Patent Search For Engineers and Lawyers
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Lecture – 10
Fundamentals of patent search

Welcome to the next lecture on the Fundamentals of Patent Search. Today we will understand the following concepts.

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In this particular lecture what is a simple search, what is a keyword search, what is a classification search and what is a combination search and the importance of combination search in relation to patent search.

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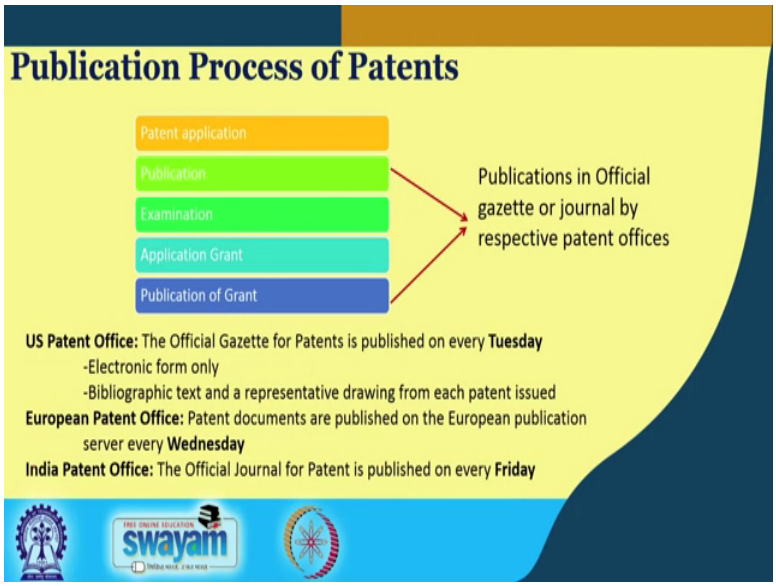

In the earlier lectures we had dealt with the aspect of the public information relation to patents. So, just to recall that the publication of patents happens at the patent office and usually the official gadget or the patent office journal is the first place where patents are published. And so information is retrieved from that and actually ported into the database.

So, when we go into specific links at each of the patent offices, we are actually looking at the data that is coming in every week in relation to patents which are actually published in the official journal or the gazette. For instance if you look at the US Patent Office, it publishes every Tuesday and what is published the basic information is published in terms of the bibliographic test, the basic information relation to patents and a drawing in case of patents where it is relevant.

In case of the European Patent Office the data is published every Wednesday and in the case of Indian Patent Office the data is published every Friday. So, every patent office it has it is own way of publishing these patent documents.

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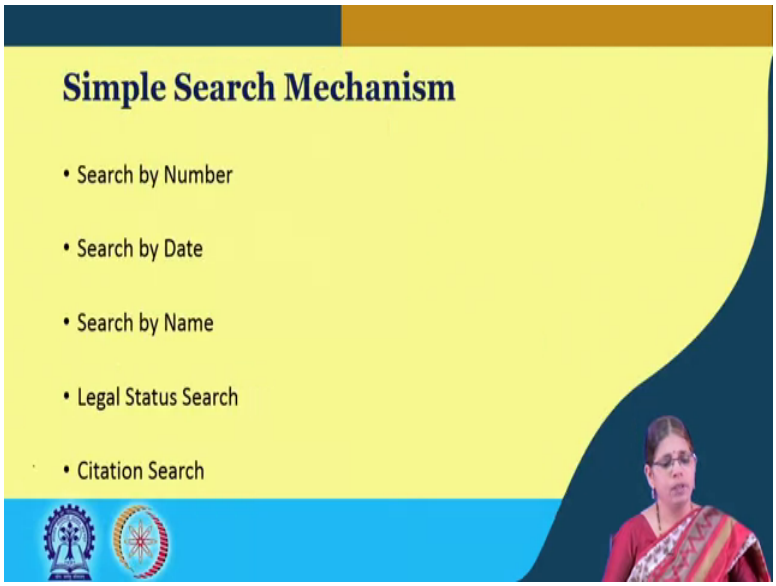

Moving on usually as a searcher and as a beginner, one would undertake what we call the simple search mechanism. And simple search is all about searching for information which is very basic. So, most times people search by let us say search by number, they search by date, sometimes you undertake a search by name and sometimes you want to understand the legal status of a particular patent. Many search patents also to understand the value of patents in terms of where all it is documented and mentioned.

So, citation search is very important to assess the value of a particular patent in particular, in relation to a particular technology.

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Search by number is one of the very simplest of the searches and one can search by the grant number or the application number. And every country has it is way of representing the numbers in relation to the published applications or the grants. For instance what you see here is the country code and the number. So, this is generally how you will find patent numbers; which are indicative of one from where the, which country belongs to and the, it is followed by the number. So, you would input this number into the database to understand, what is this patent all about? So, that data can be accessed by search by number.

In many of these subscribed databases you can actually port the entire set of numbers. For instance let us say we have a patent family in which let us say there are some 10 patents; what would you do, the fee based databases provide for an option where you can actually load the entire into a either as a text file or you can copy paste a set of patents into a window and when you look for a search you get the data in one go in relation to all the set of patents.

So, searching by number is one way of looking actually at the set of patents that could be as a part of an invention or similar invention. So, that is also relevant in that sense.

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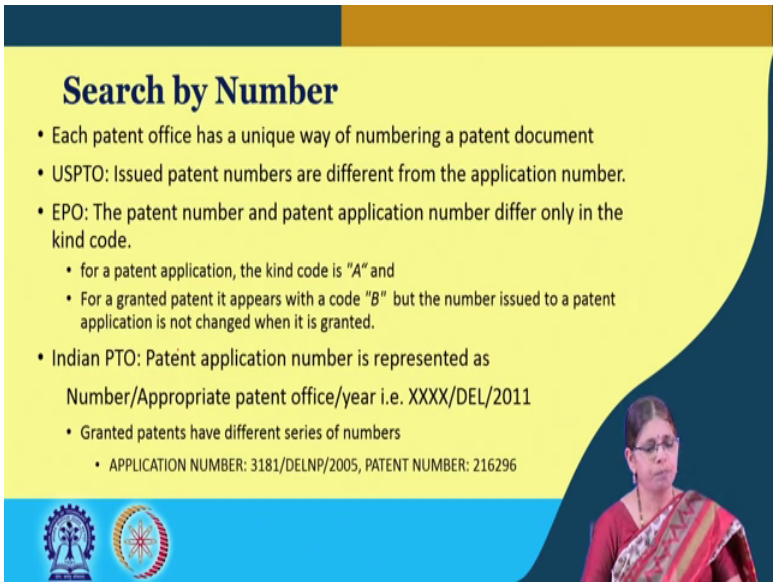

Many a time the search by number also gives us some very vital information in relation to patents. And what is that, it tells us with the status of the patent on one end, because usually if you look at when you use the word patent number typically you mean actually it is a granted patent or you would say it is a patent application number.

So, therefore, this thing can vary. So, and then; obviously, it is many a time it is followed by a letter, which indicates the status. So, if you look at this particular discussion here in relation to the EPO there is a kind code which is used. So, most often if you look at patent numbers, you will either find the grant which is just the basic number or you may also have the letters which also tells us the status of the patent application. And obviously, if you look at the USPTO; USPTO you can see the change status of the patent by the issue number is different and the application number is different. Whereas, in the case of the European patent office, the number is the same it is followed by the kind code. So, the kind code represents what is the status of the particular application. So, whether it is in a publication stage, whether it is in a grant stage all that can be identified.

Now, at the Indian Patent Office there is a particular way of representation of the application. So, an application number would be followed will start with a number that is; for instance let us say today you have filed the patent application. So, today you will be a particular number in the queue. So, that number you would get as the unique number and then it follows by the appropriate office; for instance if you are filing from

let us say Orissa, Kolkata will be your appropriate jurisdiction. So, it would be KOL Kolkata or it could be Delhi in case of another state, which would be the appropriate jurisdiction and then it would be followed by the year.

So, what is shown here is the representation of that as you see, and of course, the granted patent numbers are different in case of India. So, this is to illustrate to you that each patent office has a very unique way of numbering patent documents. And this is very and patent offices have also change the way in which patent numbers are represented. For instance if you look at the US they have revised it even post the America invents act; similarly Japan has again changed it is the way of representation of patent numbers. So, this is notified and one takes note of that at the link that is available at each of the patent offices.

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This is another illustration of the different types of codes that a particular application can go through; and in this particular case we are talking about the kind codes are usually assigned under the, usually as a harmonized way or assigned under the WIPO ST 16 document which publishes worldwide harmonized way of representing the letters in relation to a particular application.

Now, individual patent officers have differed in the way they have represented those particular letters for their particular countries; however, the ST dot 16 document is the one which is the most harmonized way of representing kind course under the WIPO

system. Now you can have different document codes; for instance you can have an A which is a publication it represents, B essentially is for grant and you can have B 1 B 2 then you can also have T. T means that particular patent application also has a translated document, from one or more of the patent offices. And similarly you have many other codes, which essentially give you the details in relation to the status or either the type of the application.

For instance if you look at the USPTO you have those numbered with P; P is for plant patents. So, it varies with respect to individual countries in terms of what are the types of applications that they accept and offer as grants. And what you see here is the WIPO based applications for which the PCT documents for which you can see, the kind codes which indicate within each kind code there are different variants. For instance an A 1 would be an application where there is also a search report and A 2 would be in an application only and A 3 is the status where you have the search report only.

So, this is how you can understand the status and the stage of each of the applications at a, for a given particular patents.

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Search by date is another important type of search which also helps understand, the details in relation to a particular patent by it is date. And this is fundamentally important to look at from the point of view of one the total number of years available in the grant period; and second it also provides information in relation to the priority in relation to the

invention. And so, when one is looking at a particular search to understand, whether a prior patent will work as a document to defeat let us say a novelty of an invention, then one would actually look at the date of that particular document also which is actually very relevant in this particular case.

