System and Method for a Modular Ballistic Barrier

FIELD OF THE INVENTION

The present invention relates generally to ballistic barriers. More specific, the present invention is a system and method for ballistic barriers walls and panels which could be modularly installed to discretely protect a variety of objects in a variety of environments.

BACKGROUND OF THE INVENTION

Firearms were first seen in China around 1000AD in the form of a hand cannon which used gunpowder to propel a spear forwards out of the tubular body. Ever since then, the firearm has evolved to become one of the most important tools available to the military. Over time, the firearm embodied larger and larger projectiles, fired at higher velocities and faster frequency. Eventually, the majority of wars were fought by ballistic projectiles aimed at personnel and ,more importantly, at the infrastructure supplying the battalion of the opposing side. Power stations, manufacturing buildings, vehicles, and other important elements are the high priority targets during an engagement due to their significant role and a loss would further cripple the enemy from the bottom up. As a result ballistic protection has been sought after ever since the gun was invented as a defense mechanism. The majority of ballistic protection available on today's market is limited to vests and slabs of titanium or other type of metallic material; while this works greatly it is limited in its use as it blocks any possible radio signal from escaping or entering the perimeter which it encloses.

The present invention seeks to provide a product and method that provides a bulletproof system that is universally adaptable to any object, vehicle, or building in any environmental setting without disrupting electronic signals. In addition, the present invention contains a camouflage aspect, further aiding in preventing the disclosure of the

position of important infrastructures/components. The method utilizes tough ballistic fiberglass to provide high grade protection while simultaneously allowing for the passage of radio signals: this is especially useful for power stations which utilizes a variety of electronic elements situated about the outer perimeter of the station out in the open environment.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of one embodiment of the present invention which utilizes four walls to protect a single transformer;

FIG. **2** is an exploded view thereof;

FIG. **3** is a perspective view of one embodiment of the present invention which utilizes a plurality of panels on a modular frame to protect a substantially large object;

FIG. **4** is an exploded view thereof;

FIG. **5** is a sectional and detailed view of the frame of the present invention; and

FIG. **6** is a sectional view of the panel component of the present invention.

DETAIL DESCRIPTIONS OF THE INVENTION

All illustrations of the drawings are for the purpose of describing selected versions of the present invention and are not intended to limit the scope of the present invention.

The present invention is a system and method for building and installing ballistic walls. In particular, the present invention is the process of utilizing a plurality of modified bulletproof panels to create a plurality of barrier walls to physically protect an object, building, or vehicle through a modular frame system. Each panel is coated with at least one additional layer which provides protection against deterioration as a result of long term exposure to ultra violet light, wind, rain, snow, and other environmental conditions. Possible applications include, but are not limited to, power substation components,

cooling systems, electronics, generators, cellular towers, nuclear cooling/power components, automobiles, vehicles, houses, and other objects in need of ballistic protection; the preferred embodiment of the present invention is tailored to outdoor ballistic protection but may be modified and adopted for indoor applications as well. The figures illustrated in this document are in relation to coverage and protection for power substation components; this in no way meant to limit the scope of the present invention.

In the preferred embodiment, the bulletproof panels comprise a rectangular extrusion of a certain distance that is composed of bullet-resistant material. While the preferred material composition is ballistic fiberglass other possible materials may be utilized as well; ballistic fiberglass comprise multiple layers of woven roving ballistic grade fiberglass cloth impregnated with a thermoset polyester resin and as such various degrees of protection, thickness, and quality may be created and utilized in the present invention. Other possible materials include, but are not limited to, Kevlar, Lexan, carbon fiber composite materials, and other comparable material capable of providing protection against bullets and other ballistic type elements. The length, width, and thickness of the panel may change depending on the size of the wall required by the object being protected; a substantially large object would utilize large panels and a small object would utilize relatively sized panels. In one embodiment, a plurality of small panels may be utilized to create a bent wall to conform the present invention to the contours required by the object being protected. In other embodiments, the present invention may utilize bullet proof panels of various shapes and designs, e.g. triangular, hexagonal and the like. The majority of ballistic type materials are not designed to be able to withstand outdoor conditions; long term exposure to ultra violet light especially will deteriorate the material composition resulting in decrease of structural integrity. To prevent material deterioration, each panel of the present invention is covered with a protective rubberized layer. The preferred rubberized coating is a tough spray on urethane coating which provides protection to the panels from environmental elements, in particular ultra violet rays. Other possible materials may be utilized to layer the outer surface of the panel component including, but not limited to, rubber of various densities and structures, synthetic and natural rubber, flexible rubber coating, and any comparable materials. The coating provides protection to the panel from moisture, acids, and corrosion. The coating

