

REVOLVING TYPE TRIANGULAR ADVERTISING PANEL ILLUMINATED
FROM INSIDE OF THE SAID DISPLAY

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Details of the Invention

Name to indicate the invention Revolving Type Triangular Advertising Panel Illuminated from inside of the said display.

Branch of Technology related to the Invention

This invention is classified in the branch of Electrical Engineering on the part of the product and in the branch of Computer Engineering on the part of the Software.

Background of the technology related with the Invention.

The well known former type of advertising panel produced under Thai Patent number 34/14918, has a disadvantage in that it is not self-propelled. Revolving must be made manually, even though the design was intended as a revolving one. Therefore, the advertising made by the mentioned product cannot be done continuously.

Advertisement on these triangular lighting panels are designed with three display surfaces which can be displayed continuously, and the content of each panel can be the same or with different contexts or different pictures. When the advertising panels stop revolving then only one panel can be viewed, resulting in the objective of advertising not being properly fulfilled for this type of panel. An important factor is that most of these are made by order, which the user cannot assemble by themselves. Besides most of the advertising panels available at present requires skills of the manufacturer in the assembling and installing, which is causing many problems such as complexity in the installation, which requires proper design for pictures to be used with the panel in order to give out proper illumination and proper brightness of light source to produce a clear and beautiful picture. Some groups of consumers who desire to change the pictures would not be able to do it themselves and must hire someone to do the job or have to cancel the plan. Whichever the case, it is an unnecessary disadvantage for the consumers.

Therefore, the objective of this invention consists of the improvement made to the mentioned product, in order to allow users to assemble and print the pictures easily. A major factor is that all three advertising panels of the revolving type can be seen at all times. Users can select any desired pictures by using the bundled software and also provide film for printing of pictures for the advertising panels as desired. (Printing can be done with the equipped software by using any computer set and print on the provided film by using regular inkjet or laser printers). This will give a long term saving for the users who may desire for some changes without the need to hire someone to produce or design a new set.

Brief description of Feature and Objective of the Invention.

With the abovementioned reasons, the objective of this invention is to combine together three things, namely, product, software and advertisement film, under a policy of DIY (Do It Yourself). Three products are packaged together for proper use and provide savings in production cost of the product by making a design to cover all sizes and can be applicable in many points without requirements to reformat. This is in response to the consumer's demand for a Revolving Type Triangular Advertising Panel which they can assemble easily with no special tools required. They can also choose any desired frame or pattern from the provided software and just place a picture of the goods or lettering needed for the advertisement by using a regular computer set. No basic skill in design is required to place such pictures or lettering on the film by using inkjet or laser printer. Users can replace pictures or lettering anytime by removing the old one and printing a new one as desired for an up-to-date advertisement. (At present the computer set and inkjet or laser printers are readily available at an office or at home.)

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Generally, the printers mentioned are having a limitation on paper's width but no limit on the length, which can be useful in the determination for various sizes of the products, such as, A5 (21x14.8 cm.), A4 (21x29.7 cm.) and Banner (21x59.4 cm.). This is in line with the varying length of products such as Aluminum Bar, Steel Tube, Acrylic Sheets, that can be produced in various length, at less or the same cost, which differ from other products that are difficult to change.

The Feature and Object of products that lead to the invention of Revolving Type Triangular Advertising Panel Illuminated from inside, for desk top, wall mounted and ceiling mounted types is that the users can easily change advertising pictures without the requirement for any tools. This equipment would be assembled at the factory by using minimum sets of tools, also a saving in the number of moulds to be ordered.

Feature of the Desk Top type advertising panels mentioned consist of triangular plastic base with round edges designed in such a way that when assembled shall be in one piece with no tools required. End of the base shall have two grooves on both sides to hold tightly with aluminum bar. The aluminum bar is designed to be capable of hanging on the wall and ceiling to hold the base, and this aluminum bar also acts as a post for the product. For the wall and ceiling type, the middle part between the bases has a big steel plate attached as a frame for the plastic base. A spring holding the lock pin with aluminum bar is located at the corner of the base end to prevent slipping or loosening. (For desk top type, it shall also consist of a spring and lock pin for the convenience in segregation and collecting parts but is not actually used. Round covers made from the same mould for both top and bottom cover the base in order to conceal the wing nut which allows for hand tightening.

