

Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under [35 U.S.C. 103](#) should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006); see also *KSR*, 550 U.S. at 418, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval).

It remains true that "[t]he determination of obviousness is dependent on the facts of each case." *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1089, 89 USPQ2d 1370, 1379 (Fed. Cir. 2008) (citing *Graham*, 383 U.S. at 17-18, 148 USPQ 459, 467 (1966)). If the examiner determines there is factual support for rejecting the claimed invention under [35 U.S.C. 103](#), the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under [35 U.S.C. 103](#), the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.

When an applicant properly submits evidence, whether in the specification as originally filed, prior to a rejection, or in reply to a rejection, the examiner must consider the patentability of the claims in light of the evidence. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection

in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

See *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984) for a discussion of the proper roles of the examiner's *prima facie* case and applicant's rebuttal evidence in the final determination of obviousness.

### **2143 Examples of Basic Requirements of a *Prima Facie* Case of Obviousness [R-10.2019]**

[Editor Note: This MPEP section is **applicable** to applications subject to the first inventor to file (FITF) provisions of the AIA except that the relevant date is the "effective filing date" of the claimed invention instead of the "time of the invention" or "time the invention was made," which are only applicable to applications subject to [pre-AIA 35 U.S.C. 102](#). See [35 U.S.C. 100 \(note\)](#) and [MPEP § 2150 et seq.](#)]

The Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421, 82 USPQ2d 1385, 1395-97 (2007) identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in *Graham*. The key to supporting any rejection under [35 U.S.C. 103](#) is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under [35 U.S.C. 103](#) should be made explicit. In *Ball Aerosol v. Ltd. Brands*, 555 F.3d 984, 89 USPQ2d 1870 (Fed. Cir. 2009), the Federal Circuit offered additional instruction as to the need for an explicit analysis. The Federal Circuit explained that the Supreme Court's requirement for an explicit analysis does not require record evidence of an explicit teaching of a motivation to combine in the prior art.

"[T]he analysis that "should be made explicit" refers not to the teachings in the prior art of a motivation to combine, but to the court's analysis. . . . Under

the flexible inquiry set forth by the Supreme Court, the district court therefore erred by failing to take account of 'the inferences and creative steps,' or even routine steps, that an inventor would employ and by failing to find a motivation to combine related pieces from the prior art." *Ball Aerosol*, 555 F.3d at 993, 89 USPQ2d at 1877.

The Federal Circuit's directive in *Ball Aerosol* was addressed to a lower court, but it applies to Office personnel as well. When setting forth a rejection, Office personnel are to continue to make appropriate findings of fact as explained in [MPEP § 2141](#) and [§ 2143](#), and must provide a reasoned explanation as to why the invention as claimed would have been obvious to a person of ordinary skill in the art at the time of the invention. This requirement for explanation remains even in situations in which Office personnel may properly rely on common sense or ordinary ingenuity. *In re Van Os*, 844 F.3d 1359, 1361, 121 USPQ2d 1209, 1211 (Fed. Cir. 2017) ("Absent some articulated rationale, a finding that a combination of prior art would have been 'common sense' or 'intuitive' is no different than merely stating the combination 'would have been obvious.'").

## I. EXEMPLARY RATIONALES

Examples of rationales that may support a conclusion of obviousness include:

- (A) Combining prior art elements according to known methods to yield predictable results;
- (B) Simple substitution of one known element for another to obtain predictable results;
- (C) Use of known technique to improve similar devices (methods, or products) in the same way;
- (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (E) "Obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Note that the list of rationales provided is not intended to be an all-inclusive list. Other rationales to support a conclusion of obviousness may be relied upon by Office personnel. Any rationale employed must provide a link between the factual findings and the legal conclusion of obviousness.

It is important for Office personnel to recognize that when they do choose to formulate an obviousness rejection using one of the rationales suggested by the Supreme Court in *KSR* and discussed herein, they are to adhere to the guidance provided regarding the necessary factual findings. It remains Office policy that appropriate factual findings are required in order to apply the enumerated rationales properly.