is non-slip and flexible enough to prevent cracking during extreme weather conditions. Furthermore, the application process for the rubber layer is subject to change in the final embodiment. In one embodiment, the panel is manufactured with the rubber surface included.

The modular frame comprises a plurality of different means of mounting, displaying, and anchoring a plurality of panel components around the object in need of protection. In the preferred embodiment, the modular frame comprises a steel and or aluminum infrastructure frame that is designed specifically to the dimension and shape of the associated panel. Referring to FIG. **1 -2**, the panel components are of a rectangular shape and the associated modular frame comprises a design shaped to receive and support said shape. Referring to FIG. **5** the modular frame comprises a plurality of vertical element with U channels running up and down the side surfaces interconnected by a plurality of horizontal elements; the horizontal elements contain U channels on the side surface as well. The modular frame is designed to encompass the outer perimeter of the panels, with the U channels designed to the specific dimensions of the panel thickness. The U channels are designed to receive the panel components. The modular frame allows for the resulting wall to be created to any height, width, and overall shape through the addition or subtraction of a plurality of vertical and horizontal elements, this is illustrated in FIG. **1** and FIG.**3**. As seen in FIG. **3**, some objects may already be situated next to walls and as such only one or two walls may be needed to achieve all around protection. In one embodiment, the present invention may be a single wall anchored to a single side of the object. The panels may be attached to the modular frame by a plurality of different means including, but not limited to, self tapping screws, bolts, screws, rivets, construction adhesive, cement, and other comparable fastening means. In other embodiments of the present invention, the modular frame may comprise a different design and may be attached to the panel components in a different fashion as well. One example includes a rectangular vertical element containing a single lip running up and down the vertical sides to which the panel components are attached to by any means mentioned above. The modular frame is anchored as well, the anchoring mechanism may change depending on the surrounding area around the object in need protection. The modular frame may anchored to the concrete, gravel, ground, existing I beams, and other existing structures

through a plurality of means which include, but are not limited to, cementing, bolts, screws, rivets, welding, and any other comparable means. In one embodiment, the modular frame is free standing. In another embodiment, the modular frame is anchored by a plurality of cement blocks buried underneath the ground surrounding the object in need of protection.

To further aid in the protection, the panel components are colorized to camouflage the object and deter outer personnel from determining its position. This may achieved by paint, spray paint, canvas, and other comparable means which would essentially hide the present invention. In one embodiment, the present invention may also contain an access door on the side one of the panels as seen in FIG. **1**.

The system of the present invention provides all of the necessary components for the operation of the method of the present invention, however it is the method which dictates to order in which operations are carried out to facilitate the accomplishment of the functions and objectives of the present invention. The method of the present invention comprises the following steps which define the operation of the present invention in a specific order. In alternative embodiments the order of the steps may be altered to accommodate different situations.

In step one, the dimensions, shape, and the design of the present invention is determined based on the object in need of protection plus the surrounding infrastructure of said object. The number of walls are also determined based on existing walls and vantage points, for example if there are already two concrete walls then only two more are required for the present invention as seen in FIG. **3**.

In step two, the associated panels components are chosen and coated in the rubber by means described above.

In step three, the associated modular frame is developed to act as the infrastructure of the present invention. The design may vary as described above.

In step four, the frame and the panel components are installed around the object in need of protection. Installing includes fastening the panel components to the modular frame and anchoring the module frame to the ground and or existing infrastructure. In some embodiments, the present invention utilizes existing I beams to anchor the module frame.

In step five, the outer surface of the present invention is colorized as described before to blend in the background of the infrastructure; various colors and pattern scheme may be utilized for this step.

Although the present invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as herein described.