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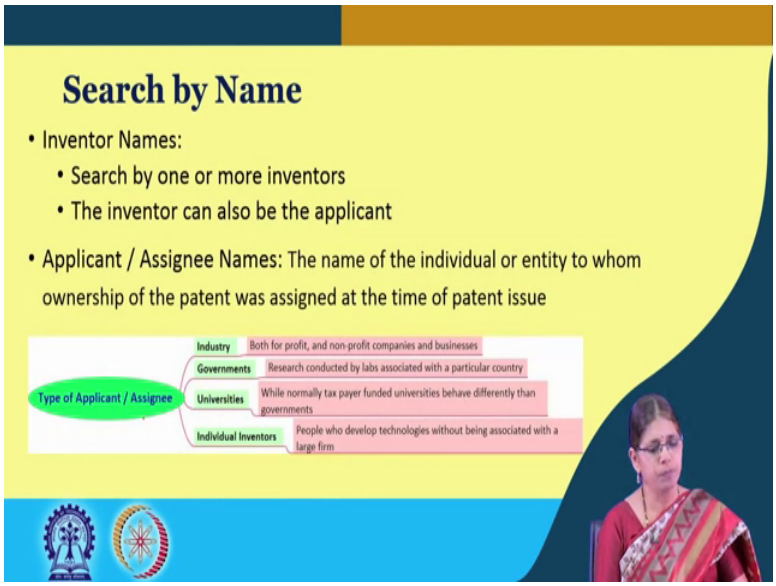

Search by name is another category which provides information relation to inventors in relation to the applicant details of the applicant and the applicant or the assignee. There could be one or more inventors in a particular patent application. And search for inventors often provides information in relation to the areas with which the inventor has worked on that particular invention to where the inventor belongs to, which organization he belongs to. And for long inventors were, top inventor information has been very important information to understand how the particular organization is undertaking research.

So, today top inventor information is also important. So, usually one looks at top 10 inventor information and many other cases you would, in some of the emerging areas it is also important to track you know which organizations actually fostering inventors and what are the areas. The applicant or the assignee search is again a very important search to understand who owns the patent. Many searches also undertake what we call the reassignment search, which provides information on who was the original assignee and to whom this patent was transferred.

So, a reassignment search also helps understand the tracking of patents in relation to ownership.

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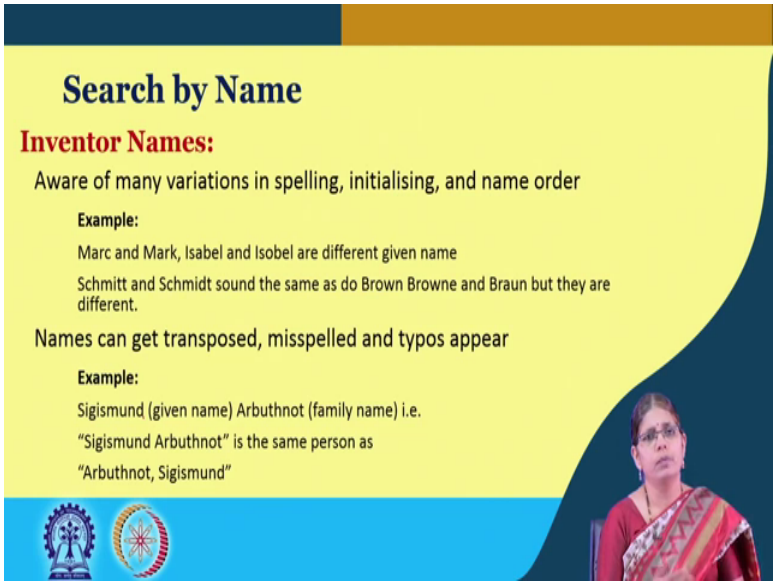

Now, it also is important to take into consideration many a time whether patents are governmentally owned, where there you have a federal statement given in relation to patents; many a time it is large organizations which actually are filing for patents. For instance the council of scientific industrial research is one large organization under which there are forty different institutions, so CSIR is one assignee. So, this information is also can be actually traced in relation to what we call the assignee search. There are certain challenges sometimes when we look at the search by name.

Often there is issues in relation to spellings, there could be variations in the way it is represented and so therefore, these are some things which are to be taken into consideration. So, this is not very often thing, but it also happens in many databases that, because of the way in which the names are written, the sometimes patent documents may not be wholly available or may be hidden.

So, therefore, understanding the variations is also important in order to ensure that, the entire patent data set is available for you when you search. This is one representation of that which you can see as a way of example, in terms of the way names are represented and so therefore, it can those names can be a case of a transposition, spelling mistake that

could be possible and this pretty much also happens in the case of the applicant names as well.

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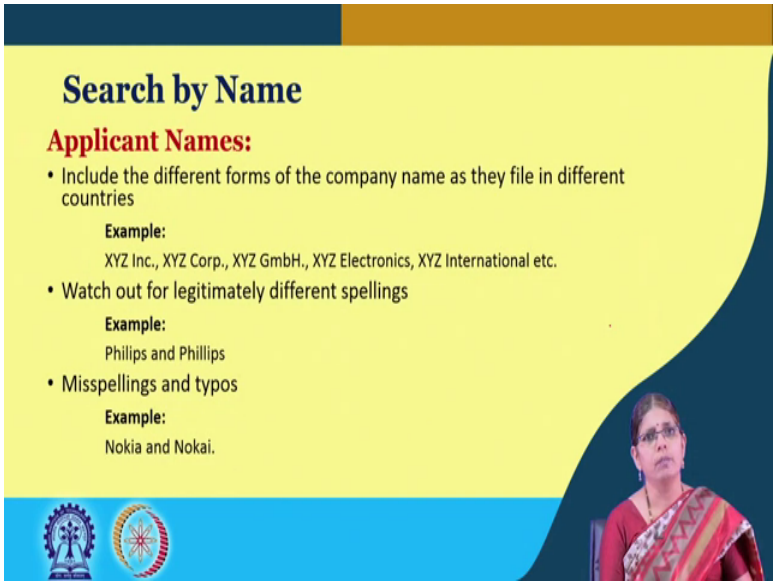

So, again while public database do not really support the variations to be you know also included, which you would do it manually. If you look at some of the subscribed databases you can actually give a option; for instance you may give a name of an assignee and you may ask for all the different alternate ways in which it could be represented as one set and that would be what is called the assignee list.

So, you can create that particular assignee name list and then load it into the database. So, what happens is wherever it finds a difference in the assignee name all those patents for that particular assignee are pulled out. For example, I may represent a company with a limited, I may it is subsidiary may be called by another name, there may be an extension of that name, but the moment I give the basic company name all the information is pulled out that facility is available in the subscribed databases.

So, therefore, you make sure that you are not actually missing out patents, that is the advantage of it.

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What we discussed just now is the aspect of simple search may be looking at certain basic aspects of search by number, date, inventor name and the assignee name. More often patent searchers look at inventions across different subject areas. So, a subject search is again a very important part of a patent search which is undertaken by in a patent search work.

So, it is a search by subject essentially falls into two different categories; one is the keyword search and the other is the classification search, both are important in relation to search. Before we undertake any search it is very important to understand the technical area, because without the understanding of the technical area you will not be focused in relation to searching of patent documents.

So, normally we tell research searchers to understand first the technical area, the facets of the technical area and the very good starting point would be to look up either a review paper or read generally about the area; which gives you the information in relation to what is the area about, what are the definitional aspects of that particular area, how is this particular area represented in terms of it is applications and the current technology that understanding that background information strengthens a researchers, goal into looking at a patent search going further.

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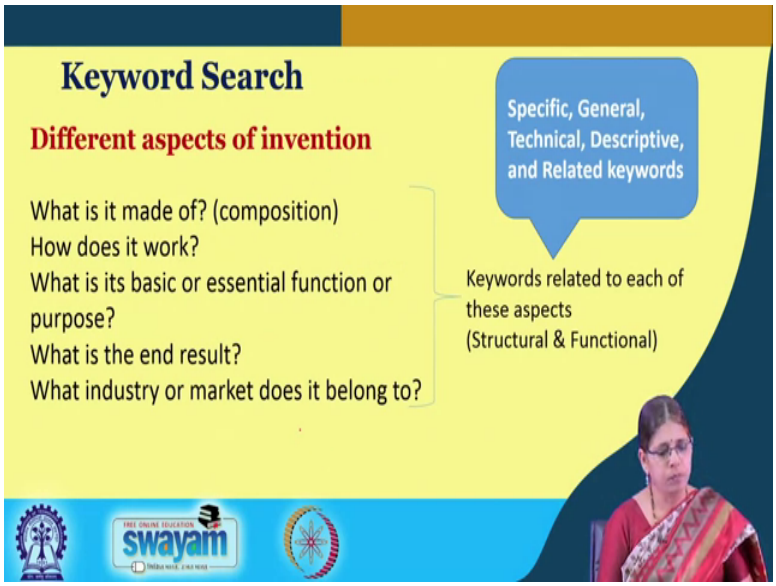

Now, keyword search is one of the searches, which you would undertake to look at different aspects of a particular invention. How do you do the keyword search; for instance you are looking at a particular area. Let us say it is about a particular composition in which case you are looking at what is this composition made of, how many components are there and how is it composed, how does it work, what is the essential function of this particular composition, how is the end result of the application achieved in relation to a composition and to what are all the relevant arts or let us say industry this composition is relevant to.

So, understanding this is important in before we embark on a keyword search. So, therefore, as some general information is necessary, certain specific information is also important, before we really look at assembling what we call the keyword index. And so, the simplest way or a yardstick to go about with the keyword says; understanding the structural aspects, understanding the functional aspects. So, for all the structural aspect you would list a set of keywords, for all the functional aspects you would list a set of keywords and then assemble what is the most relevant of this set to make your keyword index.

