

1

00:00:00,000 --> 00:00:07,000

Please, don't try anything that you're about to see us do at home.

2

00:00:07,000 --> 00:00:09,000

Ever.

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00:00:30,000 --> 00:00:32,000

Test-lose an unmitigated genius.

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00:00:32,000 --> 00:00:34,000

Plus, Grant Torian Carey.

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00:00:34,000 --> 00:00:35,000

Dude.

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00:00:35,000 --> 00:00:39,000

Investigate the case of the exploding lava lamp.

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00:00:39,000 --> 00:00:40,000

Woo!

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00:00:40,000 --> 00:00:42,000

Woo!

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00:01:10,000 --> 00:01:12,000

They don't just tell the myths.

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00:01:12,000 --> 00:01:15,000

They put them to the test.

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00:01:22,000 --> 00:01:23,000

You think we should do it?

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00:01:23,000 --> 00:01:30,000

I mean, there are some who believe that the device this small has the potential to bring this entire bridge crashing down.

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00:01:30,000 --> 00:01:32,000

Yeah, sure. I'll hook it up.

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00:01:32,000 --> 00:01:34,000

Wait, wait, wait, wait, wait. Get it back, get it back.

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00:01:34,000 --> 00:01:38,000

We gotta do a little bit of science before we get to the finale of the myth.

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00:01:39,000 --> 00:01:41,000

And what science it is.

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00:01:41,000 --> 00:01:48,000

Because Adam and Janie will be testing a mythical invention of the 19th century scientific savant,

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00:01:48,000 --> 00:01:50,000

Nikola Tesla.

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00:01:50,000 --> 00:01:54,000

With contributions to fields as diverse as robotics,

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00:01:54,000 --> 00:01:57,000

ballistics, electricity, and magnetism,

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00:01:57,000 --> 00:02:01,000

he's been described as the man who invented the 20th century.

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00:02:01,000 --> 00:02:06,000

But his work has also fed speculation about death rays,

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00:02:06,000 --> 00:02:08,000

design control,

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00:02:08,000 --> 00:02:12,000

and this harmless looking, hand-held, earthquake machine.

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00:02:16,000 --> 00:02:18,000

Tesla's earthquake machine.

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00:02:18,000 --> 00:02:21,000

I read about this when I was like 19 years old.

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00:02:21,000 --> 00:02:26,000

He claimed that he had built this device to make a mechanical generator of some kind,

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00:02:26,000 --> 00:02:30,000

but that he had bolted it as a test to a girder in his building

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00:02:30,000 --> 00:02:34,000

and tuned it up through the frequencies until he had matched the building's frequency

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00:02:34,000 --> 00:02:36,000

and all hell broke loose.

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00:02:36,000 --> 00:02:39,000

The building began to shake around them.

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00:02:39,000 --> 00:02:41,000

They all ran outside to find pandemonium.

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00:02:41,000 --> 00:02:43,000

They thought there was a big earthquake.

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00:02:43,000 --> 00:02:45,000

The fire department was there, the police department was there,

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00:02:45,000 --> 00:02:49,000

and Tesla had to take a hammer to his device to stop it from doing its damage.

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00:02:51,000 --> 00:02:54,000

A crack-bot genius, hand-held earthquake machine,

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00:02:54,000 --> 00:02:57,000

and all hell breaking loose?

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00:02:57,000 --> 00:03:00,000

It's the stuff mythbusters dream about.

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00:03:01,000 --> 00:03:05,000

And after a trip to the patent office to source Tesla's original designs,

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00:03:05,000 --> 00:03:09,000

Adam and Jamie are all over it like white-on rice.

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00:03:09,000 --> 00:03:11,000

I'm totally on the same page as you about this.

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00:03:11,000 --> 00:03:16,000

With the plans before them, the plan of action is refreshingly simple.

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00:03:16,000 --> 00:03:20,000

Build their very own earthquake machine and see if it works.

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00:03:20,000 --> 00:03:26,000

And after a few hours' research, the guys have an understanding of the design's mechanics.

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00:03:26,000 --> 00:03:30,000

Tesla's earthquake machine is actually based on something he used

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00:03:30,000 --> 00:03:32,000

in a whole bunch of different inventions and patents,

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00:03:32,000 --> 00:03:35,000

and it's what he called the mechanical oscillator generator.

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00:03:35,000 --> 00:03:39,000

Which, thanks to the graphics department, looks like this.

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00:03:39,000 --> 00:03:44,000

A pocket-sized system of pistons and an air cushion work together,

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00:03:44,000 --> 00:03:47,000

reciprocating a central linear rod.

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00:03:47,000 --> 00:03:52,000

The speed of this vibration can be adjusted or tuned to match the resonant frequency

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00:03:52,000 --> 00:03:54,000

of the target object.

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00:03:54,000 --> 00:04:00,000

And Tesla claimed the resulting positive feedback could be harnessed to destroy anything.

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00:04:00,000 --> 00:04:03,000

Tesla's device is all about resonance.

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00:04:03,000 --> 00:04:08,000

It reciprocates at the same frequency that the object that it's attached to

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00:04:08,000 --> 00:04:13,000

is capable of responding to, and supposedly the whole thing is like this feedback thing

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00:04:13,000 --> 00:04:16,000

that just gets out of control and the thing flies apart.

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00:04:16,000 --> 00:04:19,000

To harness the destructive power of resonance,

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00:04:19,000 --> 00:04:23,000

Adam wants to build Tesla's oscillating earthquake machine from scratch.

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00:04:23,000 --> 00:04:27,000

But even the pragmatist, Jamie has found a shortcut.

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00:04:27,000 --> 00:04:29,000

Are you ready for the oscillation?

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00:04:32,000 --> 00:04:34,000

That's what that is.

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00:04:38,000 --> 00:04:40,000

Tesla's device is actually very simple.

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00:04:40,000 --> 00:04:42,000

All it does is reciprocate.

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00:04:42,000 --> 00:04:47,000

And in fact, there's a very common device everybody's familiar with called a jack hammer

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00:04:47,000 --> 00:04:50,000

that does nothing more than that.

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00:04:50,000 --> 00:04:52,000

You're right.

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00:04:55,000 --> 00:05:00,000

So by modifying the jack hammer's motor, they'll have an earthquake machine,

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00:05:00,000 --> 00:05:03,000

in line with Tesla's original design.

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00:05:03,000 --> 00:05:06,000

Hell, let's try it. We can knock this out before lunch.

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00:05:06,000 --> 00:05:09,000

With the mechanical oscillation taken care of,

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00:05:09,000 --> 00:05:13,000

they simply have to control the frequency of the vibration.

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00:05:13,000 --> 00:05:16,000

I'm tuning it by adjusting the amount of back pressure.

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00:05:17,000 --> 00:05:19,000

You're changing the frequency.

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00:05:20,000 --> 00:05:25,000

And next, they replace the chisel from the jack hammer with a small rod.

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00:05:25,000 --> 00:05:30,000

Then they machine the piston parts that will house the air cushion.

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00:05:32,000 --> 00:05:36,000

And with just the air cushion to attach, it's time for a quick test.

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00:05:36,000 --> 00:05:38,000

Everybody want to feel? Yeah.

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00:05:38,000 --> 00:05:40,000

All right, end segment.

