

# Written Description

THIS DOCUMENT DISCLOSES DETAILS ON THE INVENTION OF

## *Ratchet Strap Alarm System*

**DOCUMENT VERSION:** Original

**INVENTOR'S NAME:** Example 3

**INVENTION NAME:** The "Ratchet Strap Alarm System"

**INVENTION FUNCTION:** The "Ratchet Strap Alarm System" protects transported cargo from damage, loss and theft.

**SPECIFIC, UNIQUE FUNCTION OR PROPERTY OF INVENTION:** The "Ratchet Strap Alarm System" is an alarm that attaches to straps used to secure cargo upon and/or within vehicles, and that alerts audibly and visibly when those straps are loosened or removed.

**INVENTION FEATURES:** The "Ratchet Strap Alarm System" features an audio alarm, a radio-frequency (RF) transmitter, a high-tension spring, a nodule that connects to the audio alarm and RF transmitter, and a durable housing containing said components.

External brackets, one of which extends internally and includes a shaft that attaches to the aforementioned high-tension spring, are featured on opposite lateral sidewalls of the housing.

A lighting piece broadcasts externally from this durable housing. The electric components within the housing are powered by an internal battery, which can be recharged by a separate and removable electrical cord.

Durable straps that attach to these external brackets, and which include securing hooks at their endpoints, are also featured upon the base component.

Also included is a separate and portable radio-frequency (RF) receiver, which is featured within a housing that contains an audio alarm and lighting piece. This piece can come in the format of a key fob and/or a dash mounted device.

**INVENTION BENEFITS:** The "Ratchet Strap Alarm System" aids in the securement of cargo upon vehicles.

The "Ratchet Strap Alarm System" alerts users when such securement is at risk.

The "Ratchet Strap Alarm System" sounds an alarm when such securement is at risk.

The "Ratchet Strap Alarm System" offers a visible light when such securement is at risk.

The "Ratchet Strap Alarm System" alerts users when such securement loses the tension required to properly maintain cargo.

The “Ratchet Strap Alarm System” alerts users when such securement is unwontedly loosened, such as by gravity or motion of the cargo during transport.

The “Ratchet Strap Alarm System” alerts users of the risk to cargo before any damages are incurred.

By alerting transporters of potential risk to cargo before such risks are incurred, the “Ratchet Strap Alarm System” can reduce and/or eliminate the liability of the transporter.

The “Ratchet Strap Alarm System” protects and prevents common damages to cargo.

The “Ratchet Strap Alarm System” eliminates the costs of such common damages to cargo.

The “Ratchet Strap Alarm System” reduces risks of additional costs for both the transporter and recipient of cargo.

The “Ratchet Strap Alarm System” eliminates the inconveniences of delay and lost productivity for the recipients of the cargo.

The “Ratchet Strap Alarm System” eliminates the inconveniences of liability and business relations for the transporters of the cargo.

The “Ratchet Strap Alarm System” provides notification of strap tension errors directly from the point it occurs.

The “Ratchet Strap Alarm System” also provides notification of strap tension errors to a remote device, which attaches to a user’s key chain and/or to the dash of the hosting vehicle.

The “Ratchet Strap Alarm System” provides its notification in a very convenient and noticeable format.

The “Ratchet Strap Alarm System” allows problems with securing strap tension to be identified quickly and to be corrected quickly.

The alarm of the “Ratchet Strap Alarm System” lets users know exactly when the problem with securing strap tension occurs.

The alarm of the “Ratchet Strap Alarm System” lets users know exactly where the problem with securing strap tension occurs.

The “Ratchet Strap Alarm System” alerts users when such securement is invasively loosened or removed, such as in theft or vandalism.

The “Ratchet Strap Alarm System” operates as a theft deterrent.

The “Ratchet Strap Alarm System” publicly alerts its surrounding community when contents are in the process of being stolen.

The “Ratchet Strap Alarm System” can dissuade thieves from stealing cargo.

By protecting cargo from potential damages and from theft, the “Ratchet Strap Alarm System” can help secure and improve the profitability of its commercial users.

By helping to secure cargo and ensure its intended transport without risk, the “Ratchet Strap Alarm System” can help commercial users improve business reputations and client relations.

The “Ratchet Strap Alarm System” can be used on semis, tractor trailers, box trucks, flat beds and pick-up trucks.

