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Example Provisional Patent Application (PPA)

In due course, this Provisional patent application (PPA) was re-written and filed as a utility (non-provisional) patent application in the U.S. Patent Office. The patent was eventually granted as **US Patent No. 9,506,251**

*The following example is provided for educational purposes only in connection with **ELG's Practical Guide to PROVISIONAL PATENT APPLICATIONS** for the Cost-Conscious Inventor.*

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CLOG FREE AUTOMATIC DOWNSPOUT

BACKGROUND OF THE INVENTION

[0001] Precipitation runoff from roofs and other structures cause soil erosion, foundation damage, and seepage if not properly conveyed and deposited a safe distance from the structure's foundation.

[0002] Many attempts at solutions have been devised over the years. The attempted methods require constant monitoring for damage, and are designed and built with choke points and snags that increase clog potential. Further, the dispersing point of most systems are typically in harm's way and are repeatedly collapsed, crushed or broken by lawn care equipment, and other outdoor activities resulting in time and expense to maintain and repair. In addition, clogged and/or collapsed systems often deposit or direct runoff at or close to the foundation contributing to the damage they were meant to deter.

[0003] One system typically includes three sections of downspout material totaling 12-16' in length, 3 elbows, 2 straps, 20 screws, and a splash block, for typical one-story applications as shown in figure 1. All three elbows are potential clog points; the 20 screws provide ample snag points/potential, the lowest section (dispersing point) of the downspout is prone to damage from lawn care equipment, and other outdoor activities, and is then prone to clog. Another clog point affected by this system is the gutter exit point, which when clogged is only accessible from above or from below after removal of a portion of the downspout system.

[0004] Another type replaces the last section of the downspout system mentioned above and includes a perforated plastic tube that unrolls and disperses precipitation when present. This type does not always retract completely eventually remaining extended further after each engagement. As the lawn continues to grow through and clogs successive dispersing holes, it is further exposed to damage by lawn care equipment or other outdoor activities.

[0005] Yet another type (Patent. #US 5,358,006) replaces the last section of the downspout system mentioned [0003] above with a trough that is manually lifted up when not in use, and placed down in the dispersing position when precipitation necessitates. Similar to other typical systems, this trough is subject to damage from lawn care equipment, and normal outdoor activities. In addition, this solution mandates repeated timely attention to be placed in the

dispersing or resting positions to avoid depositing runoff at or very close to the foundation, resulting in soil erosion and/or foundation damage.

[0006] Prior attempts at Fully Automatic Downspouts have been made, and may have failed due to overall complexity, required more raw materials, and included clog prone designs. Further, the complex designs include small parts that may not function properly over time as dirt and/or corrosion collects on and/or in them.

[0007] There have been examples of prior art including yet not limited to Automatic Downspouts as listed following:

- US 6,701,675 to Jon issued March 9, 2004,
- US 6,647,670 to Michael issued November 18, 2003,
- US 5,673,519 to Brian issued October 7, 1997,
- US 5,522,427 to Charles issued June 4, 1996,
- US 5,482,084 to Douglas issued January 9, 1996,
- US 5,358,007 to Stanley issued October 25, 1994,
- US 5,014,745 to Paul issued May 14, 1991,
- US 4,270,572 to Clifford issued June 2, 1981,
- US 4,135,540 to Karl issued January 23, 1979,
- US 3,911,954 to Johnson issued October 14, 1975,
- US 3,375,851 to Fitz issued April 2, 1968,
- US 3,316,928 to Weakley issued May 2, 1967.

[0008] Systems that divert runoff to alternate distribution or storage systems typically require direct connections to properly convey the runoff to the desired location increasing the potential for choke points, and increased cost of installation.

[0009] Damage caused by lawn care equipment, normal outdoor activities, choke points, screws and other snag points prevent the current proposed solutions from functioning properly, resulting in soil erosion, damage to foundations, seepage, increased monitoring efforts, and increased repair/maintenance cost.

[0010] There is therefore a need for the Automatic Downspouts, of rain gutter system, that optimizes or simplifies the Automatic Downspouts design, which can reduce the maintenance effort to avoid damage and the clog problem, as well minimize the cost of materials and installation.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0011] Precipitation runoff from roofs and other structures collect in the gutter system generally indicated 20, and exit the gutter into a downspout 22. The downspout 22 conveys the runoff down to and in to the trough 24, which is activated by the runoff upon contact. Upon activation, the trough 24 rotates from the resting position to the dispersing position, allowing the runoff to continue down the trough 24 to its lower end and disperse the contents projecting the runoff towards a predetermined location. After dispersing is complete, the trough 24 returns to the resting position via the counterbalances 26 and wire 28 assembly.

[0012] The downspout 22 connects to the gutter (or other water or material collection, dispersing, conveying device) in a fashion that promotes continued flow to the downspout 22.

[0013] The trough 24 connects to the downspout 22 via a hinge pin 30 that also connects the counterbalances 26 and wire 28. The hinge pin 30 connects at the downspout's 22 back near the lowest point as if the downspout 22 were properly installed. The trough 24 connects via the hinge pin 30 at the trough's 24 sides, at corresponding inline points with the downspout 22 hinge points. The counterbalances 26 and wire 28 connect to the trough 24 and downspout 22 assembly at the hinge pin 30 outside of the trough 24, which is, outside of the downspout 22. The counterbalances 26 and wire 28 assembly is one continuous wire 28 with two ends that loops under the trough 24 and back to encircle the hinge pin 30 on each side of the trough 24, and then continues to and attaches to the counterbalance 26 where it terminates. The standoff 32 option tab is located on the back of the downspout 22 above and near the hinge pin 30. An opening 34 between the downspout 22 and trough 24 when in the resting position allows for easier debris removal from the gutters exit point. A well-placed stream of water from a typical garden hose directed at the opening 34 may dislodge debris that typically clogs gutters at their exit point.

[0014] Damage caused by lawn care equipment and outdoor activities may be dramatically reduced as the device is only extended to the dispersing position when precipitation runoff is present. In addition, the device is about 1/10-1/20 the size of the current attempts to solve the problem of precipitation runoff control. After engagement, the device automatically rotates back to the resting or non-dispersing position, via the counterbalance assembly, thus a smaller target and out of harm's way.

