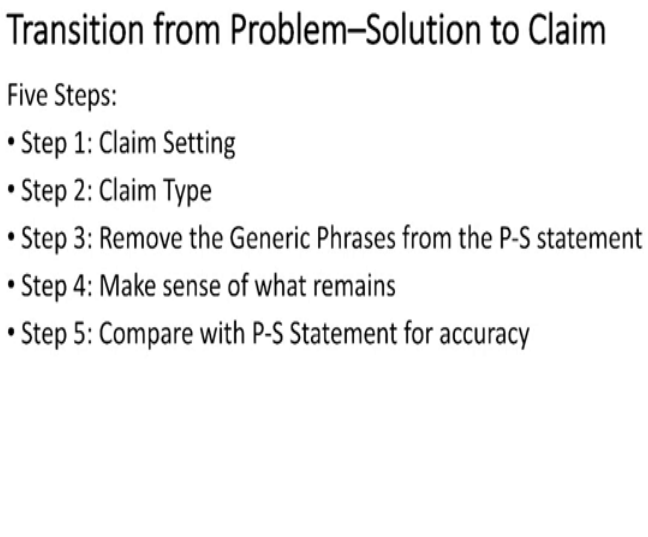
Patent Drafting for Beginners
Prof. Feroz Ali
Department of Humanities and Social Sciences
Indian Institute of Technology, Madras

Lecture – 24
Problem Solution to Claim

Problem solution to the claim; now in this lecture we will see how we can make the transition from the problem solution statement, which we have created to the claim. In the earlier lecture we had seen how to craft a problem solution statement from the disclosure that we get from the client. The disclosure had as we had seen may come in phases, the client may have to be engaged with in more detailed fashion to get the disclosure or the disclosure may come in one shot say you send an invention disclosure form and the client fills it satisfactorily for you to proceed with the drafting of the problem solution statement.

Now, once the problem solution statement is created, there has to be a transition or you should try to convert the problem solution statement to a claim capturing all the features in the problem solution statement.

(Refer Slide Time: 01:18)



Now, this can be done in five steps; the first step is to identify the claim setting, what kind of claim setting is the claim going to have because all claims have a setting. If you read a claim you will understand what the claim pertains to. Whether it is a composition,

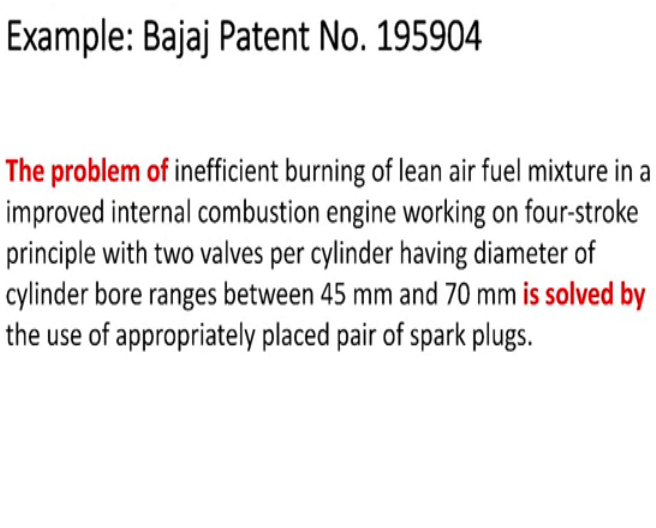
a mixture, a mechanical device, electronic gadget you will understand that whether with what is the setting of the claim.

So, the first step will be to identify the claim setting, the second step will be to identify a claim type, which means the problem solution statement should be framed as leading to a claim a type of a claim, the third step will be to remove the generic phrases from the problem solution statement. The problem solution statement as we have seen is a blanket statement, which could be used for any situation the problem of dash is solved by the solution dash.

So, the blanket the broad phrases the generic phrases needs to be removed. Once you remove them with what remains you need to make sense of what remains. Many a times when you remove the generic phrases, it may not be sufficient to make complete sense. So, you may have to juggle sentences phrases, you may have to add certain transition in transition terms, all this is done in step 4 where we make sense of what remains. And step 5 is to compare the problem solution statement for accuracy. Now whatever remains is what we call the preliminary claim or the first draft of the claim. The first draft of the claim should be accurate because it should be it should contain all the terms or the embodiments or the elements that you had covered in the problem solution statement.

