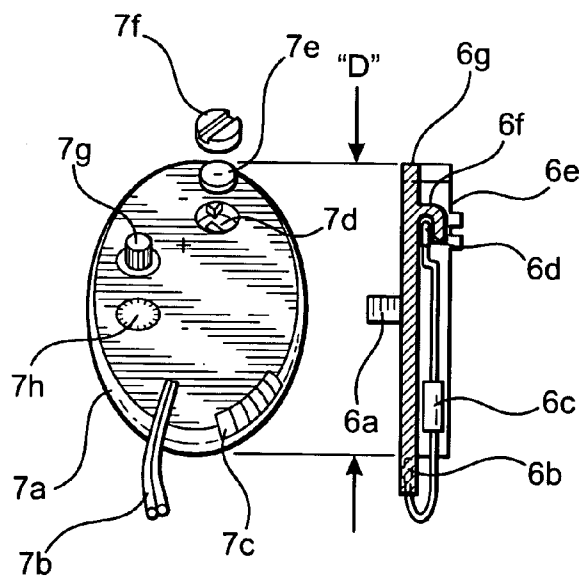


FIG. 7

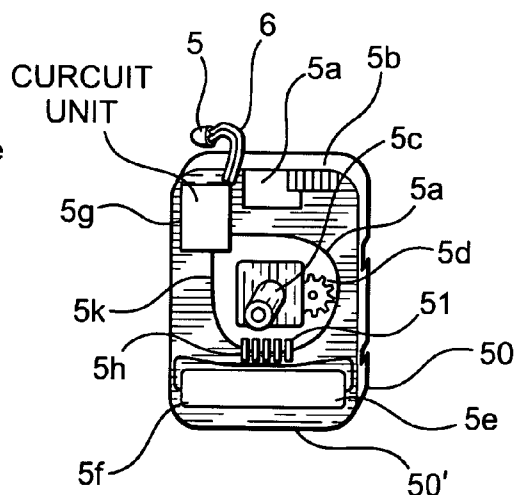


FIG. 8

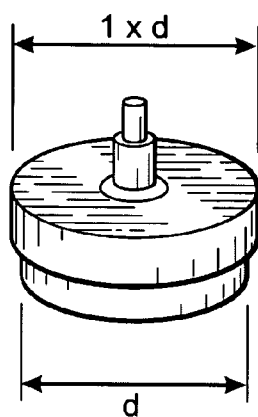


FIG. 7-1

FIG. 7-2

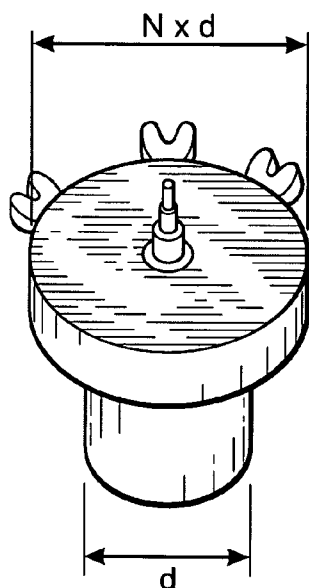
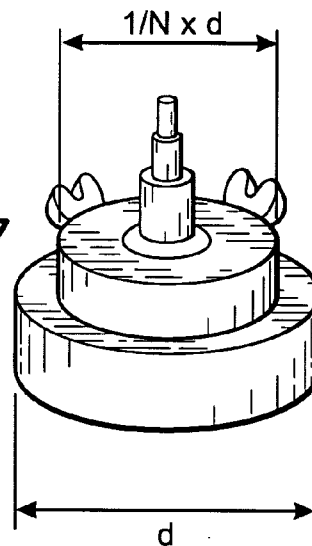


