

## **What are patents?**

A patent is a legal document given to you for a new invention or an improvement upon an existing invention. It can last up to 20 years.<sup>1</sup> During this time, only you have the right to make, use, or sell your invention, and anyone who copies it without your consent will face legal consequences. Examples of inventions that were once patented are everywhere, from lightbulbs to steel kidneys to the “automatic pet petter”.<sup>2</sup>

## **Stages of a patent**

The process of applying for a patent involves many steps and can take a long time to complete. Inventors usually work with a patent agent with knowledge in the field because the process is very complex. Here are the stages of applying for a patent:<sup>3</sup>

1. Search for existing patents: before applying, you need to search existing patent databases to make sure that your product is unique.
2. Application: this is where you prepare all the documents to support your patent. You need to be able to clearly show how your product works so that another person will be able to use it.
3. Patent prosecution: in this stage, you bring your application to an examiner and convince them that your invention is worthy of a patent. Your design is not yet patented during these stages, but you can mark it as “patent pending.”
4. Issuance, appeal, or abandonment: your application will be either accepted or rejected, and you can apply for an appeal on this decision.
5. Maintenance fees: the work is not done even after you get your patent. You would still need to pay a maintenance fee for your patent every few years.

## **Issues with patents in science**

Since patents give researchers exclusive rights over their creations and discoveries, they can act as a financial incentive to produce more new work. However, some argue that knowledge should be open to access in science and should not be kept private.

One issue with patents is that they can be broad, sometimes covering entire areas of research. For example, in the new area of CRISPR genome editing, there has been a long-running dispute over which research institute should get to patent it.<sup>4</sup> CRISPR is a genetic engineering tool with possible uses in many new research areas. We can argue that privatization of such an

important technique might create obstacles for future research.

Another issue with patents is that they cause unnecessary fragmentation in the research process. New research is built upon previous research, so when the previous researchers patent their work, they create additional transaction costs.<sup>5</sup> A researcher who needs to reference several patented studies from different sources will find that the costs start piling up. Since most public institutions have limited funding, this problem can lead to many researchers abandoning their projects due to high costs.

## References

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