

Airbrush

From Wikipedia, the free encyclopedia

An **airbrush** is a small, air-operated tool that sprays various media, most often paint but also ink and dye, by a process of nebulization. Spray painting developed from the airbrush and is considered to employ a type of airbrush.



Paasche F#1 Single-action external mix airbrush

Contents

- 1 History
- 2 Design
- 3 Types
 - 3.1 Trigger
 - 3.2 Feed system
 - 3.3 Mix point
- 4 Spray guns
- 5 Technique
- 6 Use
 - 6.1 Art and illustration
 - 6.2 Photo retouching
 - 6.3 Murals
 - 6.4 Hobby
 - 6.5 Airbrush makeup application
 - 6.6 Temporary airbrush tattoos (TATs)
 - 6.7 Airbrush tanning
 - 6.8 Finger nail art
 - 6.9 Clothing
 - 6.10 Automotive
- 7 Street artists
- 8 Safety
- 9 See also
- 10 References
- 11 External links

History

The first airbrush, depending on the definition, was patented in 1876 (Patent Number 182,389) by Francis Edgar Stanley of Newton, Massachusetts. Stanley and his twin brother later invented a process for continuously coating photographic plates (Stanley Dry Plate Company) but are perhaps best known for their Stanley Steamer. No artistic images that used this 'paint distributor / atomiser' exist or are as yet known.

The first instrument to be named the "paint distributor" was developed by Abner Peeler "for the painting of watercolors and other artistic purposes" and used a hand-operated compressor. It was rather crude, being based on a number of spare parts in a jeweller's workshop such as old screwdrivers and welding torches. It took 4 years of further development before a working prototype was developed by Liberty Walkup of Mt. Morris, Illinois. Walkup repatented the work under the name of "air-brush", a name his wife Mimi Walkup came up with. His wife would later go on to be the founder of the Illinois Art School where airbrushing was taught to students from all over the

world. In that same rented 4 story building Rockford Air-Brush would be established under Liberty Walkup. The Walkups taught airbrush technique to American Impressionist master Wilson Irvine at the Air Brush School in Rockford, Illinois. The first certain 'atomising' type airbrush was invented by Charles Burdick in 1893 and presented by Thayer and Chandler art materials company at the World Columbian Exposition in Chicago. Burdick founded the Fountain Brush Company in the US, and launched the first series of airbrushes onto the market.^[1] This device was essentially the same as a modern airbrush, resembling a pen and working in a different manner than Peeler's device. Aerograph, Burdick's original company, still makes and sells airbrushes in England. Thayer and Chandler were acquired by Badger Air-Brush Co. in 2000. Badger Air-Brush continues the Thayer and Chandler tradition of manufacturing quality airbrush guns, tools and compressors out of Franklin Park, Illinois.

For more a detailed academic study, the University of Wales Library holds a detailed PhD on airbrush history. The Franklin Institute in Philadelphia, the Public Library in Rockford Illinois and the Conservation Department of New York University retain copies. This was authored by Dr. Andy Penaluna, now Professor of Creative Entrepreneurship at Swansea Metropolitan University.^[2]

Design

An airbrush works by passing a stream of fast moving (compressed) air through a venturi, which creates a local reduction in air pressure (suction) that allows paint to be pulled from an interconnected reservoir at normal atmospheric pressure. The high velocity of the air atomizes the paint into very tiny droplets as it blows past a very fine paint-metering component. The paint is carried onto paper or other surfaces. The operator controls the amount of paint using a variable trigger which opens more or less a very fine tapered needle that is the control element of the paint-metering component. An extremely fine degree of atomization is what allows an artist to create such smooth blending effects using the airbrush.

The technique allows for the blending of two or more colors in a seamless way, with one color slowly becoming another color. Freehand airbrushed images, without the aid of stencils or friskets, have a floating quality, with softly defined edges between colors, and between foreground and background colors. A skilled airbrush artist can produce paintings of photographic realism or can simulate almost any painting medium. Painting at this skill level involves supplementary tools, such as masks and friskets, and very careful planning.