[0015] Choke points, screws and other snag points have been eliminated in the device. Thus, the elements that keep prior art's attempted solutions from functioning properly are drastically reduced or eliminated.

[0016] Choke points are eliminated as elbows and fully enclosed areas are eliminated, anything small enough to get in the device will flow through unimpeded. The open face/three sided design of the downspout and trough, and the lack of elbows or interior snag potentials allows all items entering from the gutter above to disperse unimpeded.

[0017] The device's reduced overall dimensions/size requires fewer raw materials, reduces shipping, handling, and energy costs, and allows the green minded to participate more fully in runoff control and redirection.

[0018] The time required to install the device and the amount of materials required to solve the problem are greatly reduced with this device. Repair costs, monitoring, manual adjusting, potential soil erosion and foundation damage are all reduced or may be eliminated with the device. Adjustments to facilitate future landscape changes require adjusting one or two screws, rather than dismantling and rebuilding a larger system.

[0019] Clogs in the gutter system where precipitation runoff enters into the device from that gutter, while not a part of the device or caused by the device, are more easily dislodged with the device in place. A well-placed blast from a typical garden hose may eliminate the need to dismantle a system or climb a ladder to unclog the gutter at that point.

[0020] The device is activated and the trough rotates to the dispersing position when the precipitation enters the downspout at the gutters exit point, then returns to the resting position via a counterbalance as the drainage/runoff ceases.

[0021] Installation requires the tightening of one or two screws while holding the device in the desired orientation to direct runoff to the appropriate location, such as a splash block or collection device. The device has the capability to rotate 360 degrees until the first mounting screw is tightened.

[0022] The ability to rotate the device at installation, or at any latter date by adjusting just one or two screws, allows for greater flexibility and ease of adjustment to different collections points, splash blocks, diverters or other locations.

[0023] The foregoing invention has been described in accordance with the relevant legal standards, thus the description is exemplary rather than limiting in nature. Variations and

modifications to the disclosed embodiment may become apparent to those skilled in the art and fall within the scope of the invention.

What is claimed is:

1. A clog free Automatic Downspout assembly, as shown and described.
2. A method for installing and manufacturing the clog free Automatic Downspout assembly, as shown and described.
3. A method to aid in debris removal by a well-placed stream of water from a typical garden hose directed at the opening.
4. A method to ease installation of the Clog Free Automatic Downspout, as shown and described.
5. A method to allow for 360 degrees rotation adjustment of the clog free Automatic Downspout assembly as needed for directional control of runoff.

