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By: Georgiana Bobolicu, Gadgets Editor

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History of the Washing Machine

From stonewashing to the modern washing machine

As a society that depends on high tech gadgets and gizmos, we tend to overlook the origin of the devices that have been built to simplify our lives, such as the washing machine. We could live without it if we had to, but it would be so much difficult, considering the fact that everything is about speed and multi-tasking these days.

Early stages of development

While today we might think of stonewashing only in terms of our favorite jeans, stonewashing 500 years ago was the norm for all clothes—well, all dirty clothes, that is. Washing machines got their start in history with the simplest of tools: sand, stones, and good, old-fashioned elbow grease. Clothes were scrubbed with sand, then pounded against rocks and given a final stream-water rinse.

However, preoccupations towards the creation of a machine to ease this activity have made themselves noticed as early as the 17th century, even if the apparatuses didn't have the form and function that they have today.

In the early days, without running water, gas, or electricity, even the most simplified hand-laundry used staggering amounts of time and labor. One wash, one boiling and one rinse used about fifty gallons of water—or four hundred pounds—which had to be moved from pump or well or faucet to stove and tub, in buckets and wash boilers that might weigh as much as forty or fifty pounds. Rubbing, wringing, and lifting water-laden clothes and linens, including large articles like sheets, tablecloths, and men's heavy work clothes, wearied women's arms and wrists and exposed them to caustic substances.

Washing machine technology was developed as a way to eliminate the scrubbing and rubbing process, with paddles or fingers to automatically agitate the clothing. So, even if the first washing machines were hand-operated, they were still a relief for all the housewives that had to deal with the nightmare of doing the laundry. Even so, the machine itself was faster and easier to operate than washing the clothes by hand directly. And since electricity was not commonly available until about 1930, these early machines were often operated by a low-speed single-cylinder hit and miss gasoline engine.

But the "upgrade" of these machines proved to be a prolonged and difficult process, with a lot of obstacles to overcome. Thus, the earliest machines were manufactured out of wood, which made the entire activity more difficult, since the warm water had to be "recycled", in order to wash first the less dirty clothes and then the dirtier ones.

People saw this flaw though and decided to do something about it. That is why later machines were made of metal, thus allowing a fire to burn below the washtub, to keep the water warm throughout the day's washing.

The wringer/mangle was also developed, this component using two rollers under spring tension to squeeze water out of the clothing, first as a hand-operated device, and then included as a powered attachment above the washer tub.

The modern process of water removal by spinning did not come into use until electric motors were developed, since spinning requires a constant power source. What is now referred to as an automatic washer was at one time referred to as a washer/extractor, which combines the features of these two devices into a single machine, plus also includes the ability to fill and drain water by itself.

Washing machine milestones

The first washing machine dates back into the 17th century. Of course, it had nothing to do with the washing machines that we know today, except for the fact that it shared the same purpose, of washing dirty laundry. To be more precise, the first patent under the category of Washing and Wringing Machines was issued in 1691, in England. Also, a drawing of an early device of this type appeared in 1752 in a British publication called "The Gentlemen's Magazine."

The Germans also made themselves noticed in the field, through Jacob Christian Schaeffer's washing machine design, published in 1767, while more than a decade later, in 1782, Henry Sidgier was issued a British patent for a rotating drum washer, which consisted of a cage with wooden rods and a handle.

The US also brought their contribution to the development of the washing machine, since in 1797 the first patent, called "Clothes Washing", was granted to Nathaniel Briggs. However, the patent office was destroyed in a great fire, which means that there is no description of the device out there. A device that combined a washing machine with a wringer mechanism did not appear until 1843, when John E. Turnbull patented a "Clothes Washer with Wringer Rolls."

In the late 1800s, companies started producing hand operated machines that used paddles or dollies. Then came the revolving drum from James King in 1851, which was shortly followed by a revolving drum with reversing action, from Hamilton Smith, in 1858. In the early 1900s, with the advent of small electric motors, the washing machine entered the electric age. And even though Alva J. Fisher has been credited with the invention of the first electric washing machine, it would seem that, in fact, its real inventor was Louis Goldenberg, an engineer at the Ford Motor Company.