FIG. 7-3

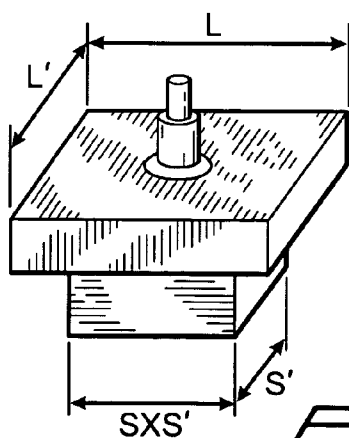
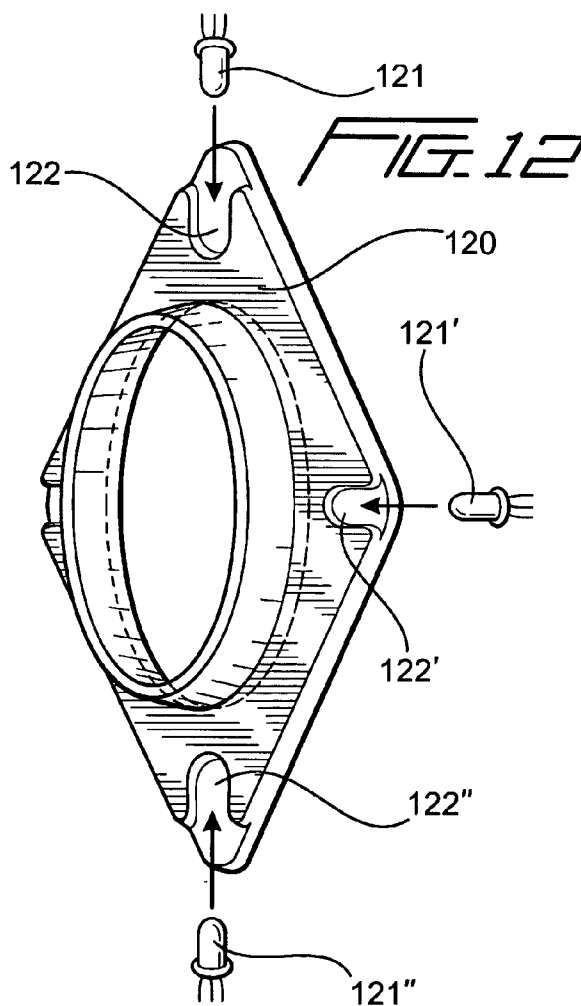
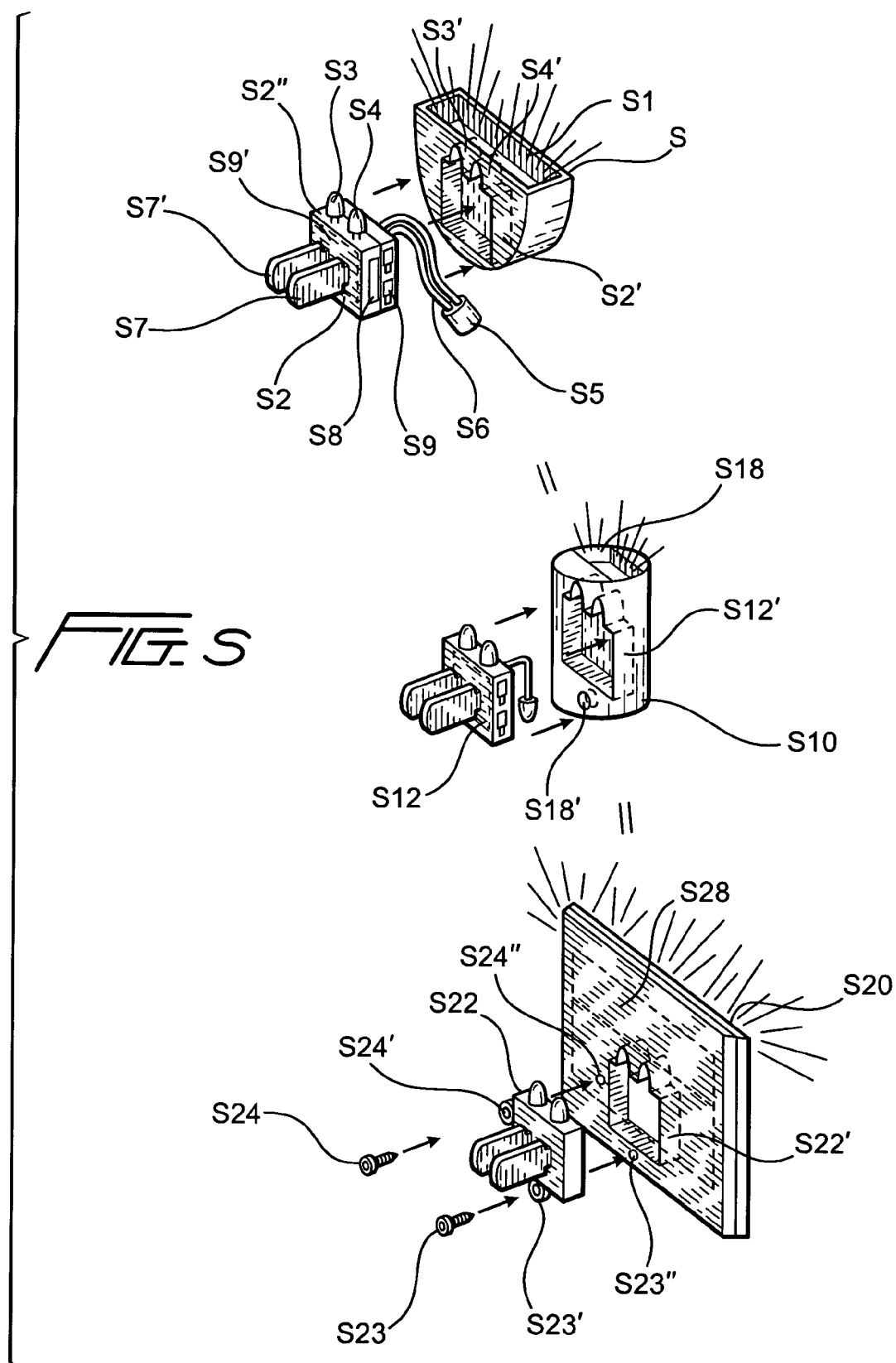


FIG. 7-4





TIME PIECE WITH LED LIGHT MEANS

[0001] This application is continuation of

[0002] 1. U.S. patent application Ser. No. 10/954,189 “An electro-luminescent (EL) illuminated wall plate device with push-tighten frame means” filed Oct. 1, 2004; and

[0003] 2. U.S. patent application Ser. No. 11/094,155 “Multiple function wall cover plate” filed on the Mar. 31, 2005; and

[0004] 3. U.S. patent application Ser. No. 11/094,156 “Multiple functions night light” filed on the Mar. 31, 2005; and

[0005] 4. U.S. patent application Ser. No. 10/667,787 “Multiple lit-area(s) of Electro-Luminescent element(s) arrangement”; and

[0006] 5. U.S. patent application Ser. No. 10/286,871 “A tubular Electro-Luminescent light device”; and

[0007] 6. U.S. patent application Ser. No. 10/621,513 “environment proof treatment for Electro-Luminescent(EL) element(s); and

[0008] 7. U.S. patent application Ser. No. 11/094,215 “LED night light with liquid arrangement” filed on Mar. 31, 2005; and

[0009] 8. U.S. patent application Ser. No. 11/255,981 “Night light with 2 light source” filed on Oct. 24, 2005.

BACKGROUND

[0010] The co-inventor's prior arts U.S. Pat. No. 5,926,440, U.S. Pat. No. 6,158,868, U.S. Pat. No. 6,170,958, U.S. Pat. No. 6,171,117, U.S. Pat. No. 6,280,053 disclosure arrangement for the conductive means for night light and multiple functions night light incorporated with time piece. The other prior arts U.S. Pat. No. 7,054,233 disclosure the Light Emit Diode (hereafter as LED) module to offer the light effect for wall clock which is different with existing application for night light with Analog time piece and LED light means. U.S. Pat. No. 6,987,710 same inventor as U.S. Pat. No. 7,054,233 both prior art teach the illumination module back surface has the reflective properties to allow the light beam reflect in the interior of the module and out from the front surface (Abstract line 7 to line 9, and the details description stating The back side of reflectors **38**, **48** or **78** could alternatively be engraved to provide multiple raised surfaces, such as points, bumps, protuberances, or the like. FIGS. **14** and **15** illustrate surfaces **86** and **87**, respectively, created by dot engraving techniques). The said illumination module is very expensive to make this compare with current invention. The current invention light medium which just have the very rough surface surround the medium and make all the light beams travel within the said light medium. This rough-surface treatment has more diffusion effects than the said prior arts reflective optics property. Further more, the prior art want to control the light beams only “out of the front surface” this is mission impossible and can not control at all. The current invention do allow the light emit out to all directions though the rough-surface of the light medium to viewer. Some directions light beams will be block out by the housing so can get desired light effect as wish. The both Kibiloski prior art did not teach a milky/

frosted front sheet to make the illumination module to get the best photometric on surface so it is impossible to make a commercial items without this milky/frosted front sheet on top of the illumination module.