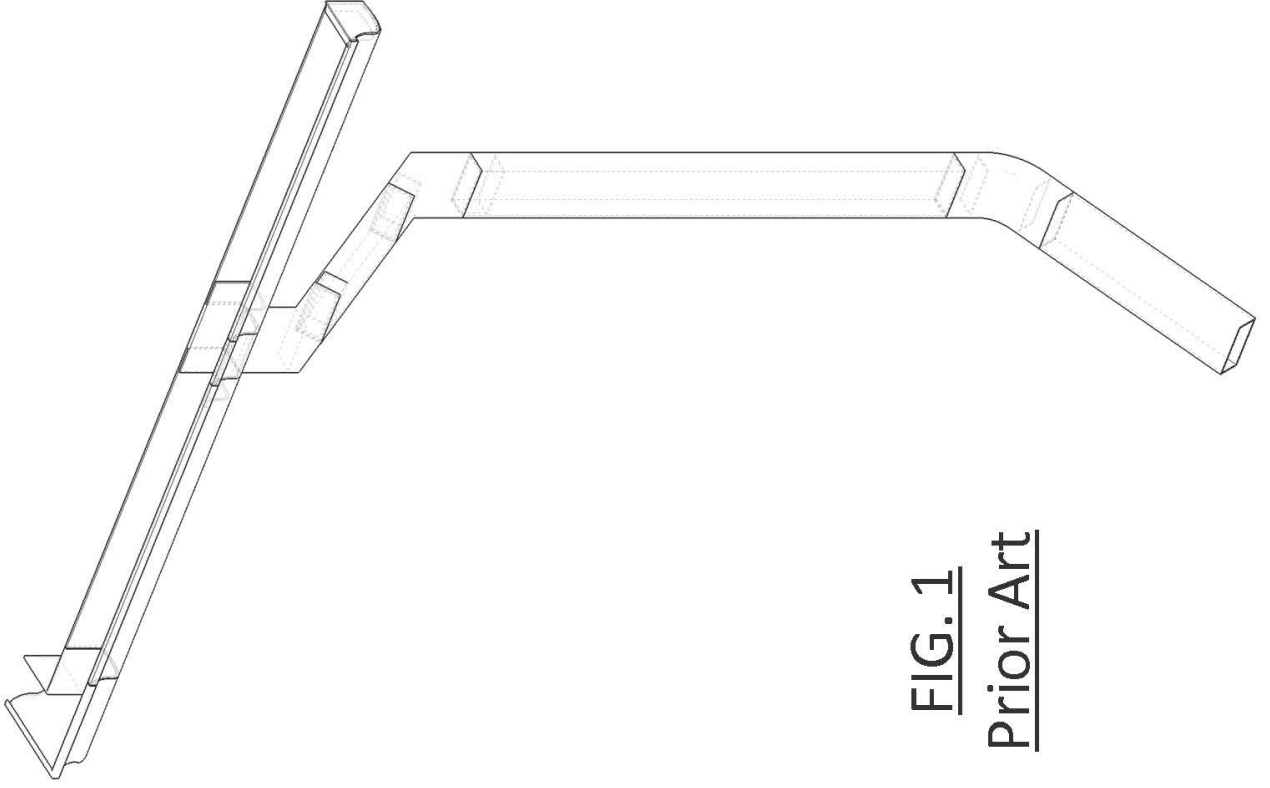


FIG. 1
Prior Art

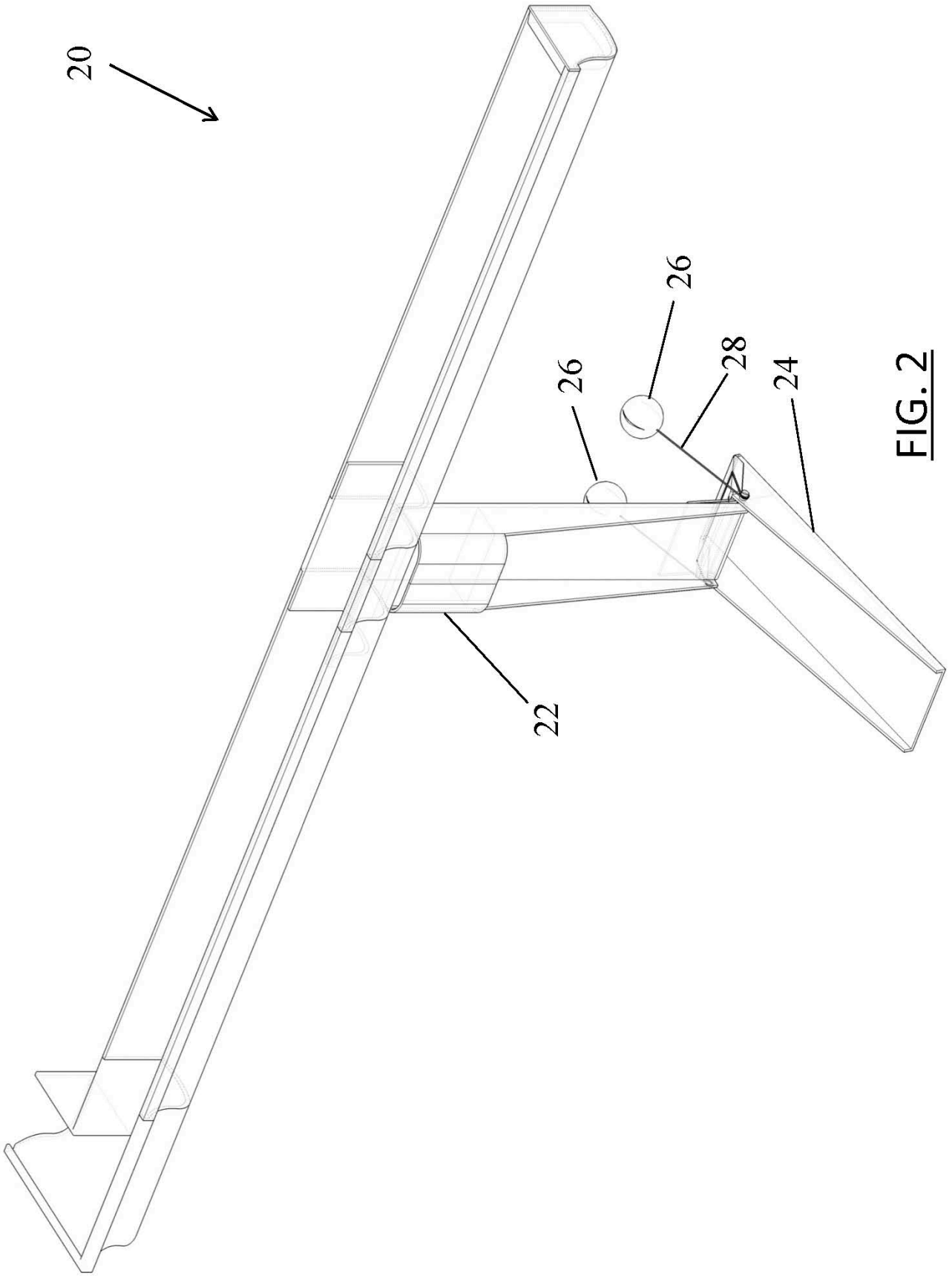


FIG. 2

