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The Andhra Journal of Industrial News

IP and Industry News

Chief Editor: Dr. Sreenivasarao Vepachedu, Esq
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Issue 133

INHERENCY INDIAN PROFESSORS ACCUSE INDUSTRY

INHERENCY

Disclosure of a prior art reference, whether express, implicit or inherent, may be relied upon to reject claims for lacking novelty under 35 USC section 102 or PCT Article 33(2)¹. Determination of lack of novelty is simple when the prior art reference expressly and unambiguously discloses exactly the same thing that an inventor claims to have allegedly invented.

A claimed invention is anticipated by a prior art reference, only when a single reference discloses each and every element of the claimed invention. The anticipation analysis becomes considerably less clear when the prior art does not expressly disclose all of the elements of the invention. If there is some difference between the claimed invention and the single reference, then the invention is novel, but it may lack an inventive step if the difference is insignificant or would have been obvious to a **person having ordinary skill in the art** (PHOSITA)².

The United States courts have developed a “doctrine of inherency (DOI) for considering such cases. Section 2112 of the USPTO’s Manual of Patent Examining Procedure (MPEP) sets out the guidelines provided to US patent examiners for applying the DOI when assessing novelty. DOI states that anticipation can be inferred despite a missing element in a prior art reference if the missing element is either necessarily present in or a natural result of the product or process and a PHOSITA would know it, wherein the inherency is predicated on an idea that anticipation should not be avoided merely because a claimed feature is undisclosed or unrecognized in the prior art reference. Accordingly, DOI precludes patenting an existing invention by merely defining it by an inherent element. At the same time, DOI allows the later patentability of a substance that was inadvertently created but not recognized or appreciated.

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

Anticipation

Only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of the claimed invention³.

Newly discovered results of known processes directed to the same purpose are not patentable if such results are inherent⁴.

There is no requirement that a PHOSITA would have recognized or understood the inherent disclosure at the time of invention, as long as the subject matter is in fact inherent in the prior art reference. In other words, inherent anticipation does not require recognition by a PHOSITA before the critical date and allowing expert testimony with respect to post-critical date clinical trials to show inherency⁵.

A characteristic necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention⁶. Because ‘sufficient aeration’ was inherent in the prior art, it is irrelevant that the prior art did not recognize the key aspect of the invention. An inherent structure, composition, or function is not necessarily known⁷. If a product that is offered for sale inherently possesses each of the limitations of the claims, the invention is on sale, whether or not the parties to the transaction recognize that the product possesses the claimed characteristics⁸.

A prior art patent to an anhydrous form of a compound “inherently” anticipated the claimed hemihydrate form of the compound because practicing the process in the prior art to manufacture the anhydrous compound “inherently results in at least trace amounts of” the claimed hemihydrate even if the prior art did not discuss or recognize the hemihydrate⁹.

However, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In other words, inherency cannot be based on what would result due to optimization of conditions, not what was necessarily present in the prior art¹⁰. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. Thus, inherency may not be established by probabilities or possibilities.

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. When claims were drawn to a disposable diaper having three fastening elements, the reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims; it is interpreted that the claims required three separate elements and the reference did not disclose a separate third fastening element, either expressly or inherently.¹¹

It should be noted that an invitation is not an inherent disclosure where a prior art reference discloses no more than a broad genus of potential applications of its discoveries.¹² A prior art reference that discloses a genus still does not inherently disclose all species within that broad category, but must be examined to see if a disclosure of the claimed species has been made or whether the prior art reference merely invites further experimentation to find the species.

In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.^{13,14}

The extrinsic evidence¹⁵ must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by a PHOSITA.

The Patent Office¹⁶ always bears the initial burden of developing reasons supporting a reliance on inherency. To satisfy this burden, the Office must identify some basis in fact or articulate some reasoning at least tending to show that allegedly inherent subject matter flows from cited art. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.¹⁷

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.¹⁸

In relying upon the DOI, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.¹⁹

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

Products of identical chemical composition cannot have mutually exclusive properties. A chemical composition and its properties are inseparable²⁰. A composition in terms of a function, property or characteristic is same as the composition of the prior art wherein the composition is same as that of the claim but the function is not explicitly disclosed by the reference²¹. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established²².