[0011] The other Prior arts such as U.S. Pat. No. 6,811,278 or 6,601,964 for Electro-Luminescent technical as co-inventor's U.S. Pat. No. 5,926,440 and U.S. Pat. No. 6,158,868 have same scope but co-inventor have much earlier filing date so do not discuss here.

[0012] The 1st feature of the current invention disclosure for variety arrangements of the light medium including the light-medium located (1) between the front lens and movement, the optional may incorporate with the cosmetic dial face means or the dial marking can directly apply to the light-medium surface by silkscreen, sticker from conventional market available skills. Or (2) are the part of the movement such as top cover of the movement so can have slim device than the added light-medium top of the movement.

[0013] The 2nd feature of the current invention is adapting a very simple optic theory to the said light medium for time piece illumination compare with the optic theory apply to the notebook screen etc. The all prior art emphasized to use the “back surface with reflective property” such as '233 Kibiloski disclosure the drawing FIGS. 14 and 15 (86) and (87) for such complicated optics lens. The current invention light medium just have the rough surface of whole unit of light medium can get very even photometric on whole unit surface. This is the feature of the current invention for optics property.

[0014] The 3rd feature of the current invention is the said rough-treatment light medium incorporate with a front milky or frosted sheet will get the perfect photometric effect with super low cost and meet the safe standard.

[0015] The 4th feature of the current invention is the said prong-means may incorporated with LED circuit and LED(s) are sealed into a sealed-unit which meet the safety standard for V-0 grade under certain housing material and thickness, so the other night light material can be in any material may in any combination of paper, plastic, poly, chemical resins, pottery, porcelain, glass, mud, wood, bamboo, metal for any other parts but still meet all safety standard because all these other material(s) not touch the hot wires.

[0016] The 5th feature of the current invention is the said movement has its desired parts which may selected from group combination from LED(s), light medium as part of the movement, LED circuit, control means, sensor means to make the whole night light with super slim dimension. The size of the build-in light medium cover and movement lower housing can be variable depend on the different application for final product size. Such as the light-medium top cover can be bigger or smaller or equal size with the size of the movement lower housing to let the final product look pretty.

[0017] The 6th feature of the current invention is the said night light device have its desired multiple functions may selected from group combination from night light, LED(s), color changing functions, multiple lit-areas, plurality of receptacles, switch means, sensor means, time piece, analog display, LCD display, weather station display, project display, liquid device for desired functions and light effects to meet market requirement.

[0018] The 7th features of the current invention is the said the movement can have its desired power source from Wall outlet 110V to 250 Volt AC under certain frequency, or/ the battery power, or solar power to supply the time piece operation. The power source for the movement and other functions can be same power source or different power source depend on the market requirement.

[0019] The 8th features of the current invention is the said current invention, the light arrangement can design on the analog arms cover. This will make the whole dial face with very bright illumination to read the time message. This also can apply for LCD display unit to adding the back holder with light illumination.

DRAWING

[0020] FIG. 1: Disclosure the 1st embodiment for Time piece with LED light means for a night light with motion sensor means, light sensor means and swivel prong means, receptacle means.

[0021] FIG. 2: Disclosure the 2nd embodiment for Time piece with LED light means which have the 2 light source on lower housing and those LED(s) may have desired function such as changing color, fade-in and fade-out, steady on single color, time delay with sensor means, touch means for short time illumination , or any other light function available from conventional market skills are still fall within the scope for the LED functions.

[0022] FIG. 3: Disclosure the 3rd embodiment of Time piece with LED light means which adapted the LED(s) incorporating with Fiber Optics means to make plurality of the lit-area on the Time piece housing and dial face for different light effect(s) to viewer.

[0023] FIG. 4: Disclosure the 4th embodiment of Time Piece with LED light means of preferable embodiment of FIG. 1 with details construction.

[0024] FIG. 5: Disclosure the 5th embodiment of Time piece with LED light means 1st side view for preferable construction. The movement's axis need to longer to allow the light-medium thickness fit between the arms level and movement.

[0025] FIG. 6: Disclosure the 6th embodiment of Time Piece with LED light means 2nd side view for alternative construction. The movement's axis need to longer to allow the light-medium thickness fit between the arms level and movement. The preferable embodiment illumination at the areas which nothing to do with the said time piece for decoration purpose only (not for time function related area).

[0026] FIG. 7: Disclosure the 7th embodiment of Time Piece with LED light means 3rd side view for the movement which has the cover with light medium thickness and functions and build-in LED(s), LED circuit, control means, sensor means or preferable other parts so make it super slim.

[0027] FIG. 7-1: Disclosure the movement has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "d" and upper light-medium cover has diameter "1xd" with desired LED input-end extended from edge or desired location.

[0028] FIG. 7-1: Disclosure the round movement has the light-medium as part of the top cover with axis hole. The

movement lower housing has diameter "d" and upper light-medium cover has diameter "1xd" with desired LED input-end(s) extended from edge or desired location.

[0029] FIG. 7-2: Disclosure the round movement has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "d" and upper light-medium cover has diameter "1/Nxd" (N can be any number) with desired LED input-end(s) extended from edge or desired location.

[0030] FIG. 7-3: Disclosure the movement has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "d" and upper light-medium cover has diameter "Nxd" (N can be any number) with desired LED input-end(s) extended from edge or desired location.