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Upper part of the base has a cover with a hole made from the same mould with the cover, by changing only the insert in the mould. A steel tube is then inserted to hold the base, with the big steel plate acting as base supporting the steel tube which was inserted through the base plate. This steel tube also acts as a steel frame of the product and when inserted is to be connected with a small steel plate to be used as a lamp holder and which is connected to a motor as one main part. The revolving panel consists of triangular caps designed specifically to be used both at top and bottom sides, (one turned upside down and the other facing up). All three corners of the cap act as seats for aluminum bars with acrylic sheets inserted in the grooves between the aluminum bars. Top-side of the cap has a seat for bearing set connected with a big gear and held by a snap lock. This is the design for a desktop type.

As for the wall and ceiling mount type just add another base for the desktop type at the opposite position, and add two more aluminum bars to affix with the wall or ceiling. After that attach the two bases with aluminum bars by using spring connected with lock pins to hold them together to prevent slipping or loosening. Inserting acrylic sheets with white opaque sheets on the inside and placing printed film of picture in the middle and cover on the outside with a transparent acrylic sheet. Inserting is made through grooves of aluminum bars in the same manner for all three sides, for desktop, wall mount and ceiling mount types. Adjustable speed motor at approximately 9 -16 revolutions per minute is used to drive the small gear to drive the big gear over the bearing to facilitate a smooth moving of the advertising panels.

There is also a circuit board to set time control, and adjust the revolving speed of the panels and direction of movement whether for clockwise or counter-clockwise direction.

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The size of this Revolving Type Triangular Advertising Panel is determined by the characteristic of the popular printers at A4 size, with a limitation that the width shall not exceed 21 centimeters and the length at not more than 60 centimeters. Therefore, the invention of this type of advertising panel can be determined according to the length of the aluminum bar and the length of the acrylic sheet and the length of the steel tube. Invention process can be varied in sizes without the need for additional cost. This adjustable size method is in line with the characteristic of the printer and shall allow for the use of any left over parts with no changes required.

Another objective of the invention is the reduction in cost on the design. Other than the items in the above paragraph, the major costs of production are the cost of the mould and the cost of the plastic parts. For this product, other than the cap which normally uses two sheets of the same type, the base can be of the same parts attached together by design with male and female parts in the same sheet. Holder of the structure can be designed to facilitate assembling by using a snap lock to close and hold the structure without any requirements for other special tools. Also the cover and the cover with hole can also be made from the same mould by changing only an insert piece in the mould. The cover and the cover with hole can also be used to cover the structure for both cover and base sheets. All of these products can be made by using only 3 stamping moulds for the outer parts.

Another objective of the invention is the ready-made software for printing of pictures or lettering by the users, by application of general computer set, with the installation of the program from a CD-ROM in that computer set. There are 7 easy steps of operations by the program as follows: 1) Formatting, that is, to choose the size to be printed, such as, A5, A4 or Banner, in accordance with the three sizes of the advertising panel as mentioned. 2) Selecting a Frame, that is, to select a frame suitable for the work from numerous samples

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provided by the program. 3) Selecting a photo, that is, to fill the desired photo at this step by adjusting the photo to fit with the frame. 4) Selecting clipart, that is, to fill in or decorate with various artworks to add colours to the advertising pictures. 5) Selecting a drawing, that is, the user can draw pictures or letters as desired with the thickness of lines and colours available for selection. 6) Selecting Font, that is to select font available to the printer with sizes and colours as needed. 7) Selecting print, which is the final step of the instruction, selected in the six previous steps.

Final objective of the invention is the film for use by inkjet or laser printer.

Characteristic of this polyester film is transparent on one side and coated with chemical on the other side to be printed by inkjet or laser printer, to produce a clear and beautiful picture. Printing shall be on the reverse side (reverse printing). Printed picture to be viewed from the front side. Such film is designed for back lit illumination, which will produce a beautiful picture when the light is on.

Brief description of the drawings

The following is a description of the invention as per attached sample drawings.

Figure No. 1. shows details of a Revolving Type Triangular Advertising Panel Illuminated from inside of Desktop type, with all equipment contained inside this invention.

Figure No. 2. shows easy assembling steps by user of this desktop type.

Figure No. 3. shows application of the complete invention of desktop type, front view.

Figure No. 4. shows details of a Revolving Type Triangular Advertising Panel Illuminated from inside of wall-mount and ceiling mount types, with all equipment contained inside this invention.

Figure No. 5. shows easy assembling steps by user of this wall-mount or ceiling mount types.