Some airbrushes use pressures as low as 20 psi (1.38 bar) while others use pressures in the region of 30-35 psi (2-2.4 bar). Larger "spray guns" as used for automobile spray-painting need 100 psi (6.8 bar) or more to adequately atomize a thicker paint using less solvent. They are capable of delivering a heavier coating more rapidly over a wide area. Even with small artist airbrushes using acrylic paint, artists must be careful not to breathe in the atomized paint, which floats in the air for minutes and can go deep into the lungs. With commercial spray guns for automobiles, it is vital that the painter have a clean air source to breathe, because automotive paint is far more harmful to the lungs than acrylic. Certain spray guns, called High-Volume Low-Pressure (HVLP) spray guns, are designed to deliver the same high volumes of paint without requiring such high pressures.

Types

Airbrushes are usually classified by three characteristics. The first characteristic is the action performed by the user to trigger the paint flow while the second is the mechanism for feeding the paint into the airbrush and the third is the point at which the paint and air mix.

Trigger

The simplest airbrushes work with a *single-action* mechanism where the depression of the trigger actuates air flow through the airbrush. The airbrush's color flow and spray pattern are adjusted separately from the trigger action. This is done through an adjustment of the airbrush's needle placement within its paint tip, by the turning of the

paint tip on an external mix airbrush (Badger 350 or Paasche Model H are good examples of single-action external mix airbrushes) or the turning of a needle setting dial on an internal mix airbrush (Badger 200 or Iwata SAR are good examples of single-action internal mix airbrushes). The color volume and spray pattern are maintained at a fixed level until the airbrush user re-adjust the setting. Single-action airbrushes are simpler to use and generally less expensive, but they present limitations in applications in which the user wishes to do something more artistic than simply apply a good, uniform coat of color.

Dual-action or *double-action* airbrushes enable the simultaneous adjustment of both air and color at the trigger, by allowing the user to actuate air by depressing the trigger and simultaneously adjust color by sliding the trigger back and forth.^[3] This ability to adjust color flow while spraying the airbrush, coupled with the users adjustment of distance from the sprayed surface allows for the variation of fine to wide lines without stopping to re-adjust the spray pattern as is necessary with a single-action airbrush. This allows for greater spray control and enables a wider variety of artistic effects. This type of airbrush requires some amount of practice to become proficient in triggering technique and control, but it offers greater artistic versatility to the artists once the triggering technique is learned. Dual-action airbrushes (Badger Patriot 105, Paasche VL, Iwata CM-C are all good examples of dual-action airbrushes) are of a more sophisticated design model than single-action airbrushes, which tends to make them the more expensive of the two.



Aerograph Super 63, a gravity-fed, double-action, internal mix airbrush

Feed system

Paint can be fed by gravity from a paint reservoir sitting atop the airbrush (called *gravity feed*) or siphoned from a reservoir mounted below (*bottom feed*) or on the side (*side feed*). Each feed type carries unique advantages. Gravity feed instruments require less air pressure for suction as the gravity pulls the paint into the mixing chamber. Typically instruments with the finest mist atomization and detail requirements use this method. Side- and bottom-feed instruments allow the artist to see over the top, with the former sometimes offering left-handed and right-handed options to suit the artist. A bottom feed airbrush typically holds a larger capacity of paint than the other types, and is often preferable for larger scale work such as automotive applications and tee-shirt design.

Mix point

With an *internal mix* airbrush the paint and air mix inside the airbrush (in the tip) creating a finer atomized "mist" of paint. With *external mix* the air and paint exit the airbrush before mixing with each other, which creates a larger coarser atomization pattern. External mix airbrushes are cheaper and more suited for covering larger areas with more viscous paints or varnishes.

Spray guns

The airbrush led to the development of the spray gun; a similar device, that typically delivers a higher volume of paint and for painting larger areas.

The first paint spraying machine was developed in 1887.^[4] Equipment by DeVilbiss and Binks is typical of modern sprayguns.

The addition of a simple pistol grip adapter to an aerosol paint spray can create a cheap alternative to a spray gun.

Technique

Airbrush technique is the freehand manipulation of the airbrush, medium, air pressure and distance from the surface being sprayed in order to produce a certain predictable result on a consistent basis with or without shields or stencils. Airbrush technique will differ with the type of airbrush being used (single-action or dual/double-action).