[0031] FIG. 7-4: Disclosure the rectangular movement with has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "SxS" and upper light-medium cover has diameter "LxL" with desired LED input-end(s) extended from edge or desired location. The rectangular shape movement may has additional features may selected from group combination from pendulum, alarm, bell, music, recorder, vibration, flash light or other features available from market place.

[0032] FIG. 8: Disclosure the 8th embodiment of Time Piece with LED light means , the said movement with build in LED(s), LED circuit, control means, sensor means, switch means and other optional parts and cover with light medium functions to make it compact as wish.

[0033] FIG. 9: Disclosure the 9th embodiment of Time piece with LED light means, the said time piece has the weather station display to show the time, date, temperature, moisture, humidity by its build-in LCD dot-matrix display with LED light-medium to make it glow. The light medium can be the LCD glass or separated plastic piece as long as adapted the sand-blaster or conventional skills to make the said LCD glass or separated piece with rough surface to get the light-medium properties.

[0034] FIG. 10: Disclosure the 10th embodiment of Time piece with LED light means which have the light medium to make the lower dial face for illumination and though the project means (here is a liquid container with miniature staffs inside) to make the lower dial face project the image to the upper surface with time and desired message to viewer.

[0035] FIG. 11: Disclosure the 11th embodiment of Analog time piece with LED light means which has the light arrangement on the arms' protect cover for illumination under predetermined functions and period of time.

[0036] FIG. 12: Disclosure the details embodiment of the FIG. 11 for the one of preferable arrangement of LEDs on the front of the cover. It also can do the back of the cover (other side).

[0037] FIG. S: Disclosure the sealed-unit with LEDs construction to fix on the light device with details description so this is universal model can fit to all kind of night light device.

DETAIL DESCRIPTION

[0038] From the FIG. 1, The time piece (19) with LED light means have the movement (28) and sealed-unit (18)

inside housing (2). The sealed unit which have may have any combination selected from LED(s), LED circuit, control means, sensor means, switch means, prong means, this is good for the safety reason because prong means (9) and the LED circuit (not shown) and LED(s) has electric contact with live wires (high voltage) so it need to be meet the safety standard which have very strict material requirement from UL. It is very safety to put all these parts into the sealed unit and to meet the safety standard of the flammable requirement. All rest parts such as movement, light-medium, front sheet (milky or frosted treated sheet) or other housing will not required meet the other safety standard if all parts are sealed by required material. This is one of the features of current invention. It will help on the product design and cost saving issue.

[0039] From FIG. 1, The arms (5) (6) (7) are well install on the movement (28) axis to make the accurate time display to viewer. The prong means on the back of the housing (2) which may use fix angle or swivel angle construction from conventional available skills. The housing (2) has the sensor means (1) and extra light means (8) on desired location of the said housing (2) so it will offer function to activate the said LED(s) and extra illumination to the floor with stronger light beams.

[0040] From FIG. 2 disclosure the 2nd embodiment have the Dial face (35) with color changing effects. The time piece (30) has a 2nd light means on lower portion to offer the 2nd lit-area of the time piece (30). This is same as co-pending filing Ser. No. 11/255,981 same scope and we will not discuss further more.

[0041] From FIG. 3 disclosure the 3rd embodiment has the Dial face (32) and the housing (33) multiple areas with the light effects including the dial face (32) with surface illumination and the housing (33) with a lot of Fiber Optics illumination in dots, logo, name, shape, configuration illumination which may incorporating the Fiber Optics skill, light-medium skill to get these effects. The Time piece may be a wall clock, alarm, night light with analog movement or the others as conventional market available models and options.

[0042] From FIG. 4 disclosure the details construction of preferable Time piece with LED light means. The movement (80) has its installation points (8A) (8B) (8C) (8D) to allow the movement (80) can tight assembly with the lower housing (81). The prong means (8X) (8Z) are insert into the housing slots (8Y) (8Z') to allow night light to get the electric power from the power source (here prefer 110Volt AC, 60 hz from home wall outlet in north American area). The lower housing (81) have the movement compartment (8G) to allow movement (80) can fit in tight. The lower housing (81) also have the walls arrangement to make the inner space can install movement (80), light-medium (8K), LED sealed unit (82), prong means (8X) (8Z) on idea locations. The light-medium (8K) have holes (8I) (8L) (8U) has its related screw (8J) (8M) (8T) to allow the light-medium to fasten on the lower housing holes (8E) (8H) (8X'). The light-medium (8K) have the plurality of the input-end such as the right one (8V) which can allow the respectively (8V') install within the input-end (8V) to allow majority of the LED (8V') light beams get into the light-medium (8K) and travel within the light-medium (8K) and allow view to see the brightness of whole surface of the

light-medium unit. The light-medium (8K) made by plastic material with roughly treatment on its surface by sand-blaster or tooling-texture process (or equivalent skill from conventional market available skills). The rough surface will block out the majority light beams to pass though the edge and make a diffusion to make the light beams traveling within the light-medium because the light-medium is much clear and can let light beam traveling but it will be block out by its rough surface so all light beams will traveling within the medium without big loose to outside. Because the majority of light beams travel within the medium in quantity are much more than the leakage to the outside though the rough surface, so the inner light beams back and forth very fast to make the whole light-medium have almost same photometric scale for the brightness. This is the 1st treatment to make the LED point brightness to the area brightness. The current invention adapted the milky or frosted front sheet to overlay on top of the light-medium is the 2nd treatment to make the light brightness to very even on front of the light-medium. This is totally different with all prior arts such as Kibiloski U.S. Pat. No. 6,987,710 and U.S. Pat. No. 7,054,233 for Wall clock and Alarm clock applications. The Kibiloski treatment which apply the illumination module back side with reflect properties to make all the LED light beams travel within and out from the front surface is not workable at all. The Kibiloski theory is not real and not practically at all. It have to be have all 5 side of the said illumination module been sealed by mirror like reflectors material without any light beams been leakage from these 5 sides, then, it maybe can get the result. However, it will be a lot of labor with so details work which is not practical for mass production for standard quality requirement. The current invention has features for simple, uniform, easily operation and low cost, less labor involved features.