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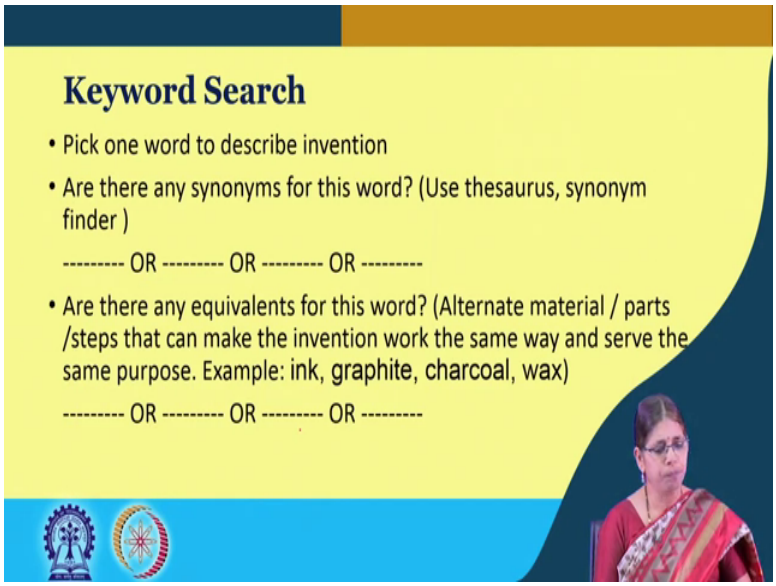

So, therefore, you pick one word by word and then look at assembling your keyword list. Many a time, since databases are also represented in different languages and their different ways in representing an invention so, you may also need to look at synonyms for a particular word. And so, a good starting point would also be looking at a thesaurus. So, you assemble your synonyms; also look at these particular alternative terms which are also relevant.

So, if you remember earlier we discussed about the aspect of looking at a review paper or understanding the technology; this is very relevant because in the same technology area there could be alternate ways of using a particular term, but the meaning could be the same. And in patents also many a time this can differ and to ensure that you are getting the entire patent data set, it is important to keep in mind the synonyms of the particular word that is listed in the keyword list.

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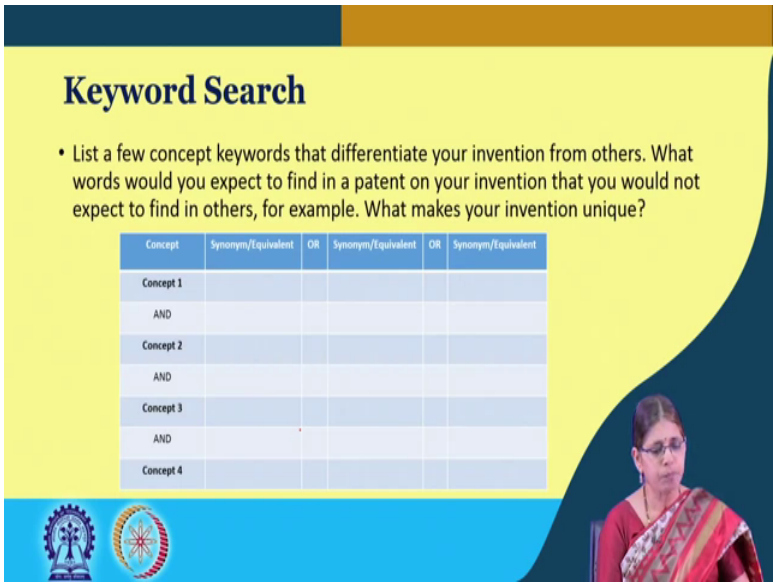

So, one would, this is one way of creating what we call the list. So, you identify the different concept keywords and then start make looking at the relevant synonyms or the equivalent words and make a tabulation of that; and from that you identify what is relevant to undertake the search.

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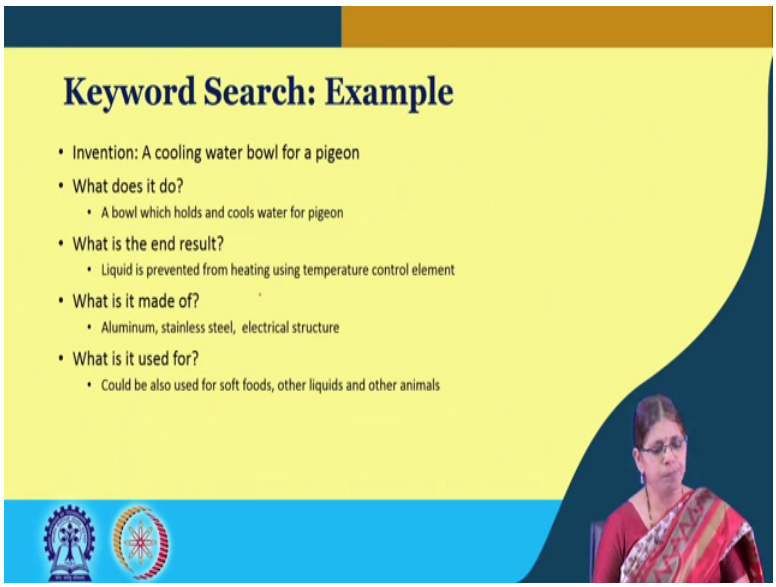

Now this is an example of how one would embark on the aspects of a keyword search, for instance if the invention is talking about a cooling water bowl for a pigeon. So, this is a water bowl. So, understanding of what is the end result? It is a bowl which can hold

water for a pigeon which maintains the temperature. Here in this case, it is cooling. What is the issue that is to be the problem that is to attended is that, the liquid should be prevented from heating, it could be made of different components.

So, here we are looking at the structural aspect of the bowl itself, it could be made of aluminum, stainless steel and then they could it could also have an electrical structure which is actually providing for the cooling function. There could be alternate uses of this particular bowl, which is also relevant for let us say other areas. So, understanding the entire this gamut of it is important, to assemble the relevance of the keyword search in relation to a particular invention.

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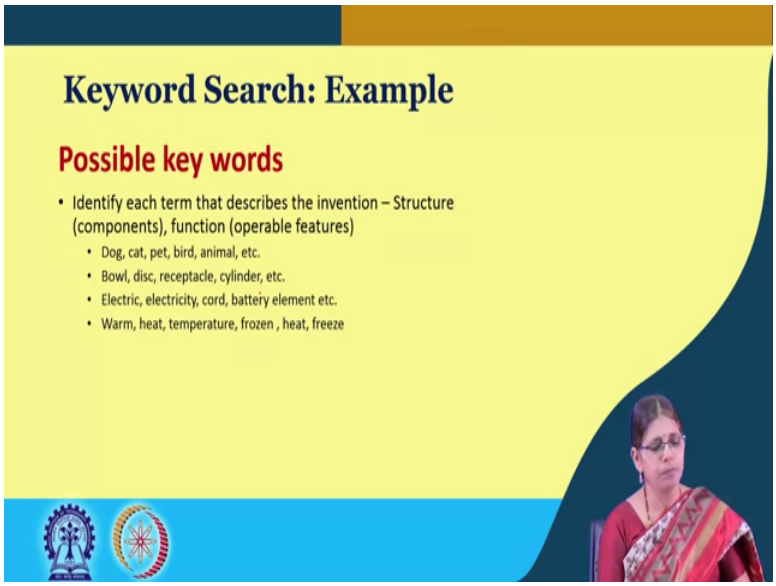

So, as we had discussed earlier, assembling the keyword list is important. So, we are now breaking them into structural aspects which are the components and the functional aspects which are the operable features of the invention. Now when we talk about pigeon, so we are starting with let us say a broader term animal in that you can have a birds, you can have pet, you can have any of the other animal names, just specific names; and then when it comes to bowl the alternate terms could be disc, receptacle, cylinder. So, you can go very distant in the term or you can go actually look at a very term which is very proximal to the notion of a bowl.

Now so far, as the electrical structure is concerned, it could be a cord, it could be a distant one which is a battery and then it could have other components of what constitute

an electrical apparatus. The other important aspect is the consideration relation to temperature, because it is a cooling system. So, therefore, we can start with freeze nearest to the term frozen, we can have a broader term which is just temperature, you can have an alternate to it which is heat and warm. So, these are the possible keywords which are in relation to the concept of where we call the temperature and then the variations of that.

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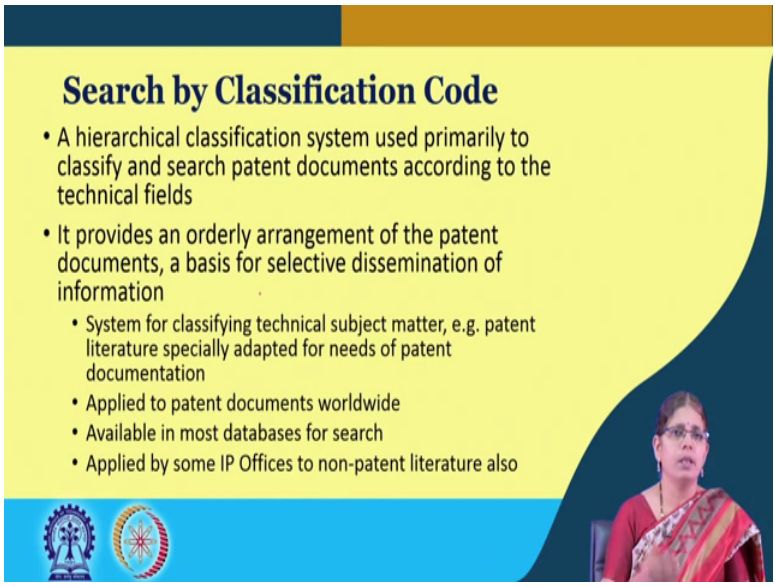

So, once the keyword list is prepared, from there you choose actually how to go about with the keyword search. So, preparing a good keyword list is important. Now as a searcher there are certain important things one should keep in mind, so far as the keyword search is concerned. Is the purpose of the search to look at documents which are very close to the invention, in which case the keyword search is very specific; many a time you may also undertake a keyword search just to understand the spread of the technical area, in which case you may actually go to the distant of the entire keyword set.

So, it all depends on why you are conducting research and for what purpose is it for. The next thing that we will be discussing is what is called the classification codes and their relevance in relation to classification search. Keyword search has it is own advantages and today since we have the international classification system available, all documents of patents are actually classified as per the hierarchic classification system, by a classification code.