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00:05:45,000 --> 00:05:48,000

This myth is a really recent one actually comes from 2004,

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00:05:48,000 --> 00:05:51,000

where apparently a guy killed himself with a lava lamp.

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00:05:51,000 --> 00:05:55,000

Actually, I heard this one's true, but for the life of me, I cannot figure out how he did it.

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00:05:55,000 --> 00:05:58,000

I mean, what was he doing? It's like, was he impatient?

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00:05:58,000 --> 00:06:00,000

He didn't want to be in the car.

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00:06:00,000 --> 00:06:02,000

He was like, what's going on?

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00:06:02,000 --> 00:06:04,000

He was like, what's going on?

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00:06:04,000 --> 00:06:06,000

He was like, what's going on?

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00:06:06,000 --> 00:06:08,000

What's he doing? It's like, was he impatient?

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00:06:08,000 --> 00:06:10,000

He didn't want to wait for the light to heat up the lamp,

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00:06:10,000 --> 00:06:12,000

and then he stuck it on the stove,

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00:06:12,000 --> 00:06:16,000

or he might have just been like us and he was just experimenting with a lava lamp.

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00:06:18,000 --> 00:06:22,000

In 2004, a Washington state resident was found dead at home.

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00:06:24,000 --> 00:06:27,000

Cause of death, a large piece of glass shrapnel to the heart

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00:06:27,000 --> 00:06:30,000

after a lava lamp left on a stove exploded.

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00:06:31,000 --> 00:06:37,000

But how on earth did this groovy symbol of the 60s turn lethal killer?

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00:06:37,000 --> 00:06:42,000

If anyone can get to the bottom of this, it's our very own MSI unit.

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00:06:43,000 --> 00:06:48,000

Mythseen investigators, Carrie, Tori and Grant are on the case.

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00:06:48,000 --> 00:06:51,000

Okay, well, sounds simply enough. What is the plan?

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00:06:51,000 --> 00:06:53,000

Well, I'll go get some lava lamps.

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00:06:53,000 --> 00:06:55,000

I'd like to make a target.

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00:06:55,000 --> 00:06:59,000

I can maybe go get some real human ribs to make a really good torso.

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00:06:59,000 --> 00:07:01,000

What do you want to do?

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00:07:01,000 --> 00:07:03,000

I'll do the math.

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00:07:06,000 --> 00:07:09,000

While Grant calculates what to do with his day off,

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00:07:09,000 --> 00:07:12,000

Carrie and Tori get down to business.

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00:07:12,000 --> 00:07:16,000

Our super sleuths have a two-stage investigation.

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00:07:16,000 --> 00:07:21,000

First, if a lava lamp is left on a stove, will it explode?

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00:07:21,000 --> 00:07:25,000

And if it does, could the resultant shower of glass and goo

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00:07:25,000 --> 00:07:28,000

lead to a lethal piece of shrapnel to the heart?

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00:07:29,000 --> 00:07:34,000

So to recreate the scene, the first thing they'll need is a rack of ribs.

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00:07:34,000 --> 00:07:35,000

That is so cool.

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00:07:35,000 --> 00:07:40,000

And here at the bone room, you can satisfy all your skeletal needs.

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00:07:40,000 --> 00:07:46,000

He actually had to get a shard of glass exploding and going through the rib cage,

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00:07:46,000 --> 00:07:49,000

through whatever connective tissue was here and then into the heart.

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00:07:49,000 --> 00:07:54,000

So you're going to actually have to get it through one of the holes and through all that muscle

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00:07:54,000 --> 00:07:59,000

and depending on how fat the person was, the fat and tissue and then into the organs.

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00:07:59,000 --> 00:08:01,000

It's just some bad luck.

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00:08:01,000 --> 00:08:05,000

Bad luck, our team will try to recreate back at the shop.

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00:08:05,000 --> 00:08:10,000

And while Carrie gets her ribs to go, Tori has seen the light.

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00:08:13,000 --> 00:08:17,000

Tori, lava lamps.

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00:08:17,000 --> 00:08:23,000

I just want to check this one out because it's got sparkles and glitter.

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00:08:23,000 --> 00:08:26,000

Ah!

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00:08:26,000 --> 00:08:27,000

They get hot.

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00:08:27,000 --> 00:08:31,000

The third degree burns help focus Tori's mind.

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00:08:31,000 --> 00:08:35,000

And before long, he's headed back to the shop with a good selection.

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00:08:35,000 --> 00:08:40,000

Where Grant has been looking for some inside info on the prime suspect.

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00:08:40,000 --> 00:08:44,000

For this myth, I've been trying to find out exactly what's inside of a lava lamp.

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00:08:44,000 --> 00:08:49,000

Although the biggest manufacturer of lava lamps in the U.S. keeps their recipe secret,

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00:08:49,000 --> 00:08:53,000

with a little bit of searching we've been able to find out that lava lamps have inside them

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00:08:53,000 --> 00:08:55,000

a lot of things that are potentially flammable.

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00:08:55,000 --> 00:08:58,000

Mineral oils, wax, alcohol.

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00:08:58,000 --> 00:09:03,000

Meanwhile, Carrie is working on putting some fake flesh on her real ribs.

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00:09:03,000 --> 00:09:07,000

I know it's not going to be a totally accurate representation of the human body,

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00:09:07,000 --> 00:09:13,000

but the way the lava lamp exploded is a shot of glass went flying through the air

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00:09:13,000 --> 00:09:15,000

and pierced his heart through his rib cage.

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00:09:15,000 --> 00:09:20,000

I just want to see what kind of chance glass has of getting that far into the human body.

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00:09:20,000 --> 00:09:26,000

To do it, Carrie is casting a ballistics gel bust around the human rib cage.

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00:09:26,000 --> 00:09:33,000

By suspending the ribs in position, she'll have a close structural analogue of a human torso.

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00:09:33,000 --> 00:09:37,000

I'm trying to figure out exactly where the rib cage is going to end on this dude.

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00:09:37,000 --> 00:09:42,000

To confirm the story that glass shrapnel from an exploded lava lamp can pierce the heart,

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00:09:42,000 --> 00:09:47,000

Carrie gives Barry the ballistics bust a fake heart, which, if punctured,

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00:09:47,000 --> 00:09:51,000

will leak its fake blood and simulate his death.

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00:09:51,000 --> 00:09:56,000

With his internal organ in place, he's ready to put on some weight.

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00:09:56,000 --> 00:10:03,000

And after a night in the fridge chilling out, Barry's all set for the great lava lamp experiment.

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00:10:03,000 --> 00:10:05,000

That is beautiful.

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00:10:05,000 --> 00:10:07,000

God, that came out good.

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00:10:08,000 --> 00:10:17,000

Adam and Jamie are testing the myth that Nikola Tesla built and successfully tested a pocket-sized earthquake machine.

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00:10:17,000 --> 00:10:25,000

And after studying the patents and original photo of the device, Adam is hanging on Tesla's every word.

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00:10:25,000 --> 00:10:32,000

I was experimenting with vibrations. I had one of my machines going and I wanted to see if I could get it in tune with the vibration of the building.

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00:10:32,000 --> 00:10:38,000

I put it up notch after notch. Suddenly, all the heavy machinery in the place was flying around.

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00:10:38,000 --> 00:10:43,000

I grabbed a hammer and broke the machine. Outside in the street, there was pandemonium.

