The "S" storm shutter system is a new type of protection from wind storms and other weather phenomenon. It uses a series of low-profile "S"-shaped interlocking panels. These panels are secured by straps on either side which are then tightened by fixing them to the wall. This creates a protective system whose profile is significantly less than any other system on the market today. Because of this low profile, the wind resistance is drastically reduced. In addition, once the initial anchors are installed, this system requires no tools to assemble or disassemble. This is an important factor when considering the time constraints in preparing for an oncoming storm.
"S" PANEL STORM SHUTTER SYSTEM
REFERENCE TO A MICROFICHE APPENDIX
Not Applicable

BACKGROUND OF THE INVENTION

[0002] This invention is related to the field of the protection of homes and buildings that face the menace of hurricanes, tropical storms, and other natural phenomenon of this kind. It surpasses all the inconveniences of the systems in today’s market by using a state-of-the-art method of installation and mounting combined with attention to aesthetics. The superior difference in the aerodynamic consistency of our “S” panel compounds is that, while generously keeping the demand of the established codes for resistance to the impact of flying objects, they present a lower profile configuration to high winds.

BRIEF SUMMARY OF THE INVENTION

[0003] The system of “S” Storm Panels is a new way of protecting buildings and dwellings from the fury of hurricanes, tropical storms, and related phenomenon. This system is superior to others because it creates strong protection combined with an aerodynamic lower-profile, and easier mounting and dismounting procedure. This system is comprised of a series of “S”-shaped panels that interlock with each other, creating a strong compound. These panels are then hung on a bracket and attached on the top and bottom. Two straps overlap the series of panels on either side. When these straps are fixed to the wall anchors (initially installed to the wall) a secure barrier is created.

[0004] This combination of panels, brackets, and straps makes it possible for a person to set up the panels with less effort and no tools to mount and dismount (with the exception of the initial installation of anchors.) Finally, the cost of production of this system is significantly less than others in today’s market. The “S” storm shutter system can be manufactured using a less complicated process and less material than the other systems in the market today.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0005] FIG. 1: This is a depiction of a typical window opening. The series of cross-hairs which surround the opening represent the points where holes are drilled in the wall and anchors are placed #1 in each of those holes.

[0006] FIG. 2A: This is a front view of one of the main “S” panels #2.

[0007] FIG. 2B: This is a partial side view of one of the main “S” panels #2 which shows the shape of the panel more clearly.

[0008] FIG. 3: This is a view of the upper wall bracket #3, the main panels #2, and the bottom wall bracket #4 of the system. The curved section of the upper wall bracket #3 should be at the bottom, creating a right-sides up “J” (see FIG. 3). There are openings along the length of the bracket. The main panels of the system are in the form of an elongated “S” (see FIGS. 2, 3 and 4). When viewed from the side, the bottom wall bracket is in the form of a question mark (see FIGS. 3 and 5). There are vertical slots along the length of the bracket.

[0009] FIG. 4: This is an enlarged view of how the curved portions of the upper wall bracket #3 and the top of the main panels #2 will attach to each other.

[0010] FIG. 5: This is an enlarged view of how the curved portions of the lower wall bracket #4 and the bottom of the main panels #2 will attach to each other.

[0011] FIG. 6A: This is a view of the strips that will be fixed to the wall and will secure the main “S” panels. Strip #5 will secure the top portion of the right side of the main panels. Lengthwise, the left side of this strip #5 is slightly raised above the other. The right side of the strip #5 has openings which will line up with the anchors already placed in the wall so the strip may be secured. The right side also has curved portions at the top which are similar to the curves of the main “S” panels.

[0012] Strip #6 will be used to secure the bottom portion of the right side of the main panels. This strip #6 is the same as strip #5 with two exceptions. This strip has a curved “J”-shaped portion at the bottom of the strip instead of at the top. The other difference between strip #6 and strip #5 is that the openings in strip #6 are vertical slots which allow this strip to be adjusted when being secured.

[0013] Strip #7 will be used to secure the top portion of the left side of the main panels. It is a mirror image of strip #5.

[0014] Strip #8 will be used to secure the bottom portion of the left side of the main panels. It is a mirror image of strip #6.

[0015] FIG. 6B: This is a side view showing how strips #5 and #6 will look when secured #9. Strip #6 will overlap strip #5. The strips will then be secured to the wall through the openings by using the appropriate hardware #15 (FIG. 11).

[0016] FIG. 7: This is a view of how the system will look when completely assembled. Upper bracket #3 will be attached to main panels #2. Main panels #2 will be attached to each other until the bottom bracket #4 is reached. Right side strips #5 and #6 will overlap the main panels and be attached to the top bracket #3 and bottom bracket #4. Left side strips #7 and #8 will be attached in a mirror image of the right side strips #5 and #6. All openings on the top bracket #3, bottom bracket #4, right and left strips #5, #6, #7, and #8 will be secured with appropriate hardware #15.

[0017] FIG. 8: This is a view of the system used when covering a terrace or balcony sliding glass door. The partially hatched section of the view shows a post #10 placed with an accessible distance between it and the wall and angles #11 used to secure the post to the bottom rails of the sliding glass door. Main panels #2 cover most of the opening and are secured by an upper bracket #3 and a lower bracket #4, as well as right side strips #5 and #6. A vertical panel door #12 is fixed to the wall using a piano hinge #13.

[0018] FIG. 9: This is a top view of the system used when covering a terrace or balcony sliding glass door. This view shows how the side panel #5 overlaps the top bracket #3 and is fixed to the wall by using hardware #15. The panel door #12, which is secured to the wall using hinge #13, overlaps the main panels #2 and is fixed to the post #10 with the latch lock #14.