So, this is a specific type of a code, which is given to make a difference in relation to the technical field. So, every patent is different from every other patent by the way it is represented in terms of it is classification code. So, it also provides what we call the orderly arrangement of patent documents and helps in the dissemination of information uniformly different at, with the different patent offices. And most databases have the search done by classification search. In this case, it is also important for us to understand which is the type of classification search which a particular document is classified according to?

And so, today we have classification search also as a very important integral part of search undertaken by different companies, searches across the world and including the research workers everywhere in the organization as well as industry.

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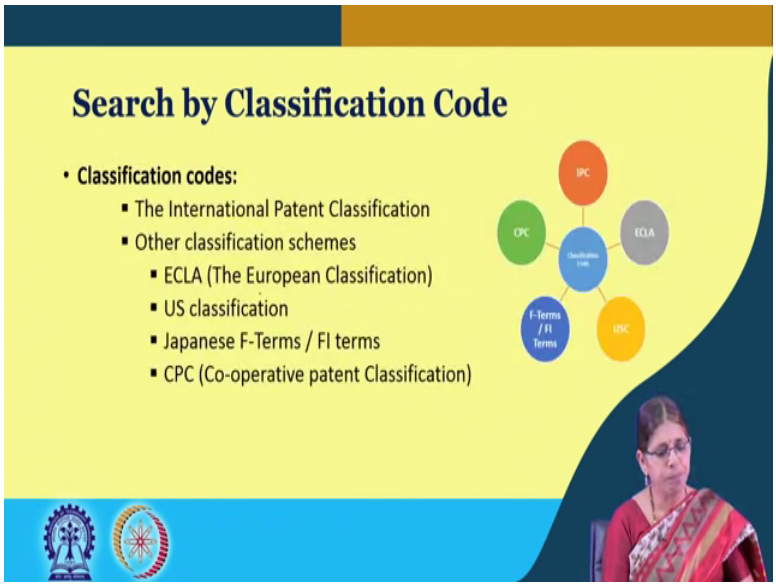

Now, classification codes are well known from the point of view of the use by international patent classification system, which is a more uniform system used worldwide. There are other regional classification schemes that are also applicable which we discussed a bit earlier in the other lectures which is the; one is the European classification which is the a ECLA, then you have the US patent classification, you have Japanese F term, F 1 term and you also have the cooperative patent classification system.

So, for a searcher it is very important to keep in mind this aspect of what are the different types of search classification codes that are available and what is relevant for a particular search.

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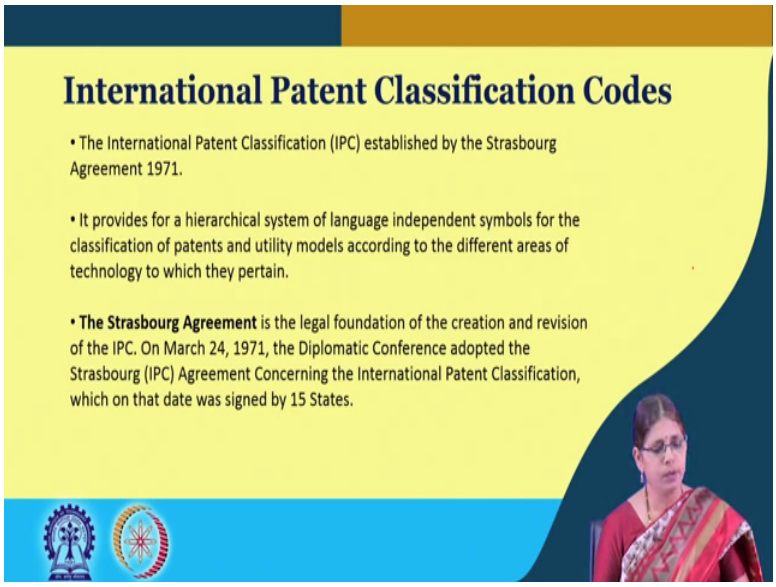

The international patent classification code system is very important to understand because most patent documents actually classified as per this particular classification code. And these were evolved under the Strasbourg Convention in 1971, today we have a whole lot of countries who are signed up with this Strasbourg Agreement and to which all the classification system is applicable.

Now, the classification of patents and utility models have been used for the which come under the purview of the international patent classification system. So, these are what, these are the independent symbols which are applicable to different types of patent documents.

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A small peek into the international patent classification code is what can be accessed from the WIPO website under the link for international patent classification. So, this is the official publication and those who are interested in finding of the details of it must access this from this particular site the IPC scheme which is available, which is the official publication of the WIPO. There is also an information guide that is available for the IPC which gives you are information about to understand more aspects of the IPC in terms of the evolution and also the structure. Today we have the current version that is applicable is from January 1, 2019.

So, if you want to know what are the new codes available or subgroups available or sub codes available, one needs to go to the latest document which is January 2019 document which is the latest version of the IPC for the international patent classification.

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So, the international patent classification code is organized into 7 different main codes as you can see which is A to H. So, if you have a document which is classified under A, it means that it is that particular invention is relevant for human necessities. A whole lot of inventions belonging to the category of mechanical engineering would fall under the purview of F which is the beginning node with respect to the IPC. Now under F, you could have different subgroups and subclasses. So, going forward we will understand how is this organized into a specific type of a classification relation to each document.

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So, if you look at human necessities which is A as a category you would basically have three different groups under that, which could be classified; those belonging to agriculture, those related to food and this also includes those which are relevant for used by humans which could be personal or domestic articles. So accordingly, you have further nodes wherein you have A 0 1; A 0 1 is what it deals with the inventions in relation to agriculture, forestry, fishing all of that. So, those would be categorized into A 0 1. And similarly you would have numbering which will indicate the specific area to which the invention could be categorized under.

So, this is a very elaborate and a very exhaustive classification that has been developed to under each of the 7 different codes that are available in relation to the IPC.

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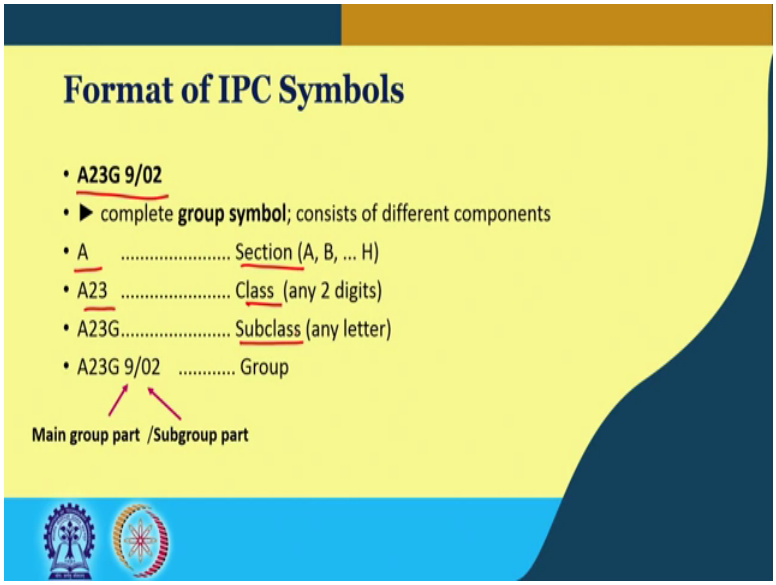

This is one representation of that. So, here you have a particular code which is A 2 3 G 9 bar 0 2. So, A is the basic class that is the basic section, 23 is the class here and then you have another letter which indicates the subclass and within that there is a group. So, what happens is when the patent documents are populated under each class, it can now be further grouped into subgroups.

So, where an invention to now come, in this particular area of agriculture which is a facet of let us say forestry, but there is a new grouping that is necessary to be opened up, then a new IPC subgroup will be evolving. So, this is how the IPC classification evolves with time. Now there are many technologies which are trans-disciplinary in nature; for

instance you have nanotechnology, you have the area of today we talk about A I, then we talk about the areas of 3 D printing. So, many of these emerging technologies could have multiple IPC classification codes. So, therefore, today IPC has now got strengthened not only by including further groups, but also the relevance or applicability across the areas.

So, here you see the main group part and also the sub group part. So, understanding the classification system is also important to find the relevance of this hierarchical structure that is used in relation to the grouping of a particular invention.

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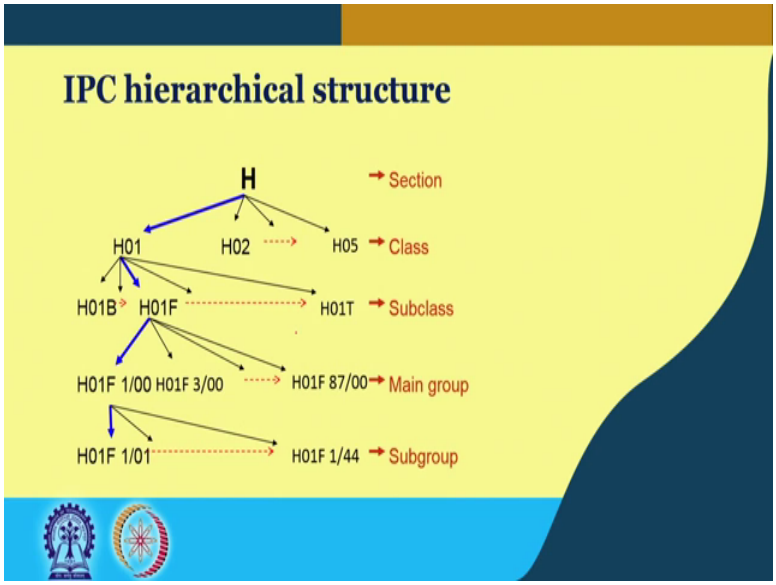

So, you have a section, you have a class, a sub class, a main group and a sub group. So, we write to now go for and search with H 0 1 F 1 slash 44, I would exactly know what is the specific grouping of this invention in that particular area.