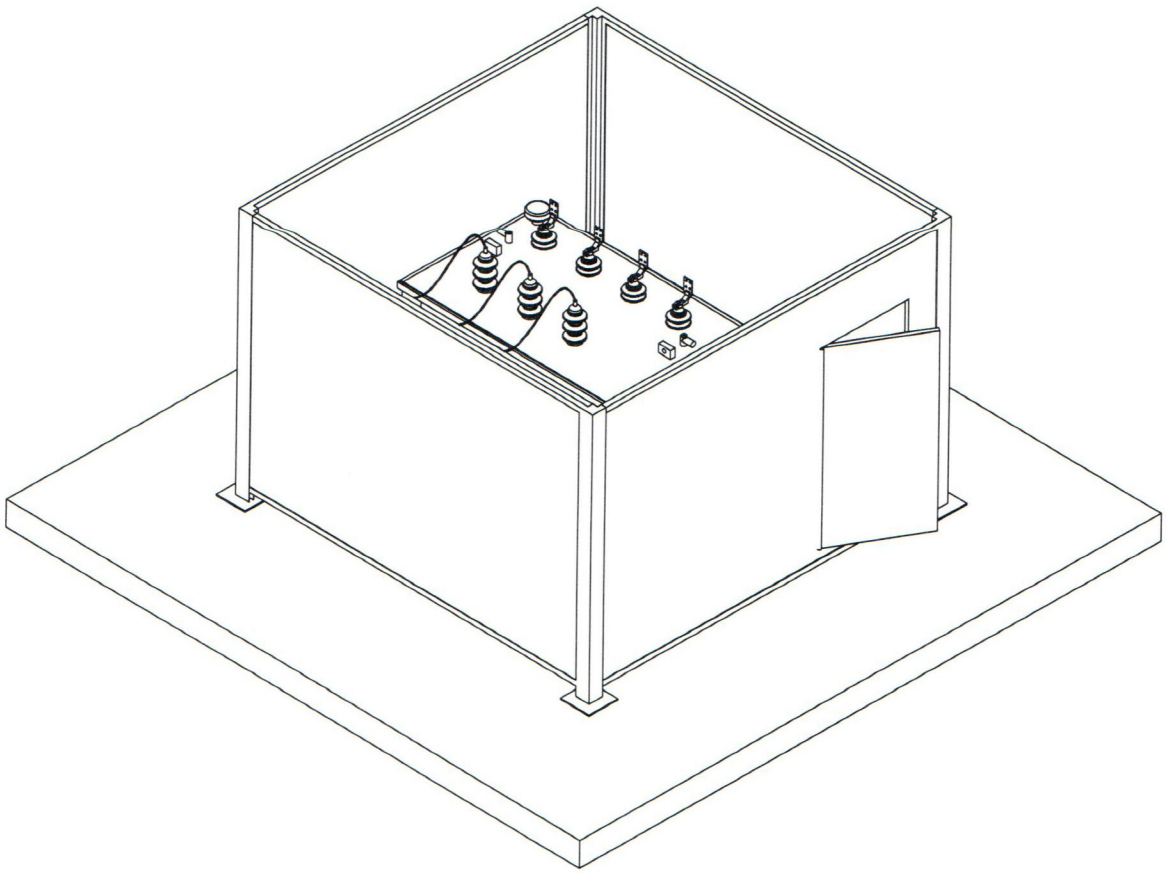


FIG. 1

