

How's That Work: Pressure Cooker, Ceiling Fan, Paint Sprayer

About *How's That Work*

A microwave, a hair dryer, a remote control, a dishwasher--simple, everyday conveniences that most of us take for granted. Behind every celebrated home invention is a great story. For instance, did you know that a weary socialite created the first dishwasher? *How's That Work?* uncovers the entertaining origins of our favorite household items and how they actually work.

About this Episode

It was way back in 1680 when the first pressure cooker was invented by Frenchman Denis Papin. A scientist by trade, Papin discovered that water reached a higher temperature when a lid was locked over the pot. The only problem was that lots of pressure built up inside, which occasionally blew off those lids. Then, during the Renaissance, carrying a handheld fan was a sign of nobility. Some were elegant works of art adorned with gold and jewelry. Still, keeping yourself cool came with the price of working up a sweat. By the time the Industrial Revolution spun around, people were looking to remove the human factor from fans. In 1886, a father and son named John and James Hunter built an early ceiling fan that was one of the first products powered by electricity. Finally, the paint sprayers we have around the home today were developed in Germany in the late '40s. A man named Joseph Wagner noticed how sprayers used for coating cars and airplanes turned paint into a mist. Soon he found a way to make heavier house paint to do the same thing.

Vocabulary

- Atomizer
- Circulate
- Gasket
- Magnetized
- Piston
- Pitch
- Pressure
- Residual
- Resurgence
- Valve

Discussion Questions

1. List the inventions in the episode and ask students which ones they are familiar with. How many of them have one or more of the inventions at home? Which inventions would they want to own?
2. What do they see as the benefits of these inventions?
3. For each invention, have students share one thing they'd like to learn in the episode.
4. After watching the episode, have students share whether or not they learned the information from number 4 and any information that surprised them.

Suggested Activities

This is How That Works! (Language Arts, Visual Arts, Science)

Have students time and summarize the format of a typical *How's That Work* segment. They should identify an introductory question, background information about the invention, a detailed explanation of how it works and a summary. Most segments also include interesting information, trivia, photographs and illustrations. Then have student groups imagine that they have been asked by the producers of *How's That Work* to write a segment that explains how an item from their classroom or school works. Have them choose their item, conduct research on how the item

works and write the script for the segment. Then have them present their segment to the rest of the class. **Extension:** Have students use video equipment to film their segments and put together their own episode of *How's That Work!*

Who Has the Patent? (Social Studies, Language Arts, Science)

Nearly every U.S. invention has a patent on file with the U.S. Patent and Trademark Office. A patent is a property right granted by the Government of the United States of America to an inventor "to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States" for a limited time in exchange for public disclosure of the invention when the patent is granted." In other words, a patent protects the invention so someone else can't copy or profit from an original idea. Nearly six million patents have been granted since the U.S. Patent and Trademark office was established in the late 18th century. What information do students imagine would be part of a patent? Have students go to the U.S. patent and trademark office at www.uspto.gov to learn more about patents. Then have them search for patents that relate to one of the inventions in the episode. For example, patent# 4162741 relates to the pressure cooker. To whom was the patent they've researched granted? How long did it take from the application date to the date the patent was granted? What important information is included in the patent?

Can You Sell It? (Language Arts, Marketing)

The three household items in this episode are arguably not critical items to our daily lives. However there are certainly advantages to having them in our homes and many people do own them. Have student groups select one of the items in the episode. Then have them write a commercial or design an advertisement to persuade people to purchase their product. They should have at least two facts from the episode in their commercial. **Extension:** Have student groups brainstorm a likely target for their ad. For example, busy Mom's who like to cook might be a likely target for a pressure cooker advertisement.