The subsections below include discussions of each rationale along with examples illustrating how the cited rationales may be used to support a finding of obviousness. Some examples use the facts of pre-*KSR* cases to show how the rationales suggested by the Court in *KSR* may be used to support a finding of obviousness. The cases cited (from which the facts were derived) may not necessarily stand for the proposition that the particular rationale is the basis for the court's holding of obviousness, but they do illustrate consistency of past decisions with the lines of reasoning laid out in *KSR*. Other examples are post-*KSR* decisions that show how the Federal Circuit has applied the principles of *KSR*. Cases are included that illustrate findings of obviousness as well as nonobviousness. Note that, in some instances, a single case is used in different subsections to illustrate the use of more than one rationale to support a finding of obviousness. It will often be the case that, once the *Graham* inquiries have been satisfactorily resolved, a conclusion of obviousness may be supported by more than one line of reasoning.

### ***A. Combining Prior Art Elements According to Known Methods To Yield Predictable Results***

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual

inquiries. Then, Office personnel must articulate the following:

(1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;

(2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;

(3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art. *KSR*, 550 U.S. at 416, 82 USPQ2d at 1395; *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62-63, 163 USPQ 673, 675 (1969); *Great Atl. & P. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152, 87 USPQ 303, 306 (1950). “[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR*, 550 U.S. at 418, 82 USPQ2d at 1396. If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art.

#### Example 1:

The claimed invention in *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 163 USPQ 673 (1969) was a paving machine which combined several well-known elements onto a single chassis. Standard prior art paving machines

typically combined equipment for spreading and shaping asphalt onto a single chassis. The patent claim included the well-known element of a radiant-heat burner attached to the side of the paver for the purpose of preventing cold joints during continuous strip paving. The prior art used radiant heat for softening the asphalt to make patches, but did not use radiant heat burners to achieve continuous strip paving. All of the component parts were known in the prior art. The only difference was the combination of the “old elements” into a single device by mounting them on a single chassis. The Court found that the operation of the heater was in no way dependent on the operation of the other equipment, and that a separate heater could also be used in conjunction with a standard paving machine to achieve the same results. The Court concluded that “[t]he convenience of putting the burner together with the other elements in one machine, though perhaps a matter of great convenience, did not produce a ‘new’ or ‘different function’” and that to those skilled in the art the use of the old elements in combination would have been obvious. *Id.* at 60, 163 USPQ at 674.

Note that combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art. *United States v. Adams*, 383 U.S. 39, 51-52, 148 USPQ 479, 483-84 (1966). In *Adams*, the claimed invention was to a battery with one magnesium electrode and one cuprous chloride electrode that could be stored dry and activated by the addition of plain water or salt water. Although magnesium and cuprous chloride were individually known battery components, the Court concluded that the claimed battery was nonobvious. The Court stated that “[d]espite the fact that each of the elements of the Adams battery was well known in the prior art, to combine them as did Adams required that a person reasonably skilled in the prior art must ignore” the teaching away of the prior art that such batteries were impractical and that water-activated batteries were successful only when combined with electrolytes detrimental to the use of magnesium electrodes. *Id.* at 42-43, 50-52, 148 USPQ at 480, 483. “[w]hen the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious.” *KSR*, 550 U.S. at 416, 82 USPQ2d at 1395.

#### Example 2:

The claimed invention in *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 69 USPQ2d 1686 (Fed. Cir. 2004) was directed to a system which employs a screw anchor for underpinning existing foundations and a metal bracket to transfer the building load onto the screw anchor. The prior art (Fuller) used screw anchors for underpinning existing structural foundations. Fuller used a concrete haunch to transfer the load of the foundation to the screw anchor. The prior art (Gregory) used a push pier for underpinning existing structural foundations. Gregory taught a method of transferring load using a bracket, specifically: a metal bracket transfers the foundation load to the push pier. The pier is driven into the ground to support the load. Neither reference showed the two elements of the claimed invention – screw anchor and metal bracket – used together. The court found that “artisans knew that a foundation underpinning system requires a means of connecting the foundation to the load-bearing member.” *Id.* at 1276, 69 USPQ2d at 1691.