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00:10:43,000 --> 00:10:48,000

The police and ambulance arrived. We told the police, it must have been an earthquake.

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00:10:48,000 --> 00:10:51,000

I told my assistants to say nothing.

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00:10:51,000 --> 00:10:57,000

To investigate these extravagant claims, Adam and Jamie are building a mover and shaker of their own.

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00:10:57,000 --> 00:11:01,000

Based on Tesla's original patent, they've come up with this.

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00:11:01,000 --> 00:11:06,000

We're about to fire up Tesla's mechanical oscillator.

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00:11:06,000 --> 00:11:11,000

We promise that if this device works, we will use our powers only for good.

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00:11:13,000 --> 00:11:17,000

It's like two or three hertz. We need to increase the speed a little bit.

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00:11:17,000 --> 00:11:22,000

Adam thinks they haven't nailed the spirit of the design, but Jamie just wants to move on.

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00:11:22,000 --> 00:11:26,000

It's not working the way it's supposed to because all we've got here is a piston going back and forth.

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00:11:26,000 --> 00:11:32,000

The way it's described, one of the key aspects of it in Tesla's description is the air spring.

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00:11:32,000 --> 00:11:37,000

As far as I'm concerned, this is what Tesla described. You have minor variations.

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00:11:37,000 --> 00:11:43,000

I don't think this is the device. You really have to separate out what your opinion is from the facts of the device.

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00:11:43,000 --> 00:11:48,000

We haven't even come close here in terms of the frequency that it's moving at and that air cushioning thing.

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00:11:48,000 --> 00:11:55,000

But the problem is, the air cushion that Tesla described as frictionless is causing friction.

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00:11:55,000 --> 00:11:57,000

And slowing the device down.

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00:11:57,000 --> 00:12:03,000

This device isn't working. We could waste a lot of time on making something that works better than this one,

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00:12:03,000 --> 00:12:09,000

but it's still not an efficient way of demonstrating the principle involved.

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00:12:09,000 --> 00:12:13,000

The great and powerful Jamie Hanuman has spoken.

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00:12:13,000 --> 00:12:20,000

It's a classic Mythbusters standoff. Adam wants due diligence and Jamie wants efficiency.

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00:12:20,000 --> 00:12:23,000

But like an old married couple, they soon compromise.

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00:12:23,000 --> 00:12:31,000

I'm going to have another look at this device and see if I can't tune it to get it as close to Tesla's device as I possibly can.

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00:12:31,000 --> 00:12:35,000

So Jamie gets to replace the air cushion with mechanical springs.

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00:12:35,000 --> 00:12:39,000

And Adam gets the increase in top speed he wanted.

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00:12:41,000 --> 00:12:43,000

Ooh, nice!

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00:12:43,000 --> 00:12:50,000

Adam's happy and agrees that the switch to mechanical springs is in line with Tesla's ideas.

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00:12:51,000 --> 00:12:56,000

He talks about the fact that the work that is being done by the air spring could be done by mechanical springs.

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00:12:56,000 --> 00:13:01,000

And the only reason he prefers the air spring is because it has no inclination to break.

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00:13:03,000 --> 00:13:05,000

You can feel that over here.

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00:13:05,000 --> 00:13:07,000

Yeah, no, it's a real deal.

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00:13:07,000 --> 00:13:11,000

The reason we're going with the two-foot bars, because it's exactly what Tesla said,

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00:13:11,000 --> 00:13:14,000

that he busted apart the first time he tried this out.

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00:13:14,000 --> 00:13:16,000

For a long time nothing happened, he said.

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00:13:16,000 --> 00:13:20,000

But at last the great steel link began to tremble and finally broke.

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00:13:20,000 --> 00:13:25,000

Crow bars could not have done it, but a fuselage of taps, none of which would have harmed a baby, did it.

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00:13:25,000 --> 00:13:27,000

That's the kind of response we're looking for.

187

00:13:27,000 --> 00:13:30,000

I am taping an accelerometer to this bar.

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00:13:30,000 --> 00:13:39,000

This is hooked up to a frequency analyzer, which actually should tell me exactly what the resonating frequencies of the bar are.

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00:13:39,000 --> 00:13:44,000

And it should also tell me when I've got it properly excited to the maximum degree.

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00:13:44,000 --> 00:13:45,000

We're ready to go.

191

00:13:45,000 --> 00:13:48,000

Adam is monitoring the feedback.

192

00:13:48,000 --> 00:13:50,000

I think you can go up.

193

00:13:50,000 --> 00:13:55,000

And Jamie, on regulator duty, is adjusting the frequency of the earthquake machine.

194

00:13:55,000 --> 00:13:59,000

You're at about 32 hertz.

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00:13:59,000 --> 00:14:06,000

At 32 hertz, with the earthquake machine running at top speed, there's no sign of the steel bar resonating.

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00:14:08,000 --> 00:14:12,000

My inclination would be, let's turn it up on full and leave it for half an hour,

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00:14:12,000 --> 00:14:14,000

see if it actually does anything to the bar.

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00:14:14,000 --> 00:14:17,000

According to Tesla, it didn't happen instantaneously.

199

00:14:17,000 --> 00:14:22,000

What did happen was a failure of the prototype.

200

00:14:22,000 --> 00:14:27,000

My guess is if I put it back together, it would run now for a little while.

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00:14:27,000 --> 00:14:33,000

Jamie resurrects it, but it's not long before it dies again.

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00:14:33,000 --> 00:14:36,000

This is like my worst nightmare.

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00:14:36,000 --> 00:14:43,000

And again, we can't even get a long enough test to prove that it doesn't work.

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00:14:43,000 --> 00:14:49,000

I mean, I guess we have proved that it doesn't work, but not in the way that we intended.

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00:14:49,000 --> 00:14:55,000

It seems the mechanical springs Tesla said would have an inclination to break are breaking.

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00:14:55,000 --> 00:15:02,000

And after a long and frustrating day, spirits and quite possibly minds are following suit.

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00:15:07,000 --> 00:15:10,000

The build team are in MSI mode.

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00:15:10,000 --> 00:15:17,000

Myth scene investigators Carrie Grant and Tori are hot on the trail of a lethal lava lamp.

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00:15:17,000 --> 00:15:24,000

Detectives Byron, Imahara and Belachy are staging a reconstruction to answer two questions.

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00:15:24,000 --> 00:15:28,000

Will a lava lamp explode if left on a stove top?

211

00:15:29,000 --> 00:15:36,000

And if so, will the blast be powerful enough to send a lethal piece of glass into a human heart?

212

00:15:39,000 --> 00:15:42,000

I think most people sit and watch lava lamps like this.

213

00:15:42,000 --> 00:15:46,000

Yeah, that's about the right position.

214

00:15:46,000 --> 00:15:52,000

With Barry the ballistics bust assuming the position, everything and everyone is ready.

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00:15:52,000 --> 00:15:53,000

Ready?

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00:15:53,000 --> 00:15:56,000

Three, two, one. Run.

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00:15:57,000 --> 00:16:00,000

Now they just have to wait for things to warm up.

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00:16:00,000 --> 00:16:02,000

Starting to bubble, there it goes.

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00:16:02,000 --> 00:16:03,000

It's starting to move.

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00:16:03,000 --> 00:16:06,000

And pass the tie making a few predictions.

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00:16:06,000 --> 00:16:10,000

Underneath that little hat is a metal like a bottle cap.