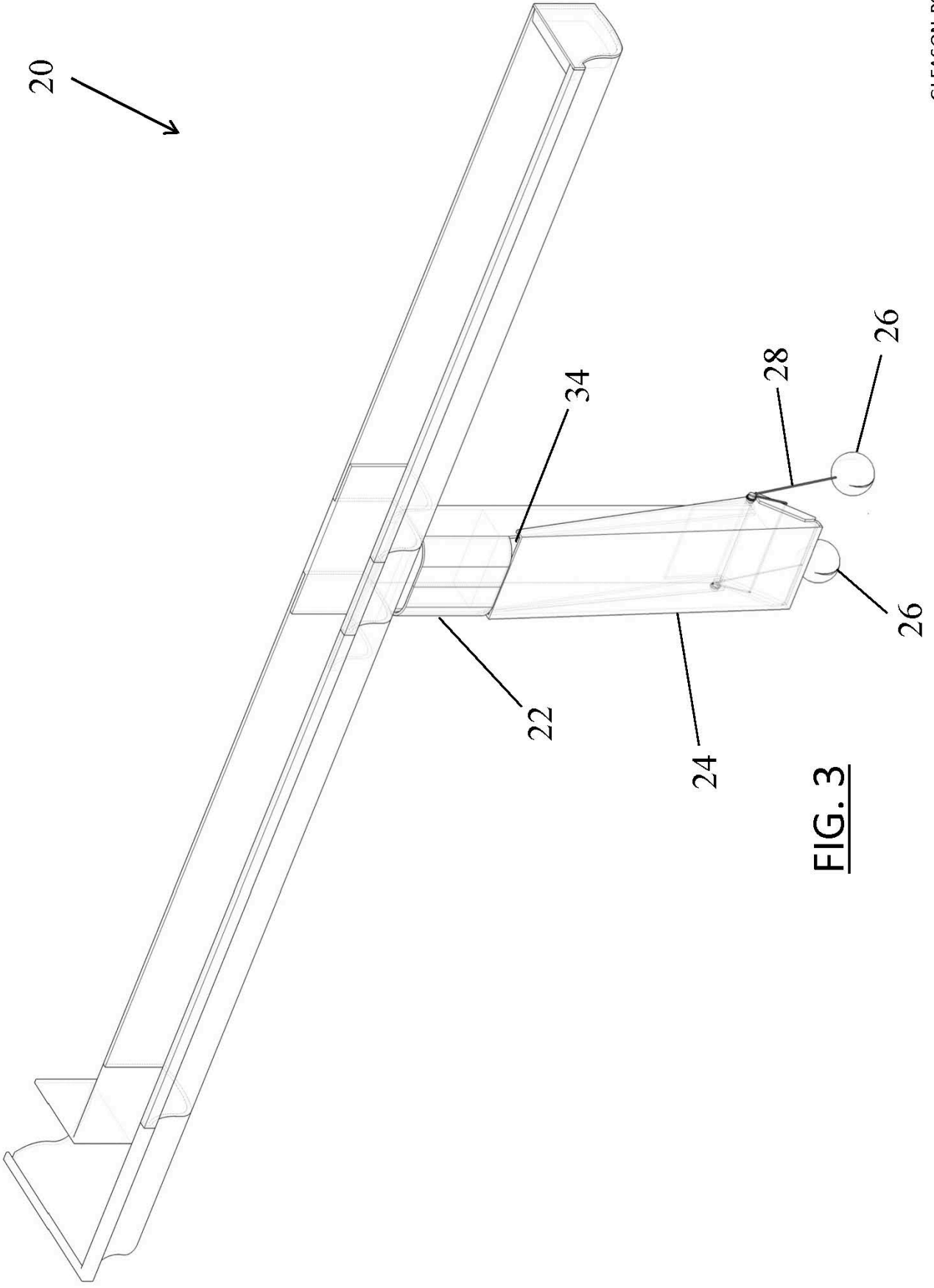


FIG. 3

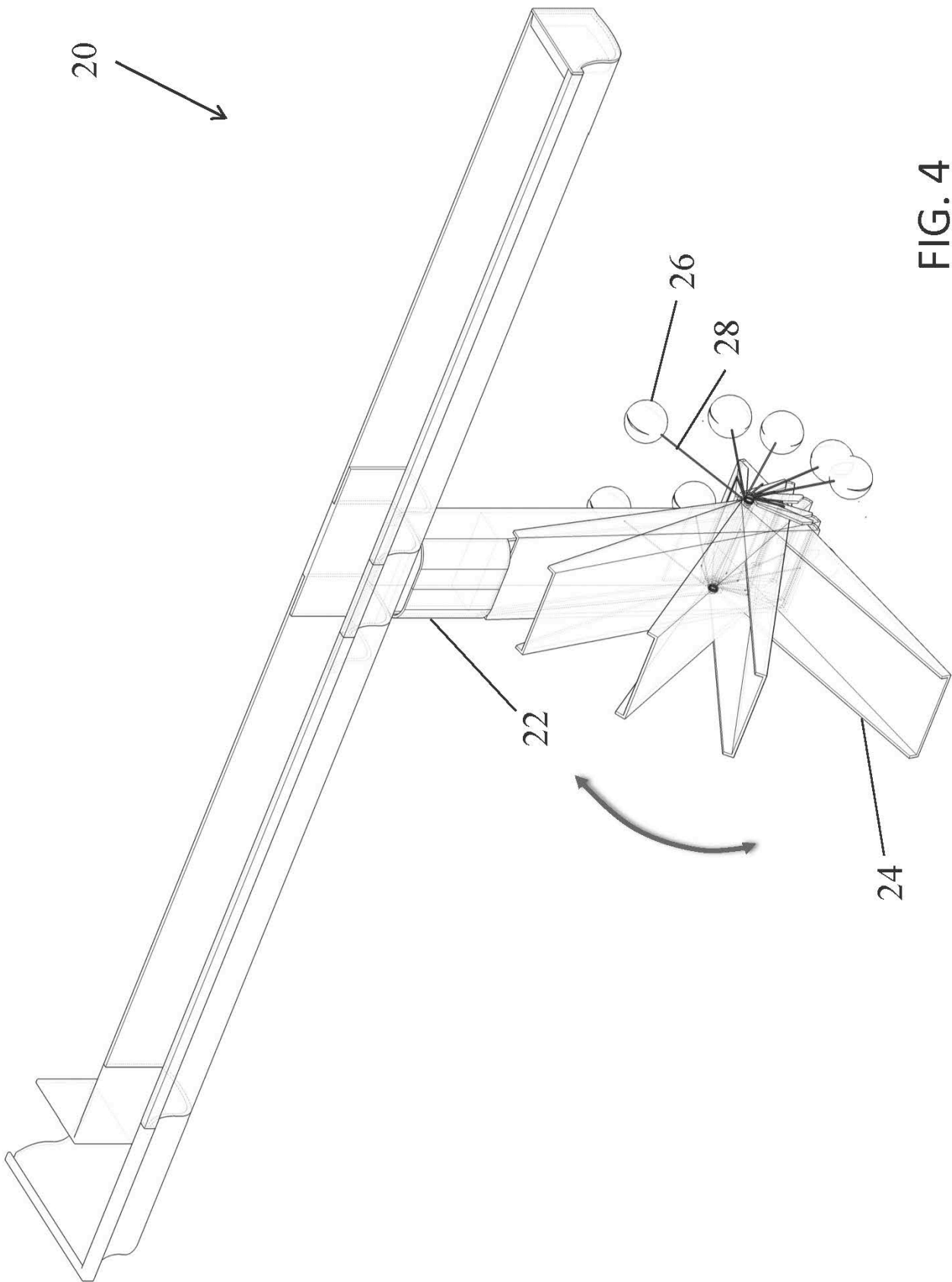


FIG. 4

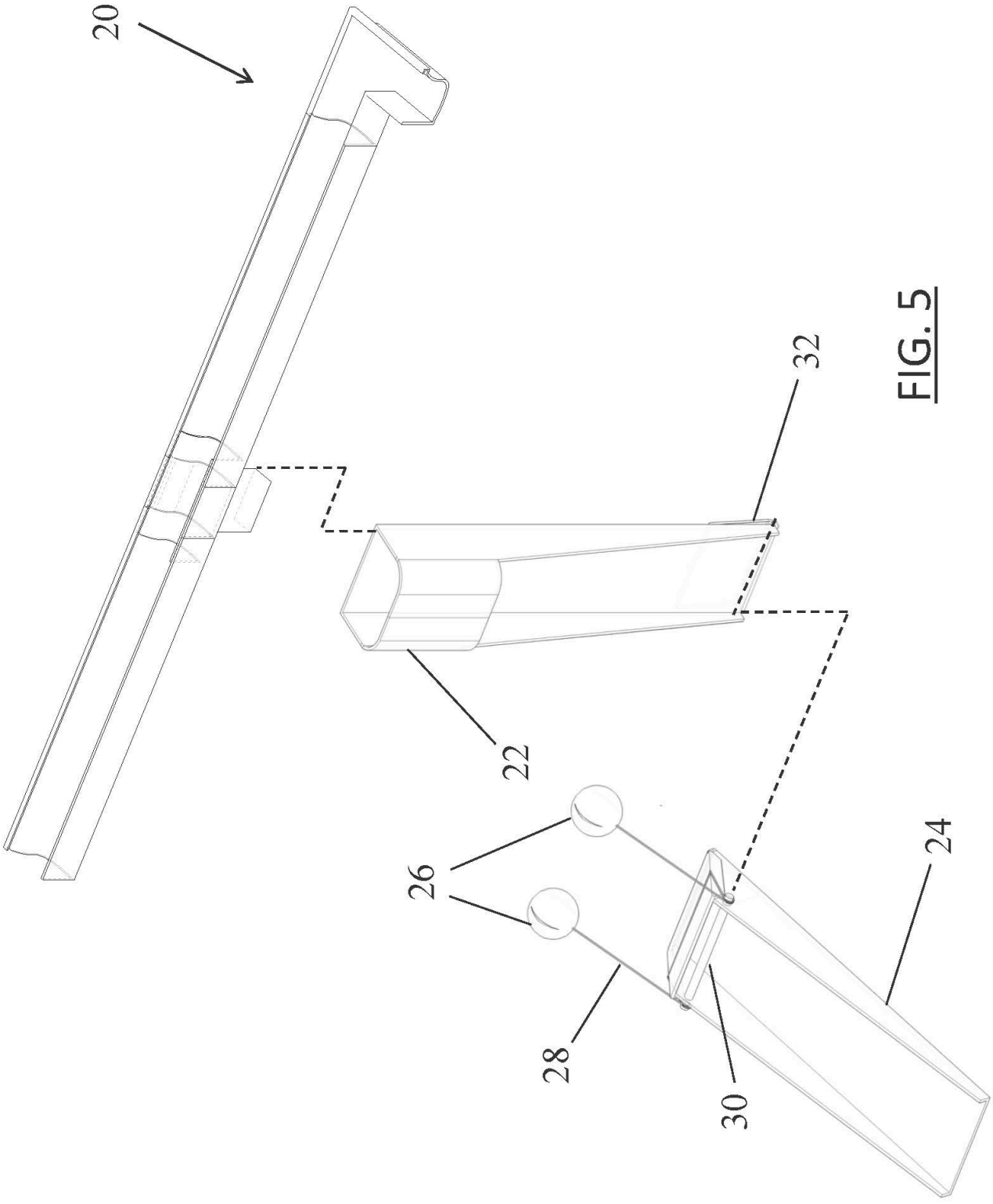