The discovery of a new use for an old structure based on unknown properties of the structure might be patentable to the discoverer as a process of using²³. However, when the claim recites using an old composition or structure and the “use” is directed to a result or property of that composition or structure, then the claim is anticipated²⁴.

Under the DOI, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device²⁵. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process²⁶.

In addition, in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom²⁷.

Further, Official notice without documentary evidence to support an examiner’s conclusion is permissible, although these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known²⁸.

Inherent anticipation, an admittedly difficult concept, and the DOI’s fundamental purpose have been questioned by the Federal Circuit, thereby undermining the predictability of the patent system and casting uncertainty over patent law²⁹. Therefore, the examiners at the USPTO are confused and scared to

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

use the DOI for the fear of failing to meet the initial burden of showing the basis in fact or technical reasoning supporting a determination. An examiner relying on the DOI must provide a basis in fact and/or technical reasoning supporting a determination that an allegedly inherent characteristic necessarily would be present if the teachings of the prior art were followed, even if the inherent feature would not have been recognized at the time it disclosed in the prior art. When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not³⁰.

An examiner, relying on the doctrine of inherency to reject a claim as being anticipated, must provide a basis in fact or technical reasoning supporting an allegedly inherent characteristic present in the teachings of the prior art, even if the inherent feature would not have been recognized. An exception to this inherency doctrine is found in the US, wherein a hitherto unknown, novel and non-obvious use of a known matter is patentable, e.g., Viagra³¹, wherein an inventor identified that a known vasodilator could be used to treat erectile dysfunction. In this exception, even though the vasodilator inherently dilates the blood vessels in the entire body including the vessels in the penis, thereby causing an erection along with the dilation of the entire vasculature in the body of the subject.

Identifying a new use for an old product is difficult and requires a lot of innovation and research. However, there is an easy way to avoid “anticipation” which is to simply reciting certain properties or characteristics (even if they are inherent to the compound) of an old method or product, e.g., see [WO 2015/035361 A2/3](#)³², the USPTO provided obviousness argument instead of anticipation and identified the invention to be *novel*, while it is inherently anticipated by Schmidt, under DOI. In this case, the applicant has used covalent bond, first portion, second portion, mar resistance etc to define an old known process of coating a synthetic polymer. Alkyl silanol of Schmidt inherently has a covalent bond between the first portion of SiO and the second portion of alkyl group providing coating which inherently has mar resistance (scratch resistance). Now, the applicant can overcome the rejection by submitting an affidavit under 37CFR 1.132 showing ‘secondary considerations’ as indicia of objective evidence of nonobviousness³³ such as evidence of criticality or unexpected results, commercial success, long-felt but unsolved needs, failure of others, skepticism of experts, etc.

Obviousness

Disclosures of a prior art reference, express, implicit or inherent, may be relied upon in the rejection of claims under 35 USC section 103³⁴ or PCT Article 33(3)³⁵. However, it is simple and easier to the inherency doctrine for anticipation than for obviousness. Nevertheless, inherency is an important

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
-----------	---



శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

factor that should not be ignored in determining obviousness of a claim over a prior art that inherently discloses relevant elements.

It was held that the inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness³⁶, affirming obviousness rejection based in part on inherent disclosure in one of the references.

The Federal Circuit set forth a test for the application of inherent obviousness: A party must, therefore, meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis – the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art³⁷.

The patent statute makes it clear that subject matter that would have been obvious to one of ordinary skill in the art as of the effective filing date of a patent application is not patentable³⁸.

The obviousness considerations have been set³⁹:

- (1) The scope and content of the prior art;
- (2) The level of ordinary skill in the art;
- (3) The differences between the claimed subject matter and the prior art; and
- (4) Secondary considerations of non-obviousness.