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00:16:10,000 --> 00:16:14,000

I think that's going to blow off first before the glass ruptures.

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00:16:14,000 --> 00:16:16,000

I have a feeling this is going to work.

224

00:16:16,000 --> 00:16:19,000

You got a high pressure situation inside the bottle.

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00:16:19,000 --> 00:16:21,000

There's nowhere for that pressure to go except out.

226

00:16:21,000 --> 00:16:25,000

It's going to turn that bottle into a bomb.

227

00:16:26,000 --> 00:16:28,000

Oh, jeez.

228

00:16:30,000 --> 00:16:33,000

Well, it didn't explode, but you were right.

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00:16:33,000 --> 00:16:36,000

The top popped off and the bottom blew out.

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00:16:36,000 --> 00:16:38,000

I call that an explosion.

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00:16:38,000 --> 00:16:41,000

Explosion or not, it looked pretty dangerous.

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00:16:41,000 --> 00:16:45,000

There was hot oil and wax erupting in a volcanic geyser.

233

00:16:45,000 --> 00:16:49,000

But no glass shrapnel in Barry the ballistics bust.

234

00:16:49,000 --> 00:16:50,000

Yeah, he's clean.

235

00:16:50,000 --> 00:16:52,000

Let's clear out to the smoke finishes.

236

00:16:52,000 --> 00:16:55,000

We didn't get any shards of glass in the bust.

237

00:16:55,000 --> 00:16:59,000

What happened was the cap gave way, released all the pressure,

238

00:16:59,000 --> 00:17:01,000

released all the liquid inside.

239

00:17:01,000 --> 00:17:04,000

As soon as the liquid was gone, the heat from the stove

240

00:17:04,000 --> 00:17:07,000

actually shattered the bottom of the bottle.

241

00:17:07,000 --> 00:17:10,000

So we didn't get that explosion that the myth's talking about.

242

00:17:10,000 --> 00:17:15,000

No explosion means there are still plenty of loose ends in this story.

243

00:17:15,000 --> 00:17:20,000

But what is clear are the two reasons why you shouldn't put a lava lamp on a stove.

244

00:17:20,000 --> 00:17:23,000

The first is written into the safety instructions.

245

00:17:23,000 --> 00:17:29,000

Do not use any other means to heat up the lamp other than the bulb provided.

246

00:17:29,000 --> 00:17:31,000

And the second is this.

247

00:17:36,000 --> 00:17:41,000

Jamie and Adam are tackling Tesla and his incredible earthquake machine.

248

00:17:41,000 --> 00:17:46,000

With two failed prototypes, confidence in the myth is low.

249

00:17:46,000 --> 00:17:48,000

So it's time for Plan B.

250

00:17:48,000 --> 00:17:53,000

My opinion is if we're going to do this right, we have to come up with a way of visualizing,

251

00:17:53,000 --> 00:17:58,000

demonstrating visually what we're talking about when we're talking about resonance and resonant frequencies.

252

00:17:58,000 --> 00:18:00,000

Well, resonance can be kind of tricky.

253

00:18:00,000 --> 00:18:06,000

Why don't we start with water, you know, create a wave action that we can see.

254

00:18:06,000 --> 00:18:12,000

So the plan is to build a wave tank, rig a quick and dirty reciprocating device,

255

00:18:12,000 --> 00:18:16,000

tune it in and create a mini tsunami.

256

00:18:17,000 --> 00:18:20,000

Dude, that is so tripping.

257

00:18:20,000 --> 00:18:27,000

What I love about this test is it really illustrates Tesla's theoretical ideas perfectly.

258

00:18:27,000 --> 00:18:32,000

When you push a kid on a swing, each of your pushes doesn't make him go all the way up.

259

00:18:32,000 --> 00:18:36,000

It's the sum total of them. You're adding energy each time.

260

00:18:36,000 --> 00:18:38,000

Dude, look at that. You hit a sweet spot again.

261

00:18:38,000 --> 00:18:41,000

Look at that. That's twice the sweet spot that you were hitting before.

262

00:18:41,000 --> 00:18:44,000

That was a minute variation in speed.

263

00:18:44,000 --> 00:18:45,000

That is so cool.

264

00:18:45,000 --> 00:18:51,000

Like that was a difference on this meter from 1.5 to 1.6, and at 1.5 it was almost a flat calm.

265

00:18:51,000 --> 00:18:52,000

Right.

266

00:18:52,000 --> 00:18:56,000

At 1.6 it's starting to almost bounce out of the chamber.

267

00:18:56,000 --> 00:19:02,000

Re-energized with all things Tesla, Adam and Jamie decide it's time to get back to the earthquake machine.

268

00:19:02,000 --> 00:19:05,000

Our first air powered jackhammer did not work.

269

00:19:05,000 --> 00:19:11,000

I mean, we just modified it so much that it began failing in ways we can't fix.

270

00:19:11,000 --> 00:19:17,000

We looked at going and getting another one and Jamie has, he has an air powered auto tool for hammering.

271

00:19:17,000 --> 00:19:18,000

Hold it down.

272

00:19:19,000 --> 00:19:21,000

That's pretty fast.

273

00:19:23,000 --> 00:19:25,000

This is 10 times better than that.

274

00:19:25,000 --> 00:19:33,000

It's so close to Tesla's design, the only modification required is a steel plate so it can be attached to the target object.

275

00:19:33,000 --> 00:19:39,000

This is actually Jamie's personal massager. He's all like, honey, I feel really sore.

276

00:19:39,000 --> 00:19:45,000

Would you work on me for a bit? And his wife's like, and he's like, oh, that's right.

277

00:19:45,000 --> 00:19:47,000

Lower.

278

00:19:50,000 --> 00:19:52,000

That's how he has such big shoulders.

279

00:19:54,000 --> 00:19:58,000

Accelerometer's in, the device is clamped in. I'm ready to go.

280

00:19:58,000 --> 00:20:06,000

They take it through the air hammer's full range of frequencies, but with no sign the steel bar is resonating.

281

00:20:06,000 --> 00:20:15,000

I'm measuring the frequency that our device is applying to the bar, and it's right about 50, 52 hertz.

282

00:20:15,000 --> 00:20:21,000

But Tesla said that it was a while before destruction ensued, and if it's good enough for Tesla...

283

00:20:22,000 --> 00:20:28,000

Well, the lowest natural frequency of the bar is in the 100, like 4 or 500.

284

00:20:28,000 --> 00:20:31,000

We're not going to get that with any device we've got here.

285

00:20:31,000 --> 00:20:35,000

I'm looking forward to trying this on some other types of steel.

286

00:20:35,000 --> 00:20:38,000

Cue the steel bar alternatives.

287

00:20:39,000 --> 00:20:41,000

Scully.

288

00:20:44,000 --> 00:20:51,000

First, a two foot section of two inch square tubing, and this time they get a little action.

289

00:20:51,000 --> 00:20:53,000

Yeah, isn't that cool?

290

00:20:53,000 --> 00:21:01,000

That's the highest amplitude on that primary 20 hertz hit, and you can see it's shaking around more than any other time.

291

00:21:01,000 --> 00:21:06,000

So we're starting to see potentially the kind of excitement that's possible.

292

00:21:06,000 --> 00:21:12,000

It's just we need to get a bar that's tuned to this device, and this device tuned to that bar.