So, you check for accuracy. So, this is a compare the step where you look back at the problem solution statement, and see whether all the things that you had covered in the problem solution statement has actually got into your preliminary claim.

(Refer Slide Time: 03:39)



Now, let us go about this by using an example. Now the example that we want to use here is the Bajaj Patent number 195904, this was the patent which was in litigation in a case between Bajaj and TVS. The invention pertained to an arrangement of a pair of spark plugs in an internal combustion engine that is the broad idea of the invention.

Now, you need a disclosure before you can create the problem solution statement. In this case information about this patent is already there in the public domain, because of the dispute between Bajaj and TVS and once you have the patent number it is easy for you to find out what the claim or the description in the patent is. So, because we are using this as an illustration, we have already seen the claim and, but we are just taking you and read the patent specification, but we are taking you through this process. So, you understand this process and you can also compare with all the documents that are available in the public domain, to see how to move from a problem solution statement and create a claim or a preliminary claim.

Now so, we have created this fictitious problem solution statement, based on are reading of the Bajaj patent. The problem of inefficient burning of lean air fuel mixture in an improved internal combustion engine working on four stroke principle, with two valves per cylinder having diameter of cylinder bore ranges between 45 mm to 70 mm is solved by the use of appropriately placed pair of spark plugs. Now this is a summary based on the reading of the patent specification, but nevertheless this tells us as to how a problem solution statement can be drafted. We had already seen in our earlier lecture different types of problem solution statements.

Now, this is a problem solution statement, where there is a particular problem pertaining to inefficient burning of lean, air fuel mixture in an internal combustion engine and the combustion engine has certain details it is a four stroke combustion engine, and it has two valves per cylinder and there is also a range for the cylinder bore. The bore of the cylinder is a range the range of the bore is between 45 mm to 70 mm, which is largely what we call a small bore a cylinder.

Now, in this problem the problem statement the problem statement not only gives you the inefficient burning of lean air fuel mixture, it also gives you the setting where is this burning happening? It is happening in an internal combustion engine what principle does the internal combustion engine work on? It works on the four stroke principle, not on the two stroke principle and how many valves does it have per cylinder that is given, and what is the diameter of the cylinder? Diameter is not given as a specific diameter rather it is given as a range.

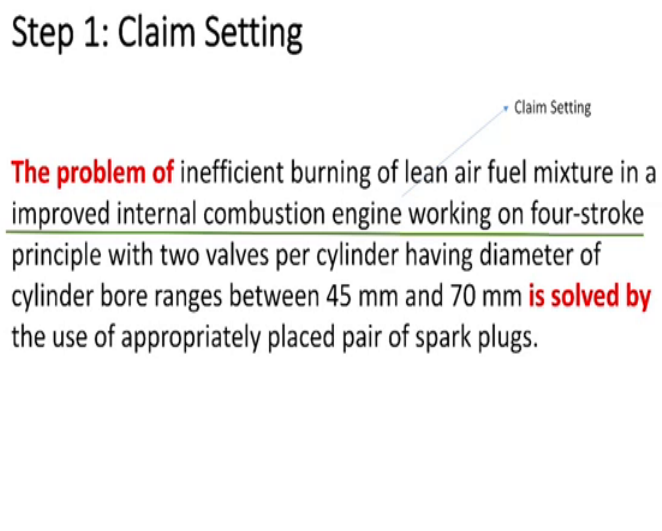
Now, this entire thing is the problem and the setting of the problem it is just not just the problem it is the problem is inefficient burning of lean, air fuel mixture in an internal combustion engine is the problem, that is being addressed by the invention, but it also gives you the setting where is this problem happening, what are the details of the setting..

So, so when you draft a problem solution statement, the problem could be a simple problem like what we had seen the problem of writing on rough surfaces that is a simple problem ah. But in certain cases you may have to include the setting as well as the case in front of us a solved by the use of an use of appropriately placed pair of spark plugs.

