

OWN YOUR IDEAS

Apply understanding of intellectual property to create an example patent for an original invention.

Introduction

- 02 What is intellectual property?
- 03 Types of intellectual property
- 04 The process

Lesson plans

- 05 Lesson 1: Intellectual property

Resources

- 08 Patent application worksheet

WHAT IS INTELLECTUAL PROPERTY?

Ownership is the right to possess something – even something abstract, like an idea. Whether it is a slogan, story, design or song, the ownership of concepts is called intellectual property, and it can be protected by law. The type of legal right that can be granted depends on the type of work being protected.

Dyson products are protected by patents, and not just one – a single machine can have lots of patents. The DC65 has 37.

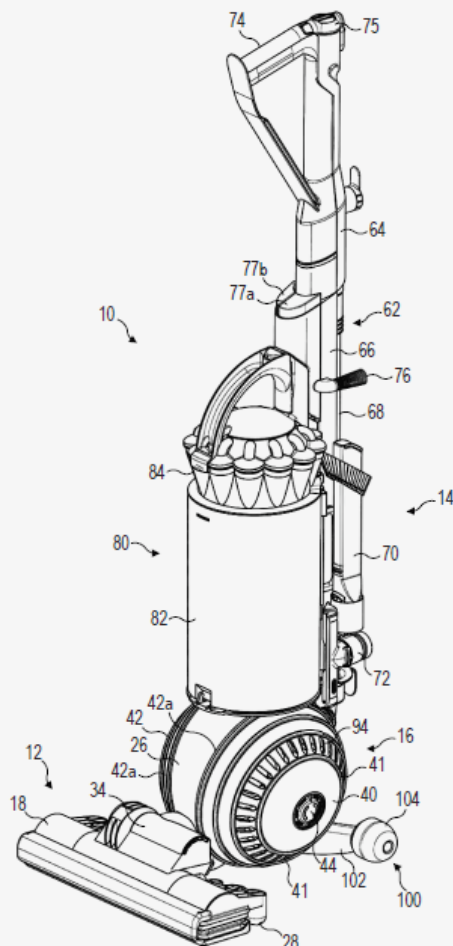


FIG. 1

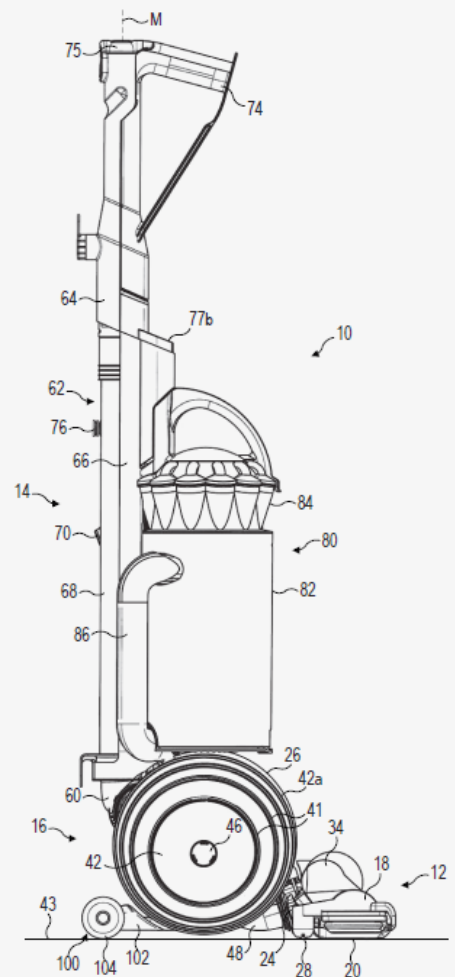


FIG. 2a

TYPES OF INTELLECTUAL PROPERTY

Utility patents

Utility patents protect how a product or technology functions. They include a detailed description of the invention, and one or more claims about what makes it new and unlike anything else. Once granted, the utility patent allows the inventor to prevent others from making, using or selling their invention without permission.

Patents are often referred to as 'negative rights' – they allow an inventor to stop a third party from using their invention, but they also don't necessarily enable the inventor to use it, either. For example, an inventor could patent a design for a new surgical device – but without a medical degree, he or she cannot use it in the field. A utility patent can last for up to 20 years, after which other people can use the invention. This allows the inventor to capitalize on their ideas in the first instance, but also prevents them from monopolizing the market indefinitely.

Design patent

Design rights protect the appearance of a product. A design patent includes drawings of the design, and the drawings used to determine the scope of protection afforded by the design patent. US design patents last for 15 years from the date on which they are issued.

Copyright

Copyright protects the expression of an idea, but not the idea itself. It grants the creator of the work exclusive rights to its use. For a design engineer, this might mean images or renderings of the design. It allows him or her to receive compensation for the work.