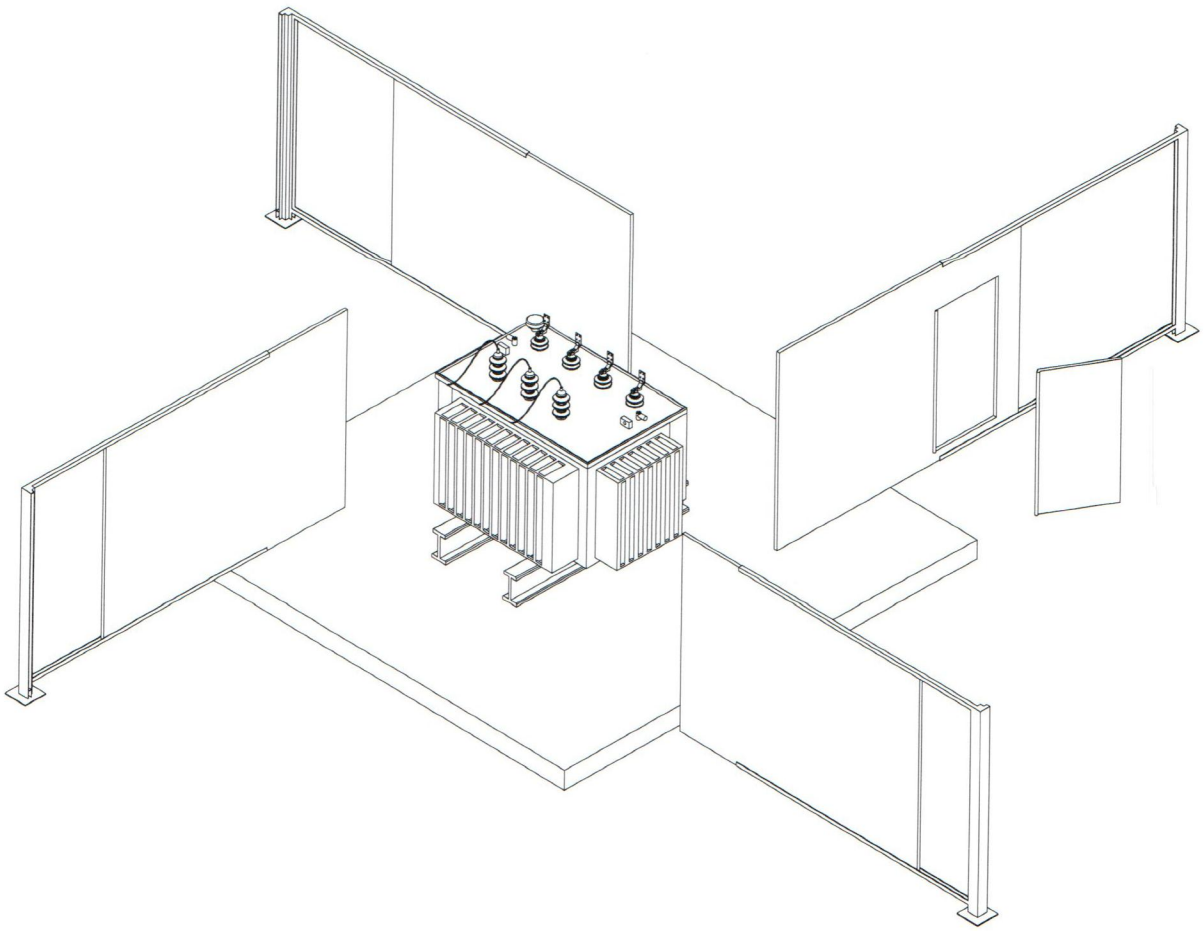


FIG. 2

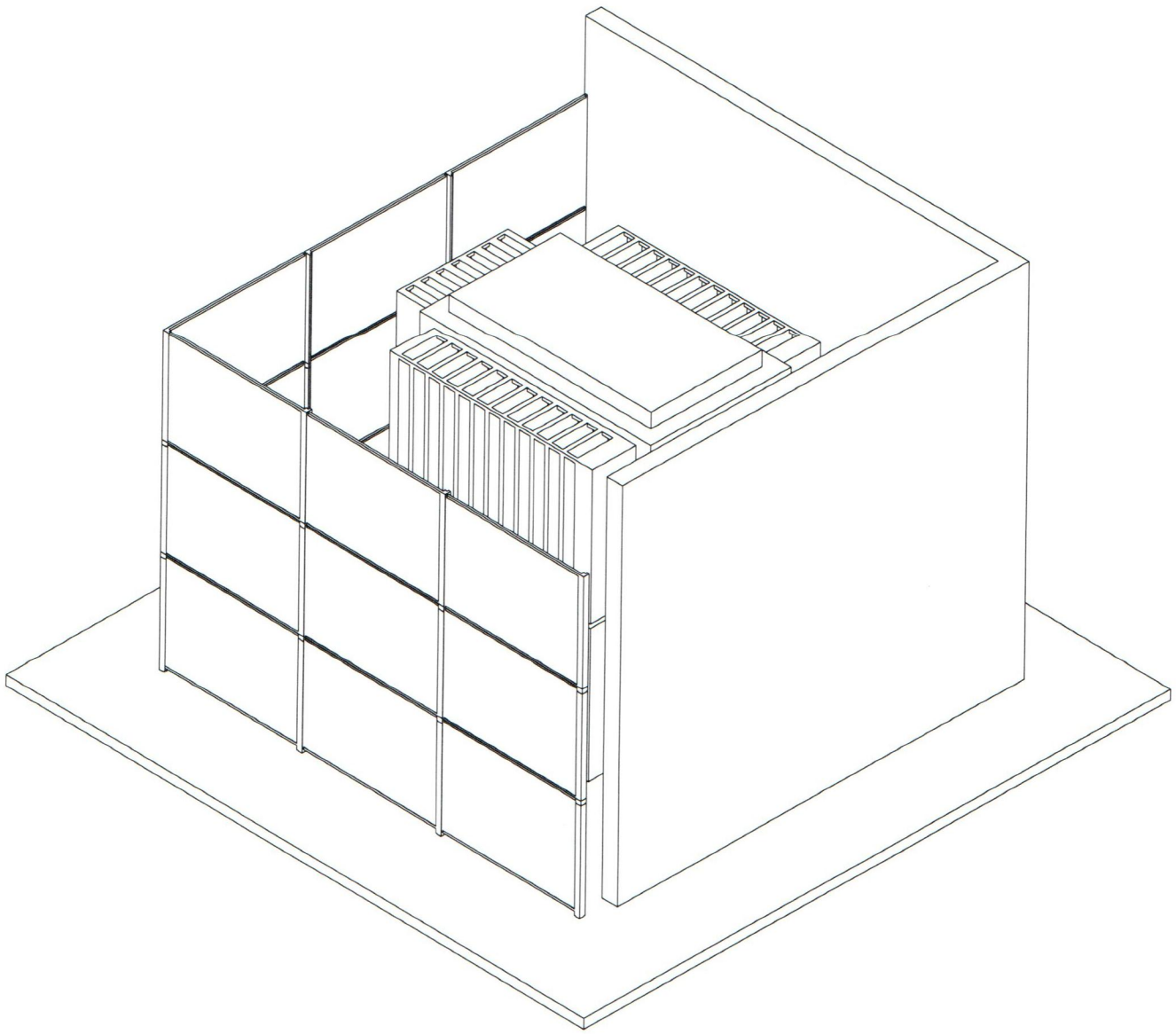