So, there are two spark plugs to begin with, and there is an placement of the spark plug where it appears. So, so this is the solution. The solution is having two spark plugs in a small bore engine and placing it appropriately. Now taking this problem solution statement as an example, we will now go through the five steps of converting this problem solution statement into a claim or something that looks like a claim. Now one of the advantages we have is we are already using a claim that is been already drafted filed and granted, and we will not get into the merits of the invention because we will not this will lecture will not allow us to do that, but rather we will use something which is there in the public domain, which is been debated. So, that in case you need to know more about this invention, there is much that has been written about this.

So, that is the reason we chose this example for demonstrating the problem solution statement. So, we use this problem solution, the problem of dash is solved by dash. Now the problem of the problem is highlighted in blue, underlined in blue is solved by the solution, which is the invention is highlighted in or underlined in green.

(Refer Slide Time: 08:59)



Now, let us go through the steps; step 1 as we said is to determine the claim setting what will be the claim setting for the convention?

Now, from this statement you will understand that, the problem comes with a particular setting. The setting is very clear there the setting tells us that, the inefficient burning of the air fuel mixture happens within an internal combustion engine. So, the internal combustion engine is the setting, but the internal combustions engine also tells you that it is it has it has it works on the principle of four stroke technology and it has got two valves per cylinder more importantly as if you are interested in reading more about this case, you will understand in this case what was in issue in the case before the madras high court, was the fact that the invention pertained to a small bore engine. The statement on the fourth line cylinder bore ranges between 45 mm to 70 mm became the contentious point, because otherwise had they note this is what we call a restriction by a range, you restrict the scope of the invention by introducing a range .

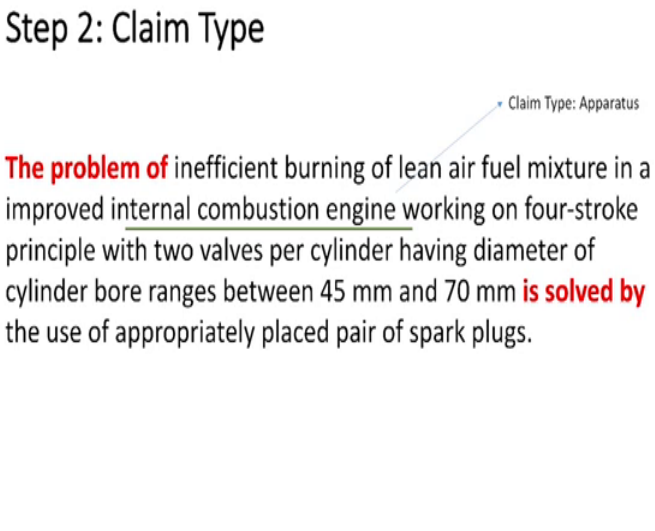
Now, because there was a restriction by a range the case proceeded say ah, but that the patentee proceeded with the case stating that, this invention the placement of two spark

plugs in an internal combustion engine is confined to small bore engines. Because the use of two spark plugs was known in other engines. So, one way you can create or you can you can come up with an inventive feature is by restricting the scope. So, that it does not fall of the prior art. So, the prior art in this case as it was pointed out during the case, had placement of two spark plugs in an internal combustion engine, but there was no restriction on placing it in a small bore.

Now, as I said we cannot get into too much of the merits, but for you to understand the problem and the solution is solved by the use of two spark plugs. Now the claim setting in this case will be the improved internal combustion engine on four stroke. Now this is the claim setting where is the problem happening that is what you understand by the claim setting because you need to incorporate the problem, as it happens in a part of a machine or in this case it is a part of a two wheeler motorcycle.

So, here we identify that to say that the issue of inefficient burning happens in the internal combustion engine. So, the combustion internal combustion engine working on four stroke becomes are claim setting. So, we first identify and choose the claim setting.

(Refer Slide Time: 12:17)