The “Ratchet Strap Alarm System” can be used with attachable trailers, boat trailers, and other devices that attach to private automobiles.

The “Ratchet Strap Alarm System” can be used with airplanes, freight liners, freight trains and other cargo transportation vehicles.

The “Ratchet Strap Alarm System” can be used by commercial, professional and residential consumers.

The “Ratchet Strap Alarm System” is easy to use.

The “Ratchet Strap Alarm System” can be applied upon and used with ordinary ratchet/cargo straps.

**INVENTION VARIATIONS:** The “Ratchet Strap Alarm System” can be made in various sizes and shapes.

The housing of the base and receiver portions of the “Ratchet Strap Alarm System” can be made of various durable materials, such as but not limited to high-impact polystyrene (HIPS) and stainless steel.

The radio frequency (RF) receiver of the “Ratchet Strap Alarm System” can be of various formats and housed in various container formats, sizes and shapes.

The communication between the transmitter and receiver of the “Ratchet Strap Alarm System” can be of various radio frequencies.

The “Ratchet Strap Alarm System” may or may not include attached straps, which can be of various lengths on either side of the base housing.

The “Ratchet Strap Alarm System” can be made in variations in which it is included into newly-produced ratchet straps.

The “Ratchet Strap Alarm System” can be made in variations that include an internal level reader, any imbalance of which would sound the alarm should the securing strap to which the “Ratchet Strap Alarm System” attaches begins to slide from the cargo it holds, indicating any linear motion by that cargo while the securing strap might still retain adequate tension.

The “Ratchet Strap Alarm System” may or may not include a specific logo or emblem, which may or may not be of registered trademark and/or copyright status.

**MECHANICAL DESCRIPTION:** *(This mechanical description is provided for specificity purposes only, and is not intended in any way to limit the dimensions, materials of production and/or scope of use regarding the “Ratchet Strap Alarm System.”)*

The housing of the base portion of the “Ratchet Strap Alarm System” is made of high-impact polystyrene (HIPS), and measures approximately four inches in length by three inches in width by two inches in depth (4” x 3” x 2”).

Extending from the width endpoints of the housing are external brackets, made of tubular stainless steel of half-inch ( $\frac{1}{2}$ ”) diameter, and which measure approximately one-quarter inch ( $\frac{1}{4}$ ”) in extension from the housing and with a two and one-half inch width (2  $\frac{1}{2}$ ”).

One (1) of these brackets is free-sliding and internally attaches to a high-tension spring, made of the same stainless steel material. Projecting from the internal portion of the bracket, opposite the side of the tension spring, is a stainless steel shaft of an approximate two and one-half inch length (2  $\frac{1}{2}$ ”).

Within the housing, opposite the free-sliding bracket, is a connection nodule in direct alignment with the shaft.

Upon external setting of the radio frequency (RF) alarm, when contact of the shaft to the nodule is made, the alarm is activated.

This internal alarm broadcasts through an audio speaker of an approximate two-inch (2”) diameter, and in an approximate volume of forty decibels (40 dB).

Activation of this alarm also activates an external light piece that broadcasts in a pulsating pattern.

The radio frequency (RF) signal that activates this audio and visual alert also communicates with a RF receiver in the separate fob unit.

This fob unit contains a receiver in radio frequency (RF) alignment with the transmitter in the base unit, and also features a speaker and lighting piece. This fob unit can come in key chain format, dash mounted format and/or both formats.

Attachable to the endpoint external brackets are woven nylon straps of two-inch (2”) width. On one end of the base housing, and connected to the free-sliding bracket, is a

strap of four-inch (4") length and on the opposite end of the housing is a strap of seven-inch (7") length.

At the endpoint of each strap is an S-hook, made of stainless steel, and with a half-inch (1/2") diameter.

**USAGE:** The "Ratchet Strap Alarm System" can be mounted between the endpoint of a ratchet strap and the mounting point of said strap.

The ratchet strap can then be tightened as it normally would be. Tightening of the ratchet strap will extend the mobile bracket and disengage the internal shaft from the connection nodule.

A user can then activate operation of the "Ratchet Strap Alarm System" by use of its included fob.

Upon such activation, should the securing strap at any time be compromised in tension the internal shaft will make contact with the nodule, and the alarm upon the base unit will be activated.

The broadcast of the secondary fob unit will also be activated, and to allow a user to be immediately alerted.