The Court⁴⁰ envisioned a hypothetical “person having ordinary skill in an art (PHOSITA)” having access to the entire relevant prior art available to public anywhere in the world, at the time the invention was made, then the court would step into the shoes of the PHOSITA to find the alleged invention obvious or not. However, disputes have arisen as to what the relevant scope of the art should be and what motivation if any would be required for the PHOSITA to combine the art to come up with the claimed invention without the hindsight. The Supreme Court⁴¹ attempted to clarify the proper analysis for an obviousness determination. The KSR decision reinforced earlier decisions that validated a more flexible approach to providing reasons for obviousness. However, the Supreme Court’s pronouncement in KSR overruled cases such as *In re Lee*⁴², insofar as those cases require record evidence of an express reason to modify the prior art. In KSR, the Supreme Court particularly emphasized “the need for caution in granting a patent based on the combination of elements found in the prior art,⁴³” and discussed circumstances in which a patent might be determined to be obvious.

Issue 133

5117 Kali Era, MANMADHA Year, VAISAKHA Month
2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month
1937 Salivahana Era, MANMADHA Year, VAISAKHA Month
2015 AD, MAY
(Published online JUNE 1, 2015)

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The Andhra Journal of Industrial News

IP and Industry News

The Supreme Court reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results⁴⁴.” The Supreme Court stated that there are three cases decided after Graham that illustrate this doctrine⁴⁵. Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result⁴⁶, i.e., it should be more than two pre-existing elements would in separate, sequential operation⁴⁷. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious⁴⁸. The principles underlining these cases are instructive when the question is whether a patent application claiming the combination of elements of prior art would have been obvious⁴⁹.

The Supreme Court further stated that when a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill⁵⁰. When considering obviousness of a combination of known elements, the operative question is thus whether the improvement is more than the predictable use of prior art elements according to their established functions⁵¹.

As reiterated by the Supreme Court in KSR, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in Graham⁵². Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (A) Determining the scope and content of the prior art; and
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art.

Objective evidence relevant to the issue of obviousness must be evaluated by Office personnel⁵³. Such evidence, sometimes referred to as “secondary considerations,” may include evidence of commercial success, long-felt but unsolved needs, failure of others, and unexpected results. The evidence may be included in the specification as filed, accompany the application on filing, or be provided in a timely manner at some other point during the prosecution. The weight to be given any objective evidence is

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

made on a case-by-case basis. The mere fact that an applicant has presented evidence does not mean that the evidence is dispositive of the issue of obviousness.

While each case is different and must be decided on its own facts, the Graham factors, including secondary considerations when present, are the controlling inquiries in any obviousness analysis. The Graham factors were reaffirmed and relied upon by the Supreme Court in its consideration and determination of obviousness in the fact situation presented in *KSR*⁵⁴. The Supreme Court has utilized the Graham factors in each of its obviousness decisions since *Graham*⁵⁵. While the sequence of these questions might be reordered in any particular case, the Graham factors continue to define the inquiry that controls.⁵⁶”

Federal Circuit⁵⁷ has explained that the use of common sense does not require a specific hint or suggestion in a particular reference, only a *reasoned explanation* that *avoids conclusory generalizations*. However, when the examiner and the Board have found motivation for substituting one type of memory for another with a reasoned explanation, but without providing a citation of any relevant, identifiable source of information justifying such substitution; such reasoned explanation was considered conclusory, and was held inadequate to support a finding of motivation, which is a factual question that cannot be resolved on subjective belief and unknown authority⁵⁸. Apparently, in 1991, a PHOSITA needed a reference to understand Content Addressable Memory (CAM), bitmap memory or bitmapped CAM. This requirement throws out an inherent property of a known material.

The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness⁵⁹. The Federal Circuit⁶⁰ held that to establish obviousness based upon an inherent property in the prior art, that inherent property would have to be obvious to the PHOSITA at the time of the invention. An inherent element may be not necessarily known⁶¹.