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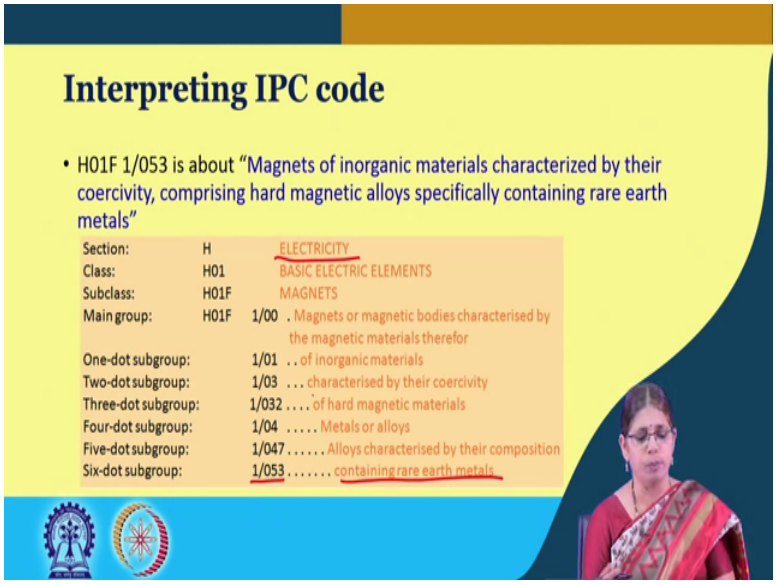

So, this helps actually tracking information. So, here this is what is another representation of that H belongs to the area of electricity. So, if I would go to this aspect of H 0 1 F 1 slash 053 it is all about magnets and magnets which contain rare earth elements.

So, in invention belonging to this particular area would be grouped under this specific subgroup. And remember there are they use the double dots just to represent the hierarchy or it goes in that different number of dots, increasing number of dots to increase the to indicate the hierarchy in relation to the main section or even the main group.

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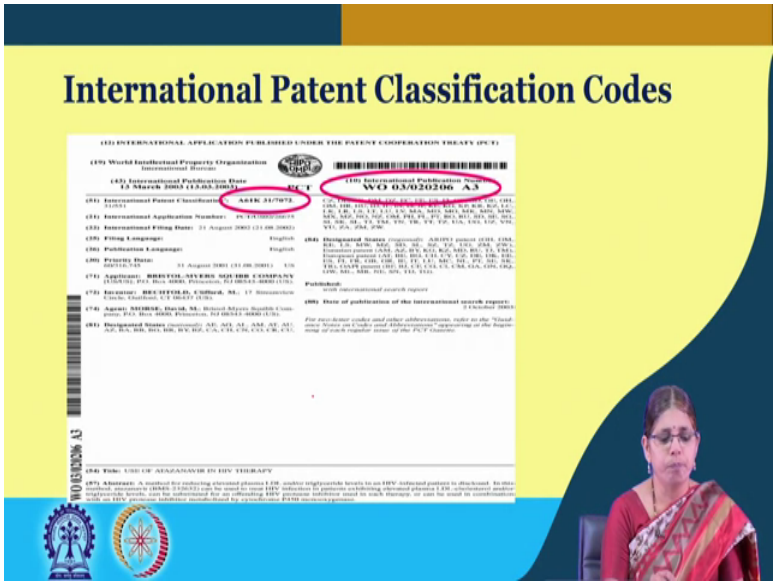

And this is one illustrative document to indicate where the patent classification system is available. So, on the front page here you have A 61 K remember a belongs to the area of human necessities. A 61 K 31 slash 7072 and this is one complete way of representing the IPC code; and they could be even additional codes which are also relevant to the same application in which case you will have more than one IPC code which is relevant.

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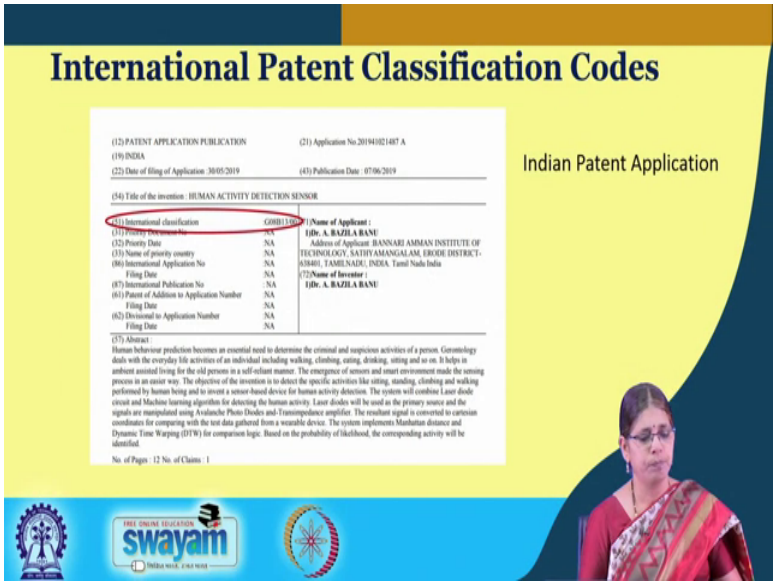

Here again you see another application, which is an Indian application which talks about human activity detection sensor, which is belonging to the G class and it has this particular international classification system under which it is coated.

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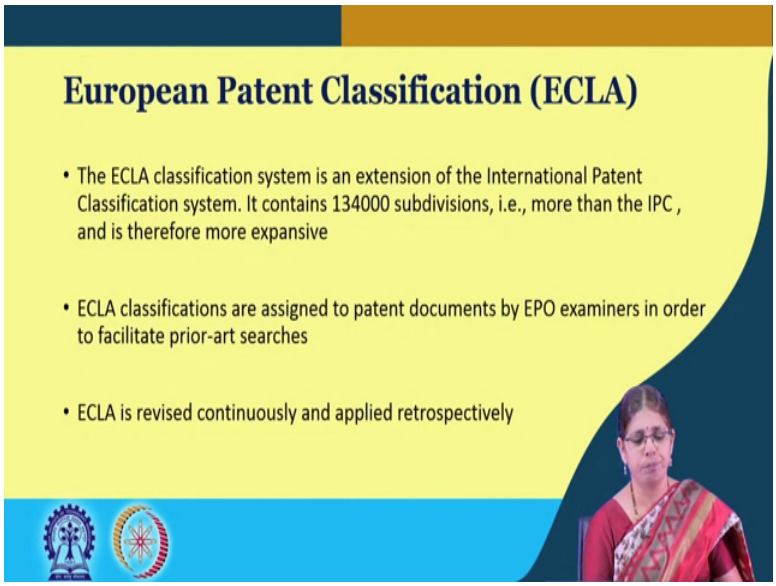

The European classification system is an extension of the international patent classification system; today we have more than 13000 so runs into actually huge number. So, in some sense it has become much more expensive than the IPC.

Typically examiners of patent applications would either based on the technical area, group that particular invention under a particular IPC class or ECLA class. So, therefore, for patent office purposes also it is very important. So, when an examiner is searching for where this application is relevant to, he would mark a particular code that this invention is relevant to this particular code and so therefore, that document is marked for that particular code. Like the IPC, the European classification is also revised routinely and so documents are also revised accordingly.

So, therefore, because of the revision of documents it is possible that the additional classes under which an invention is catalog may not be available for a searcher. So, therefore, IPC search also must be looked at it from the point of view of the version which has been applicable for that particular application.

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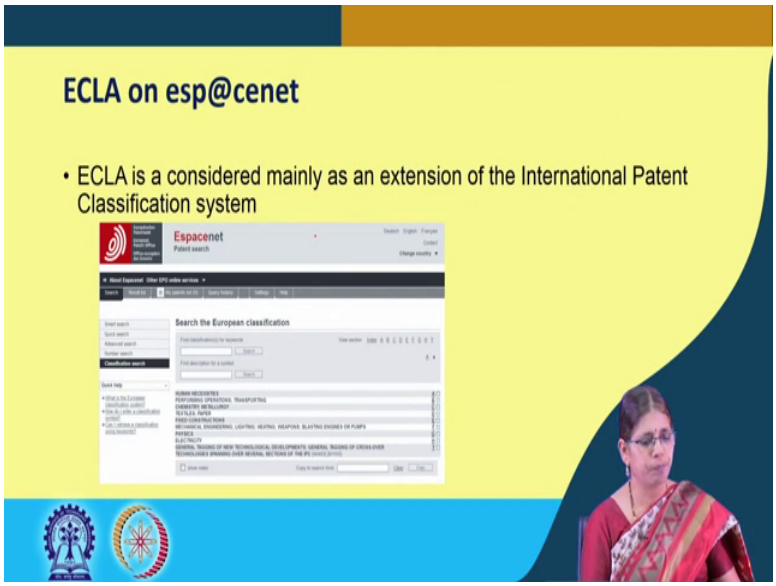

This is one particular way of representing the ECLA course which are, so one can also search under the e space net, which is the database available for looking at European patents. You can also search by the find the classification search. So, under that classification you can actually put the classification code and pull out the patents relevant for that particular code.

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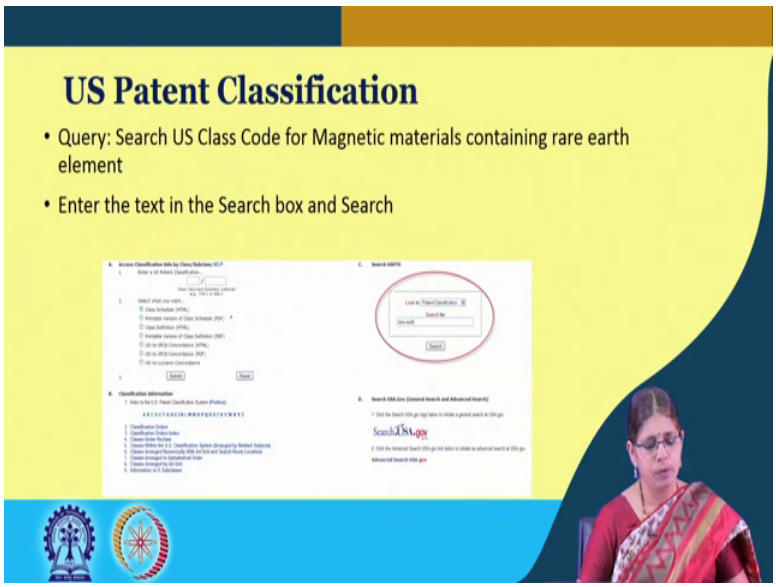

The US patent classification also provides for search in relation to the use of US class codes. Now the US class codes have been also routinely revised. Some of the US class

codes are different from what are available at the European patent office; because the US codes are also relevant to different type of applications are awarded at the patent office.

