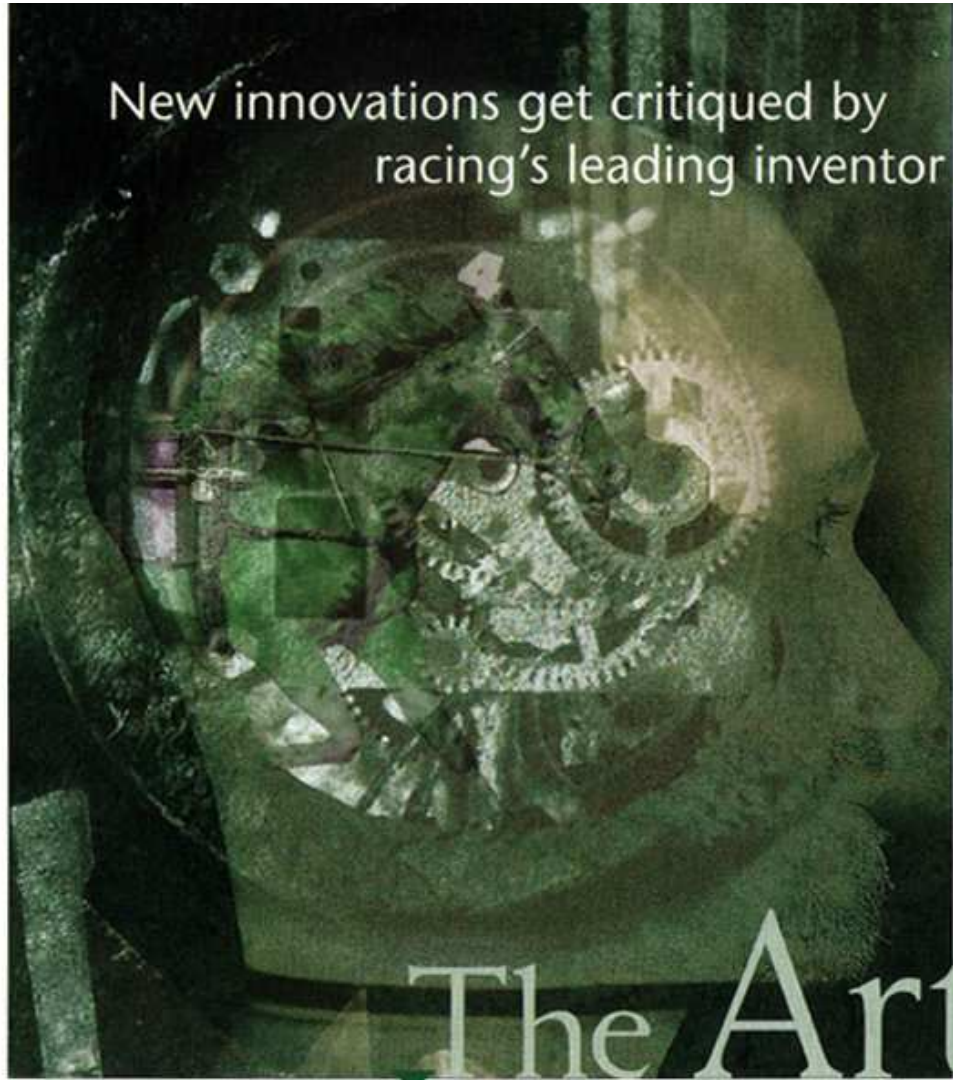


New innovations get critiqued by  
racing's leading inventor **BY AL G. TERWILLIGER**



# The Art of Invention

**Editor's note:** In November 2004, *Hoof Beats* ran the article "Mother of Invention," seeking new and innovative ideas for racing products. We asked Al Terwilliger of Protecto Harness to evaluate those ideas and select a winner. Here are his comments.



**WHEN I WAS** in my 20s, I had a brilliant idea that I should make mud goggles with windshield wipers on them. They would run off a battery that was in the driver's pocket, and when it was rainy the drivers would click the switch on and the wipers would go back and forth like a car's windshield wipers would.

I first tried them at Roosevelt Raceway. Every driver got a free sample for testing as it was raining cats and dogs, and they all turned on the wipers as the race started.

The thing I remember most about that race was, as the horses came thundering around the final turn, all the drivers heads were going back and forth in time with the wipers. It was like watching a tennis match. I can remember to this day

Billy Houghton laughing his head off.

Another great idea that just didn't make it.

For over 30 years, Billy would tell that story and laugh just as hard as when he first saw it. It did, however, get me a lot of free drinks at the driver's bar, as the drivers would all ask me to tell that story.

What does this have to do with the new inventions sought by Hoof Beats? Well, what sounds like a good idea at the time may not work in reality—and what sounds like a dumb idea might be the perfect product.

Most of my good ideas that were successful were the simplest to operate and work. Many ideas I got came from people like you who always ask, "Why don't you make this product this way, or make a product that fills a need for harness racing?" If you hang around the paddock, you will hear many ideas of what horsemen need.

But keep in mind I never had a product—even my patented products—that some horse person would not say this product would not work, or it was a bad idea. There are always naysayers. If you have a hunch, go with it, and don't let anyone talk you out of it.