Obviousness cannot be predicated on what is unknown. “*Hindsight of inherency*” is not a substitute for some teaching or suggestion supporting obviousness. On the contrary, there is no such limitation for the application of hindsight of inherency for anticipation under 35 USC 102, and accordingly, there is no requirement that the inherent quality of the prior art was understood by a PHOSITA to support an argument of inherent anticipation, because the inherent property in the prior art inevitably would result in the invention. Inherency is predicated on the idea that anticipation should not be avoided merely because a claimed feature is undisclosed or unrecognized in the prior art reference.

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
-----------	---



శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

Further, if the claimed element is inherent in the prior art then the prior art cannot be practiced without infringing the claimed invention. Therefore, logic requires that it should be anticipated by the prior art. Thus, according to the DOI, anticipation can be inferred despite a missing element in a prior art reference if the missing element is either necessarily present in or a natural result of the product or process. For example, if a medication for headache is available in the market without the knowledge of its mechanism of action, a claim to such hitherto unknown mechanism of action identified by the inventor cannot be sustained because of it is an inherent property of the matter, whether it is known or unknown at the time of the discovery of the mechanism. Therefore, such discovery of an inherent property of matter is not patentable, because the matter was known already.

Thus, the quality of the US patents is in jeopardy. As explained above, it is much more simple and easy to apply the DOI for anticipation that for obviousness; and yet the USPTO examiners are hesitant to use DOI for anticipation for the fear of being overturned by courts that have thrown the DOI into an unreliable and useless doctrine. As a result, it is even more difficult to apply the DOI for obviousness. The status DOI in the patent system is further complicated by the “inventor as lexicographer,” who can define a well known invention in applicant’s own terms. Sometimes, inventor lexicographers define articles against the basic concepts of underlying science and therefore there could not be any prior art to be found using the same terminology. As a result, the USPTO examiners do not use DOI for anticipation or obviousness; despite the requirement that during patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification, and that the USPTO employs use the broadest reasonable interpretation standard: giving claims their broadest reasonable construction in light of the specification⁶². Overall result is that the patents granted in the US may be old products defined by synonymous and bombastic language not used by the prior art to define the same thing that is in the public domain, thereby reducing the overall quality of patents granted in the US and increased troll activity costing real innovators and raising cost of discoveries, including the new pharmaceuticals.

Indian Inventions⁶³

The University of Hyderabad has 17 patents and 26 patent applications are pending. However, of the 17 granted patents, only four have been picked up for commercialization.

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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శ్రీ వేపచేదు విద్యా పీఠము

VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

A reason behind this maybe, as acknowledged by senior professors from the university, industries show enthusiasm in inventions from institutes like Indian Institutes of Technology and do not collaborate with universities for conducting of research.

Some of the patents assigned to University of Hyderabad are:

- 1 US 8,888,965 B2 Non-stoichiometric titanium nitride films
- 2 US 8,873,364 B2 Ordered reduced set successive detector for low complexity, quasi-ML MIMO detection
- 3 US 8,437,588 B2 System and method for generating an optical vector vortex beam having two lobes
- 4 US 7,927,831 B2 Anti HIV-1 bacterial and baculovirus recombinant Epap-1
- 5 US 7,894,137 B2 Omnidirectional antireflection coating
- 6 US 6,164,951 A Apparatus for simultaneous production of a plurality of construction panels

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Om! Asatoma Sadgamaya, Tamasoma Jyotirgamaya, Mrityorma Amritamgamaya, Om Shantih, Shantih, Shantih!
(Aum! Lead the world from wrong path to the right path, from ignorance to knowledge, from mortality to immortality, and peace!)

¹The International Preliminary Examination, PCT 33 (2) For the purposes of the international preliminary examination, a claimed invention shall be considered novel if it is not anticipated by the prior art as defined in the Regulations.