Double-action airbrush technique involves depressing the trigger on the top of the airbrush with the index finger to release air only, and drawing it back gradually to the paint release threshold. The most important procedural dynamic is to always begin with air only and end with air only. By observing this rule, precise control of paint volume and line width and character can be achieved. The single most important airbrush stroke consistently utilized by professionals is the dagger stroke. This describes a stroke which begins wide and ends as a narrow line, created by starting with the brush far from the support and moving it evenly closer as the line is drawn.

Single-action airbrush technique derives its name from the fact that only one action is required for operation. The single action of depressing the trigger releases a fixed ratio of paint to air. Achieving different line widths requires either changing the tip and nozzle combination or else adjusting the spray volume manually between spray width changes. The most important aspect of proper single-action airbrush technique is to keep the hand moving before the trigger is depressed and after the trigger is released. This avoids the "bar bell" line.

Use

Art and illustration

Since the inception of airbrush technology, commercial artists and illustrators realized airbrushes allowed them to create highly rendered images and a high level of realism. Artists often use the airbrush in combination with cut stencils or items held freehand to block in controlled manner the flow of paint onto the paper (or digital alternatives) with fantasy and science fiction artists. Airbrush images can be found today in advertising, publishing (e.g., book covers), comic books and graphic novels.

Photo retouching

Airbrushing has long been used to alter photographs in the pre-digital era. In skilled hands it can be used to help hide signs that an image has been extensively retouched or "doctored".

In the 20th century Soviet Union, as a result of Stalin's purges and later destalinization, many photographs of officials from the periods show extensive airbrushing; often entire human figures have been removed. The term "airbrushed out" has come to mean rewriting history to pretend that something was never there. In contemporary academic discourse, the process of removing components from an image is formally known as *object removal*.

The term "airbrushed" or "airbrushed photo" has also been used to describe glamour photos in which a model's imperfections have been removed, or in which their attributes have been enhanced. The term has often been applied in a pejorative manner to describe images of unrealistic female perfection and has been particularly common in reference to pictures in Playboy, and later Maxim.



Using today's digital imaging technology, this kind of picture editing is now usually done with a raster image editor, which is capable of even more subtle work in the hands of a skilled touch-up artist. In the fine retouching industry, the airbrushing technique is often considered a low-end practice, with significantly inferior quality to that found in the most important fashion photography publications.

Yezhov is clearly visible to Stalin's left. The photo was later altered by censors.

Murals

Airbrushes are also suitable for painting murals.

Hobby

Airbrushes are commonly used by scale modeling enthusiasts because finer coats can be laid down, as well as opaque effects, like weathering, adding stains etc. The fine atomization of paint in modern airbrushes also makes it possible to accurately reproduce soft-edged mottled camouflage schemes, which are very hard to do convincingly by hand-brushing (Luftwaffe aircraft are a good example of this).

Many radio-controlled model hobbyists also use the airbrush to create works of art on the Lexan bodies. The paint jobs range from a basic one-color paint job to fine detailed works of art.

Airbrush makeup application

Though the earliest record of this type of cosmetic application dates back to the 1959 film version of Ben-Hur, it has recently been re-popularized by the advent of Hi-Definition Television and Digital Photography, wherein the camera sees more detail than ever before. Liquid Foundations that are high in coverage but thin in texture are applied with the airbrush for full coverage without a heavy build-up of product. It is also a highly popular technique for Special F/X Makeup as well as for the Funeral industry.

Alcohol-based mediums are best suited for waterproof make-up; this makeup lasts longer, is smudge proof, is rich and opaque in colour. But alcohol based foundations can be too matte, and can lead to over-drying of the skin. They also can rub off due to excessive itching or fidgeting.

Water based mediums, are great for clown make-up, i.e., for short term artistic or skin friendly make-ups, these are easy to apply, and easy to remove, with minimal damage to the skin, but water based make-up does not last a long while, and come off easily, even so with perspiration.

Silicon Based airbrush Foundation, S/B foundation, are found in professional and premium retail airbrush brands, these are primarily for bridal make-ups, or mature skin. silicon based foundations have the advantage of being medium to high coverage.

Silicon based airbrush foundation have another advantage of mimicking the skin texture, as to give no obvious sign of make-up, thereby giving a more natural look to the model.

Silicon based airbrush foundations are comparatively water-resistant but not waterproof, they do not over dry the skin, and are relatively easy to apply and remove with a mild Make-up Remover.