FIG. 3

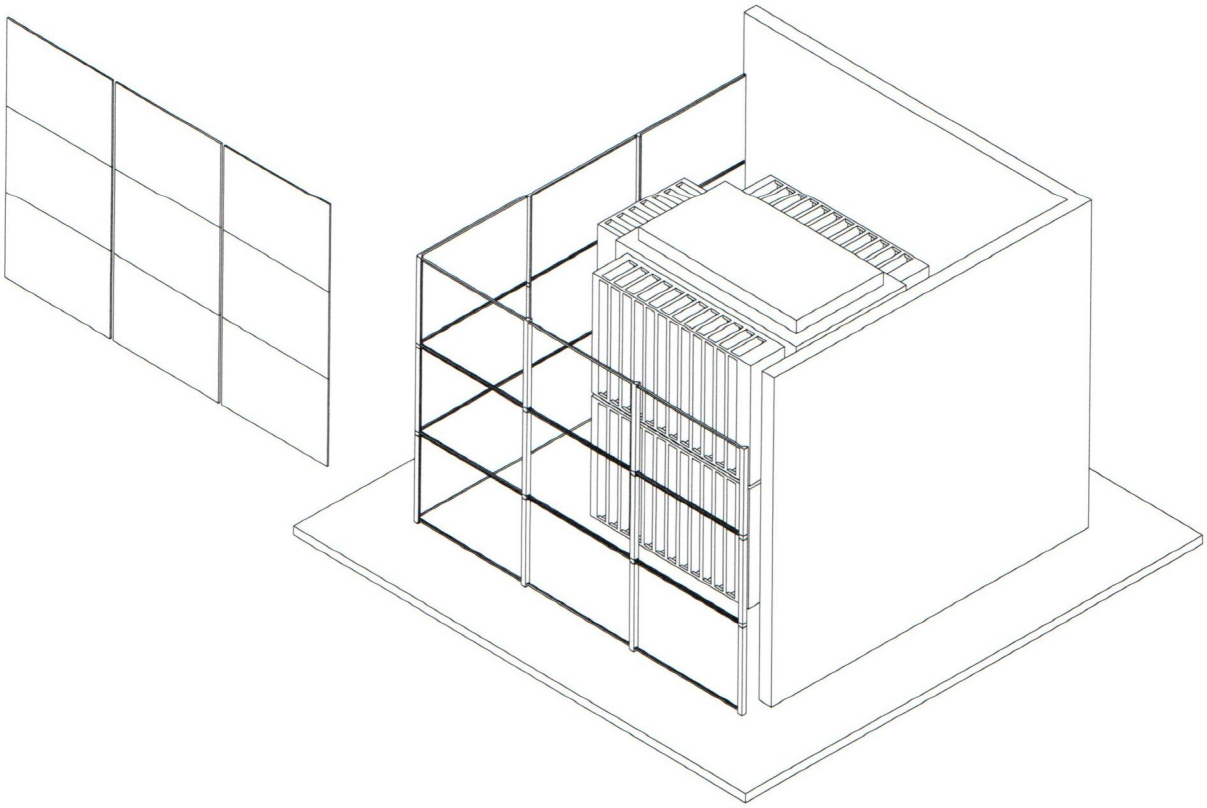