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Figure No. 6. shows application of the complete invention of wall-mount or ceiling mount types, front view.

Figure No. 7. shows blow-up of the caps attached with the big gear.

Figure No. 8. and Figure No. 9. shows blow-up of the base with lock pin and the grooves for aluminum bar insertion of the wall-mount or ceiling mount types.

Figure No. 10. shows details within the base indicates design characteristic with male and female parts in the same stamping mould.

Description of the Preferred Embodiments

The following is an appearance of the invention as described in detail with reference made to the drawings attached.

Figure No. 1. This Revolving Type Triangular Advertising Panel Illuminated from inside of Desktop type as shown, consists of bases 2A and 2B attached to both sides of a big steel plate 14, and steel pipe 14A connected with the big steel plate 14 supporting steel pipe 12, and spring 20 connecting with lock pin 5. The ends of base 2A and 2B, after the bases are closed, shall be held by a wing nut 22 and washer 21 to hold with steel pipe 12. On the part of attached bases shall be supported by base rubber 19 to prevent the base from moving with cap 4B on the bottom of the base to conceal the wing nut 22 after assembly is completed. Top side of base 2A has a cap with hole 3A and bearing set 18 fitted on top of steel pipe 12. Bearing set 18 shall be pressed by steel pipe 14A connected with big steel plate 14. The bearing set contained in cap 1B and pressed against the cap 1B keeps the advertising panel sturdy and firm. For the revolving panel, it consists of grooves on all three sides of the cap 1A and 1B, to tie down with the aluminum bar 8. After the aluminum bar 8 is attached, the space between all three sides of the aluminum bar 8 shall be filled with acrylic sheets, by placing opaque acrylic sheet 10 on the innermost

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part of the groove of the aluminum bar 8 with printed film 11 inserted in between then covered with transparent acrylic sheet 9 on the outermost part of the groove of the aluminum bar 8. Placing to be made in sequence on all three sides to obtain advertising pictures as mentioned. For the inside of top cap 1A and bottom cap 1B, placed up-side down and facing up respectively, a steel pipe 12 is inserted through the base. This steel pipe 12 shall act as main frame of the product to hold all main parts together, welded by small steel plate 13. This small steel plate 13 shall be attached with lamp holder 15 and Motor 17. Lamp holder shall be fitted with lamp 16. The Motor 17 to drive the panel shall be fitted with small driving gear 7 to drive the big gear 6. Topside of the big gear 6 shall have a groove for snap lock to fit on the inside of cap 1A. Topside of cap 1A is fitted with bearing set 18 and wing nut 22 over washer 21 connected by steel pipe 12 inserted and covered by cap 4A to conceal the wing nut 22, which will go to drive the advertising panel to demonstrate the beautiful pictures. The details of the components of illuminating devices, such as ballast, electric wire, socket, on-off switch, circuit board to adjust the revolving speed of the panels, set time control to stop turning, adjust direction of movement to left or right direction are well known. These items will be separate at one section by reason of its weight and the convenience of the control for wall and ceiling mount models. (Not shown).

Figure No. 2. An overview of the simplicity of assembling for the desktop type, assembled in parts by manufacturer at the factory, packaged for ease of assembling by user as follows. Lamp 16 is inserted in the lamp holder 15. Aluminum bar 8 is then inserted at each corner of the cap 1B at all three sides followed by the insertion of the opaque acrylic sheet 10 on the innermost part of the groove of the aluminum bar 8 and placing printed film 11 in between then covered with transparent acrylic sheet 9 on the outside. After that place cap 1A on top and place bearing set 18 on top of the cap 1A with steel pipe 12

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passing through. Then tighten wing nut 22 over washer 21 on the steel pipe 12, placing cap 4A to complete the assembly.

Figure No. 3. shows application of the invention of a complete wall or ceiling mount type advertising panel appropriate for this invention that can be simply made with sturdy framework constructions that can be easily accessed to all parts. The pictures can be changed as often as desired with no other tools required. While the foregoing description and drawings represent the preferred embodiments of the present invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the true spirit and scope of the present invention.

