

Accident Barriers in Bridges

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Abstract: Barriers are placed in many places in the highways in order to prevent the accidents. Traffic barriers are normally installed on bridges to prevent errant vehicles from running off the edge of the bridge nowadays many inventions like placing cross links, concrete links are going on to reduce the accidents, but apart from that many accidents occurs. On the way of improvement this paper gives an idea which can be implemented in the bridges so as to reduce the accidents which occur in the bridge at least up to 60%. This paper focuses on an idea of using two barriers in which one is made up of concrete and another is made up of steel which has a gear arrangement and a rack arrangement so as to prevent the accidents.

Keywords: Bridges, double wall barrier, gears, rack.

1. Introduction

In today's world there are many inventions and improvements apart from these there are many process involved in order providing safety. In such process there are many ideas and projects which prevent the accidents. In such a way here is an idea which prevents the accident in two ways. First, the car jump off from the bridge is prevented by the concrete barrier apart from these a steel barrier which has a gears and rack arrangement. So that if a car hits the barrier the first concrete barrier is broken if the car tries to cross it now it hits a steel barrier so that it turns aside and so the gear mechanism occurs and so the rack moves which prevents the car from falling down.

2. Previous Advancements



W-beam guardrail



Thrie-beam guardrail



Concrete barrier



Modified thrie-beam guardrail



Low-tension cable barrier



High-tension cable barrier



Metal Tube Bridge Rails



Vertical Concrete Parapet



Timber Bridge Rail

3. Disadvantages in the Previous Advancements

The one and only main disadvantage they all prevent up to a limit against that the speed of the car can crash it down and jump away.

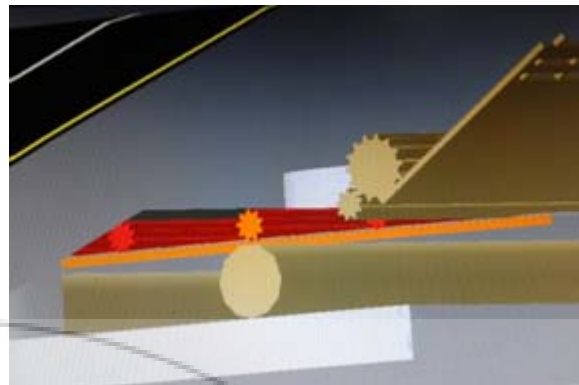
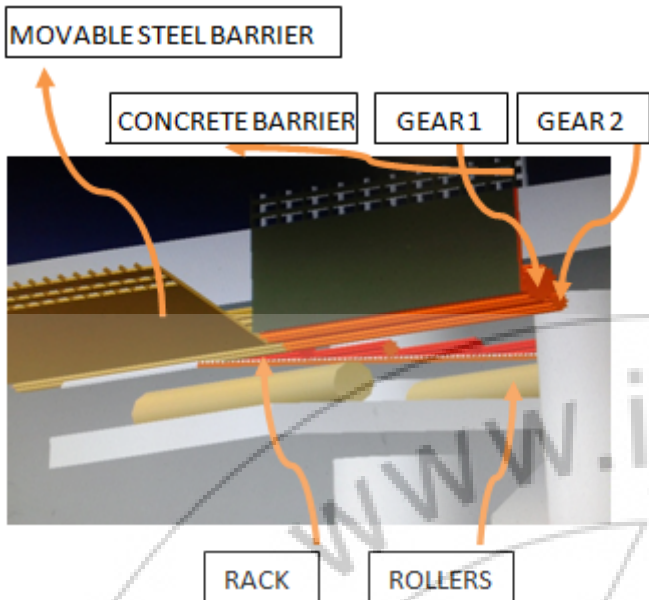
4. Principle Behind our Idea

In the idea presented in this paper the working principle is the car speeding in the bridge hits the barrier placed aside and due to the speed of the vehicle the barrier breaks, now a secondary rotary steel barrier is placed so that the car hits it .as soon as the car hits it the barrier rotates down so that the gears rotate so that the connected arc shaped rack moves out from the bottom of the bridge road, so that the car whose movement is arrested is trapped in the rack hence somehow a major accident is prevented.

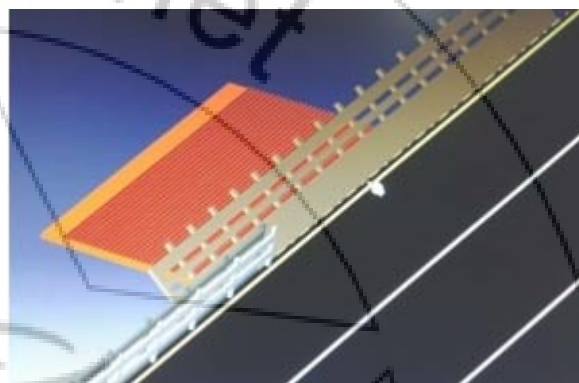
5. Construction

Rollers and rack is provided below the road area of the bridge

- A gear is placed connecting the rack
- A secondary steel barrier with the gear is meshed to the previous gear

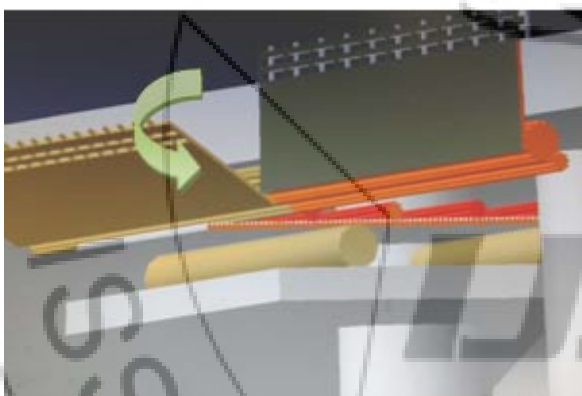


Now the rotation of the smaller gear is transferred to the rack and so the rack moves.