[0043] The arms (8S) (8R) (8Q) are install on the movement (80) axis (8C) as normal installation to show the time message to viewer.

[0044] The arms protective cover (84) preferable is clear to allow viewers to see the arms location to know time message. An upper housing (85) are cover to the lower housing (81) with tightness to prevent from other parts within been loosen or fall apart while apply the drop testament on the said time piece.

[0045] From FIG. 5 disclosure the side view of the preferable embodiment, The time piece has movement (40) dispose within the back housing (46') with axis (45) to install the arms (not shown). The movement (40) has one thick light-medium (44) which can allow LED(s) (49) whole body within the light-medium so all light beams will get into the light-medium (44) without leakage to outside. The light-medium (44) have very rough surface by sand-blaster or tooling-texture or adding milky compound or other conventional market available skills to make it very rough on its entire surface as earlier discussion. The light beams travel within the light-medium and quickly back and forth to make the bright spot LED change from point light to surface light is the current invention features. None of people apply this before the current invention. In front of the light-medium has a milky or frosted front sheet (not shown) which can make-up for any bright and dark areas into perfectly photometric illumination. By these two treatments, the dial face will have perfectly brightness on every points of the entire dial face surface. A clear arms protective cover (43) are

tightly fit and assembly within the front housing (42) (46) to the back housing (46') and fasten by tighten means may selected from screws, solvent, sonic sealing, glue, rivet, or other equivalent skills from the art. The prong means (48) and LED (49) are designed into the earlier said sealed unit so this will be very safety than any other models which all electric components are exposure to the air which is costly because all material have to use V-0 Flammable grade to pass UL standard with very thick wall thickness and have to buy from certain UL listed supplier. The axis (45) to install the second, minutes, hour, or time setting need to be longer enough to allow the added light-medium thickness can properly fit top of the movement cover and under the arms. There may have the decorative dial face, stencil, milky/frosted front sheet with printing, logo, marking, 12 designs on the position on top of the light-medium unit. The movement have to be special made to have longer axis than any other conventional time piece movement.

[0046] From FIG. 6 disclosure the alternative embodiment which not only the dial face (67) has illumination but also for the exterior housing areas (62') (62) has illumination too. The rest of the parts arrangement is similar with the FIG. 5. From the FIG. 6, the extra LED(s) are extended from the sealed unit housing by conductive wires to space (62') and (62). These two space filled with certain material such as Opaque Poly material so can allow the light passing though and also have certain percentage light beams will be travel within the material so can make a very good light effects. This embodiment teach a plurality areas of time piece has the illumination arrangement not only at the dial face, housing, but also the other areas which for decoration or value-appearance purpose required such areas. The axis (68) to install the second, minutes, hour, or time setting need to be longer enough to allow the added light-medium thickness can properly fit top of the movement cover and under the arms. There may have the decorative dial face, stencil, milky/frosted front sheet with printing, logo, marking, 12 designs on the position on top of the light-medium unit. The movement has to be special made to have longer axis than any other conventional time piece movement.

[0047] From the FIG. 7 disclosure the round movement (7a) which have its power source may selected from wall outlet power source such as 110-250 Volt AC with certain frequency. Or/ the power can be come from Dry battery or batteries. Or/ the power can get from solar panel and its energy saving device. The movement has at least one adjustable kit to allow people to make time, alarm, time setting, music, noisy, record sound, snoozer, switch, sensor or the other function available from conventional market available functions with its adjustable kit respectively. The movement also has a lot of terminals to allow people to make multiple functions while the proper device connected to the functions terminal ends (7c). From FIG. 7 right hand side view drawing can see the light-medium (6g) is part of the movement. The cover of the movement (6e) has light-medium functions which means can allow the LED(s) to install on the input-end (6f) and make the light travel within the light-medium (6g) and has the very even brightness on its entire surface. This will make the entire time piece with much slim and compact size because save a movement cover thickness than any other invention. This is very important for this thickness reduce to meet market requirement. The axis (6a) passing though the light-medium (6g) center hole to make the arms installation. The build-in sealed unit which

have the LED (s), LED circuit or other required electric components, power source to make the LED(s) be turn on under predetermined timing for desired functions and period of time. The LED(s) (6b) (6d) may install on the said sealed unit housing or connect with sealed unit housing by conductive wires and disposed within the light-medium walls.

[0048] From FIG. 7-1 Disclosure the round movement has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "d" and upper light-medium cover has diameter "1xd" with desired LED input-end(s) extended from edge or desired location.

[0049] From FIG. 7-2 Disclosure the round movement has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "d" and upper light-medium cover has diameter "1/Nxd" (N can be any number) with desired LED input-end(s) extended from edge or desired location.

[0050] From FIG. 7-3 Disclosure the movement has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "d" and upper light-medium cover has diameter "Nxd" (N can be any number) with desired LED input-end(s) extended from edge or desired location.

[0051] From FIG. 7-4 Disclosure the rectangular movement with has the light-medium as part of the top cover with axis hole. The movement lower housing has diameter "SxS" and upper light-medium cover has diameter "LxL" with desired LED input-end(s) extended from edge or desired location. The rectangular shape movement may has additional features may selected from group combination from pendulum, alarm, bell, music, recorder, vibration, flash light or other features available from market place.

[0052] From FIG. 8 disclosure the preferable movement (50) which is the most low cost unit from conventional market available item. The lower housing (50') has movement components including electric-coil (5a), output terminals (5b), axis (5c), gear sets (5d), battery "+" terminal (5e), battery "-" terminal (5f) and other Quartz kit (not shown) to make the movement have good accuracy to allow arms (not shown) to show the time message and functions to consumers. The entire space of the most low cost unit has plenty of the empty space as drawing shown. The current invention to apply such empty space to install the LED(s), LED circuit, and some necessary control means and parts (may including prong means) within the lower housing (50') and make the new top cover with axis hole with light-medium properties. This will allow the whole movement with build-in LED light functions.