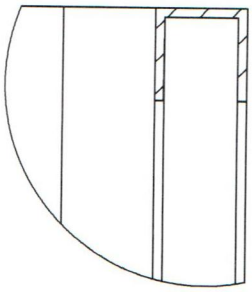
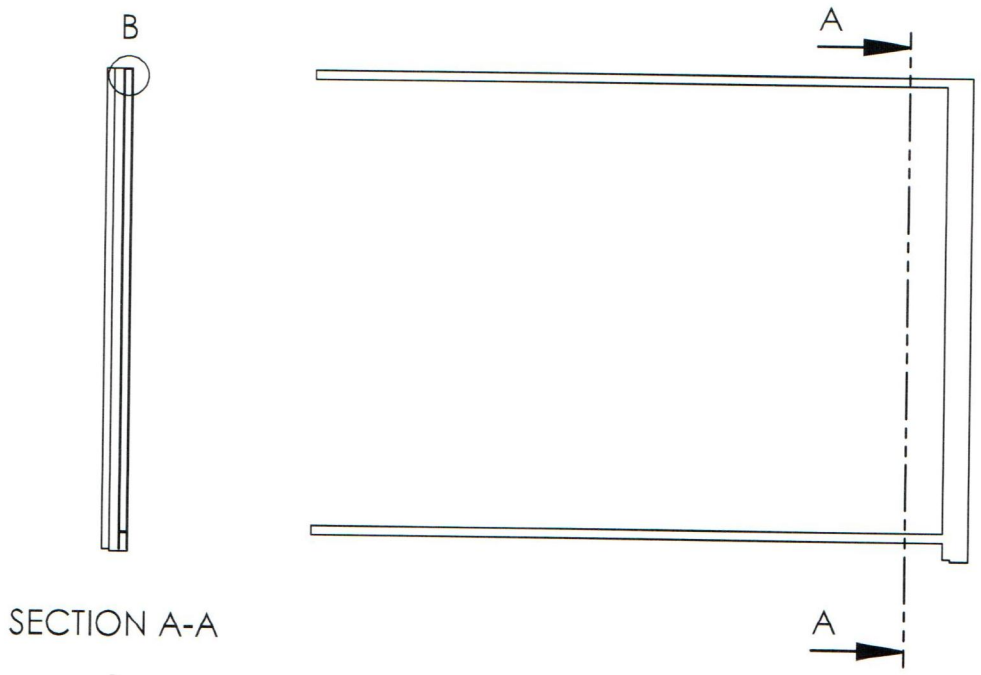