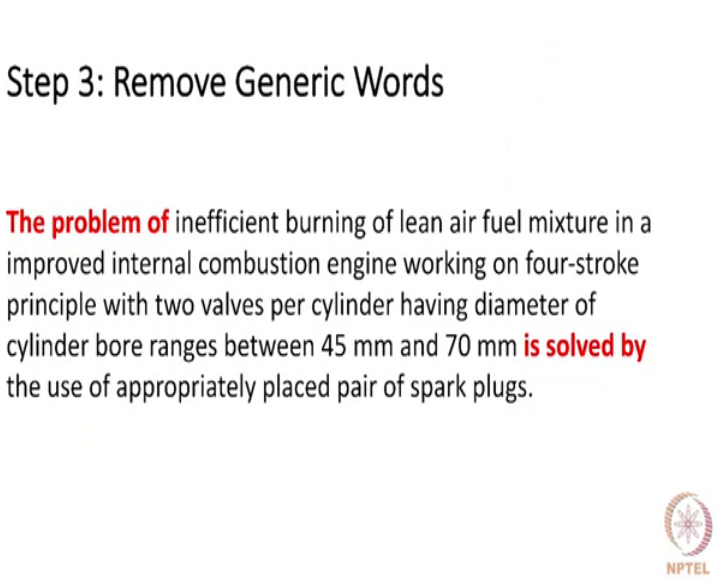
Step 2 we choose a claim type. Claim type again will be what kind of claim you want? In this case what will is being claimed is an improved internal combustion engine of a particular type. So, not all internal combustion engines can be claimed, this the

improvement to the internal combustion engine is as Bajaj as described that you will see when you look at the main claim towards the end.

So, this is what we call the claim type, in this case you can call it as an product claim or more specifically it is an apparatus claim. The claim is for an apparatus largely you have two types of two types of claims under the Indian patent acts. Section 48 tells us that you can have a claim broadly either for a product or for a process. Process includes all different types of methods of doing things and of manufacture. So, this comes broadly under the product claim and this is what we called an apparatus claim.

So, first step we identify the claim setting, step 2 we identified and chose a claim type.

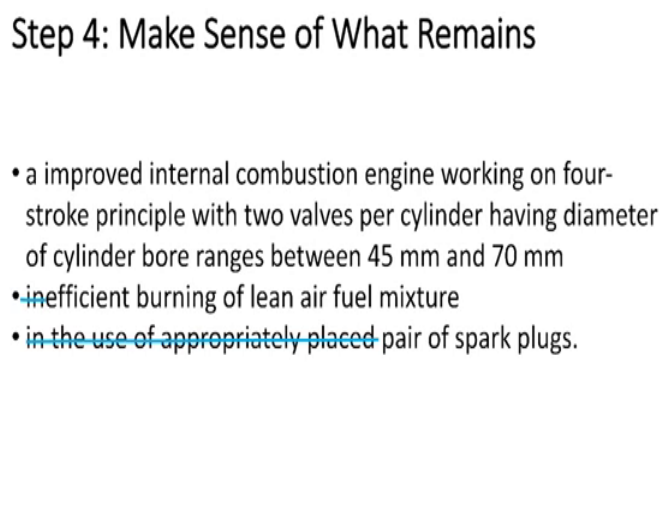
(Refer Slide Time: 13:29)



Step 3 remove the generic words its easy in this case the generic words are just what we had created a template out of the problem of and a solved by. Now once you remove the generic words what remains may not really make sense. In efficient burning of lean air fuel mixture and so on between 45 mm and 70 mm the use of appropriately placed pair of spark plugs, this does not make sense.

So, you need to move to step 4; step 4 make sense of what remains.

(Refer Slide Time: 14:07)

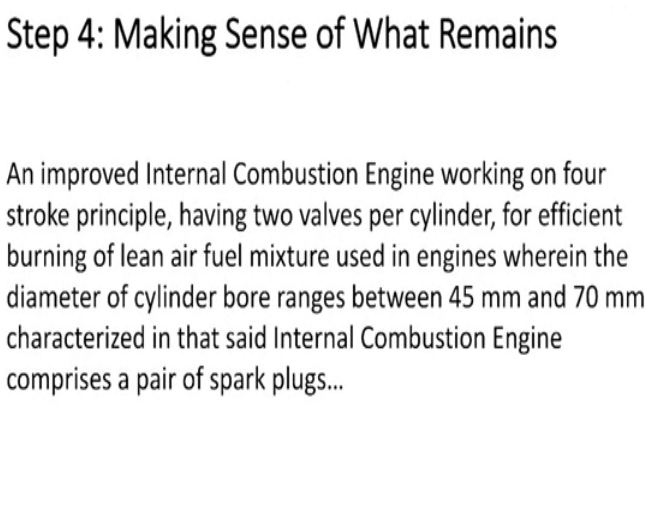


Now, let us once we remove the generic words, we find that these are the things that remain, I have just captured in a bullet point an improved internal combustion engine working on four stroke principle with 2 valves per cylinder having diameter of cylinder bore ranges between 45 mm and 70 mm that remains, inefficient burning of lean air fuel mixture. Now in my claim we do not want this phrase to come. So, we want rather to focus on efficient burning, because inefficient burning was the problem that was solved and the result is efficient burning. So, we just strike off in and we retain efficient burning of air fuel mixture, and we also strike off in the use of appropriately placed pair of spark plugs.