²A PHOSITA is a fictional person considered to have the normal skills and knowledge in a particular technical field, without being a genius. A PHOSITA is a reference for determining or evaluating whether an invention is non-obvious/lacks an inventive step or not. If it would have been obvious for this fictional person to envision the invention while starting from the prior art, then the particular invention is considered not patentable. Justice Kennedy defined a PHOSITA is also a person of ordinary creativity, not an automaton, and acknowledged that his description of a PHOSITA does not necessarily conflict with other Federal Circuit cases that described a PHOSITA as having "common sense" and who could find motivation "implicitly in the prior art." Kennedy emphasized that his opinion was directed at correcting the "errors of law made by the Court of Appeals in this case" and does not necessarily overturn all other Federal Circuit precedent. In 1941, the Supreme Court required a "flash of genius" for a patent to stand. Congress lowered that high standard in 1952 to non-obviousness to one with "ordinary skill in the art." Now again, more than interpretation, the Supreme Court exceeded the law in its KSR v. Teleflex decision. In its own flash of unpatentable creative insight, SCOTUS redefines the statutory "person having ordinary skill in the art" into someone omniscient and possessing comprehensive technical expertise. 35 U.S.C. §103 Conditions for patentability; non-obvious subject matter; (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made. The SCOTUS ruling in KSR, the Court of Appeals failed to recognize that the problem motivating the patentee may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art.

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month
	2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month
	1937 Salivahana Era, MANMADHA Year, VAISAKHA Month
	2015 AD, MAY
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VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. 35 USC § 103(a) specifies a "a person having ordinary skill in the art to which said subject matter pertains." The subject matter is that of the claimed invention: "the subject matter sought to be patented." Obviousness, by statute, relates to the "the subject matter as a whole." In a broadening of legislative definitions by sly substitution, SCOTUS substitutes its own, significantly broader "field of endeavor" and "addressed by the patent" for the statutory "subject matter sought to be patented": "any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed."

The SCOTUS identified two possible blind spots in the peripheral vision of the PHOSITA with common sense: 1) prior art teaching away, which seldom happens, because most writers do so constructively, not by denigration of approaches that may later prove out; and 2) a hazy "more than predictable utility" a beckoning to declare an inventive step, like the European patent regime requirement, but fraught with ambiguity and no guidance, leaving "predictable" as a crap shoot. When the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious. A court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

35 USC § 103: A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

³ RCA Corp. Applied Digital Data Systems, Inc., 730 F.2d 1440 (Fed. Cir. 1984)

⁴ Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368 (Fed. Cir. 2001)

⁵ Schering Corp. v. Geneva Pharm. Inc., 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003)

⁶ Toro Co. v. Deere & Co., 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004)

⁷ Atlas Powder Co. v. Ireco, Inc., 190 F.3d 1342, 1348-49, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999)

⁸ Abbott Labs v. Geneva Pharms., Inc., 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed. Cir. 1999)

⁹ SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1343-44, 74 USPQ2d 1398, 1406-07 (Fed. Cir. 2005)

¹⁰ In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993)

¹¹ In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)

¹² Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1367, 71 USPQ2d 1081, 1091 (Fed. Cir. 2004)

¹³ Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Applicant's invention was directed to a biaxially oriented, flexible dilation catheter balloon (a tube which expands upon inflation) used, for example, in clearing the blood vessels of heart patients). The examiner applied a US patent to Schjeldahl which disclosed injection molding a tubular preform and then injecting air into the preform to expand it against a mold (blow molding). The reference did not directly state that the end product balloon was biaxially oriented. It did disclose that the balloon was formed from a thin flexible inelastic, high tensile strength, biaxially oriented synthetic plastic material. The examiner argued that Schjeldahl's balloon was inherently biaxially oriented. The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.

¹⁴ In re Schreiber, 128 F.3d 1473, 44 USPQ2d 1429 (Fed. Cir. 1997). A prior patent to a conical spout used primarily to dispense oil from an oil can inherently performed the functions recited in applicant's claim to a conical container top for dispensing popped popcorn. The examiner had asserted inherency based on the structural similarity between the patented spout and applicant's disclosed top, i.e., both structures had the same general shape. The court stated that nothing in Schreiber's applicant's claim suggests that Schreiber's container is of a 'different shape' than Harz's patent. In fact, embodiments according to Fig. 5 of Harz and Fig. 1 of Schreiber's application have the same general shape. For that reason, the examiner was justified in concluding that the opening of a conically shaped top as disclosed by Harz is inherently of a size sufficient to 'allow several kernels of popped popcorn to pass through at the same time' and that the taper of Harz's conically shaped top is inherently of such a shape 'as to by itself jam up the popped popcorn before the end of the cone and permit the dispensing of only a few kernels at a shake of a package when the top is mounted to the container.' The examiner therefore correctly found that Harz established a prima facie case of anticipation.