Figure No. 4. This Revolving Type Triangular Advertising Panel Illuminated from inside of wall or ceiling mount type as shown, consists of bases 2A and 2B attached to both sides of a big steel plate 14, and steel pipe 14A connected with the big steel plate 14 supporting steel pipe 12, and spring 20 connecting with lock pin 5. The ends of base 2A and 2B, after the bases are closed, shall be held by a wing nut 22 and washer 21 to hold with steel pipe 12. Part of the attached bases shall be supported by base rubber 19 to prevent the base from moving with cap 4B on the bottom of the base to conceal the wing nut 22 after assembly is completed. Top side of base 2A has a cap with hole 3A and bearing set 18 fit on top of steel pipe 12. Bearing set 18 shall be pressed by steel pipe 14A connected with big steel plate 14. The bearing set contained in cap 1B and pressed against the cap 1B keeps the advertising panel sturdy. The groove in base 2A shall be attached to an aluminum bar to prevent slipping or loosening of the product from the wall or ceiling.

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The revolving panel consists of grooves on all three sides of the cap 1A and 1B, and is tied down with the aluminum bar 8. After the aluminum bar 8 is attached, the space between all three sides of the aluminum bar 8 shall be filled with acrylic sheets, by placing opaque acrylic sheet 10 on the innermost part of the groove with printed film 11 inserted in between and then covered with transparent acrylic sheet 9 on the outermost part of the groove. Placing is to be made in sequence on all three sides to obtain advertising pictures as mentioned. For the inside of top cap 1A and bottom cap 1B, placed up-side down and facing up respectively, a steel pipe 12 is inserted through the base. This steel pipe 12 shall act as main frame of the product to hold all main parts together, welded by small steel plate 13. This small steel plate 13 shall be attached with lamp holder 15 and Motor 17. Lamp holder shall be fitted with lamp 16. The Motor 17 to drive the panel shall be fitted with small driving gear 7 to drive the big gear 6. Topside of the big gear 6 shall have a groove for a snap lock to fit on the inside of cap 1A. Topside of cap 1A is fitted with bearing set 18 and covered with a cap with hole 3B on top of bearing set 18.

Additional parts which differ from Figure 1, 2 and 3 (desktop type) are the base 2C and 2D, made by the same process with base 2A and 2B at the bottom. Additional bases on top and bottom used for attaching aluminum bar 8 consists of two bars attached with the wall or ceiling. The said aluminum bars shall be attached with both base and grooves 2W, 2X, 2Y and 2Z in which the pictures are attached and shall be revolving next to the wall or ceiling as the case may be. The details of the components of illuminating devices, such as, ballast, electric wire, socket, on-off switch, circuit board to adjust the revolving speed of the panels, set time control to stop turning, adjust direction of movement to left or right direction are well known. These items will be separate at one section for reason of its weight and the convenience of the control for wall and ceiling mount models (Not shown).

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Figure No. 5. An overview of the simplicity of assembling the product in which the manufacturer has assembled some parts at the factory, and packaged for the user to assemble only as follows: Inserting lamp 16 in the lamp holder 15. Insert aluminum bar 8 at each corner of the cap 1 at all three sides. Then insert opaque acrylic sheet 10 on the innermost groove, followed by placing printed film 11 in between and then cover the printed film 11 with transparent acrylic sheet 9 on the front side. After that place cap 1 consisting of cover with hole 3 together with the bearing set inside already assembled from factory. Then insert steel pipe 12 through the cap 1 without dislodging the bearing set which is in position due to the cap with hole 3 forcing the bearing set in place. Then place base 2 connected with big steel plate 14 to cover the steel pipe 12 in the same manner with the bottom base. At the same time pull lock pin 5 in order to allow aluminum bar 8 to pass through groove 2A. The lock pin shall be properly fitted to the groove on aluminum bar 8 automatically with spring 20. After that tighten wing nut 22 over washer 21 and cover with cap 4 to complete the assembly.

Figure No. 6. shows application of the invention of a complete wall or ceiling mount type advertising panel appropriate for this invention that can be simply made with sturdy framework constructions that can be easily accessed to all parts. The pictures can be changed as often desired. While the foregoing description and drawings represent the preferred embodiments of the present invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the true spirit and scope of the present invention.

Figure No. 7. is a blow-up of cap 1A showing details of the product. The said cap consists of locking device for the big gear 6 which driven by small gear 7 attached to motor 17 to turn the panels.

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Figure No. 8 and Figure No. 9 are blown-up pictures of base 2 showing details of lock pin 5 and spring 20 to hold tight aluminum bar 8.

Figure No. 10. is a blown-up picture of base 2 showing details of the design consisting of both male and female attachments made from the same stamping mould which will be firmly seated and interlocked when combined.

The best inventing method.

As has been mentioned above under the description of the preferred embodiments.