293

00:21:12,000 --> 00:21:16,000

It's low frequency, and then we should see some real vibration.

294

00:21:16,000 --> 00:21:22,000

And the best chance they have to do that is test a bar with a lower resonant frequency,

295

00:21:22,000 --> 00:21:27,000

like this 20 footer, which has a harmonic as low as 7 hertz.

296

00:21:28,000 --> 00:21:33,000

But after hours of tweaking the system, there's no sign of any action.

297

00:21:33,000 --> 00:21:38,000

And in Jamie's mind, this myth has already been consigned to the busted bin.

298

00:21:38,000 --> 00:21:45,000

Currently my impression is that this idea of putting this little tiny thing on some massive structure

299

00:21:45,000 --> 00:21:50,000

and by tuning it just so, getting the whole thing to resonate,

300

00:21:50,000 --> 00:21:55,000

you're not going to have like a flea jumping up and down on a girder,

301

00:21:55,000 --> 00:21:58,000

and if he does it at the right frequency over and over again,

302

00:21:58,000 --> 00:22:01,000

then all of a sudden magically the whole structure goes down.

303

00:22:01,000 --> 00:22:09,000

I mean that's what Tesla is talking about with this principle of this magical resonance that he's creating.

304

00:22:09,000 --> 00:22:11,000

Shall we pull it off?

305

00:22:12,000 --> 00:22:13,000

Yes.

306

00:22:13,000 --> 00:22:23,000

So far, MSI San Francisco have yet to break the case of the lethal lava lamp.

307

00:22:23,000 --> 00:22:27,000

Barry the Ballistic Bus took a burning hot shower,

308

00:22:27,000 --> 00:22:32,000

but without an explosion, he's free of any deadly shrapnel wounds.

309

00:22:32,000 --> 00:22:34,000

So far.

310

00:22:35,000 --> 00:22:37,000

Alright, so this is test number two.

311

00:22:37,000 --> 00:22:40,000

We're going with the lava lamp with the bottle cap top instead of the safety cap.

312

00:22:40,000 --> 00:22:48,000

This kind of bottle cap will hopefully be stronger and will hold that pressure inside allowing it to explode.

313

00:22:48,000 --> 00:22:50,000

And that's what we're looking for here in this myth.

314

00:22:52,000 --> 00:22:54,000

But ten minutes in and it looks like...

315

00:22:54,000 --> 00:22:57,000

Oh, I hear something. I can see it leaking.

316

00:22:57,000 --> 00:22:59,000

Tari's theory has a few holes in it.

317

00:23:01,000 --> 00:23:06,000

But despite the leak, the cap holds and the pressure continues to build.

318

00:23:06,000 --> 00:23:09,000

Sweet. Yeah. Yeah. Fire.

319

00:23:09,000 --> 00:23:13,000

And the escaping flammable lava makes things even more interesting.

320

00:23:13,000 --> 00:23:16,000

Oh, that is looking a little out of control.

321

00:23:18,000 --> 00:23:21,000

Oh, wow. Yeah.

322

00:23:21,000 --> 00:23:24,000

Look at that. It's just extinguishing itself right now.

323

00:23:30,000 --> 00:23:32,000

Okay, that was an explosion.

324

00:23:32,000 --> 00:23:35,000

Awesome. Yeah.

325

00:23:35,000 --> 00:23:38,000

With the explosive potential of the lava lamp confirmed,

326

00:23:41,000 --> 00:23:47,000

our team of forensic investigators check out the scene and more importantly, Barry.

327

00:23:47,000 --> 00:23:49,000

The bottle is completely disintegrated.

328

00:23:49,000 --> 00:23:51,000

Here's a small shot of glass.

329

00:23:53,000 --> 00:23:54,000

How deep was it?

330

00:23:54,000 --> 00:23:56,000

It was just surface.

331

00:23:56,000 --> 00:24:00,000

Based on what I've just seen, I absolutely believe that this could be lethal.

332

00:24:00,000 --> 00:24:05,000

I mean, the amount of energy that we got out of one of these bottles with no modifications whatsoever,

333

00:24:05,000 --> 00:24:08,000

this is right off the shelf, that's a lot of energy.

334

00:24:08,000 --> 00:24:12,000

And I think that that could definitely blow a piece of glass right into your heart.

335

00:24:12,000 --> 00:24:16,000

So our next scenario that we're going to try is the experimental one.

336

00:24:16,000 --> 00:24:19,000

We're going to try to get that cap so it's solid on top of the bottle

337

00:24:19,000 --> 00:24:23,000

and see if we can't get more of a compression and explosion

338

00:24:23,000 --> 00:24:27,000

and maybe get a fracture from this bottle that would have created the shards that killed him.

339

00:24:27,000 --> 00:24:33,000

To improve the bomb-like qualities of the lamp, Tari seals the cap, but not very well.

340

00:24:35,000 --> 00:24:37,000

That's it. Poxy gave up.

341

00:24:39,000 --> 00:24:43,000

With the lava lamp contents escaping, they decide to stage an intervention.

342

00:24:43,000 --> 00:24:48,000

A squirt of cold water from a spray gun should help things along.

343

00:24:49,000 --> 00:24:53,000

The theory was the shock of the cold water would cause a glass fracture.

344

00:24:57,000 --> 00:25:03,000

Look at your face with priceless.

345

00:25:03,000 --> 00:25:07,000

Let's go see how he survived or not.

346

00:25:11,000 --> 00:25:13,000

Now that is a result.

347

00:25:13,000 --> 00:25:16,000

That's crazy. That is a result.

348

00:25:16,000 --> 00:25:21,000

You know, I think eventually, given the number of bottles that we had,

349

00:25:21,000 --> 00:25:27,000

we probably would be able to get a result like this without having secured the bottle cap on there.

350

00:25:27,000 --> 00:25:30,000

It seems to me that it's just luck of the draw.

351

00:25:30,000 --> 00:25:34,000

Every time we had a lot of energy behind the explosion,

352

00:25:34,000 --> 00:25:38,000

I think it's just a matter of time before we get one that's mortal.

353

00:25:38,000 --> 00:25:41,000

Alright, so exploding lava lamp, what's the verdict?

354

00:25:41,000 --> 00:25:43,000

I think we have it confirmed.

355

00:25:43,000 --> 00:25:47,000

Yeah, we show that there's enough energy in a lava lamp being heated up on the stove

356

00:25:47,000 --> 00:25:51,000

to throw a shard of glass at lethal velocity into the body.

357

00:25:51,000 --> 00:25:54,000

And I think my scenario as to why the stove was on low

358

00:25:54,000 --> 00:25:58,000

and why he was leaning over it when it exploded is actually really plausible.

359

00:25:58,000 --> 00:26:03,000

So MSI San Francisco have confirmed the details of this tragic story.

360

00:26:03,000 --> 00:26:09,000

And if this isn't a warning to always read the safety instructions, nothing is.

361

00:26:09,000 --> 00:26:13,000

But the kitchen pyrotechnics ain't over yet.

362

00:26:13,000 --> 00:26:15,000

You know what? I don't think we can stop right here.

363

00:26:15,000 --> 00:26:18,000

One, we haven't had enough explosions.

364

00:26:18,000 --> 00:26:24,000

Two, there are a lot of products that people might be tempted to heat up on a stove top like a can of beans.

365

00:26:24,000 --> 00:26:29,000

I can go with that. What about like potted meat? That's in a can.