[0019] FIG. 10: This is a view of the latch #14 used to secure the vertical panel door #12 and series of panels #2 to the post #10.
FIG. 11: This is a view of the hardware #15 that will be used to secure the system to the wall. It is a piece of hardware #15 that has a wingnut, washer, and screw all integrated into one piece. This type of hardware is preferred so that no tools are necessary for assembly and disassembly (excluding the initial installation of anchors). Other types of hardware may be substituted.

FIG. 12: This is a side view of the top portion of the post #10. Either side of the post is secured using angles #11 inside the rails of the sliding glass door.

FIG. 13: This is a side view of the bottom portion of the post #10. Either side of the post is secured using angles #11 inside the rails of the sliding glass door.

DETAILED DESCRIPTION OF THE INVENTION

This invention is an improvement on other types of storm protection systems for three main reasons. First, it uses less material to produce. Secondly, the system can be assembled and disassembled without the use of tools (with the exception of the initial installation of anchors.) Thirdly, the finished product has a lower profile than previous systems.

The basic materials that compose the system are the hardware, and the materials used to create the panels straps and brackets. The hardware includes the wingnut, washer, screw combination #15 (other types of hardware may be substituted.)

The width of the main “S” panels #2 must be greater than the width of the window opening plus six inches (to accommodate three inches on each side of the window opening). The width of the upper bracket #3 and lower bracket #4 must be greater than the width of the main “S” panels #2 plus enough distance to accommodate the curved sections of the side straps #5, #6, #7, #8.

The first step in assembling the system is the installation of the anchors. These anchors must be installed into the wall which surrounds the window that needs to be protected. The upper wall bracket #3 should be situated so that the bottom of the bracket is a minimum of three inches above the window opening. This bracket #3 should be made level and marks should be made on the wall through the openings of bracket #3. Anchors should then be placed in the holes made by drilling where the aforementioned marks have been made. Using hardware #15, the upper wall bracket #3 should be fixed to the wall.

One of the main “S” panels #2 is then attached to the upper wall bracket #3. The top curve of the “S” panel #2 will interlock with the bottom “J” portion of the upper wall bracket #3. Another main “S” panel #2 will interlock with the bottom curve of the first “S” panel #2. Subsequent main “S” panels #2 will then be connected in the same manner, covering the entire height of the window opening plus a minimum of three inches below the window opening.

Lower wall bracket #4 is connected to the lowest of the main “S” panels #2. The entire series of panels #2 and the lower wall bracket #4 is then pulled down firmly. While pulling firmly on the series of panels #2 and the lower wall bracket #4, marks should be made on the wall through the slots of the lower wall bracket #4. The lower wall bracket should then be removed and anchors should be placed in the holes made by drilling where the aforementioned marks have been made. Using hardware #15, the lower wall bracket #4 should be fixed to the wall creating a firm series of panels that cover the entire window and at least three inches of margin around the window opening.

The right side top strap #5 should be interlocked to the top wall bracket #3 next to where the main “S” panel has been attached. This should be done in such a way that the openings of the right side top strap #5 are flush against the wall and the raised section of the right side top strap #5 overlap the main “S” panels #2. The right side bottom strap #6 should be interlocked into the bottom wall bracket #4. This should be done in such a way that the openings of the right side bottom strap are against the wall and the raised section of the right side bottom strap #6 overlap the main “S” panels #2 as well as the right side top strap (see FIGS. 6B and 7). Marks should then be made in the wall through the openings of the right side top strap #5 and the right side bottom strap #6. The right side top strap #5 and right side bottom strap #6 should then be removed and anchors should be placed in the holes made by drilling where the aforementioned marks have been made. Using hardware #15, the right side top strap #5 and the right side bottom strap #6 should be fixed to the wall together.

Anchors should be placed on the left side of the window opening by following the same procedures for the left side of the window opening that were used for right side of the window opening. The left side top strap #7 and the left side bottom strap #8 should be connected on the left side of the main “S” panels #2, the top wall bracket #3, and the bottom wall bracket #4 in the same way as the right side top strap #5 and the right side bottom strap #6 were connected to the right sides of these parts.

The finished product includes the series main “S” panels connected to the top wall bracket #3 and the bottom wall bracket #4. The top wall bracket #3 and the bottom wall bracket #4 are fixed to the wall using the hardware #15. Then the left and right side straps #5, #6, #7, and #8 are attached on their respective sides and secured to the wall using the hardware. This creates a strong, low-profile protection against wind storms and other potentially damaging phenomena. In addition, once the anchors have been installed, tools are no longer needed to assemble and disassemble this system.

When the storm shutter system is needed to cover a terrace or balcony door (such as a sliding glass door) a special system can be used. A vertical post #10 is fixed at a distance from the door opening that is comfortable for a person to pass through. The post is secured by angles #11 screwed to the upper and bottom rails of the sliding door. At the closed end of the door/window opening, the “S” panels are attached to the wall in the same way as a normal window opening. However, the panel system will not be secured to the post in the same way. Instead, the panel system will rest on top of the post (and will be secured by a vertical panel door [see below]). To complete the enclosure, a vertical panel #13 is attached to the opposite end of the wall using a piano hinge #12 (allowing the vertical panel to swing like a door.) The non-hinged end of this vertical panel door, when closed, will use the vertical post as a jamb and will overlap the above shutter system. The door and panels will then be
secured by a latch #14 mounted on the inner side of the vertical panel door and hooked to the inside of the post.

What I claim as my invention is:

1. A system of aerodynamic, low-profile storm shutters comprised of a series “S”-shaped interlocking panels which are linked together (without the need of fastening devices) and secured to the wall by a series of preset brackets and overlaying, easy-to-secure straps.

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