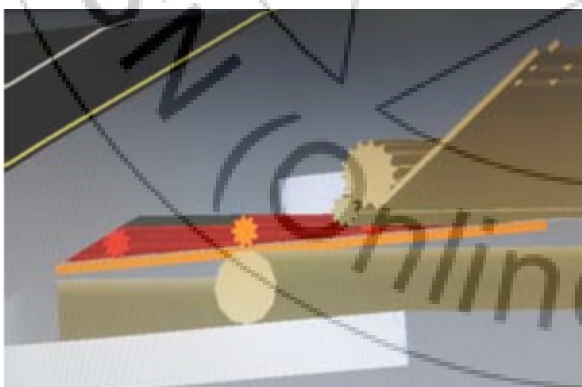
6. Working

A car speeding along the bridge hits the bridge side Barrier, due to the speed the concrete barrier breaks and hits the secondary steel barrier now the secondary steel barrier rotates aside so that the gear rotates.

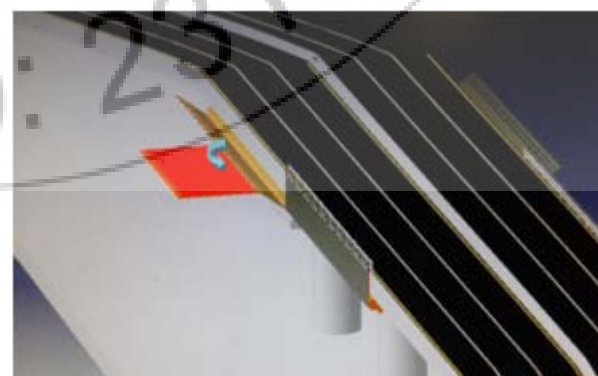
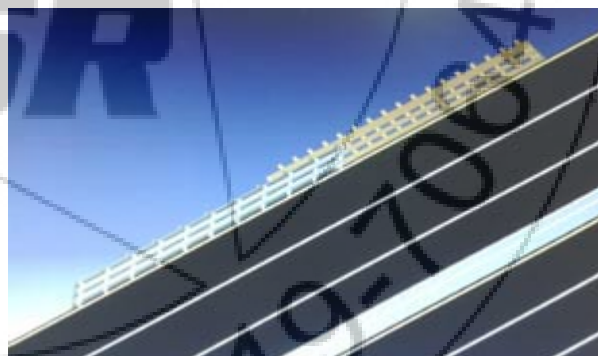


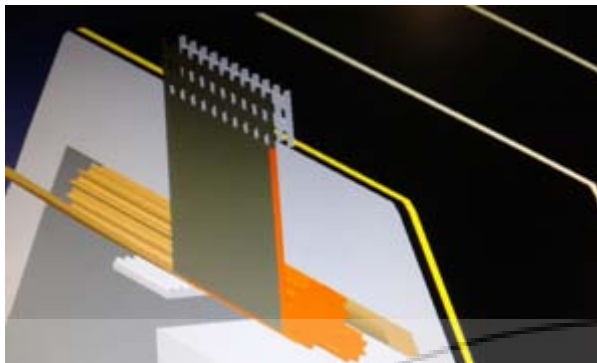
And now the car whose speed is arrested due to the two barriers loses its energy and falls down and stays in the rack itself so the accident is prevented from the major one.

7. Other Images

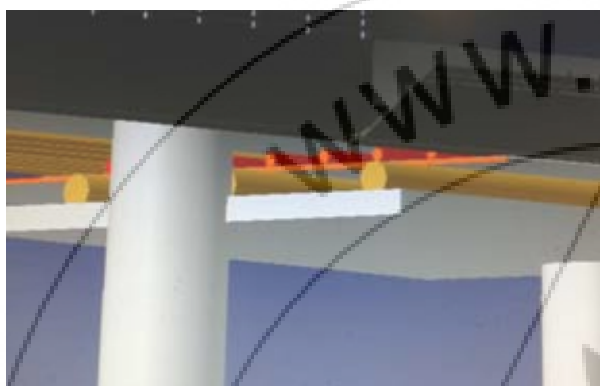


Due to the rotation of the larger gear smaller gear rotates at somewhat higher speed.





THE DEPARTMENT [mechanical] for his able guidance, technical suggestions and prompt initiations.



8. Advantages

- Minor accident can be completely eliminated
- Major accident can be prevented up to 60%
- Loss of lives can be avoided
- Severe damage to cars is prevented

9. Disadvantages

- Costlier process
- Frequent lubrication and maintenance is must
- Proper balancing is needed
- More extra material required for longer bridges

10. Conclusion

From this paper we heard a new technique of reducing the accidents which occurs in the bridges and thus loss of lives is prevented. Lots of improvement has been made in barriers to reduce the accidents in accordance with those ideas this idea will also add some benefits to the road safety. So implementing this idea in the field of roadways will be helpful to the drivers.

11. Acknowledgement

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