¹⁵ MPEP § 2112(IV)

¹⁶ MPEP § 2112(IV)

¹⁷ id

¹⁸ In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)

¹⁹ Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

²⁰ In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)

²¹ In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977)

²² In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

²³ In re Hack, 245 F.2d 246, 248, 114 USPQ 161, 163 (CCPA 1957)

Issue 133

5117 Kali Era, MANMADHA Year, VAISAKHA Month
2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month
1937 Salivahana Era, MANMADHA Year, VAISAKHA Month
2015 AD, MAY
(Published online JUNE 1, 2015)



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VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

²⁴ *In re May*, 574 F.2d 1082, 1090, 197 USPQ 601, 607 (CCPA 1978); See also *In re Tomlinson*, 363 F.2d 928, 150 USPQ 623 (CCPA 1966)

²⁵ *In re King*, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986); See also *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)

²⁶ *id*

²⁷ *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976)

²⁸ *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420-21 (CCPA 1970); *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961); See also *In re Fox*, 471 F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973); *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001); *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979); *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973); *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963); *In re Chevenard*, 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943);

²⁹ Kaiser, *The Federal Circuit's Unbounded Conception Of Inherency In Patent Law*, 47 Loyola LA Law Review, 345 (2013). Available at: <http://digitalcommons.lmu.edu/llr/vol47/iss1/7>

³⁰ *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

³¹ *Viagra (sildenafil) relaxes muscles and increases blood flow to particular areas of the body. Sildenafil is a selective cGMP PDE inhibitor, first patented for use in the treatment of cardiovascular disorders such as angina, hypertension, heart failure and atherosclerosis (US 5,250,534 A); but failed in initial studies for use in hypertension (high blood pressure), angina pectoris and ischemic heart disease. However, a new treatment of impotence using sildenafil was obtained later (US6469012 B1).*

³² **WO 2015/035361 A2**: Claim 1. A process of forming a mar resistant organic material comprising: providing a substrate comprising a thermoplastic material, said substrate having a surface; infusing an adhesion promoter into said surface such that a first portion of said adhesion promoter penetrates said surface to form an infused substrate material, and a second portion of said adhesion promoter extends from said surface or is present at said surface, said first portion and said second portion covalently linked; and optionally depositing a mar resistant coating or hardcoat on said surface, said mar resistant coating or hardcoat adhering to said infused substrate material absent an intermediate layer.

WO 2015/035361 A3:

Claims 1-4, 6-8, 14 and 17 lack an inventive step under PCT Article 33(3) as being obvious over US 4,424,075 A (Schmidt).

Regarding claim 1, Schmidt discloses a process of forming a mar resistant organic material (Abstract, col 1, In 53-66; col 3, In 28-41); comprising: providing a substrate comprising a thermoplastic material (col 1, In 55: cellulose in all its . . . synthetic variations; [Note: claim requires a .thermoplastic material., and synthetic variations of cellulose are well-known thermoplastics and include for example celluloseester, which is a thermoplastic (see for example an article entitled, rheology of thermoplastic cellulose esters, by Krasnou et al. (hereinafter Krasnou) title: thermoplastic cellulose esters, pg 291, col 1, para 3; and an article entitled, Advances in cellulose ester performance and application, by Edgar et al. (hereinafter Edgar) pg 1635-1639, section 4.2; see also instant specification at para [0043]: For the preparation of . . . the compositions according to the invention . . . celluloseester . . .]);