366

00:26:29,000 --> 00:26:30,000

There you go.

367

00:26:30,000 --> 00:26:31,000

Baby formula.

368

00:26:31,000 --> 00:26:33,000

I mean there's a lot of things we can keep testing.

369

00:26:33,000 --> 00:26:36,000

You know, as a public service to our viewers.

370

00:26:36,000 --> 00:26:37,000

Exactly.

371

00:26:39,000 --> 00:26:44,000

Jamie and Adam have been testing Tesla's earthquake machine for days.

372

00:26:44,000 --> 00:26:48,000

And the Richter scale is showing a big fat zero.

373

00:26:48,000 --> 00:26:51,000

There have been a few good vibrations.

374

00:26:51,000 --> 00:26:53,000

Scubri, blah, blah, blah.

375

00:26:53,000 --> 00:26:58,000

But certainly nothing like the results Tesla boasted about in his twilight years.

376

00:26:58,000 --> 00:27:03,000

After a lifelong feud with Edison and in deep financial trouble,

377

00:27:03,000 --> 00:27:07,000

the Serbian born inventor made some outrageous claims.

378

00:27:07,000 --> 00:27:12,000

He was still producing great work such as the first principles for radar.

379

00:27:12,000 --> 00:27:19,000

But he also suggested he could build a death ray capable of destroying 10,000 enemy airplanes.

380

00:27:19,000 --> 00:27:24,000

And of course he famously claimed that with a few well-timed explosions,

381

00:27:24,000 --> 00:27:28,000

he could split the earth in two like an apple.

382

00:27:28,000 --> 00:27:33,000

But Tesla's claims and the results so far are a world apart.

383

00:27:33,000 --> 00:27:39,000

So we're a little bit stuck because the designs that Tesla drew out don't seem to really work too well.

384

00:27:39,000 --> 00:27:46,000

And we might eventually get there, but I understand Grant has advice that might speed things up a little bit.

385

00:27:46,000 --> 00:27:49,000

Okay, you ready? Here we go.

386

00:27:53,000 --> 00:27:56,000

That's it Jamie. That's what we wanted to build.

387

00:27:56,000 --> 00:28:02,000

It's an electromagnetic linear motor and Tesla will be smiling in his grave.

388

00:28:02,000 --> 00:28:05,000

This is precisely what Tesla's describing in his patent.

389

00:28:05,000 --> 00:28:09,000

I mean he says he doesn't care exactly how you achieve that movement,

390

00:28:09,000 --> 00:28:12,000

but that it's frictionless you could potentially do it with a magnetic coil,

391

00:28:12,000 --> 00:28:14,000

even though he suggested air cushion.

392

00:28:14,000 --> 00:28:16,000

I mean this is it. This is it.

393

00:28:16,000 --> 00:28:24,000

Amazingly Grant turns out to have in his possession for an outside consulting gig exactly the motor that we need.

394

00:28:24,000 --> 00:28:30,000

It's driven by magnets which Tesla posited was possible and a reasonable way to do this machine.

395

00:28:30,000 --> 00:28:33,000

I cannot wait to get going on that thing.

396

00:28:33,000 --> 00:28:40,000

Grant's actuator is so perfect that with a simple clamp to the 20 foot bar it's ready to go.

397

00:28:40,000 --> 00:28:42,000

Now we're getting something here.

398

00:28:42,000 --> 00:28:45,000

Yeah, it's starting to rock.

399

00:28:45,000 --> 00:28:52,000

With a computer controlled accuracy of one hundredths of a hertz something Tesla could only dream of.

400

00:28:52,000 --> 00:28:55,000

I got something.

401

00:28:55,000 --> 00:29:03,000

They're having much more success fine tuning Grant's almost frictionless motor to the steel bar's natural frequency.

402

00:29:03,000 --> 00:29:06,000

Holy Christ.

403

00:29:07,000 --> 00:29:09,000

Dude!

404

00:29:12,000 --> 00:29:14,000

My box. Let's stop it.

405

00:29:14,000 --> 00:29:16,000

Okay, stop it.

406

00:29:17,000 --> 00:29:27,000

It's about tuning the amount of vibrations per second precisely to what the bar needs.

407

00:29:27,000 --> 00:29:34,000

It's that every time the bar flexes when it comes back up that you're hitting it boom right at the top of that arc.

408

00:29:34,000 --> 00:29:38,000

And again it goes back down, it comes back up, bang you're hitting it right at the top of that arc.

409

00:29:38,000 --> 00:29:40,000

That timing is absolutely critical to this.

410

00:29:40,000 --> 00:29:47,000

And we saw that once you get that timing right and you eliminate the ability of the bar to move and bounce and lose its energy,

411

00:29:47,000 --> 00:29:50,000

the deflection was just diabolical.

412

00:29:50,000 --> 00:29:58,000

I can't with all my weight standing in the middle of this deflect it as much as it was being deflected by this actuator,

413

00:29:58,000 --> 00:30:01,000

which only weighs what, like five pounds?

414

00:30:01,000 --> 00:30:09,000

Well we got some results from our first test but we didn't get anything like what Tesla described as far as this atom by atom destruction.

415

00:30:09,000 --> 00:30:15,000

And he said one thing he did was bolt it to an iron bar and the other thing he did was bolt it to his building

416

00:30:15,000 --> 00:30:22,000

and maybe we're going to get a lot more response out of this device if we bolt it to a scale model of Tesla's actual lab.

417

00:30:22,000 --> 00:30:28,000

Let's build a scale version of 48 East Houston Street where his lab was and try the device out on that.

418

00:30:28,000 --> 00:30:30,000

So scale testing it is.

419

00:30:30,000 --> 00:30:34,000

And a quick research break ensures they have accurate mini blueprints,

420

00:30:34,000 --> 00:30:41,000

not just for size but also structural integrity and material strength.

421

00:30:41,000 --> 00:30:50,000

Then with judicious use of the fast forward button, Adam and Jamie have a replica of Tesla's lab built in no time at all.

422

00:30:50,000 --> 00:30:53,000

We have our 1-6 scale version of Tesla's building.

423

00:30:53,000 --> 00:30:58,000

Now we have to have a 1-6 scale of Tesla's resonator.

424

00:30:58,000 --> 00:31:02,000

This micro cassette recorder fits the build perfectly.

425

00:31:03,000 --> 00:31:09,000

And once it's attached to one of the scaled down steel beams, they're ready to go.

426

00:31:09,000 --> 00:31:23,000

We should match the oscillation of your device to the sound of this thing rocking back and forth then we'll get really close to the resonant frequency, okay?

427

00:31:23,000 --> 00:31:25,000

That's pretty darn good.

428

00:31:25,000 --> 00:31:30,000

Alright then I think we should just let it sit for a while. Tesla said nothing happened at first.

429

00:31:30,000 --> 00:31:36,000

Despite Adam's confidence in the test parameters, the Earth and Mini Jamie are unmoved.

430

00:31:36,000 --> 00:31:38,000

Let's give Grant a call.

431

00:31:38,000 --> 00:31:41,000

Yeah we need to go bigger.

432

00:31:41,000 --> 00:31:44,000

Of course if we use Grant's device, scale is going out the window.

433

00:31:44,000 --> 00:31:50,000

This isn't even remotely what you would consider pocket sized in scale. It's something like a car.