I can remember when the wheel disk came out, and many horsemen—top horse people—said that the wheel disk will drive the horses crazy, and the horses will go mad. One Hall of Famer said to me that his colts would see those disks going around, and his horses would become crazy and dangerous. For years I had fun asking him if any of his horses had to be sent to an insane asylum, because of the wheel disk driving them nuts. We laughed about that for years, and he always made me promise not to tell who it was that made that statement.

Now, about your ideas.

After reading all the suggestions for new products for harness racing, I came up with what I thought were the top ideas. Some of the ideas I have already tried.

The mirror on the sulky I tried 20 years ago. The idea was to have a rearview mirror like we have on an automobile where a driver could look back and see who is coming on the outside from the back. The problems were many. At night the lights from the track would

reflect on the mirror and throw a light into some drivers' eyes, and I notice some drivers were looking too much into the mirrors and forgetting what was in front of them. I not only mounted them on a sulky, but also on the horse's behind, thinking that might be safer. However, today the mirrors could be made out of safer reflective material, where I had to deal with glass.

Here are a few of the ideas suggested, with my comments.

**A**t the finish line, there should be a color stripe on the dirt, just like the NFL does for its viewers for a first-down marker.

It would be simple for the track, as the finish line never moves, and I think the video department would not have too many problems setting this up. I imagine they would have a camera on the finish line already. I am sure they would have to say "unofficial finish line." I like this idea a lot.

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**M**any accidents are caused by hooking wheels, so it would make sense to design a bike where if a horse goes around another, either in just passing during a race or trying to avoid an accident, the left wheel of the horse passing would be deflected from the right wheel of the horse being passed. This could be done with a bar that wraps around from the outside of the arch to the seat, or something similar.

The idea sounds good, but I don't believe your answer to the problem will solve it. Any metal bar wrapping around the wheel and coming up and fastening to the seat area may cause interference with the horse's legs coming back toward the arch of the sulky. Many horses go wide and extend their legs far back, and their legs can even hit the sulky arch.

This one should be studied more, as there might be another way without interfering with the horse's legs.

**T**here are numerous video games out there for horse racing, but only two for harness racing. One game is called "Final Stretch." The game is very European; however, it allows the user to actually drive harness horses—they even go off-stride if you race them the wrong way. "Total Sim Harness" is a simulation game, but there isn't much action to be had, although they are working on an updated version with graphics.

As I don't know a lot about the video game that was suggested, "Final Stretch," I do believe the more excitement and fun one can do for our sport will do us all some good.

**A** horseshoe filled with a rubberized center (similar to gym shoe material) that would lessen the impact damage of a horse's leg pounding on the track, but not be live enough to give a super-ball or pogo-stick effect. Just enough soft cushioning to ease the impact damage, provide forward momentum, but still not adversely affect the horse's natural gait.

I have seen many horseshoes just like this, and many farriers also use the rubber or plastic hoof pads [for cushioning].

**H**ow about using fluorescent or reflective material for the numerical designations on the saddle pad and head number to make identification easier?

For years I have heard Stan Bergstein suggest this. As Protecto makes the horse's head numbers, we use fluorescent numbers. Tracks like standard white or the fluorescent fire-engine yellow numbers. One of the problems with the fluorescent saddle pads was that the fluorescent [material] in the fabrics loses its brightness after a short while.

**I** had a small jogging track outside of Bangor, Maine, a number of years ago. Having a trotter that liked an off track, I proceeded to pick up a couple of pickup loads of rubber tire [pieces] from a local retreading shop and spread about 200 feet of the track. It was very noticeable that the horse trotted much

### **better on this stretch of track.**

This has been done several times. The first track I saw like this was in New England. One fellow I met about 35 years ago had been doing this for years, and he said it always kept his track from freezing, gave his horses a softer shock on their legs, and the materials were there free just for the asking. He in fact had it ground up into a pebble-size pellet, then added it to his dirt with a mixture of sawdust.

### **I would invent microchips that could be implanted in the top lips of all racehorses, thus allowing each horse to be individually timed by an electronic timer.**

I know that there is a company now who is trying to do just that, but placed the chip into the head number. Thus tracks, horsemen, bettors and track videos could follow the horse's performance better. It would help simulcasting to be much better and help the racetracks to keep better time records, says the company that is testing them.

### **How about trotting hobbles with a heavy rubber band in the middle to give a little?**

They already make pacing hobbles like that, called Expanders. I heard in Canada someone makes a trotting hopple that expands in the center also. I don't know how they work.

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For me to pick the top winner is easy—it would be all of you who sent in suggestions. Most people just think about an idea. You continued the chain one more step and suggested ideas and maybe how to do them. That is the first step in becoming an inventor, and I think you found it was fun thinking and doing something about your idea.

Your next step is to make your prototype, test it and, if people like it and will pay hard-earned money for it, you then get someone to manufacture it. Maybe that person would be you.

What do you think will be the hardest part of your project? If you guessed selling it, you are right on the money.

No matter how bright your idea is, or how great it works, you must get them into the hands of the customer. That is where the real work comes in.

Good luck! **HB**