ROADMAP FOR PATENT CREATION

PATENT-INTRODUCTION

LECTURE 05

A very warm welcome in the fifth module of week 1 of the Course, roadmap for patent creation, titled “Patent - Introduction”. In this module we will share with you a case study of how a single patent can provide competitive advantage to build an organization. This case study is from health care industry. I feel this case study is a right representation of combination of inventorship and entrepreneurship…. An inventor, very passionate about his domain, invents very unique technique, but unaware about importance of his invention in IP point of view, he was not able to appreciate importance of his invention…. no potential IP identification, publication and invention released in public domain through newspaper …one chapter over but then due to awareness and prompt ness of the University …Stanford university…. the patent is filed. Eventually this patent helped to establish a giant organization… and can you guess how much fortune the Stanford university made from this patent? …Stanford University made $255 million from the licensing……. an interesting story…. right?

Somewhere or the other such scenario you might have observed…. good invention but published without patenting ….and then lost the chance of to explore the invention for wealth creation…. So, this case study may help you to avoid any such scenario….So, let us see what is that success story of an inventor who build a giant organization by taking an advantage of patent system… So here we go……

Can you guess who are these scientists? Any guess? Okay I am giving you a hint check this image Now? Any guess? Okay one more hint. some details related to patent…. Any guess? Yes…. They are Stanley N. Cohen and Herbert W. Boyer And the original assignee is Board of Trustees of the Leland Stanford Jr. University This information on the screen you are seeing is

What is Publication number

What is Publication type

What is Application number

What is Publication date

What is Priority date

Who are the Inventors

And who is the Original Assignee

This is a standard format to provide an information about a patent…. What do you mean by publication number, publication type, Application number, Publication date…all these things we will see when we will go through the modules in week 3 tilted, "how to read a patent document"? What you should understand now is who have invented this invention …… So, the inventors here are Prof. Stanley N. Cohen and Prof. Herbert W. Boyer Prof. Cohen is from Stanford University and Prof. Boyer is from University of California they Invented a gene-splicing technique and then published this invention in a scientific journal before filing…. Now note one professor is from Stanford university in Stanford and the other is from university of California, San Francisco… Prof. Cohen have medicine background …… he joined the faculty of Stanford University in 1968 He was working as a professor of medicine in 1975, and then as a professor of genetics in 1977. Prof. Boyer is a biochemist and he joined the faculty of University of California. He was Professor of Biochemistry from 1976 to 1991 Prof. Cohen was interested in the field of bacterial plasmids and was exploring how the genes of plasmids could make bacteria resistant to antibiotics. While prof. Boyer was working in the area how the genes from different sources can be joined…

For those who are not having genetic engineering background …I will try to explain the work of these scientists with taking an example of thread …. …So please consider an example of thread …. consider the thread as a chromosome …Then what is plasmid. Plasmid is extra chromosome …so some bacteria may have that extra chromosome …so for our understanding say there is another thread and generally it will be small than chromosome that is a longer thread, so in bacteria there Amy be two threads one longer and other shorter …Thus, one big circle of thread and one small circle of thread… chromosome and plasmid…so Prof. Cohen were working on these chromosomes or threads for understanding to know why some bacteria are resistant to particular thing like antibiotic… So, Prof.

Cohen was working on understanding the resistance mechanism exhibited by bacteria…. And Prof. Boyer was trying to connect or join the genes… so for understanding consider that two threads again … and now you have to cut that threads very skillfully and then take a part from one circle and you have to transfer it in another circle and then join that parts So, this was the domain in which Prof. buyer was working…

For understanding we have taken the thread example but you can imagine now the things which you are not seeing through your naked eyes …….you have to cut very skillfully….then that cut portion you have to insert in another chromosome and then join it and then it should work in new set up and produce the expected product or exhibit the expected property…..okay? Now you can understand the complexity of their work …. So, these both scientists worked to resolve this complexity Now how exactly the patent filing procedure taken place at that time…some 38 years back ….Now as told earlier the information is published in news… so in such case Patent could be granted only in the USA Why so. because there is a rule of "first to file" in Patent Act and at that time only in USA the rule was "First to Invent" What these rules are that we will see in next upcoming modules….

Now just understand that as per rule. The patent can be filed only in USA…and no any other country in the world Now next what was the claim It was Method of producing a protein by expression of a gene inserted into any unicellular host You will ask What is claim? That also we will see in upcoming module when we will deal with How to read a patent? So here the claim was nicely drafted to cover the majority of all genetic engineering processes So, this was the background …two professors working in two different universities …worked on the project to produce biologically functional molecular chimeras… Check what Boyer says about the invention As we understood now the background, now we will see how exactly the patent filing procedure took place.

Patent as rule in USA that is "first to invent" really was born in this case …. if it would have been "first to file" then this invention never been patented …

Cohen-Plasmid

Sandford University

Boyer-Restriction endonuclease

California University

Garden Conference, 1973

New York Times, 1974

Bob Buyers……. technology officer of Stafford Niels Reimers

patent prosecution

- Robert Swanson ('Bob'), a 29-year old young venture capitalist
- Boyer humored Swanson's interest
- Boyer later become Director and CEO of Genentech until **1990**

- **$500 investment** into the new project.
- Boyer - **GEN**etic **EN**gineering **TECH**nology.
- **39 years** since the start-up of the company, which had an initial capital of only **$1,000,** has pharmaceuticals interaction with Academia and the Industry, and helped **hundreds of thousands** of patients.

- **1976:** founded on April 7
- **1977:** Genentech produced the first human protein (somatostatin) in a microorganism (E. coli bacteria)
- **1978:** Human insulin
- **1979:** Human growth hormone
- **1980:** Genentech went public and raised $35 million with an offering that leapt from $35 a share to a high of $88 after less than an hour on the market.
- **1982:** First recombinant DNA drug marketed: human insulin (licensed to Eli Lilly and Company)

- Worldwide Revenues: **$17.3Bn**
- **785K** square feet devoted to research
- **13.3K**employees
- **35** medicines on the market
- **11.3K** patents received

- **1990:**Roche Holding Ltd. of Basel, Switzerland acquires a majority holding in Genentech.
- **1995:**Genentech announced an agreement with Roche Holding, Ltd. to extend for four years Roche's option to purchase the outstanding redeemable common stock of the company at a predetermined price that escalates quarterly up to $82.50 a share.
- **March 2009:** Roche acquired Genentech by buying shares it didn't already control for approximately $46.8 billion

The research resulted in development of the process *for producing biologically functional molecular chimeras*", which further helped in development of Recombinant DNA technique of modern molecular biology. Now this news was published and it was noticed by public relation officer of the university of Stanford. He contacted technology officer of stand ford university, Niels Reimers. He was then gone through the news. Thus, you can see this is best example of although inventor invents very creative thing, till role of technology officer or IP manager is very crucial. Without his efforts it was not possible to file a patent within stipulated time of 1 year.

See you in the next session!

Thank you