So, rather than using the phrase in the use of appropriately placed, we actually have details on how the appropriately placed takes place we detail it. So, so in the from the problem solution statement, we cut this off, but we also expand this. So, the use of appropriately placed will now be given as a in great detail, because we are talking about two spark plugs. So, we will first identify the first spark plug how it is placed, then we will where it is placed and we will identify the second spark plug and see how it is placed and where it is placed. So, this is going to be the main work that will be involved in making sense of what remains. Because here we have not in the problem solution statement, we have not discussed the anything about the placement of the spark plugs. How they are placed, where they are placed nothing is there all we have captured is appropriately placed.

But when you expand this appropriately placed, then a lot of details will come through which we will soon see.

(Refer Slide Time: 16:16)

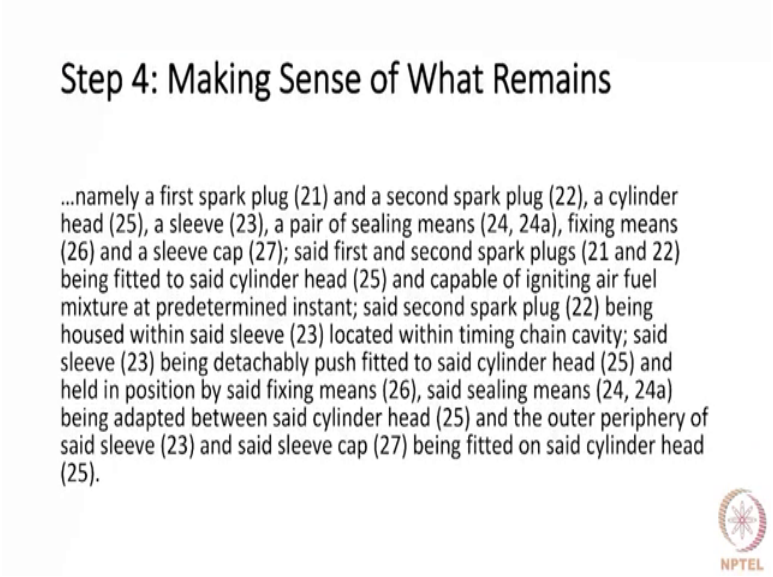


So, making sense of what remains; so, if we are still in step 4. So, just combining from what you saw in the earlier step, now we have just deleted in the we have stuck off certain things in with a blue line, what remains is what looks like this and improved internal combustion engine working on four stroke principle having now we have just included certain words having two valves per cylinder for efficient burning, we have added that word for efficient burning of a lean air fuel mixture used in engines, wherein the diameter of the cylinder bore ranges between 45 mm and 70 mm characterized in now that is an addition, this was not there, now this is a phrase that is used for a transition.

So, we will learn more about this in the subsequent lectures. So, this was an addition that came by characterized in that said internal combustion engine comprises a pair of spark plugs. So, what you had seen what we got from the problem solution statement now we find two more elements two more terms being added to it, apart from having and fore in or words that would be added for this part of the sentence to make sense. Now this does not cover the full we have an ellipsis at the end, this does not cover the full impact of the claim because one critical part is still missing. The appropriately placed the placement of the spark plugs which we had struck off in the earlier step needs to be introduced.

Now, we introduce that, because we have knowledge of the claim and we have seen the claim and read the complete specification we introduce it in this manner.