So, now if you look at the USPTO link you have looked by patent classification. So, there you can actually put for particular details of an invention and look for all the codes that are relevant to the particular invention.

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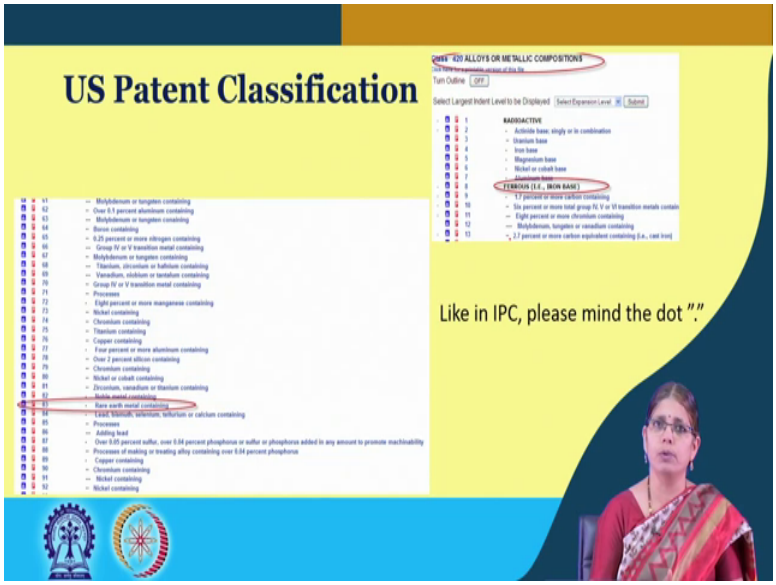

So, and this is how it throws up the results in relation to; so, they are known by what we call class numbers. So, here in this case class 420 is about alloys or metallic compositions. Now, under that you have the different layers. So, for instance ferrous based are one set of codes. So, this is how you can look at the and just like the IPC you have to also take into consideration that they are actually also hierarchically represented. And therefore, the way of representing the increased number of dots indicates to you that to what group or subgroup that particular classification is relevant. So, one should keep in mind the dots into that extent.

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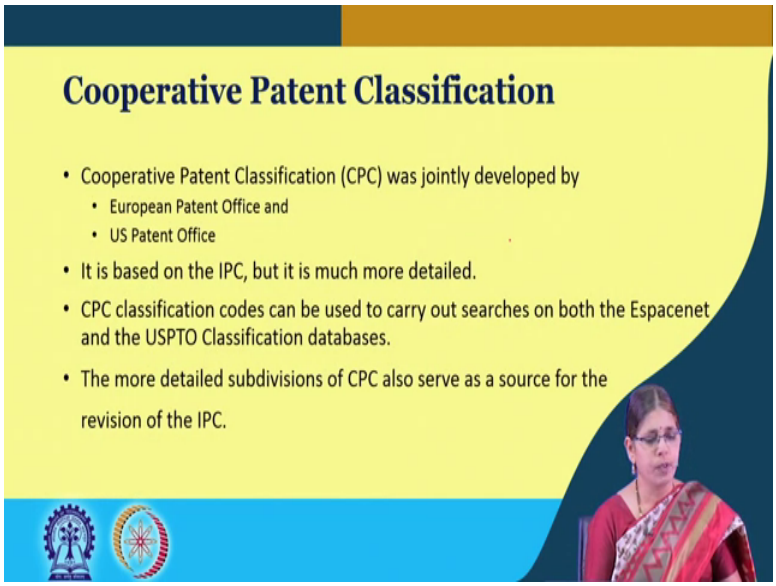

The cooperative patent classification is a more recent patent classification which has been jointly developed by the European Patent Office and the US Patent Office. It is a more detailed classification going even beyond the classification. So, therefore, though it is based on the IPC it is much more comprehensive to that extent. And so, it is still now many of the patent offices are already been using the CPC based classification. So, to that extent today we find a more unified classification between different patent offices where they are moving into what we call the CPC based classification. So, this is also relevant because many searches are today also looking at CPC based search.

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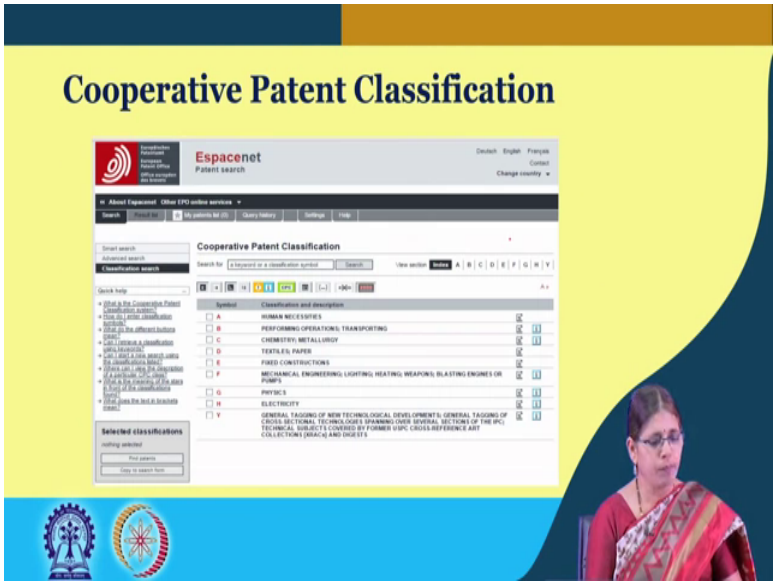

So, here you find at the details of the cooperative patent classification. So, you have H and of course, there is a Y class which is in relation to new technologies and that is where the entire set of technologies. For instance nanotechnology is also classified under the Y class, whereas if you look at the USPTO it is under a B class. So, that is where you find little bit of change with respect to the way documents are represented, but yes the CPC is based on the IPC classification itself.

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The other important search would be the search for legal status. And this is another important part of a search where; the first thing that the searcher would be interested is in case of bringing a product to the market, is to look for whether there is a patent that has been granted or not and whether the ownership has changed between on that particular patent, what is the data available in relation to the licensing out of that invention.

So, therefore, it is important to also look at legal search, status search in terms of looking at this sort of information. It is also undertaken to know; what are the different patents that are already expired or lapsed in which case the patent is available for all to use. So, the search by legal status is also one of the important searches in relation to patent search undertaken in these times. And reassignment search is becoming an important aspect of search which is taken up you know widely for knowing the status of change of ownership; and of course, the register information, the patent register provides much of this information relation to search for the legal status.

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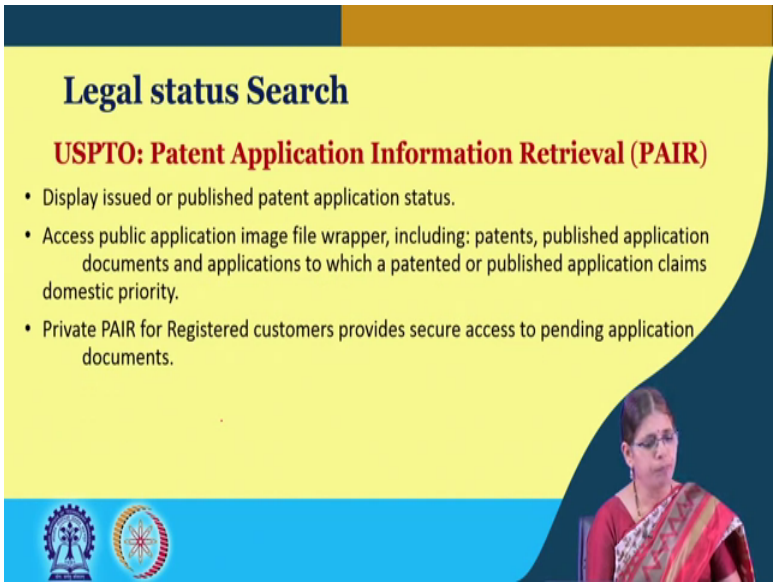

And in the case of different databases you have different links available. In the case of the USPTO you have the pair which is the patent application information retrieval system. And typically you would find it in what we call the public pair, because the private pair is accessible only by attorneys with the attorney code.

However the public pair is where you would look for the details in relation to the information on the details of the licensing as well as the ownership of that particular document, a particular patent document. Not only that you can actually access the entire file history of a particular patent, which gives you information on what are the different documents filed sequentially from the date of filing, what is the information available on the patent prosecution, what are the kind of responses that are available for instance for a first office action or a second office action, what are the additional documents filed at the patent office.

So, it gives you an entire prosecution history of that particular patent application. Today because of the databases that are available it is become much more easy, to search for this kind of information.

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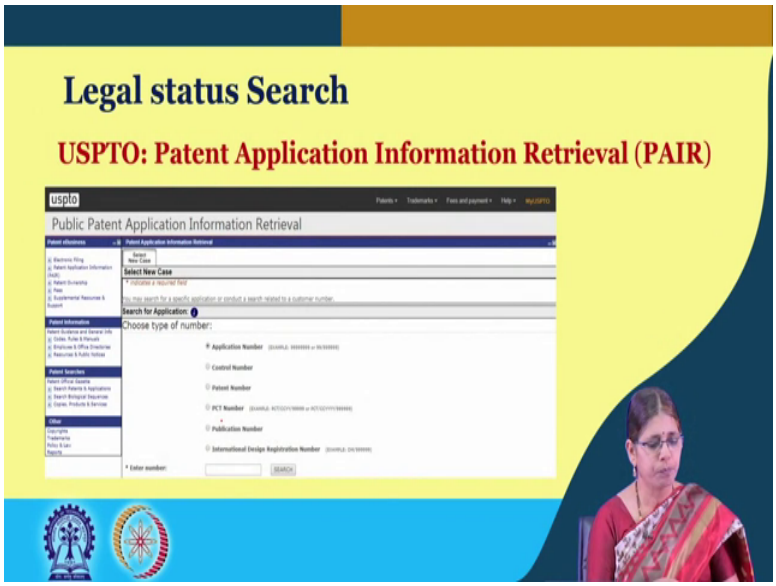

This is an representation of that. So, if you go to the public pair patent application information retrieval system, you can choose the type of number by which you can search; for instance the application number, the patent number, PCT those coming by the PCT route and the publication number. So, you can enter in the number and search for the specific information.

