IIPRD

DELHI. MUMBAI. BANGLORE. PUNE. INDORE. HYDERABAD. CALIFORNIA

Heavy Vehicle Crash Guard

IDENTIFYING LICENSEE/BUYOUT PROSPECTS

INDIAN PATENT APPLICATION 3243/MUM/2014

Background

- Heavy vehicles like trucks and trailers have large overhangs and no bumper, As a result in the case of a collision, the smaller and lower vehicle tends to "ride under" the truck's long overhang.

- Heavy vehicle which is parked, accidented, moving at much slower speed or applies sudden brakes the light vehicle travelling behind may not get a reaction time and keeps travelling under the heavy vehicle. Such collisions are called as underride crashes or underride collisions as shown in picture below.

- Small vehicles such as cars are not designed to absorb or resist impacts. As a result, the passenger compartment takes the full brunt of the impact. This causes severe head and upper body injuries to the passengers. These type of accidents have an extremely high fatality rate.

- Underride crash of a car with a truck

Current Practice

- During a crash, all impact energy i.e. kinetic energy of the car needs to be dissipated in a deliberate manner to save the occupants.

- For this reason crumpling zones are provided in the cars by the designers, which are deliberately kept weak zones and during impact of car these crumple zones gets crumpled/crushed, absorbing the impact energy.

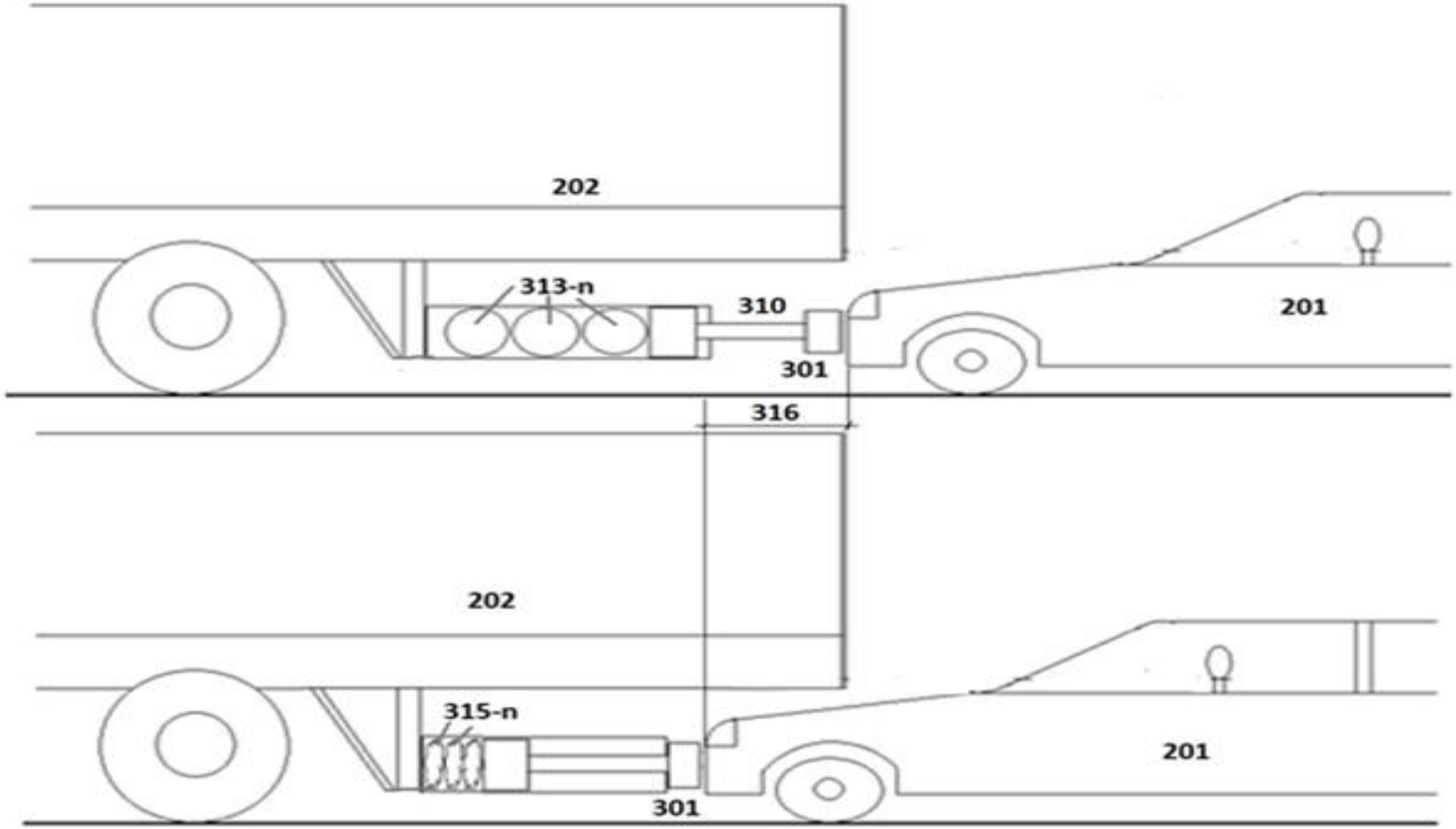
- Structure around the occupants is kept relatively strong so that it can protect the occupants while damaging the other parts of the car where crumple zones are provided.

Limitations of Current Practice

- Crumpling zone concept works only when there is impact from front or in some cases from side and back as well, but at much lower level.
- When the impact takes place as in underride crash, these provisions do not work.
- There is need to introduce a safety provision which will absorb impact energy during underride crash and save the car and occupant.

Proposed Solution

- Mounting of safety device a crash guard for the cars on the underside of the bigger vehicles like Trucks and Trailers.
- An impact bar can be provided as crash guard at a height which is slightly higher than minimum road clearance of the heavy vehicle.
- This crash guard is further connected to other elements where impact energy absorbing materials are used.
- Impact energy absorbing material can be some material which is weaker than the car elements and will get crushed because of impact.
- It can be springs or hydraulic systems or any thing similar which are meant for absorbing the impact energy.


202
313-n
310
201
301
316
202
315-n
201
301

Advantages

- Using proposed solution it is possible to dissipate large amount of impact energy and also the car comes down to zero speed over a small time interval.

- This innovation will not only save the occupant from underride crashes but also save the car as the damage is likely to occur at the elements provided for energy dissipation.

EXPECTATIONS

- Applicant of the instant technology is interested in Out-Licensing or Commercialisation / Implementation of the Technology.

Patent / IP Status

- Indian Application Number: 3243/MUM/2014
- Application Status: Patent Pending
- Publication date: 15/04/2016

DELHI. MUMBAI. BANGLORE. PUNE. INDORE. HYDERABAD. CALIFORNIA

Contact Details

Noida (NCR) Office

E-13, UPSIDC Site-IV, Behind Grand Venice, Greater Noida, 201308

Contact Person: Gaurav Giri

(IN) +91 9760835046

(IN) +91 120 4296878, 4909201, 2399113

E-Mail: iiprd@iiprd.com , info@khuranaandkhurana.com

Website: www.iiprd.com | www.khuranaandkhurana.com