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WHAT IS CLAIMED IS:

1. The Revolving Type Triangular Advertising Panel Illuminated from inside which consists of advertising panel revolving set, panel illuminating set, and frame structural set. All three sides revolves around itself and placing of advert material selected by types and sizes as has been described. This is a new concept with special characteristics in its ability to set the time for display, adjustable speed, and selection of left or right rotating directions for effectiveness of the advertisement.
2. Advertisement Panel according to claim 1. The advertising panel revolving set consists of drive motor (17), attached with small gear (7) to drive a big gear (6), which is attached to the inner cap (1A).
3. Advertisement Panel according to claim 1. The panel illuminating set consists of lamp holder (15) available for insertion of electric lamp (16), which is attached to small steel plate (13) welded to the steel tube (12).
4. Advertisement Panel according to claim 1. The frame structural set consists of top cap (1A) and bottom cap (1B) of the same shape (made from the same stamping mould). The cap (1A) shall be placed upside down with bearing set (18) placed on top at the middle and inside of the cap (1A) which has a groove for placing of big gear (6) with locking device. The cap (1B) shall be placed facing up over the bearing set (18) at the middle of the cap in the same manner with the cap (1A) just on the opposite. And by the characteristic of the bearing set (18) when tightened the caps (1A) and (1B) together with three sets of dual acrylic panels and aluminum bars in between, shall provide a sturdy set and facilitate easy rotation with no effects from the tightening. The panel will be rotating over base (2) and base (2) shall be stationary.





5. Advertisement Panel according to claim 1. With structure consisting of base (2A), (2B) and additional base (2C), (2D) for the wall or ceiling mount types which are the parts of the same configuration. (Made from the same stamping mould). Base (2A) and base (2B) are assembled together with no other tool requirements, as the base is of male and female part at the same time that can be interlocked properly when assembled. Both ends of bases (2A), (2B), (2C), and (2D) shall be equipped with lock pin (5) and spring (20), which will press these bases firmly with aluminum bars (8) for the wall or ceiling mount type, and the end of base shall have grooves (2W), (2X), (2Y) and (2Z) to be attached to aluminum bars (8).
6. Advertisement Panel according to claim 5. The design of base (2A), (2B), (2C), and (2D) as male and female parts at the same time therefore only one stamping mould is required as per figure 10.
7. Advertisement Panel according to claim 1. The structure of cap (4A) and (4B) are the same (produce from the same stamping mould) and the cap with hole (3A) and (3B) can also be produced from the same mould by changing only a small insert, resulting in a saving of more than 50% on the mould. Cap (4A) and (4B) are used to cover the wing nut (22) and washer (21). The cap with hold (3A) and (3B) are used to support steel pipe (12) inserted through.
8. Advertisement Panel according to claim 1. The structure of steel pipe (12), which is the main structure of the product connected with small steel plate (13) and attached with lamp holder (15) and motor (17).
9. Advertisement Panel accordingly to claim 1. The structure of aluminum bar (8) to act as the three columns for panel structure, and also applied as bar to attach with the wall or ceiling. The equipment is of the same shape (made from the same mould). This aluminum bar (8) also can be used at different points in the various sizing of the product with no extra cost.





10. Advertisement Panel according to claim 9. The aluminum bar (8) placed on the corner of the three sides of the cap (1A) shall consists of grooves for filling with opaque acrylic sheet 10 on the innermost, and placing printed film 11 in between then covered with transparent acrylic sheet 9 on the outside.
11. Advertisement Panel in accordance with any of the claims herein, showing simple assembling method in the package. Users only need to place aluminum bar (8) at the corner on the three sides of the cap (1B), then insert the acrylic sheets. User only needs to place cap (1A), tightening the wing nut (22) over washer (21) on the steel tube (12) protruding. After that cover with cap (4A) to complete the assembly with no tools required.
12. Advertisement Panel in accordance with any of the claims herein, which is dependent on the characteristic of the printers mentioned with limitation in the width of the paper, but no limit on the length, as determination factor for the various sizes of the product. To be in the sizes of A5 (21x4.8 am.), A4 (21x29.7 cm.) and Banner (21x59.4 cm.) which is in line with the varying lengths of the Aluminum Bar (8), Steel Tube (12), Acrylic Sheets (11), (10) and (9). The varying sizes in the production results in three sizes of product that can be produced at the same or lower cost. Also being in line with the printer's characteristic that is capable of using any left over without the need to make any change to the equipment inside.