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Now, in the case of the EPO you have the European Patent Register. So, which gives you information on whether again the patent application has been granted, what is the kind of

information available on whether the positions have been filed on that, what is the correspondence between the EPO and the patent applicant. So, this entire file wrapper information can be also obtained at the European Patent Register.

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And this is where you would look for the INPA DOC legal status and that is where you can access the information in relation to the particular application.

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So, if you look at this particular application which is E P 10698219 this is the detail that is available to for one to look at. So, it provides different even dates and also the codes

which tell you what is the data which is filed in relation to that particular. So, the entire information can be actually obtained and normally it is a. So, far as the database is updated on a regular interval this data is available in relation to a particular application.

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So, therefore, the search by legal status is an important part of search in terms of a looking at one; the important information in relation to the transaction of that patent information with the patent office, the ownership and further details in relation to the maintenance of that particular patent. Another search which is also very relevant and which is also used by many researchers is what is called the citation search. We need to understand first why are patent cited, before we understand the details of the citation search.

Patents are cited if they are very relevant and they are important. So, normally people are also aware when publications are cited, you get what you call the score. And today even if you look at general publications they are actually indexed by what you call the H index; there are different type of indexes, this is somewhat relevant if you look at it bringing that similarity in the context of patents as well.

So, you can have backward citations, you can also have forward citations. So, citation search is an important search to evaluate the strength of a particular patent. If many patents have been citing a particular patent number; it means that patent, that invention is very relevant and has significance. So, therefore, this is an indirect way of assessing

patents; in the academic area the one of the most simplest of what we call the patent valuation tools is actually a citation search. So, the very simplest way in which you can actually value patents is by looking at the citation value of a particular patent, for which searches undertake what we call the backward citation search and the other is the forward citation search.

Now, let us look at what are these two. So, a patent can be backwardly cited which is cited patents or forward citation which is citing patents. So, what does it mean essentially, after the patent is published there could be forward citations of which in which case it is a forward citation search. Now there are patents which are published earlier to that particular invention, which are again relevant and those become the part of what we call backward citation search. What does it mean? That given a particular target area, some patents are very similar in relation to a particular invention.

So, therefore, one can assess actually the strength of an area based on the number of citations of that particular patent. Today we have citation search which is an integral part again of the patent search to assess the value of a particular patent. And in fact, it forms a very important part of the, what we call evaluation of patents. There are many fee based databases which offer very enhanced capacity to look at citation search and the analysis of cited patents. So, this is again an important aspect of the search that is taken up.

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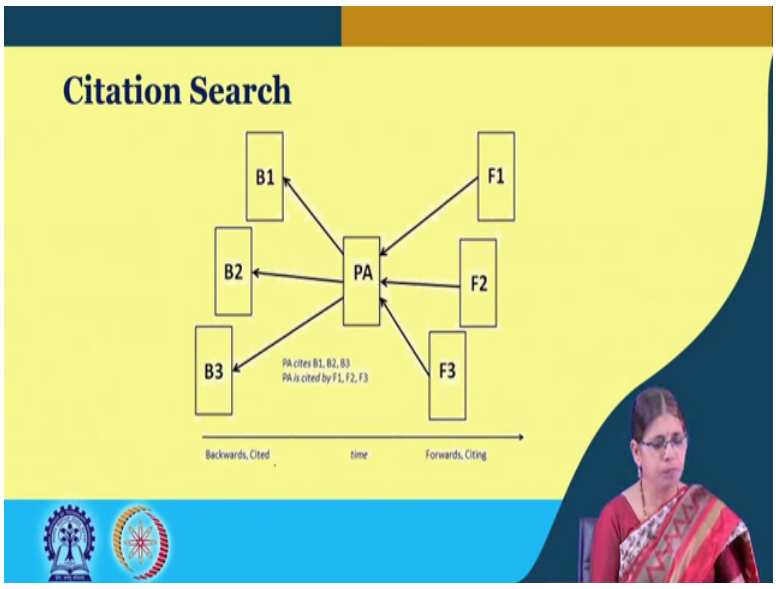

This is one illustration of, for instance if you are looking at a particular patent there could be backward citations, there could be forward citations. So, one of the important considerations is fixing the time. And how would you know that? You would know that based on a lead time point of that particular technology area; and based on that you would actually decide that this is my date for which I would look at let us say backward citations or forward citations. So, this is another skill which is now acquired to understand the strength of a particular patent in relation to the area.

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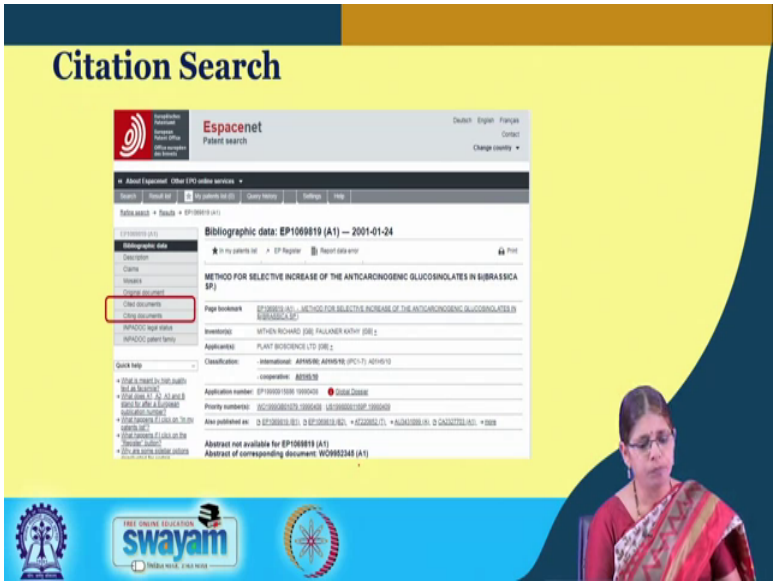

And how do you do that? Today the databases do offer information in relation to cited documents and citing documents. So, this is one representation of the Espacenet at which you can actually search for a given patent you can actually look at the cited documents and the citing documents.

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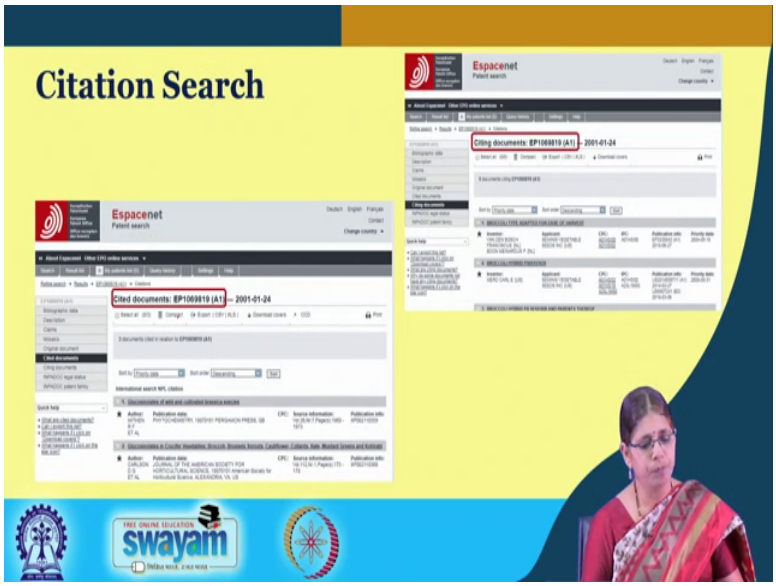

So, here you can see, for a same application you can see the cited documents and the citing documents.

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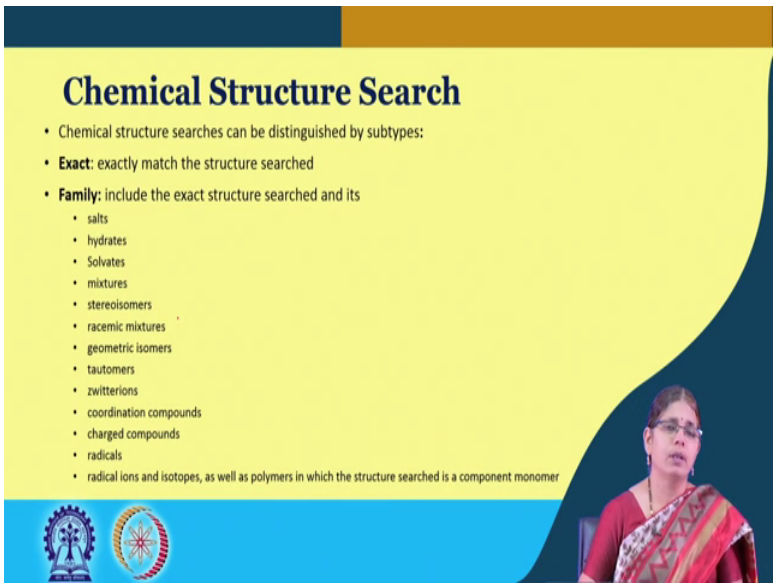

Today we are not only looking at a simple search from where we look at the basic aspects of search. Search has now moved into advanced aspects of specific searches, where we have today structure search. So, we have chemical structure search which is again relevant for the unpredictable arts; particularly if you look at the area of pharma and the biopharma in the chemical industry.

So, today one can also search by structure of a particular compound. This is also necessary for the purposes of looking at relevance of novelty, in relation to a search. So, if I have a structure of a compound I can just now put it against a particular database and look for whether this search is available in relation to that particular invention.