[0053] If the build-in LED light device are powered by movement battery (this case the movement and LED light device are powered by same battery power source), the LED light will be only turn on after sensor device been trigger for short time illumination such as LED are activated by motion sensor to turn on for limited short time period.

[0054] If the build-in LED light device are connected with wall outlet power source (for example 110 Volt AC 60 Hz) though the prong means (I.E. the movement is power by the battery and LED device power by the wall outlet power source), then, the LED light device can be have always "On" because the power source is unlimited energy for the said LED device which maybe only 0.3-1 Watt power consump-

tion. Even, some design with very strange power source design such as LED light device and movement both connected with the wall outlet power which will cause the movement stop work while the prong or conductive means are terminate with wall outlet power source. Each time this termination happened, the consumer has to adjustable time again. For example, the clock is install on bathroom, while you want to use hair dryer, then, unplug the clock, then, you have to adjustable time again each time whenever unplug the clock from wall outlet. This is funny and stupid design. Basing on this unplug issue happened, so the current invention also adapted the multiple function time piece which have the receptacle (1) on front of the time piece as FIG. 1. The receptacle preferable with grounded end so can meet all different electric devices such as hair dryer, electric tooth brush, electric tooth water jet . . . which may has grounded prong design.

[0055] From the FIG. 9 disclosure the Liquid Crystal display (hereafter as LCD) for message display to viewer. The LCD (90') is made glass which can be treated to the very rough surface as current invention's requirement. This special made glass with rough surface on exterior of LCD (90') with thick glass thickness to allow the LED(s) (92) (92') disposed within the glass thickness on the input-ends (99) (99'). The other parts such as LED sealed unit (91), prong means (97) maybe fixed type or swivel type as wish, back holder (94), light-medium (if not apply the rough surface on LCD glass, the light-medium can supply back light to said LCD as earlier discussion), LCD weather station message display may has message including but not limited such as Temperature (98'), Time (98''), date (98''') or any other such as humility (not shown), Calendar (not shown), month (not shown), or other message which available from conventional market. The build-in LCD dot-matrix display has LED light-medium to make it glow. The light-medium can be the LCD glass or separated plastic piece as long as adapted the sand-blasted or conventional skills to make the said LCD glass or separated piece with rough surface to get the light medium properties. The LCD display can be fully transparent or the semi-transparent type which do not affect the LED light-medium too much.

[0056] From FIG. 10 disclosure the project time piece (2a) image seen by viewer. The image (2a) is project from the lower dial face (2g) which have movement (not shown) and LED sealed unit (2e) as normal time piece but though a thick liquid optics device (2b) to make the lower dial face's message to transfer to the viewer face (2a) with correct orientation for hour, minute, second arms and marking. The thick liquid optic device (2b) may have a lot of miniatures with special treatment such as the magnetic base to make magnetic reaction with the second arm so the turtle (2c) will stick with the second arm for each second to move. The turtle (2c) have tiny wires to connect with Duck 1 (2c') and duck 2 (2c'') to increase the very valuable appearance to all viewer especially for kids. The swivel prong means (2d) are good because this time piece can be act as desk top clock or night-light clock for two applications as consumer multiple purpose time piece.

[0057] From FIG. 11, The analog time piece (110) has at least 3 arms (11g) (11h) (11i) to show the time message of hour, minute, second to viewer though the protective cover

(11a). The protective cover (11a) made of clear plastic which may have texture or milky/frosted on the area which are not in front of dial face (11d). The texture or milky/frosted surface treatment will let the cover (11a) has the said light-medium properties so can allow the light beams travel within the cover and majority light beam will be seen on the cover surface. This kind of light beams is sufficient to offer good illumination to the dial face (11d). At least one of LED (11k) (11k') (11k'') disposed within the cover (11a) on its grooves, openings, windows, cut-outs to allow the LED light beams to traveling within the cover material. It may have brighter ring (11M) (11M') will be seen and make the dial face (11d) have very good brightness to see the time message. The cover (11d) has several catcher means (11e) (11e') to allow the cover (11d) to tighten join together with lower movement housing (11c). The movement has a lot of groove, holes to allow the worker can assembly with cover (11d) or with the other housing parts (not shown). The said LED light means has its conductive means to connect with LED circuit, control means and prong means to make the illumination.

[0058] From FIG. 12, disclosure the details groove (122) (122') (122'') to offer the space to allow LED (121) (121') (121'') to well install and make the light-medium property's cover (120) has good brightness to cause the inner dial face to be readable while needed.

[0059] From FIG. S, disclosure the sealed-unit (S2) (S12) (S22) with pre-designed opening (S2) (S12') (S22') to allow the universal type of the sealed-unit (S2) (S12) (S22) can fit into the opening (S2') (S12') (S22') which can use the conventional market method to fasten with the base (S1) (S10) (S20) which may assemble with the said night light by screw (S23) (S24), welding, sonic sealing, glue, solvent, rivet, catcher, or equivalent fix-means skill from the convention market to allow the sealed-unit be fix on position. The sealed-unit (S2) (S12) (S22) preferable to use the plastic with certain thickness to pass the 94-V-0 flammable grade to meet the safety standard and all other housing part (S1) (S10) (S20) without any limitation because without touching the live wires. The base (S1) (S10) (S20) can be any shape, configuration, design, curvature, thickness, material, dimension with build-in or separated receptacle means. The sealed-unit has LED related circuit, control means, prong means disposed within, this can design for super slim and wider unit or thicker for small unit which depend on the market requirement. For convenience, It also can make a desired unit which can fit into different base shape such as boat shape (S1), tube shape (S10), Rectangular shape (S20) for different night light application.

[0060] The Boat Base (S1) has opening (S2') to allow the sealed-unit (S2) can fit into the space. The sealed-unit (S2) has the LED related circuit (S8) and its components (S9) and prong means (S7) (S7') are sealed within the case (S2). The top of the case have two LEDs (S3) (S4) which are connected with the inner circuit (S8) but all the LEDs' electric legs can not be touched by test equipment to make sure the kid finger will not touch these live wires to cause dangerous condition. The LED (S5) can be use the conductive wires (S6) to pull to far away the unit's housing (S2) for other illumination arrangement.