(Refer Slide Time: 18:05)



Namely the first spark plug now we are getting into the details, how the appropriately placed takes place namely the first spark plug and the second spark plug. So, there are two spark plugs a cylinder head a sleeve a pair of sealing means fixing means and a sleeve cap the said first and second spark plug being fitted to a cylinder to the said cylinder head. So, the placement of the first and the second spark plug is on the cylinder head, and capable of igniting air fuel mixture at predetermined instant at a time at a predetermined time. Said seconds spark plug being housed within said sleeve, its within a sleeve located within timing chain cavity that is a part of the engine. Said sleeve being detachably push fitted push fitted it could have been screw fit push fitted to said cylinder head, and held in position by said fixing means. Said sealing means the means by which it is sealed being adapted between the said cylinder head and the outer periphery of the said sleeve, and the said sleeve cap being fitted on the said cylinder head.

Now, this is just the assembly, how each part and it goes from the bottom to the top, it goes from the more specific detail to the general. The general being the cylinder head. So, it just describes what in what manner the spark plug is fitted to the cylinder head. So, there is a sleeve, there is a pair of sealing means, a fixing means and a sleeve cap, these

are all components. Now to get a bigger picture, you have to read the complete specification as to how this is done.

Now all the phrases in the bracket 21, 22, 25 they all identify things that have been claimed. Second spark plug is 22, first plug spark plug is 21, sleeve is 23, sleeve cap is 27. Now in the patent specification if you have a chance to look at it you will find that there are drawings. And description of the drawings and in the drawings these are the numbers that are being used to identify the parts of the drawing. And in the brief description of the drawing which is the description of the drawing in writing, you will find that all the parts that have been claimed for further clarity the number as it is mentioned in the drawing is also mentioned as a part of the written description .

Now, the Indian law there is a particular provision which requires the claims to have the numbers the corresponding numbers as described in the drawings. So, that is this is the requirement and this is been done in this fashion, because of a statutory requirement now. So, this part of the claim it continues from the first part what we saw, we had already seen the first part here, it ends with comprises of a pair of spark plugs and this part starts. Now in this part what is being done is a detail explanation of the phrase appropriately free appropriately placed.

So, many a times when you write a problem solution statement you may just have a broad statement of something that is critical for your invention. Later on you can expand that statement because this statement has multiple details which you will get become a part of your claim.

(Refer Slide Time: 22:00)

Step 5: Compare with P-S Statement

inefficient burning of lean air fuel mixture in a improved internal combustion engine working on four-stroke principle with two valves per cylinder having diameter of cylinder bore ranges between 45 mm and 70 mm pair of spark plugs.

Now, the step 5 the last step is to compare the preliminary claim that you have now drafted with the problem solution statement. Now largely what went into the claim was there has been taken from the problem solution statement. The burning of air fuel mixture, internal combustion engine which is a setting, the diameter of the cylinder bore, and the pair of spark plugs.

So,. So, the initial statement whatever was there in the statement has got into the claim the preliminary claim, and the preliminary claim does have more details because how the pair of spark plug is placed appropriately placed has also been expanded. Now let us look at how the claim looks. So, that you get a final idea about how this entire process.

(Refer Slide Time: 22:54)

Bajaj Patent No. 195904: Claim

An improved Internal Combustion Engine working on four stroke principle, having two valves per cylinder, for efficient burning of lean air fuel mixture used in engines wherein the diameter of cylinder bore ranges between 45 mm and 70 mm characterized in that said Internal Combustion Engine comprises a pair of spark plugs, namely a first spark plug (21) and a second spark plug (22), a cylinder head (25), a sleeve (23), a pair of sealing means (24, 24a), fixing means (26) and a sleeve cap (27); said first and second spark plugs (21 and 22) being fitted to said cylinder head (25) and capable of igniting air fuel mixture at predetermined instant; said second spark plug (22) being housed within said sleeve (23) located within timing chain cavity; said sleeve (23) being detachably push fitted to said cylinder head (25) and held in position by said fixing means (26), said sealing means (24, 24a) being adapted between said cylinder head (25) and the outer periphery of said sleeve (23) and said sleeve cap (27) being fitted on said cylinder head (25).

Now, this is the claim, and this is how the entire claim is actually mapped on what could have been generated from a problem solution statement. So, you can see an improved internal combustion engine working on four stroke principle, two valves per cylinder efficient burning of lean air fuel mixture, which was the problem it was inefficient burning, we converted into positive language cylinder bore restricted by a particular range 45 mm to 70 mm, the engine comprising of a pair of spark plugs, the first spark plug and the second spark plug in detail telling us how it is arranged on or fitted onto the cylinder head.