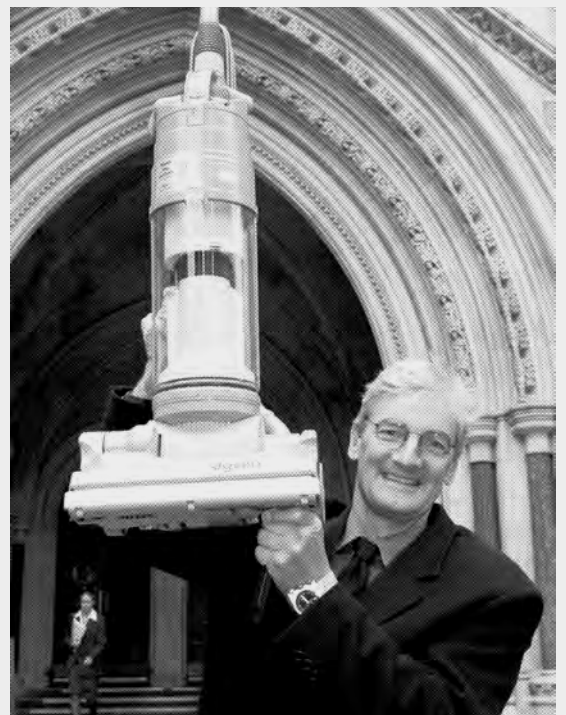
All of these forms of intellectual property are used at Dyson, but it's the patents that protect the function of the innovations of the design engineer. As long as the invention is a secret, you can apply for a patent at any time. It is up to you to decide when the best time to apply is; too soon, and there's a risk that you won't have sufficient information to allow you to file a valid patent application. Too late, and someone else might come up with the same idea.

Get help

The strength of a patent comes down to how well written it is. Patent attorneys are experts in drafting patents and work with design engineers to make sure all the innovative parts of their idea are properly protected. It isn't cheap. Obtaining a patent, and using a patent attorney, can cost anywhere in the region of \$10,000 - \$20,000 – and that's just to protect the idea in the US. Applying for patents in several countries would typically cost tens of thousands of dollars.

Why patents matter

In 1999, we heard about Hoover's Triple Vortex – a vacuum cleaner that directly infringed one of the patents on our Dual Cyclone™ technology. They had managed to copy it thanks to a group who had been testing and investigating our machines for years. We had no choice but to sue them and, thanks to the thoroughness of our patents, we won. Hoover tried to appeal the court's decision – they even tried to counter-sue us – but the courts ruled in our favor. Our patents helped us keep our technology unique to Dyson – as they still do today.



THE PROCESS

Patent application

The first step in filing a patent is to submit a patent application to the US Patent and Trademark Office (USPTO). This includes: a written description of the invention (allowing others to see how it works and how it can be made); claims (precise legal statements that define the invention by stating its distinctive technical features); and an abstract (a summary that includes all of the important technical aspects of the invention). It may also include drawings (to illustrate the description).

Patent search

Once the patent application has been filed, an examiner from the USPTO searches through all published patents and other documents to confirm that the invention submitted is new and original.

Publication

Eighteen months after the patent has been filed, it is published online. This means anyone can see the invention and what's being worked on.

Grant

Once the USPTO is satisfied with the application (often after at least one round of argumentation), the patent is granted. This can take as long as five years, sometimes more.

Renewals

Patents don't last forever; they are usually in effect for, at most, 20 years from the filing date. To get the full patent term, patents must be maintained. In the US, inventors must pay maintenance fees on their patents at 3.5, 7.5, and 11.5 years after the grant of the patent. In other territories, e.g. the UK, maintenance fees are due annually.

Since 1979, Dyson has received over 2,300 patents worldwide from over 4,000 patent applications and over 1,200 registered designs worldwide from over 1,300 registered design applications. Dyson files, on average, over 450 patent applications globally each year.

After graduating university in the 1970s, James Dyson began his career as an inventor. His first original invention was the Ballbarrow – it was like a wheelbarrow, but it had a plastic ball instead of a wheel, which improved the maneuverability. It used molded plastic instead of steel for the bin, making it lighter and easier to clean.

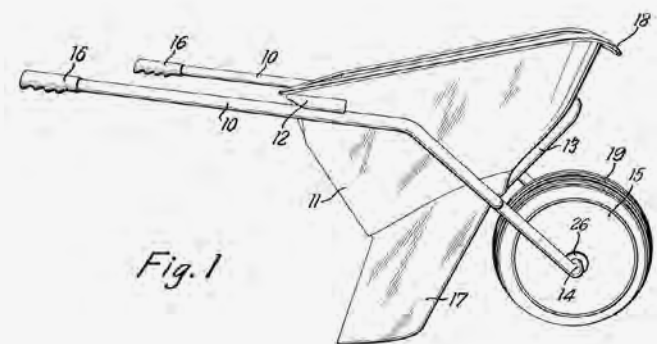
James knew that in order to get his design off the ground, he needed the financial support of an investor, but to interest an investor, he first needed a working prototype. This meant he needed to build a model of the Ballbarrow, which was expensive. He invested all of his personal money in building these prototypes, and he applied for patents – assigning the rights to his company at the time, Kirk-Dyson.