FIG. 5

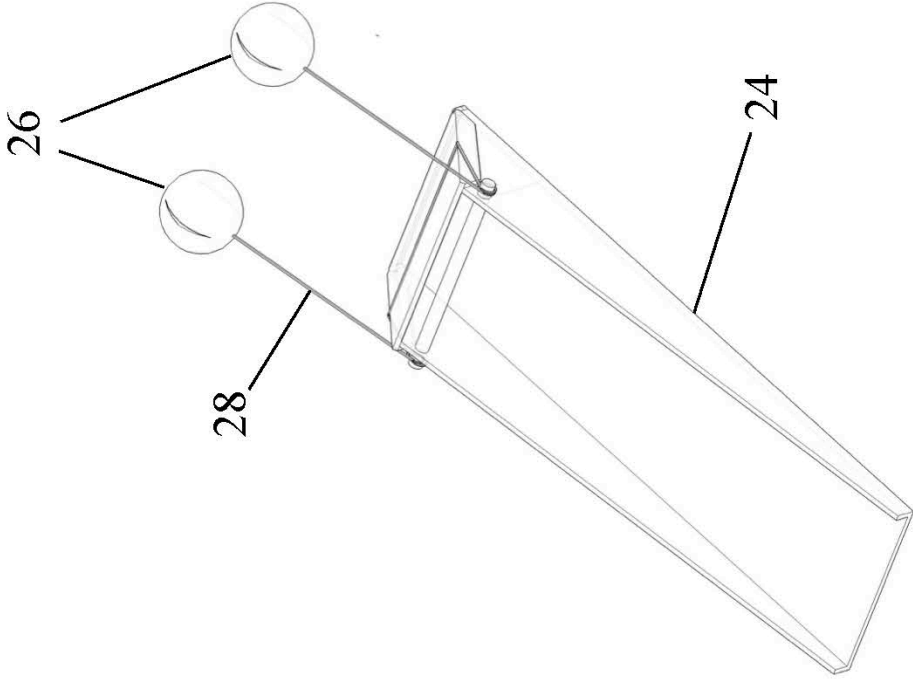


FIG. 6

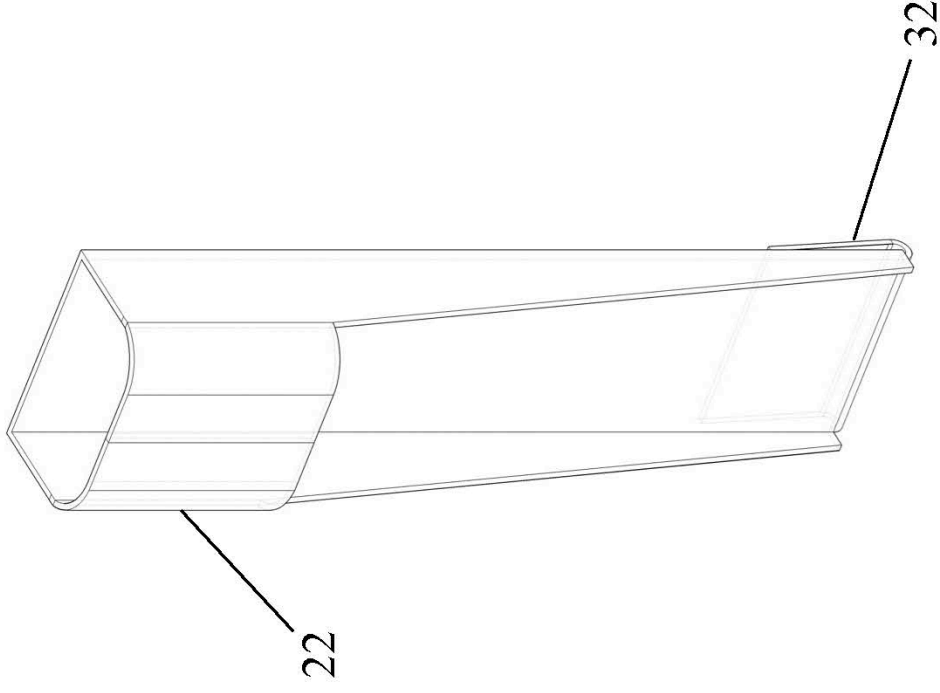


FIG. 7



FIG. 8