Nevertheless, Fisher remained in history as the man who brought us closer to the washing machines that we use today. Its invention was a drum type washing machine that had a galvanized tub and even an electric motor. It was introduced to the public in 1908 by the Hurley Machine Company of Chicago, Illinois. The patent was issued in 1910.

The first companies that got involved in the production of washing machines were Maytag, Upton Machine Company (which became the Whirlpool Corporation) and Schulthess. They contributed to the development of the washing machines and their mass production. Thus, in the 1930s, the first automatic washing machine appeared, introduced by Bendix(1937). Production of Europe's first automatic washing machines began in 1951 and in 1978 production began for the first microchip controlled automatic machines.

Washer design improved during the 1930s: the mechanism was now enclosed within a cabinet, more attention was paid to electrical safety, spin dryers were introduced, to replace the dangerous power wringers of the day. Also, innovations continued to appear, like the first top loading washing machine, introduced by General Electric, in 1947.

From the 1950s on, many technological advances improved the quality of the washing

machines on the market. Among hundreds of systems tested, the agitator system and the tumbling systems are the ones that managed to survive until today.

Modern washing machines

Washing machines nowadays have advanced to such a level that they're basically doing everything themselves. All the operator has to do is put the clothes in the washer, select the temperature and wash settings and go about their business. There is a washing machine for virtually every need from water economy to tackling tough stains. Contemporary washing machines are available in two main configurations, top loading and front loading.

The top loading design, most popular in the United States, Australia and some parts of Europe, places the clothes in a vertically-mounted cylinder, with a propeller-like agitator in the center of the bottom of the cylinder. Top loading machines in Asia use impellers instead of agitators. Impellers are similar to agitators except that they don't have the center post extending up in the middle of the wash tub basket. Clothes are loaded through the top of the machine, which is covered with a hinged door.

The front loading design, most popular in Europe and the Middle East, instead mounts the cylinder horizontally. Loading is through a glass door at the front of the machine. The cylinder is also called the drum. Agitation is supplied by the back-and-forth rotation of the cylinder, and by gravity. The clothes are lifted up by paddles in the drum and then dropped.

This motion flexes the weave of the fabric and forces water and detergent solution through the clothes load. Although more infrequent, there is also a variant of the horizontal axis design that is loaded from the top, through a small door in the circumference of the drum. These machines usually have a shorter cylinder and are therefore smaller.

All washing machines use three different sources of energy, mechanical, thermal and chemical energy. Thus, mechanical energy is imparted to the clothes load by the rotation of the agitator in the top loaders, or by the tumbling action of the drum, in the front loaders. Thermal energy is supplied by the temperature of the wash bath, while chemical action is supplied by the detergent and other laundry chemicals.

In the late 1990s, the British inventor James Dyson came up with the concept of a washing machine with two cylinders rotating in opposite directions, which should reduce the wash times and produce better results. However, this machine hasn't entered production so far.

Innovations continued to appear, and, in 1994, Staber Industries released the System 200 washing machine, the only top loading, horizontal-axis washer to be manufactured in the US. The great thing about this device is that the hexagonal tub spins like a front loading machines, but using only third of the water as the conventional top loaders.

Whirlpool Corporation also wanted to remind people of its tradition in producing innovative, high-quality washing machines, by introducing, in 2001, the Calypso, the first vertical-axis high efficiency washing machine to be top loading. However, they only managed to prove that they still had to work on this product, as it encountered numerous defects.

In 2006, Sanyo introduced the first drum type washing machine with "Air Wash" function, which uses only 50 liters of water, in the recycle mode, and, in 2008, the University of Leeds created a washing machine that uses only 1 cup (280ml) of water to carry out a full wash. This machine leaves the clothes practically dry and uses less than 2 per cent of the water and energy otherwise used by a conventional machine.

And this is not all, as new ideas stem each day. As a proof, some modern washing machines include USB or WiFi ports, to connect to a domestic network or to the Internet. And probably pretty soon these too will be old news. So, you just sit back and stay informed, because there will surely be an outrageous washing machine coming your way when you expect it less.