infusing an adhesion promoter into said surface such that a first portion of said adhesion promoter penetrates said surface to form an infused substrate material (Abstract; col 3, In 28-41; col 4, In 44-46: n-butyl silanol; [Note: Naturally, adhesion agent penetrates or binds to the surface of the substrates through silicon portion (see instant claims 2-8 and 17: SiO), and as a natural consequence of the nature of adhesion agent alkyl silanol such as butylsilanol which has SiO groups (see instant claims 2-8 and 17: SiO) that penetrate the substrate through chemical bonding (instant claims 2-8 and 17: SiO))];

and a second portion of said adhesion promoter is present at said surface, said first portion and said second portion covalently linked (col 3, In 28-41; col 4, In 44-46: n-butyl silanol; [Note: adhesion agent penetrates the surface binding through SiO portion (claims 1-8: SiO), leaving hydrophobic alkyl portion extending from the surface (see claims 2-8 and 17: hydrophobic organic tail is butyl = C4-alkyl), as a natural consequence of the nature of adhesion agent, for example, an alkyl silanol such as butylsilanol (see instant claims 2-8 and 17: butylsilanol))];

Issue 133

5117 Kali Era, MANMADHA Year, VAISAKHA Month
2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month
1937 Salivahana Era, MANMADHA Year, VAISAKHA Month
2015 AD, MAY
(Published online JUNE 1, 2015)



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VEPACHEDU EDUCATIONAL FOUNDATION

The Andhra Journal of Industrial News

IP and Industry News

said first portion (col 4, In 44-46: n-butyl silanol:
[Note: the first portion of n-butyl silanol is silanol group; see instant claims 2-4 and 17: SiO, butyl silanol])

and said second portion (col 4, In 44-46: n-butyl silanol:
[Note: the second portion of n-butyl silanol is n-butyl group; see instant claims 2-8 and 17: hydrophobic organic tail is butyl = C4-alkyl])

covalently linked (col 4, In 44-46: n-butyl silanol:
[Note: the first portion silanol group and the second portion n-butyl group are covalently linked through a bond between carbon of butyl group and SiO to form "butyl-silanol" wherein "-" is a covalent link; see instant claims 2-8 and 17: butyl silanol]);

However, Schmidt fails to use the convoluted language comprising basic organic chemistry terms and other alternative terms such as covalent bond, infuse, penetrate, extend etc., and yet it would have been inherently obvious to a person having ordinary skill in basic organic chemistry to understand that SiO binds/penetrates the surface leaving hydrophobic butyl tail group hanging at said surface for it is covalently linked to SiO; because silanol forms a bond with the surface through SiO and hydrophobic butyl group does not participate in the reaction lacking any active groups to bond/penetrate with; and further it would be obvious to a person having ordinary skill in any art to know that when a substrate is immersed in a solvent the substrate would be infused with the solvent, e.g., a tea bag immersed in water would infuse water into the tea bag, and accordingly, the polycarbonate substrate or sa synthetic cellulose thermoplastic substrate when immersed in butyl-silanol solution, it would be infused with butyl-silanol solution while silanol penetrates/binds/links to the thermoplastic substrates, the butyl hydrophobic groups stays unreacted at the surface.

³³ Affidavits or Declarations Traversing Rejections, 37 CFR 1.132 ; Objective Evidence of Nonobviousness; Available at: <http://www.uspto.gov/web/offices/pac/mpep/s716.html>

³⁴ 35 USC § 103: A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

³⁵ The International Preliminary Examination, Article 33 (3) For the purposes of the international preliminary examination, a claimed invention shall be considered to involve an inventive step if, having regard to the prior art as defined in the Regulations, it is not, at the prescribed relevant date, obvious to a person skilled in the art.

³⁶ In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995); See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983).

³⁷ Par Pharmaceutical v. TWI Pharmaceuticals, Inc.

³⁸ 35 USC § 103: A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

³⁹ Graham v. John Deere Co. of Kan. City, 383 U.S. 1, 17-18 (1966)

⁴⁰ Union Carbide Corp. v. Am. Can Co., 724 F.2d 1567 (Fed. Cir. 1984)

⁴¹ KSR Intl. v. Teleflex, Inc.