Temporary airbrush tattoos (TATs)

Airbrushes can also be used to apply temporary airbrush tattoos. An artist sprays ink onto the skin through a stencil. Often, the resulting design mirrors the look of a permanent tattoo, without any pain or discomfort. In the past, TATs might only last a week, but now, the best inks can last up to two weeks or longer.

Airbrush tanning

Airbrushes are used to apply special tanning solutions as a form of sunless tanning that simulates the appearance of a natural sun tan. It is promoted as a safer and healthier alternative to the damaging effects of long term exposure to the sun. It is often performed by companies also offering other sun tanning alternatives like sun beds.

Finger nail art

Airbrushes are also used to apply images onto human finger nails as well as synthetic ones that are later glued to the person's actual finger nail.

Clothing

T-shirt airbrushing is popular—many T-shirt airbrush shops offer to paint any textile that will hold paint, including jeans, denim jackets, leather apparel, pillow cases, and hoodies.

One well known producer of airbrushed clothing is Marc Ecko, who used to airbrush T-shirts when he started his clothing company.^[5]

Automotive

Airbrushes are used to spray murals, graphics, and other artwork on automobiles, motorcycles and helmets. This art form has been around since at least the fifties, but more recently it has seen an increase in popularity thanks to such shows as *Rides* and *American Chopper*. Most professionals prefer to use automotive grade bases through top of the line gravity fed airbrushes. The cost to hire a professional artist will vary from a few hundred to several thousand dollars, depending on location, skill level and reputation.

Street artists

Many street artists use airbrushing to create names and pictures for tourists, such as around Jackson Square in New Orleans. In the mid-1970s, Panama City Beach, Florida was the airbrush capital of the world, with hundreds of artists painting custom designs on T-shirts.

Safety

When inhaled, finely dispersed paint and solvents can produce serious health hazards. Regulatory provisions such as those issued by the U.S. Occupational Safety and Health Administration dictate strict requirements to prevent unsafe use in work environments.^[6]

See also

- Atomizer – more detail and applications on the atomizer
- Frederick William Lawrence – an early airbrush artist
- Syd Brak – a contemporary airbrush artist
- H.R. Giger – Swiss sculptor, airbrush, and sketch artist, who is famous for his work on the feature films, *Alien* and *Species*



- Airbrush Action Magazine – established in 1985, longest running publication for airbrushing and custom culture
- Aerosol paint – similar technique with pressurised aerosol propellant in a can

References

1. *The Big Book of Airbrush, Parramon and Ferron, 1990.*
2. Penaluna, A., (2004). *A Critical Investigation into the Origins of the Airbrush, 1878–1906.* PhD thesis, University of Wales / University of New York.
3. "start airbrushing right". *Airbrush Guru*. |first1=missing |last1= in Authors list (help)
4. "DeVilbiss, Iwata, Asturo AOM, Sharpe, Astro Pneumatic, Binks - Spray Guns & More". *Spraygunworld.com*. Retrieved 2010-05-22.
5. Albo, Mike (2008-01-24). "Loud and Dumb Never Looked Better". *The New York Times*.
6. U.S. Occupational Safety and Health Administration, Washington, D.C. "Spray Operations." (<https://www.osha.gov/SLTC/sprayoperati>) *Safety and Health Topics*. Accessed 2014-06-24.

External links

- Airbrush Museum (<http://www.airbrushmuseum.com>) - History, photos and patent diagrams
- Airbrush Manuals Pdf (<http://downloads.artekaos.com/category?id=14>) - Airbrush Manuals Pdf
- Airbrush Image Galleries (<http://www.justairbrush.com>) - JustAirbrush
- Artist Generated Airbrush Reviews And Airbrush Knowledge (<http://www.theairbrushreview.com>) - The Airbrush Review

Retrieved from "<https://en.wikipedia.org/w/index.php?title=Airbrush&oldid=766619371>"

Categories: Painting techniques | Photographic techniques | Art materials | Pneumatic tools

-
- This page was last modified on 21 February 2017, at 05:29.
 - Text is available under the Creative Commons Attribution-ShareAlike License; additional terms may apply. By using this site, you agree to the Terms of Use and Privacy Policy. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a non-profit organization.