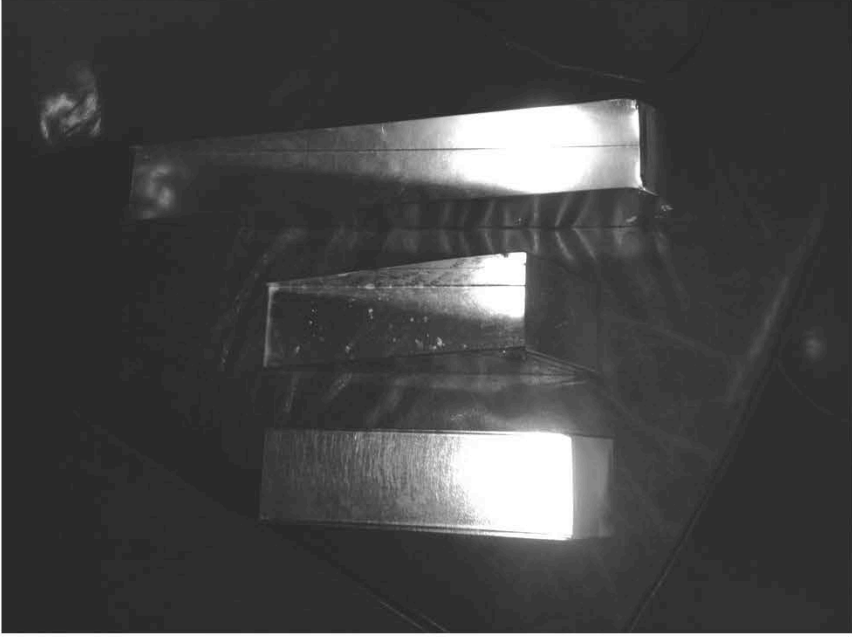


FIG. 9



FIG. 10



FIG. 11

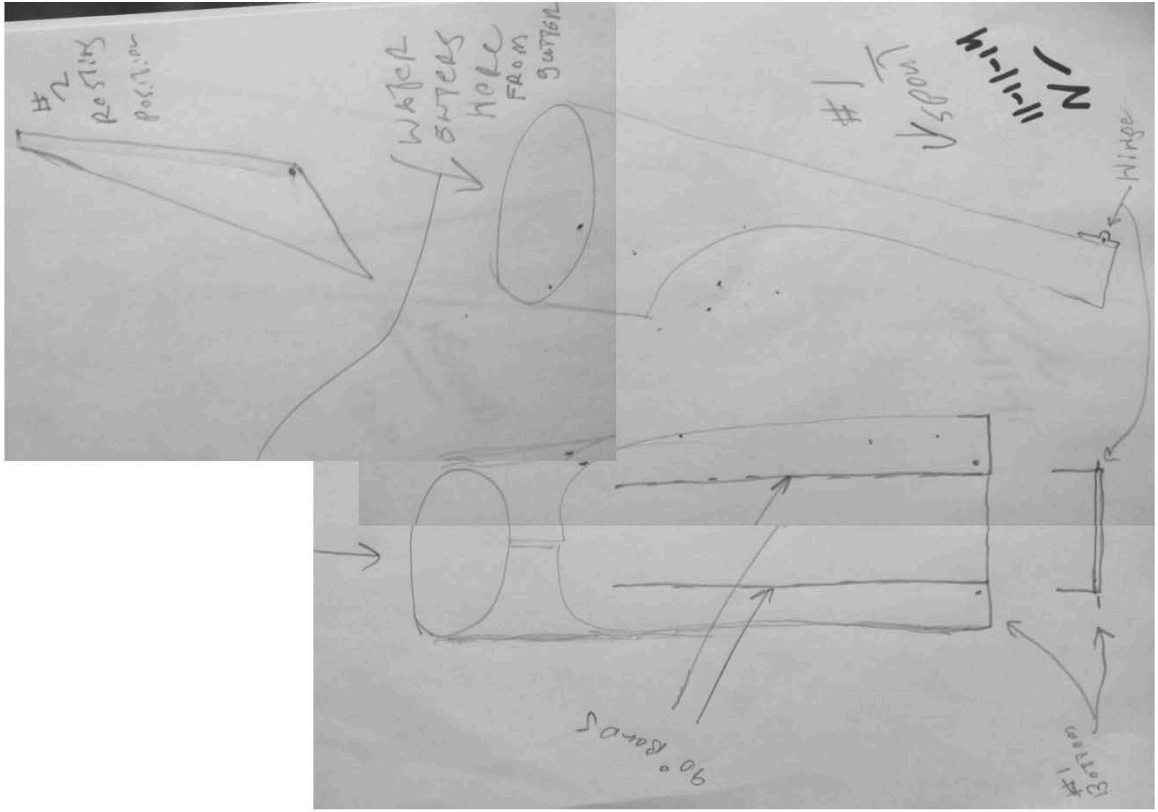


FIG. 12