⁴² In re Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002)

⁴³ Id. at 415, 82 USPQ2d at 1395

⁴⁴ Id. at 415-16, 82 USPQ2d at 1395

⁴⁵ Id. at 416, 82 USPQ2d at 1395

⁴⁶ Id

⁴⁷ Id. at 416-17, 82 USPQ2d at 1395

⁴⁸ Sakraida v. AG Pro, Inc. at 417, 82 USPQ2d at 1395-96

⁴⁹ The KSR Decision and Principles of the Law of Obviousness: <http://www.uspto.gov/web/offices/pac/mpep/s2141.html>

⁵⁰ Id. at 417, 82 USPQ2d at 1396

⁵¹ Id

⁵² Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)

⁵³ Id. at 17-18, 148 USPQ at 467

⁵⁴ KSR, 550 U.S. at 406-07, 82 USPQ2d at 1391 (2007)

Issue 133	5117 Kali Era, MANMADHA Year, VAISAKHA Month 2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month 1937 Salivahana Era, MANMADHA Year, VAISAKHA Month 2015 AD, MAY (Published online JUNE 1, 2015)
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The Andhra Journal of Industrial News

IP and Industry News

⁵⁵ See *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 189 USPQ 449, reh'g denied, 426 U.S. 955 (1976); *Dann v. Johnston*, 425 U.S. 219, 189 USPQ 257 (1976); and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 163 USPQ 673 (1969).

⁵⁶ *KSR*, 550 U.S. at 407, 82 USPQ2d at 1391.

In Perfect Web Technologies, Inc. v. Info USA, Inc., 587 F.3d 1324, 1329, 92 USPQ2d 1849, 1854 (Fed. Cir. 2009)

⁵⁷ *In Perfect Web Technologies, Inc. v. Info USA, Inc.*, 587 F.3d 1324, 1329, 92 USPQ2d 1849, 1854 (Fed. Cir. 2009)

⁵⁸ *In re Bruce Beasley* (Fed. Cir. December 7, 2004)

⁵⁹ *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782 (Fed. Cir. 1995)

⁶⁰ *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565 (Fed. Cir. 1986)

⁶¹ *Application Spooman*, 363 F.2d 444, 448 (CCPA 1966)

⁶² The Federal Circuit's en banc decision in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005)

The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827, 1830] (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must "conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description." 37 CFR 1.75(d)(1).

"Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875, 69 USPQ2d 1865, 1868 (Fed. Cir. 2004). See also *Liebel-Flarsheim Co. v. Medrad Inc.*, 358 F.3d 898, 906, 69 USPQ2d 1801, 1807 (Fed. Cir. 2004) (discussing recent cases wherein the court expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment); *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) ("Interpretation of descriptive statements in a patent's written description is a difficult task, as an inherent tension exists as to whether a statement is a clear lexicographic definition or a description of a preferred embodiment. The problem is to interpret claims 'in view of the specification' without unnecessarily importing limitations from the specification into the claims."); *Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371, 65 USPQ2d 1865, 1869-70 (Fed. Cir. 2003) (Although the specification discussed only a single embodiment, the court held that it was improper to read a specific order of steps into method claims where, as a matter of logic or grammar, the language of the method claims did not impose a specific order on the performance of the method steps, and the specification did not directly or implicitly require a particular order). See also subsection IV., below. When an element is claimed using language falling under the scope of 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, 6th paragraph (often broadly referred to as means- (or step-) plus- function language), the specification must be consulted to determine the structure, material, or acts corresponding to the function recited in the claim. *In re Donaldson*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994) (see MPEP § 2181- MPEP § 2186).

⁶³ Indian Professors Accuse Industry: <http://www.biospace.com/News/professors-accuse-industry-of-ignoring-varsity/375105>

Issue 133

5117 Kali Era, MANMADHA Year, VAISAKHA Month
2073 Vikramarka Era, MANMADHA Year, VAISAKHA Month
1937 Salivahana Era, MANMADHA Year, VAISAKHA Month
2015 AD, MAY
(Published online JUNE 1, 2015)

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