So, what can you actually search for, you can search for all the different forms of that particular chemical structure. So, this is what? So, you can search by salts, you can search by isomer information, you can search for the entire information relation to the esters and also the different forms of that particular compound. And this is another part of the search which is undertaken in the industry, there are also databases which also offer what we call the chemical structure search.

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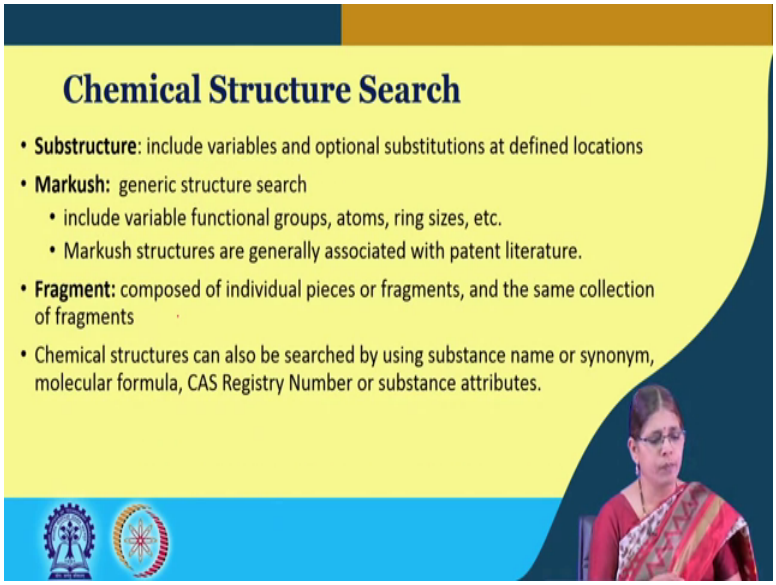

And typically in the unpredictable arts and in the area of chemistry, there are certain type of claims which are called Markush claims. Markush claims are the claims where there is a lot of variation in relation to the aspects of a compound that are claimed.

So, for instance if I say x; x including there could be different variants of that I would be taking which is I could take an ester form, I could take all of those different diesters all of those. So, therefore, that forms a one single group under this particular structure. So, that is how you can have variable functional groups which are taken.

And today patents claims often you would find in the unpredictable arts Markush microstructure is claimed. So, the relevance of that is important from the point of view of looking at the search. Of course, one can actually also go for the fragmented aspect of what we call the chemical structure search, that you can specifically go for only individual structures for this search. Today chemical structures can also be searched by the CAS registry information that is available and databases today also support the chemical structure search.

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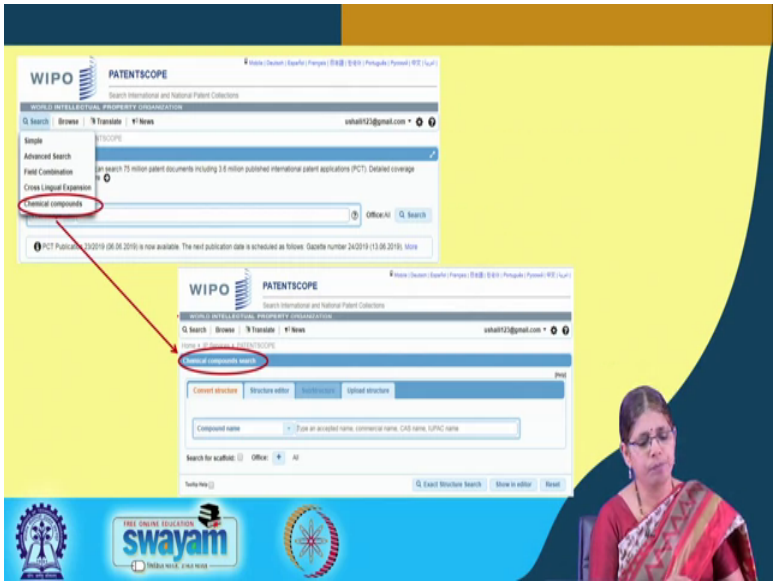

WIPO has recently announced the chemical compound search which is again available today publicly. So, you can actually input in information or the name of that particular compound and then get the details of that particular structural search you can get all the compounds. So, typically one would actually give either the IUPAC name or the molecular name or even the commercial name of that particular compound.

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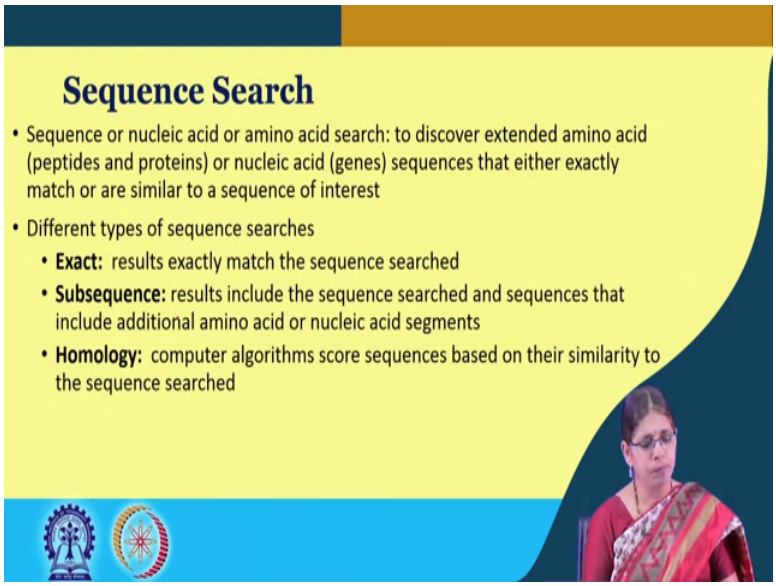

In the area of biotechnology and relevant also to the area of biopharma; today we have sequence search which is also become relevant from the point of view of assessing the novelty of that particular invention. So, if I want to know whether the aspect of the modified gene is already available in the prior art, I would need to also look at patents as part of the prior art. In which case I would like to search for my sequence whether this sequence is available already in the existing prior patents; in which case I would be actually going for what we call the sequence search. Patent offices today accept sequence searches as a part of the electronic submission via the online.

In the earlier times one needed to submit them in the form of CD ROMs; much earlier we actually had to submit them into a set of hard copy documents in terms of pages. So, it would run into several pages and there was no way one could actually look at a search by sequence; today one can actually also look at a search for sequence. So, this is important again to establish whether an identical sequence as actually being captured already in the form of another patent.

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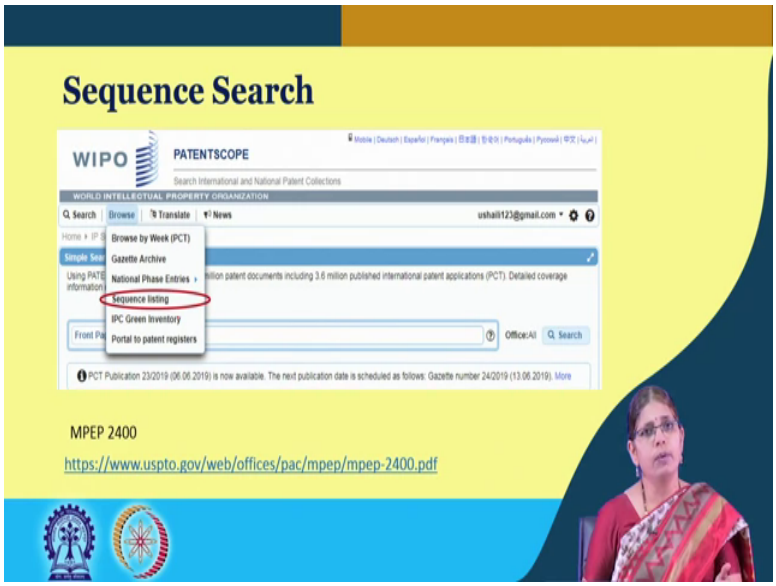

So, today you also have sequence listings as a part of the patent scope; where you can actually go for the and a very elaborate document is available under the manual of patent examination practice 2400 which gives you information in relation to biotechnology patents and how sequence should be submitted.

So, there is a specific way in which sequences should be uploaded into the patent database and this is again relevant for people who are searching for sequences.

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So, this is another aspect of you know the MPEP 2400 and where the requirements of the amino acid sequences or the nucleotide sequences their representation of that. So, if they are submitted in this particular form, you can actually that sequence listing is available for.

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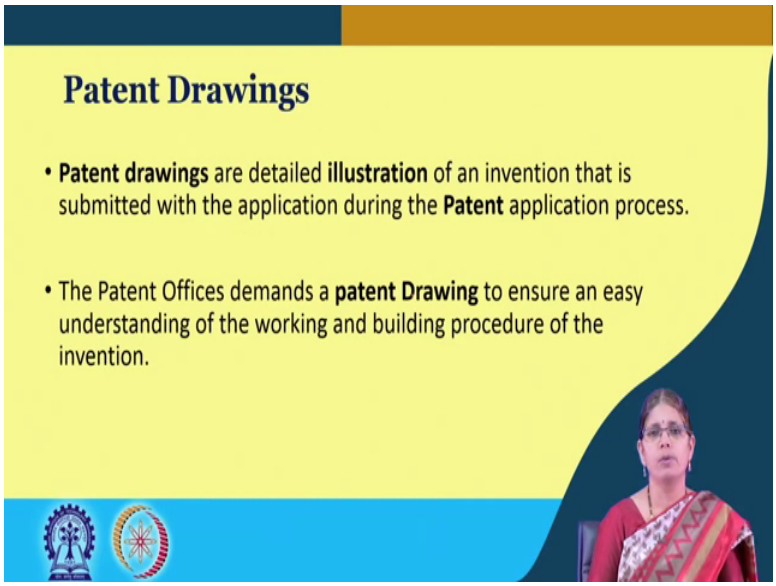

So, far you have understood the different aspects of how to undertake a simple search, the relevance of keyword search, why do one undertake a classification search, the importance of classification system, how to use classification codes and the relevance of a legal search, search by the legal status and the other aspects of specific searches where we look at sequence searches and search by different drawings.

Thank you.