DESIGN AND FABRICATION OF TICKLI BLASTER

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ABSTRACT

In our day to day life, many types of exciting things can be usually seen. Some of them are extremely alluring too. But the execution of such things needs some safety and security. One of them is tickli cracker, which completely fulfills all the purposes and makes its execution safer. This device works on law of conservation of linear momentum i.e. in an isolated system a body or system of bodies in motion retain its total momentum, the product of mass and vector velocity, unless an external force is applied to it. In other words, the total momentum always remains conserved. This paper reveals that Tickli Blaster prevents the damage of eyes during operation of Tickli Crackers and will creat fruitful environment during entire society and Family.

KEYWORDS: Deewali, Tickli Blaster

At present time, in our society we see children are using toy guns on occasion of Diwali. Toy gun is not affordable to the poor society and majority of the society in rural areas. So our main purpose is to develop a product which is affordable to everyone and also eclipses Gun Culture in society. In this present scenario of time gun culture is affecting many lives and families around the globe and it all starts with the thought process of a minor. Using a toy gun gives a negative direction to a thought process of a minor. This Tickli Blaster will assure execution of tickli blast in a safer way. Toy guns in Indian market are not affordable to poor sections and most of the rural sections of the society. Also their life is not enough due to their poor design and material. This device will be having a robust design and will be affordable to almost every section of the society

PRINCIPLE

The device 'Tickli Blaster' works on law of conservation of linear momentum i.e. in an isolated system a body or system of bodies in motion retain its total momentum, the product of mass and vector velocity, unless an external force is applied to it.

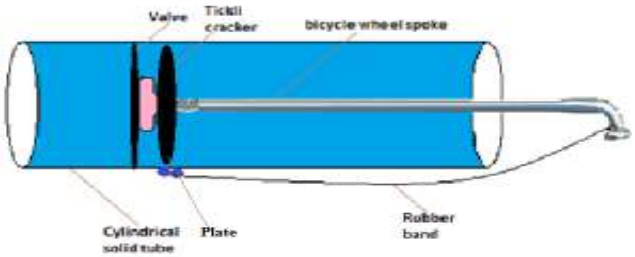

Figure 1: Schematic diagram of Tickli Blaster

THEORY

If we put some weight on tickli cracker, it doesn't blast. Putting some more weight will certainly leak out the filling but will not lead to sound blast. But if we hit the cracker with some velocity, it will surely blast. That clearly means, tickli cracker needs some amount of momentum for its successful execution.

$$p = mv \quad (1)$$

CONSTRUCTION

The instrument has following parts installed for its successful execution.

Cylindrical Solid Tube

The whole body of the instrument has been placed or been covered with a solid metallic tube which is cylindrical in shape. It has been successfully designed to bear all the heat and energy keeping in mind its heat bearing capacity.

Figure 2: Cylindrical Solid Tube

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Valve

In between the cylindrical tube, a circular valve has been placed and fitted well. Its main purpose is to provide a base to the cracker so that it can experience the momentum at a good level for its proper execution.

Figure 3: Valve

Bicycle Wheel Spoke

The long thin straight and twisted at end wheel spoke has been used to hit the target inside the cylindrical tube. The twisting at the end is easily helpful for making a grip with end at the time of execution and the thin and tough structure of this element makes it worth suitable for attacking inside the cylinder.

Figure 4: Bicycle wheel spoke

Rubber Band

It has been used along the sides of spoke to pull it and provide potential strain energy. Due to its elasticity, the spoke gets enough of momentum and hits the target with the required much helping in its smooth operation. For robust and better design synthetic rubber has been used and it has increased the life of this product. As synthetic rubber is used for the manufacturing of inner tire tubes, its capacity to absorb strain energy without getting easily fracture is quite high as per the application in Tickli Blaster. Common rubber bands don't last long and fail within a week on normal use. On other hand Synthetic rubber with proper Y-shaped design has proved to be robust enough to last long and also in case of failure it can be repaired easily. Synthetic rubber can also be recycled from automobile workshops as worn out inner tire tubes are readily available there and are of no use.

Figure 5: Synthetic Rubber Band

Plate

At the impact end of the wheel spoke a metal plate will be deployed so the impact area gets increased. This will increase the precision to burst the tickli with less effort.

FUNCTION: WORKING OF THE INSTRUMENT

After the successful installation and allotment of all the constituents and objectives of the instrument, the execution starts.

First of all, one has to place a tickly cracker unit onto the valve portion with the help of a hole being provided in the cylindrical tube wall surface. Once the cracker has been successfully settled, the role of wheel spoke and rubber band starts. One has to then pull over the bent side of the spoke with the proper intensity where properness defines the extent of the elasticity which the rubber can bear the same stroke by the user. When equivalent potential spring energy has been stored by the spoke, then the user has to leave the spoke so that it hits the cracker which has been placed along the valve. If the above procedures have been followed properly then the tickli cracker will surely blast with the sound and fumes of the same will be seen flowing outside of the cylindrical tube. In case if the user doesn't see blast, he can certainly check about the misplace of the cracker or about the improper pulling of wheel spoke.

CONCLUSION

The instrument has been smartly manufactured keeping in mind all the safety and security issues. If properly used, it can prove itself a very good option during the celebration times with the bowl full of enjoyment and

safety too. On the first note, during the important festivals like Deewali, children do tend to burst the cracker like tickli using cracker guns. The spark of which, can high probably go to theirs eyes in a direct and dangerous manner. The tickli blaster will help in avoiding these accidents. Secondly, from the far early days of Deewali, children do buy these cracking guns in the excitement and do operate it frequently, because of this practice, the trigger knob which generally is made weaker by most of the companies, does get broken and almost 60 - 100 rupees just transfer into a waste. The blaster will save from it as well. Additionally as a third context, the body of the tickli blaster has been shaped like a pichkari, hence use of it will help the inculcation of cordiality and companionship in the soft hearts of children.

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