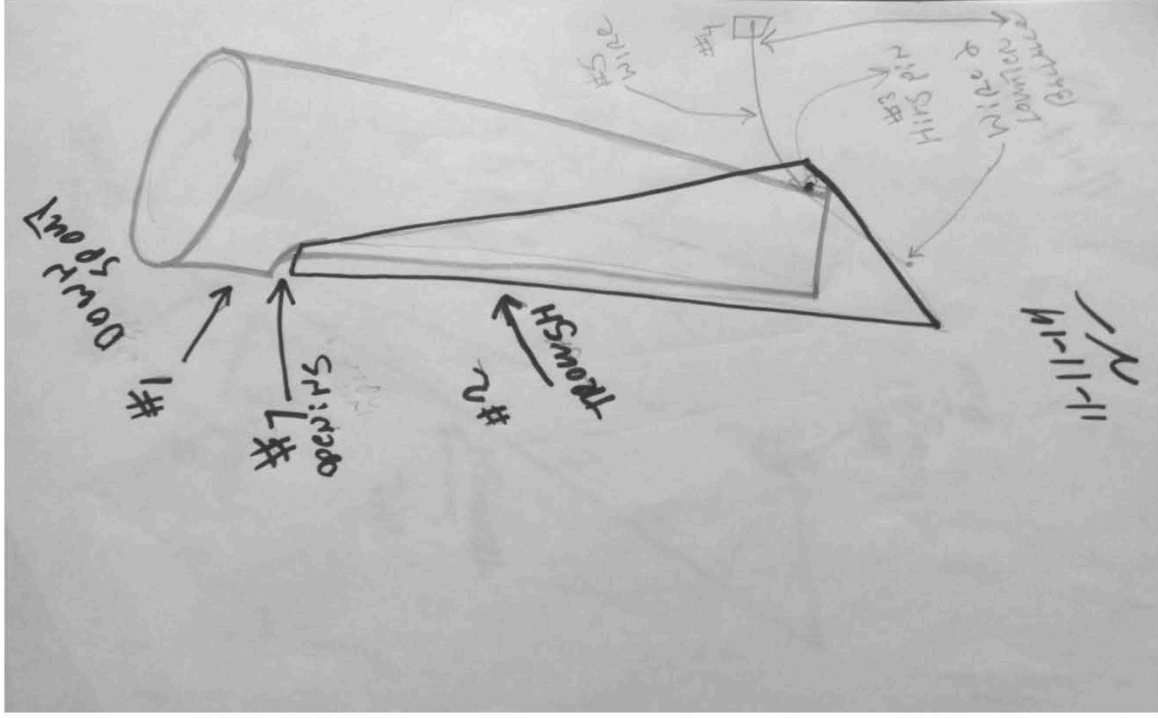


FIG. 13

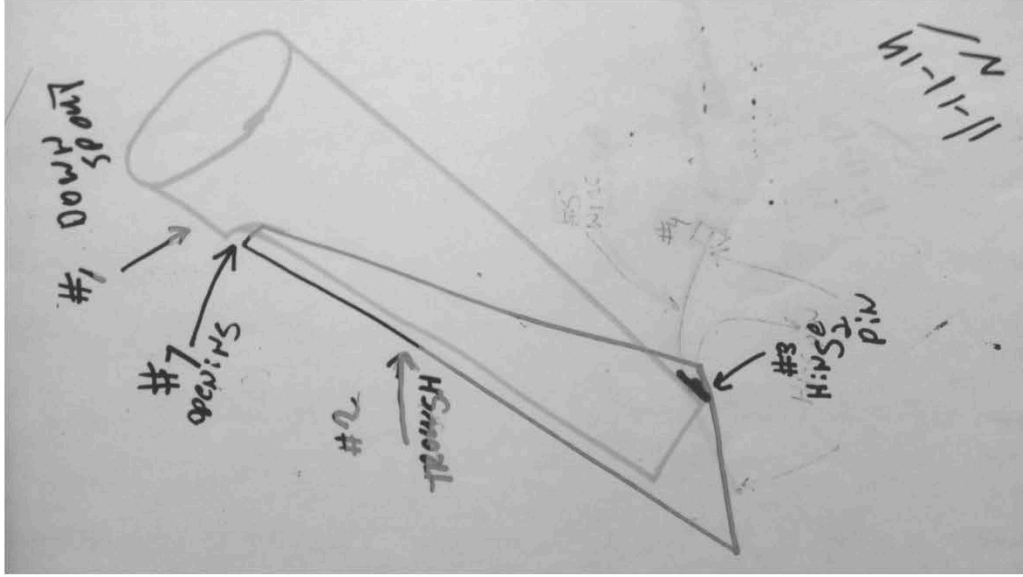


FIG. 14

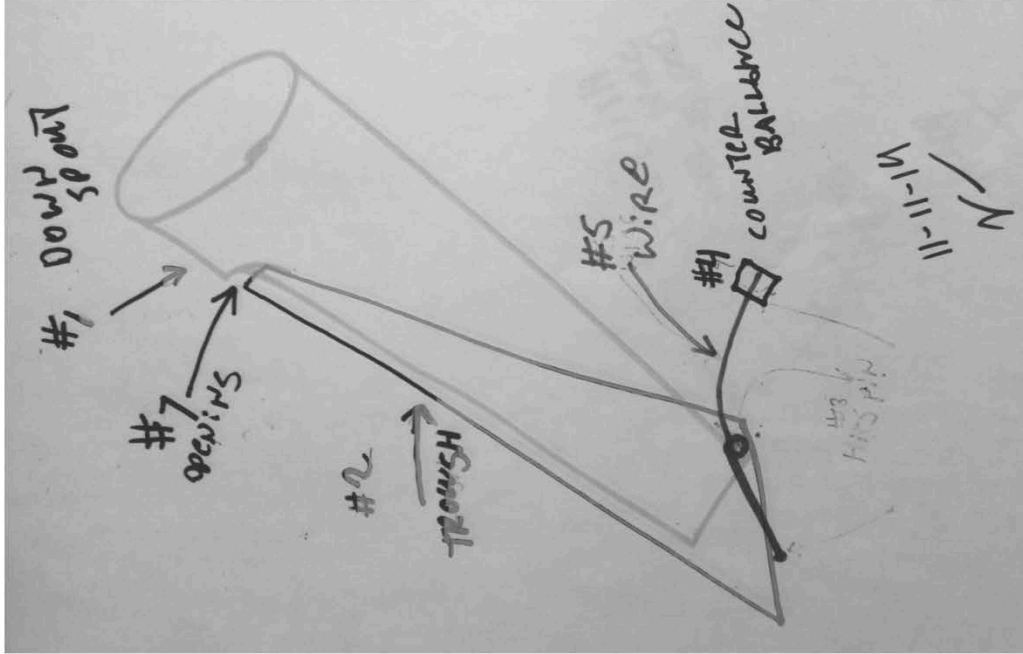