As a result of these prototypes, investors saw the potential of the Ballbarrow and took interest in Kirk-Dyson. In order to finance the continued operation of the company and the development of its products, James sold half of the shares to these investors. As the operation needed more money, and the investors provided that money, their stake in the company grew, and James' shrunk. Eventually, he had only a minority share in his own company, meaning he no longer had ownership of the patent he'd filed, and had to defer to the investors' decisions at board meetings.

The Ballbarrow was doing well in the UK, making several hundred thousand dollars a year. Before the company had a chance to launch the product in the United States, a former employee stole the design and began making it in the US. While James wanted only to file a complaint, the company wanted to take the former employee to court. Since James did not own the patent rights – Kirk-Dyson did – he was not able to follow the more cost effective legal course he preferred. Instead, the board proceeded with pricey court proceedings, against James' wishes. Kirk-Dyson lost the case and a lot of money in the process. Not long after, they booted James out of the company, sold the Ballbarrow to another company, and then sold off the factory as well.

It took these unfortunate experiences for James to realize that creativity is a rare commodity and maintaining ownership of your ideas is crucial. Now, James holds 100% of his company, Dyson, and retains personal rights to all of his inventions.

Patent drawing for the Ballbarrow.



INTELLECTUAL PROPERTY

Duration: 1 hour 20 minutes

Learning objectives:

1. Understand the distinction between patents, design rights, trademarks and copyright.
2. Learn about the makings of a patent – what is required and when to apply.

Activity outcomes:

- Completed intellectual property (IP) identification activity.
- Group (mock) patent application for a student-designed invention.

Things you will need:

- Two blank notecards per student
- Patent application worksheet (pages 8 – 9)
- Pencil and paper for notes
- Student access to computers for research

Starter: 20 minutes

This, that, or the other

Learning objective	Activity
1	As a class, discuss what students already know about intellectual property. Write down key points on the board.
1	<p>Explain that there are several types of intellectual property, and each type protects a unique category of invention.</p> <p>Patent Protects function. It gives you the right to prevent others from making or selling your invention without permission.</p> <p>Design right Protects the exterior appearance (shape, pattern, configuration, etc.) of your new, industrially-made product from being copied by others without your permission.</p> <p>Trademark A sign that can be registered, like a logo, which distinguishes goods or services made by your company from others.</p> <p>Copyright Protects images, published texts or plays, sheet music, paintings, recordings, etc., from being reproduced or performed without your permission.</p>

1	Give each student two notecards. Ask them to write “P” (for patent) on the front of one notecard, and “DR” (for design right) on the back. They should then write “TM” (for trade mark) on the front of the second notecard, and “C” (for copyright) on the back.
1	<p>Next, one at a time, read the items from the list below.</p> <p>After you read each item, stop to ask students to show you the letter (or letters) of the type of intellectual property protection that would be required to ensure the exclusive right of the invention.</p> <p>Before moving on to the next item, ask for a volunteer to explain why they chose that type of protection, correcting them when necessary.</p> <ul style="list-style-type: none"> – The Dyson logo (Trademark) – The diffuser attachment on the Dyson Supersonic Hair™ Dryer (Patent) – The term “Air Multiplier™” (Trademark) – The name of the Pure Hot+Cool Link™ air purifier (Trademark) – The ball-like appearance on the wheels of some Dyson vacuums (Design right) – Slogan (Copyright) – Jingle (Copyright) – Technical drawing (Design right)

Main: 50 minutes

Applying for patents

Learning objective	Activity
2	Explain to the class that patents are not easy to obtain. It can take several years from when a patent application is filed before the patent is granted.
2	<p>Now that they know the process of applying for a patent, the students are going to complete a basic version on their own. But first, they need an invention.</p> <p>Explain to students that engineers are given a brief, which explains the challenges that must be answered by a product and the parameters in which a design engineer must work. For example, a product might need to be a certain size or perform a particular function.</p>
2	<p>Explain to students that they are now going to think like engineers and take on a design brief. They will now be taking on a design brief.</p> <p>Break the class into small groups. Give each group one of the following briefs:</p> <ul style="list-style-type: none"> – Design a product that will encourage students to lead a healthier lifestyle. – Design a product that will improve the safety of students walking home from school. – Design a product that will help students to pay more attention in class. – Design a product that will help keep classrooms clean. – Design a product that will prevent or stop bullying.

2	When each group has settled on a product idea, ask them to conduct online research – including the USPTO database. They should make sure their idea is new and inventive, not something that may already be available for purchase or infringing a patent.
2	Once each group has completed their research, give them a Patent Application worksheet (pages 8 – 9).

Wrap up: 30 minutes

Present your findings

Learning objective	Activity
2	Ask each group to present their idea, research, and an overview of their patent application to the class.
2	Encourage the other groups to ask questions. Ask each group what possible design rights, trademarks, or copyrights their invention may require, in addition to the patent.

Use this worksheet to record
information about your patent.

Date filed:

Title of invention:

Inventors:

Problem:

Solution to problem:

Advantages of this design:

Description:

Use this worksheet to draw
your patent drawing.

Number each important part of the product,
then use the lines below to label what each
number represents.

1.

2.

3.

4.

5.