[0061] The LEDs (S3) (S4) also fit into the base opening (S3') (S4') and a wall (S2'') will cover the LEDs after the

assembly with base housing. After the assembly, The LED light beams can be passing through the base's opening area (S) to make the good light effects to the upper display unit.

[0062] From the tube base (S10) has the opening (S12') to allow the sealed-unit (S12) to fit into with two or more LED on desired position and orientation and wiring arrangement so can allow the light beams emit out from the base top opening (S18) and lower window (S18') for desired illumination.

[0063] From the Rectangular base (S20), This is special for the Surface light arrangement. The LED spot light beams through a light-medium (S28) to allow the LED light beam to travel within the light-medium (S28) and majority of light beam to be seen by viewer from light-medium (S28) surface. It will not see any hot spot of LED light brightness but see a very soft and even photometric area light for special illumination. From the Rectangular base (S20) has opening (S22') to allow the sealed-unit (S22) can be fit into tightly with glue or solvent of other adhesive means, sonic means, welding means, catcher means, or hook means to assembly with rectangular house (S20). The LED will fit into the light-medium's thickness to get the best result.

[0064] It is appreciated that all the above discussed description, embodiment, prior art, co-inventor's disclosure is not limited to these discussion. Any of the equivalent function, replacement, alternative process, treatments, experiments, and arrangements still belong and within the scope of the current invention.

1. The Analog time piece with LED light means for consist of;

At least one of movement with desired functions which may select from group combination from pendulum, flash light, vibration, arms, alarm, music, time setting, light means, switch means, power source, marking, display area to offer the time display and functions to viewer while connect its preferable power source.

At least one LED for the said light means which drive by LED circuit and preferable power source and control means to make the LED(s) for desired functions and light means.

At least one optional part may add on the time piece to make the preferable light functions and time-piece functions as consumer requirement.

The improvement including;

At least one of light medium to make LED(s) light beams to travel within and the brightness to be seen by the viewers from plurality of the direction of said light-medium's surface which is sufficient roughly to make the diffusion effects to make majority of light beams travel within the light-medium.

The said light-medium has desired input-end(s) to allow majority of light beams of LED(s) get into light-medium from the said input-end(s) and travel within to make whole light-medium with desired brightness.

The said milky/frosted front sheet overlay the said light-medium to get the best photometric effect to make desired area(s) with very even brightness of said the area(s).

The preferable marking, logo, characters, stencil, image, filter can add on the one side of the said front sheet to make the message display to viewer.

A housing install all above listed parts for perfect arrangement.

2. The Analog Night Light with LED light means consist of;

At least one of movement has desired functions and power source to offer time related message to viewer.

At least one LED as light means which drive by LED circuit and preferable power source and control means, switch means, sensor means to make the LED(s) for desired functions and light effects.

At least one of prong means to incorporate with night light to get the power to make the said LED(s) and its related circuit, control means, sensor means, switch means for at least one area of dial face, housing, arms with desired illumination under predetermined functions and period of time, color, brightness.

The improvement including;

At least one of light-medium to make LED(s) light beams to travel within and the brightness to be seen by the viewers from plurality of the direction of said light-medium's surface which is sufficient roughly to make the diffusion effects to make majority of light beams travel within the light-medium.

The said light-medium has desired input-end(s) to allow majority of light beams of LED(s) get into the said light-medium from the said input-end(s) and travel within to make whole light medium with desired brightness.

The said milky/frosted front sheet overlay the said light medium to get the best photometric effect to make desired area(s) with very even brightness of said the area(s).

The preferable marking, logo, characters, stencil, image, filter can add on the one side of the said front sheet to make the message display to viewer.

A housing offer a space to install the said movement, LED(s), LED circuit, control means, sensor means, switch means, light-medium, input end(s), milky/frosted front sheet, prong means on proper location.

3. The Analog Night Piece with LED light means consist of;

At least one of movement has desired functions and power source to offer time related message to viewer.

At least one LED as light means which drive by LED circuit and preferable power source and control means, switch means, sensor means to make the LED(s) for desired functions and light effects.

At least one of prong means to incorporate with night light to get the power to make the said LED(s) and its related circuit, control means, sensor means, switch means for at least one area of dial face, housing, arms with desired illumination under predetermined functions and period of time, color, brightness.

At least one of light-medium to allow LED(s) light beams to travel within and the brightness to be seen by the viewers from plurality of the direction of said light-medium's surface which is sufficient roughly to make the diffusion effects to make majority of light beams travel within the light-medium.

The said light-medium has desired input-end(s) to allow majority of light beams of LED(s) get into the said light-medium from the said input-end(s) and travel within to make whole light medium with desired brightness.

The said milky/frosted front sheet overlay the said light medium to get the best photometric effect to make desired area(s) with very even brightness of said the area(s).

The preferable marking, logo, characters, stencil, image, filter can add on the one side of the said front sheet to make the message display to viewer.

The improvement including;

The said light-medium is the part of the movement preferable as top cover of movement.

A housing install all above listed parts for perfect night light unit.

4. The Analog Night light with LED light means consist of;

At least one of LED light means with LED circuit, control means and prong means are sealed into one sealed-unit and turn on the said LED(s) while the prong means connect to power source under predetermined functions and light effects and period of time for illumination of the said night light at least one area.

The said sealed-unit incorporate with preferable movement, light-medium, housing, and movement power source and milky/frosted front sheet within a housing to offer the time message display and illumination to viewer.

The said Sealed-unit meet all safety standard and rest of the listed parts can be made by any preferable material may selected from group combination of paper, plastic, wood, bamboo, poly, pottery, porcelain, glass or any kind from conventional market because all rest parts will not touch the live-wire so without risk for fire and hazard.

5. The Analog Time Piece with LED light means consist of;

At least one of movement has desired functions and power source to offer time related message to viewer.

At least one LED as light means which drive by LED circuit and preferable power source and control means, switch means, sensor means to make the LED(s) for desired functions and light effects.

