

# PATENT FOR THE PRODUCTION OF A FOLDING ROOF-BOX FOR CARS



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# NEED IDENTIFICATION

In many occasions some extra luggage capacity is needed.

Multi –Purpose Vehicles: when they are at full seating capacity there is little room left for all the luggage



CITY CARS: limited load capacity due to their size

FAMILY CARS: like MPVs, load capacity decreases when occupied by 4-5 people



# EXISTING PRODUCTS IN THE MARKET

Basically, there are currently two different solutions in the market: roof-boxes and folding textile bags. Both require the previous installation of roof racks.

They meet our needs but what happens if they are kept installed when not needed?

## Roof-boxes

- affect aerodynamics, increasing fuel consumption, reducing the car's performance and stability and causing unpleasant noises,
- hinder access to car wash facilities and car parks with limited headroom,
- and due to their size, once dismantled they cannot be carried in the boot of the car and are difficult to store, which in turn renders them unusable in case of unforeseen needs.



**Folding textile bags** can be folded and carried in the boot of the car but, when installed,

- must be full to avoid annoying vibrations and aerodynamic noises,
- are relatively watertight,
- and have poor antitheft security.

Furthermore, being both products mounted over roof racks, access to their inside becomes problematic due to the height at which they are located.



# OUR SOLUTION

A **folding roof-box**, made from the same materials used for conventional roof-boxes, and installed directly onto the roof of the vehicle using the same fixing points as roof racks.

The additional advantages to the existing products are clear:

- Smaller effect on the aerodynamics and the aesthetics of the vehicle, whether folded or unfolded.
- Since it only adds approximately 7 cm (2.8") to the car, it can be left installed when not used, being there available anytime without preventing the access to car parks or car wash facilities.
- Easy to store, when dismantled, due to its reduced size folded.
- Quick and easy folding and unfolding (approximately in less than 1.5 minutes).
- Easy to load and unload thanks to its lower height and position, directly on the roof, which makes access easy from both sides of the vehicle.
- And, indeed, all the advantages of a conventional roof-box: watertightness, resistance, security, etc.



Moreover, its estimated production cost would be similar to that of a conventional roof-box plus the required roof racks, unnecessary in this case.

# OUR SOLUTION

The key to our idea lies in a highly developed folding system that, thanks to the arrangement and shape of the different parts and to the inner articulation systems, gives priority to the resistance of the whole structure. This makes the folding and unfolding of the box possible in less than 1.5 minutes.



# THE ORIGINS OF THE IDEA

Folding chairs, collapsible tables, folding boxes, foldaway beds, pushchairs... Most of the utensils that we use in our everyday life have a folding version that saves storing space and improves portability.

It only seemed natural to think of a folding version of something so bulky that affects so negatively the aerodynamics and the efficiency of a vehicle as a roof-box. It was not only a matter of saving space but also of improving the efficiency of the vehicle when the box is empty and cannot be dismantled, whether due to lack of storing space or to being away from home (for instance, on a holiday trip).

Then, we started to think of a solution that would allow us to adjust the space in a vehicle according to our needs, something that could make the vehicle “grow” or “shrink” as if by magic, adapting itself to our load requirements. A dream for those of us who have to juggle to load that last suitcase onto the boot of the car and who find conventional roof-boxes unsuitable.

The aim was clear. However, it took years to get what we feel is the definite solution. Several options were developed, some of them have been patented but finally discarded because they did not fully meet our demands.

Eventually, we have managed to achieve an optimum folding system that offers extreme resistance, security, ease of use and flexibility to be adapted to the geometry of the different vehicles in the market.

The deep interest in innovation of Luis J. Díaz has led him to combine his activity as inventor with his professional career as designer and artistic engraver in the Minting Department of the Royal Mint of Spain (FNMT-RCM) since 1986. Apart from the patents that he has registered himself, it has developed some patents of latent image in coins for the Royal Mint of Spain, a safety measure against counterfeiting of coins that has been implemented not only in Spanish coins but also in foreign ones, such as the current 500 yen one.

# OUR OFFER

- Authorization of use of the patent for the production of folding roof-boxes for cars.
- Consultancy and cooperation in the process of pre-production of the product.



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