434

00:31:50,000 --> 00:31:58,000

But even with the scale equivalent of an oscillating car and hours of tuning and tweaking, there's no evidence of destruction.

435

00:31:58,000 --> 00:32:01,000

So the myth is on extremely shaky ground.

436

00:32:01,000 --> 00:32:07,000

But desperate to give Tesla his due, Adam has one last test up his sleeve.

437

00:32:07,000 --> 00:32:15,000

I think that it's the final piece to resistance of this myth. We take your linear actuator out to a big steel structure like a bridge.

438

00:32:15,000 --> 00:32:19,000

We try it on that. Then we can call this one busted.

439

00:32:19,000 --> 00:32:22,000

You get me the bridge, I'll be there.

440

00:32:23,000 --> 00:32:28,000

So this is the classic story of somebody has a tin of beans.

441

00:32:28,000 --> 00:32:32,000

He doesn't have a bowl so he's going to heat it up straight on the stove.

442

00:32:32,000 --> 00:32:38,000

Forgets to open up the lid, the pressure builds, and it explodes.

443

00:32:42,000 --> 00:32:44,000

I think you're right, dude.

444

00:32:47,000 --> 00:32:49,000

Beans.

445

00:32:49,000 --> 00:32:53,000

Not as exciting as the lava lamp, this can of beans.

446

00:32:53,000 --> 00:32:58,000

But where there's heat, beans, and pressure, there's always an explosion.

447

00:32:58,000 --> 00:33:03,000

Oh, dang it! That was disgusting.

448

00:33:03,000 --> 00:33:06,000

Disgusting, but I bet you want to see it again.

449

00:33:06,000 --> 00:33:11,000

Oh, this is so gross! Look at that! Oh my god, it's in the shape of a can!

450

00:33:13,000 --> 00:33:15,000

That was awesome!

451

00:33:15,000 --> 00:33:21,000

So the pop-top popped and there was a stinky eruption, but it wasn't exactly lethal.

452

00:33:21,000 --> 00:33:22,000

Next.

453

00:33:22,000 --> 00:33:25,000

Okay, so this time we're going to use a bigger can of beans.

454

00:33:25,000 --> 00:33:30,000

It's the kind of can that you actually need a can opener to get into the beans.

455

00:33:30,000 --> 00:33:39,000

So it doesn't have the pop-top with the little tab, so hopefully it's going to take a lot more pressure to make this explode.

456

00:33:39,000 --> 00:33:46,000

The heat's off, so all they've got to do is sit tight, wait for the boom, and avoid getting arrested by the pun police.

457

00:33:46,000 --> 00:33:53,000

I have bean there. Yeah, Grant likes beans safe. This is bean the funniest day.

458

00:33:53,000 --> 00:33:57,000

Half an hour into the experiment and the bean can is yet to blow.

459

00:33:57,000 --> 00:34:01,000

The mythbusters, well, they're still monkeying around.

460

00:34:09,000 --> 00:34:13,000

Woohoo!

461

00:34:18,000 --> 00:34:20,000

Oh my god, the ad!

462

00:34:20,000 --> 00:34:22,000

I could taste beans in the air.

463

00:34:22,000 --> 00:34:23,000

Yeah.

464

00:34:23,000 --> 00:34:27,000

Now you see it, now you don't.

465

00:34:27,000 --> 00:34:31,000

Next, it's a pop-gun of potted meat.

466

00:34:31,000 --> 00:34:35,000

Woo! You were right! Look at that! It's in a block!

467

00:34:35,000 --> 00:34:37,000

And it's cooked! Let's eat.

468

00:34:37,000 --> 00:34:38,000

What do we got next?

469

00:34:38,000 --> 00:34:42,000

Well, the list says a mortar of milk.

470

00:34:42,000 --> 00:34:46,000

It doesn't look too aggressive. It looks like it's just slowly leaking out.

471

00:34:46,000 --> 00:34:48,000

Woo!

472

00:34:48,000 --> 00:34:50,000

Nice!

473

00:34:50,000 --> 00:34:52,000

It was a milk rocket!

474

00:34:55,000 --> 00:34:56,000

That was great.

475

00:34:56,000 --> 00:35:00,000

Oh, look, there's a huge shirt of glass going right into the ribs.

476

00:35:00,000 --> 00:35:02,000

Oh, gross.

477

00:35:02,000 --> 00:35:06,000

Which leaves just one item on the team's to blow up list.

478

00:35:06,000 --> 00:35:09,000

The mother of all lava lamps.

479

00:35:09,000 --> 00:35:11,000

Big Bertha.

480

00:35:11,000 --> 00:35:13,000

So quiet.

481

00:35:13,000 --> 00:35:15,000

A little too quiet.

482

00:35:17,000 --> 00:35:19,000

It was almost in slow motion.

483

00:35:19,000 --> 00:35:22,000

Wow, those are giant pieces.

484

00:35:22,000 --> 00:35:24,000

Oh my god, that was so cool.

485

00:35:24,000 --> 00:35:25,000

Wow.

486

00:35:25,000 --> 00:35:28,000

The pieces that came off that were definitely like spears.

487

00:35:28,000 --> 00:35:30,000

They were huge.

488

00:35:33,000 --> 00:35:35,000

Alright, let's wrap up our day with results.

489

00:35:35,000 --> 00:35:36,000

What do we get for the lava lamp?

490

00:35:36,000 --> 00:35:39,000

Lethal. Lots of energy. Lots of shrapnel.

491

00:35:39,000 --> 00:35:40,000

Can of beans.

492

00:35:40,000 --> 00:35:43,000

Well, depending on the size of the tin that you're using,

493

00:35:43,000 --> 00:35:47,000

I would say it's definitely lethal, especially to you, possibly your neighbors.

494

00:35:47,000 --> 00:35:51,000

Okay. How about the can of potted meat?

495

00:35:51,000 --> 00:35:54,000

Probably not lethal, but very messy.

496

00:35:54,000 --> 00:35:56,000

And finally, the milk in the jar.

497

00:35:56,000 --> 00:35:59,000

The milk in the jar, I guess the only way it could kill you is if you had your head

498

00:35:59,000 --> 00:36:01,000

and you were looking directly down at it.

499

00:36:01,000 --> 00:36:02,000

It could be lethal.

500

00:36:02,000 --> 00:36:05,000

Okay, so I guess we've learned something here today.

501

00:36:05,000 --> 00:36:08,000

Don't put anything on the stove unless you have a pressure release.

502

00:36:15,000 --> 00:36:20,000

Tesla's earthquake machine has proved to be a test of Jamie and Adam's patience

503

00:36:20,000 --> 00:36:22,000

and working relationship.

504

00:36:22,000 --> 00:36:26,000

But Adam has insisted they try one last experiment.

505

00:36:26,000 --> 00:36:28,000

You get me the bridge, I'll be there.

506

00:36:28,000 --> 00:36:30,000

And what a bridge.

507

00:36:30,000 --> 00:36:32,000

We're on the Carcanus Bridge.

508

00:36:32,000 --> 00:36:35,000

Now, this is obviously a huge steel structure.

509

00:36:35,000 --> 00:36:38,000

This was built circa 1927.

510

00:36:38,000 --> 00:36:44,000

So, as far as a resonant steel structure, this is it.

511

00:36:44,000 --> 00:36:46,000

It's quite the structure.