FIG. 15

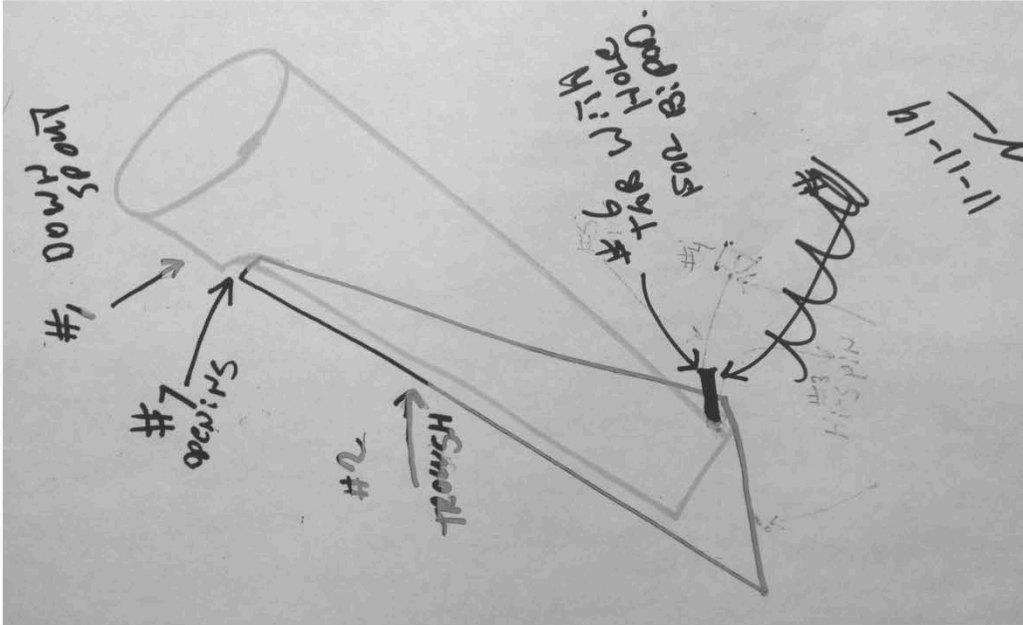


FIG. 16

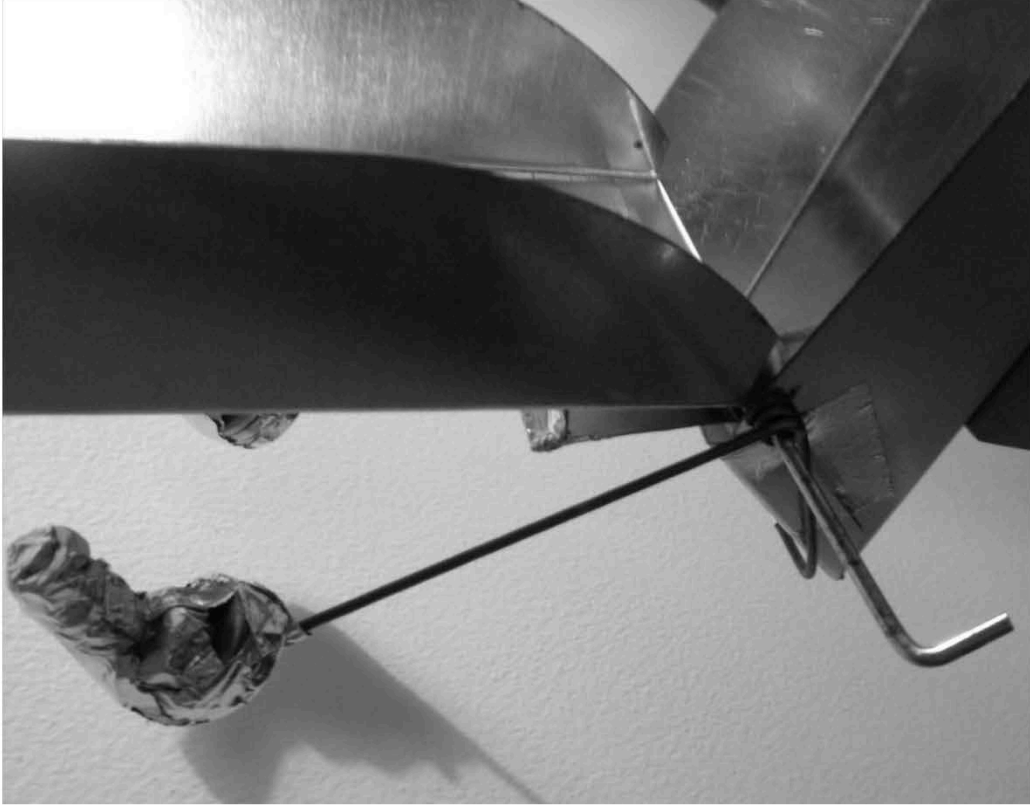


FIG. 17



FIG. 18