FIG. 4



DETAIL B



SECTION A-A

FIG. 5

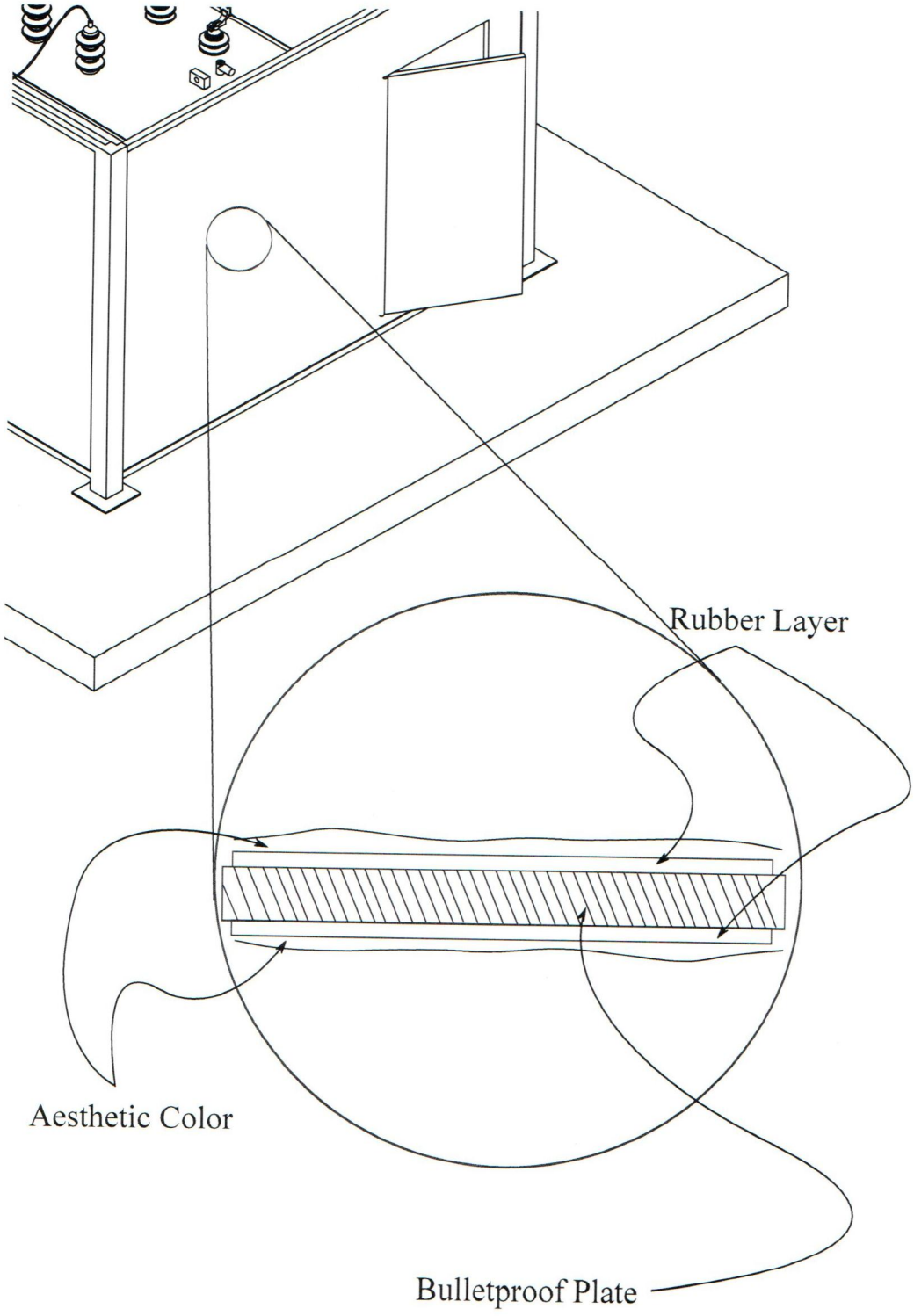


FIG. 6