512

00:36:46,000 --> 00:36:49,000

It is. It is an awesome structure.

513

00:36:49,000 --> 00:36:52,000

But when Adam said, we promise that if this device works,

514

00:36:52,000 --> 00:36:54,000

we will use our powers only for good.

515

00:36:54,000 --> 00:36:56,000

He was lying.

516

00:36:56,000 --> 00:37:00,000

It's time to use Tesla's device to bring the bridge down.

517

00:37:00,000 --> 00:37:01,000

This is intense.

518

00:37:01,000 --> 00:37:05,000

So all they need to do is find a good spot to attach their earthquake machine,

519

00:37:05,000 --> 00:37:08,000

turn it on, and tune it in.

520

00:37:10,000 --> 00:37:12,000

There she goes.

521

00:37:12,000 --> 00:37:13,000

There it is.

522

00:37:13,000 --> 00:37:16,000

The oscillating machine is oscillating.

523

00:37:16,000 --> 00:37:18,000

Increase the amplitude.

524

00:37:18,000 --> 00:37:21,000

And now to tune it to the resonant frequency of the bridge.

525

00:37:21,000 --> 00:37:27,000

If they can do that, this giant steel structure will be a pile of rubble in no time at all.

526

00:37:27,000 --> 00:37:30,000

Oh, my God!

527

00:37:30,000 --> 00:37:32,000

I'm just kidding.

528

00:37:32,000 --> 00:37:38,000

Keen-eyed observers will note the guys are actually standing on the bridge they're trying to destroy.

529

00:37:38,000 --> 00:37:43,000

Confidence in Tesla's machine isn't exactly sky-high.

530

00:37:43,000 --> 00:37:48,000

Neither Jamie nor I gives a high percentage to anything occurring out here.

531

00:37:49,000 --> 00:37:56,000

Nonetheless, I mean, Mythbusters is nothing if not a compendium of ways in which Jamie and I have been wrong.

532

00:38:00,000 --> 00:38:02,000

Jamie, come here. Feel this.

533

00:38:03,000 --> 00:38:04,000

Come here.

534

00:38:06,000 --> 00:38:09,000

I feel a vibration that is oscillating here.

535

00:38:10,000 --> 00:38:12,000

I'm going to freeze it and see whether it stops.

536

00:38:12,000 --> 00:38:13,000

Okay, okay.

537

00:38:14,000 --> 00:38:15,000

That's kind of cool.

538

00:38:15,000 --> 00:38:17,000

And...

539

00:38:18,000 --> 00:38:20,000

totally stops here.

540

00:38:20,000 --> 00:38:21,000

That's freaky.

541

00:38:21,000 --> 00:38:25,000

All of a sudden, this myth is giving Adam and Jamie a good vibe.

542

00:38:25,000 --> 00:38:30,000

And it's not the traffic because that's on a completely separate bridge.

543

00:38:30,000 --> 00:38:34,000

It totally feels like the whole structure is ringing to that, to that hurts.

544

00:38:34,000 --> 00:38:38,000

Hold on, I'm going to go down the way and see if I can feel it over here.

545

00:38:39,000 --> 00:38:41,000

I can totally feel it over here.

546

00:38:42,000 --> 00:38:43,000

Wait.

547

00:38:46,000 --> 00:38:50,000

I can totally... yep, there it goes.

548

00:38:50,000 --> 00:38:52,000

But the best is yet to come.

549

00:38:52,000 --> 00:38:56,000

After some more tuning, they find a sweet spot.

550

00:38:56,000 --> 00:38:57,000

All the fun.

551

00:38:58,000 --> 00:38:59,000

Oh my God.

552

00:39:00,000 --> 00:39:05,000

It feels like a big semi-trailer truck is rolling right by us right now.

553

00:39:07,000 --> 00:39:11,000

And that's only six pounds of weight moving 25 times per second.

554

00:39:11,000 --> 00:39:15,000

It actually makes me a little concerned, I believe it or not.

555

00:39:15,000 --> 00:39:21,000

I've totally started to come out here and find this thing vibrating at the correct frequency

556

00:39:21,000 --> 00:39:24,000

to be felt hundreds of feet away from the source.

557

00:39:24,000 --> 00:39:26,000

That is totally amazing.

558

00:39:26,000 --> 00:39:28,000

Did not expect that.

559

00:39:28,000 --> 00:39:36,000

We were ramping the same weight and the same kind of amplitude of vibration

560

00:39:37,000 --> 00:39:40,000

through the whole range of frequencies.

561

00:39:40,000 --> 00:39:45,000

And you know, there's a little vibration, but then I hit that one spot

562

00:39:45,000 --> 00:39:50,000

and all of a sudden it's like, hold on, this is different.

563

00:39:50,000 --> 00:39:54,000

Something different was going on with that exact frequency.

564

00:39:54,000 --> 00:40:02,000

And as a result of that specific frequency, that specific tone that we're getting,

565

00:40:02,000 --> 00:40:05,000

this entire bridge is vibrating.

566

00:40:07,000 --> 00:40:09,000

Yeah, you can see it.

567

00:40:11,000 --> 00:40:13,000

That's over 100 feet away.

568

00:40:15,000 --> 00:40:17,000

Dude, that's six pounds.

569

00:40:17,000 --> 00:40:18,000

I know.

570

00:40:18,000 --> 00:40:21,000

That's, I mean, I'm a little spooked.

571

00:40:21,000 --> 00:40:22,000

It's official.

572

00:40:22,000 --> 00:40:28,000

We have two spooked mythbusters and some unexpected results on our hands.

573

00:40:29,000 --> 00:40:36,000

This vibration from this device is traveling significant distances in this structure.

574

00:40:36,000 --> 00:40:38,000

But it ain't no earthquake.

575

00:40:38,000 --> 00:40:43,000

We've had it running for, I think, somewhere near an hour at this point.

576

00:40:43,000 --> 00:40:47,000

And it's not doing anything but just making the vibrations.

577

00:40:47,000 --> 00:40:49,000

The vibrations aren't building.

578

00:40:49,000 --> 00:40:53,000

We tuned it up and down to find a really resonance frequency.

579

00:40:54,000 --> 00:40:59,000

If we've hit a real butter zone here and still this bridge is standing.

580

00:40:59,000 --> 00:41:05,000

Do you know that some people think that Tesla was sent back in time from the future

581

00:41:05,000 --> 00:41:08,000

to give primitive man the gift of electricity

582

00:41:08,000 --> 00:41:11,000

and that he was an inspiration for Mark Twain's story

583

00:41:11,000 --> 00:41:13,000

in Connecticut Yankee and King Arthur's court?

584

00:41:13,000 --> 00:41:16,000

Well, he was definitely ahead of his time.

585

00:41:16,000 --> 00:41:19,000

And, you know, he was onto something with this resonance thing.

586

00:41:19,000 --> 00:41:20,000

It was pretty cool.

587

00:41:20,000 --> 00:41:23,000

Yeah, but I think we both know where this is going.

588

00:41:23,000 --> 00:41:24,000

It ain't no earthquake.

589

00:41:24,000 --> 00:41:26,000

It's no earthquake. It's totally busted.

590

00:41:26,000 --> 00:41:27,000

Let's go home.

591

00:41:32,000 --> 00:41:36,000

Hey, what do you think if we put a couple hundred pounds on that starter?