At least one of light-medium to allow LED(s) light beams to travel within and the brightness to be seen by the viewers from plurality of the direction of said light-medium's surface which is sufficient roughly to make the diffusion effects to make majority of light beams travel within the light-medium.

The said light-medium has desired input-end(s) to allow majority of light beams of LED(s) get into the said light-medium from the said input-end(s) and travel within to make whole light medium with desired brightness.

The said milky/frosted front sheet overlay the said light medium to get the best photometric effect to make desired area(s) with very even brightness of said the area(s).

The preferable marking, logo, characters, stencil, image, filter can add on the one side of the said front sheet to make the message display to viewer.

The improvement including;

The said light-medium is the part of the movement preferable as top cover of movement with desired size compare with the movement lower housing, it can be bigger, smaller, or equal size depend on final product requirement.

A housing install all above listed parts for perfect night light unit.

6. The Digital Time Piece with LED light means consist of;

At least one of LCD display and its related circuit with desired functions may selected from group combination from flash light, vibration, time, date, month, year, alarm, music, time setting, switch means, reset, adjustable buttons, power source, marking, display area to offer the time display and functions to viewer while connect its preferable power source.

At least one LED for the said light means which drive by LED circuit and preferable power source and control means to make the LED(s) for desired functions and light means.

At least one optional part may add on the time piece to make the preferable light functions and time-piece functions as consumer requirement.

The improvement including;

At least one of light-medium to make LED(s) light beams to travel within and the brightness to be seen by the viewers from plurality of the direction of said light-medium's surface which is sufficient roughly to make the diffusion effects to make majority of light beams travel within the light-medium.

The said light-medium has desired input-end(s) to allow majority of light beams of LED(s) get into light-medium from the said input-end(s) and travel within to make whole light-medium with desired brightness.

The said milky/frosted front sheet overlay the said light-medium to get the best photometric effect to make desired area(s) with very even brightness of said the area(s).

The preferable marking, logo, characters, stencil, image, filter can add on the one side of the said front sheet to make the message display to viewer.

The light-medium can be in the form of the LCD glass or separated plastic piece as long as adapted the sand-

blaster or conventional skills to make the said LCD glass or separated piece with rough surface to get the light medium properties.

The LCD display can be fully transparent or the semi-transparent type which do not affect the LED light-medium too much.

A housing install all above listed parts for perfect arrangement.

7. The Digital Time Piece with LED light means consist of:

At least one of LCD display and its related circuit with desired functions may selected from group combination from flash light, vibration, time, date, month, year, alarm, music, time setting, switch means, reset, adjustable buttons, power source, marking, display area to offer the time display and functions to viewer while connect its preferable power source.

At least one LED for the said light means which drive by LED circuit and preferable power source and control means to make the LED(s) for desired functions and light means.

At least one optional part may add on the time piece to make the preferable light functions and time-piece functions as consumer requirement.

At least one of light-medium to make LED(s) light beams to travel within and the brightness to be seen by the viewers from plurality of the direction of said light-medium's surface which is sufficient roughly to make the diffusion effects to make majority of light beams travel within the light-medium.

The said light-medium has desired input-end(s) to allow majority of light beams of LED(s) get into light-medium from the said input-end(s) and travel within to make whole light-medium with desired brightness.

The said milky/frosted front sheet overlay the said light-medium to get the best photometric effect to make desired area(s) with very even brightness of said the area(s).

The preferable marking, logo, characters, stencil, image, filter can add on the one side of the said front sheet to make the message display to viewer.

A housing install all above listed parts for perfect arrangement.

The improvement including;

The said light-medium is front glass layer of said the LCD display which just make the front glass exterior surface with very rough finish to block out the light passing through easily and make light beams travel within the glass medium.

8. The movement for time device consist of;

At least one of lower housing to install electric parts and components and mechanical gear sets to make the time message display while incorporated with the dial face and the top cover has the axis hole to allow the plurality of arms to install on the said axis.

At least one of power sources to supply the power to make the said movement operation.

At least one set of light means, circuit means, control means and its power source to supply the illumination at least for one of surface area(s) of the said movement.

The top cover of the said movement has the light-medium function to allow the said light beams been get into light-medium body through input-end(s) and keep the majority light beams travel within the said light-medium and be seen from the said light-medium surface.

The top cover of the said movement has the light-medium function have the desired dimension compare with the movement lower housing to meet the final product requirement.

9. A sealed-unit for LED light device consist of:

At least one of housing to allow the prong means, LED related circuit sealed into a safety standard plastic material which meet the safety standard's certain flammable grade under some supplier and wall thickness.

At least one of the LED(s) to connect with the said LED related circuit and prong means to get the power and functions under predetermined features for illumination. The said LED may dispose of the said sealed-unit, connected by conductive wire, or install on the surface of sealed-unit without see the electric metal legs.

The said prong means can be fix on the location or swivel type.

The sealed-unit can be assembly with the said light device by conventional available skill of the art to make a final product.

10. The movement for time piece with LED illumination consist of:

At least one housing to have all time piece related parts, components, coil, quartz and gear sets to make the axis's arms can be move very accurately.

The said axis need to have sufficient length to allow the LED light's light-medium unit's thickness can fit top of the movement's cover and under the arms.

11. The Analog time piece with LED light means consist of;

At least one time piece to offer the time related message through its display unit to viewer,

At least one of cover to protect the said display unit's arms,

At least one of the LED light means are disposed within the said cover to allow the light beams to travel within and the light beams be seen by viewer to illuminate the said display unit.

At least one movement incorporate with the said display unit to make time display accurate,

At least one of the prong means to offer the power to the said LED light means and its related circuit and control means to get illumination under predetermined functions and period of time.

12. The Digital time piece Night light with LED light means consist of;

At least one LCD display unit with time related message though its surface to viewer,

At least one of back light-medium piece to adjacent the said display unit surface,

At least one of the LED light means are disposed within the said back light-medium piece to allow the light

beams to travel within and the light beams be seen by viewer to illuminate the said display unit.

At lest one integrated circuit (IC) incorporate with the said display unit to make time display accurate,

At least one of the prong means to offer the power to the said LED light means and its related circuit and control means to get illumination under predetermined functions and period of time.

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