

~~4. Both Justice Kennedy and Justice Stevens present opinions that express concern for the effects of providing patent protection for methods of doing business. Justice Stevens, however, uses notions of impact on innovation and competition to a greater degree in his arguments that business methods should not be patentable. Does the opinion by Justice Kennedy, which is given in full, address these concerns? To what extent do you think Justice Stevens' concerns are correct, or do you think that they are overstated?~~

~~5. *Processes Based on Laws of Nature or Natural Phenomena.* In *Bilski*, the question was whether the claimed commodity hedging process was too abstract to meet eligible subject matter. Process claims for other types of inventions often depend on natural principles. Just as the claim in *Bilski* was too abstract, a process claim can be too close to a natural principle to be eligible subject matter. In *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012), the claim at issue was to a process based on how the human body metabolizes certain drugs. Upon ingesting the drug, the body generates metabolites, which are detectable in the blood stream. The claimed method recited a process of (1) administering the drug, (2) detecting the level of metabolites, and based on discovered correlations, (3) increasing or decreasing the amount of the drug additionally administered. The claimed process did not meet eligible subject matter under section 101:~~

~~[T]o consider the three steps as an ordered combination adds nothing to the laws of nature that is not already present when the steps are considered separately. . . . Anyone who wants to make use of these laws must first administer a thiopurine drug and measure the resulting metabolite concentrations, and so the combination amounts to nothing significantly more than an instruction to doctors to apply the applicable laws when treating their patients.~~

~~The upshot is that the three steps simply tell doctors to gather data from which they may draw an inference in light of the correlations. To put the matter more succinctly, the claims inform a relevant audience about certain laws of nature; any additional steps consist of well understood, routine, conventional activity already engaged in by the scientific community; and those steps, when viewed as a whole, add nothing significant beyond the sum of their parts taken separately. For these reasons we believe that the steps are not sufficient to transform unpatentable natural correlations into patentable applications of those regularities.~~

~~*Mayo Collaborative Servs.*, at 1298.~~

## § 7.02                      Utility

Useful technology in the public domain is a desired result of the patent system, but why is mere utility required instead of better or best utility?

The utility requirement comes from variants of the word “use” in two locations in the statute. Section 101 authorizes the issuance of patents for “useful” products and processes otherwise meeting patent law’s requirements. The enablement requirement in § 112(a) requires sufficient disclosure about “making and using” so that a POSITA can “make and use” the invention. The

patent applicant must be able to show a utility at the time of filing. This is typically proven through some combination of disclosure in the application coupled with proving what a typical POSITA would know at the time of filing. In other words, the state of knowledge in the field at the time of filing is relevant to the utility inquiry in close cases, of which there are very few.

Inherent in the notion of “making and using” is that the invention has a use and can be used. This straightforward proposition, however, breaks down when one considers possible uses in isolation from the disclosed purpose of the invention.

For example, consider a hypothetical invention approximately the size and shape of a 12 ounce soda can. The hypothetical disclosure in the patent describes the invention as a scale that can weigh objects to a very high precision, in units as small as one-millionth of an ounce.

Assume that a POSITA constructs the claimed scale. If the scale will not weigh objects at all, we might say that it is inoperable. It does not actually do what the disclosure says it will do in any way. This invention does not meet the utility requirement because it cannot be used in a way related to its purpose. Sometimes the PTO receives applications for fantastic inventions, such as perpetual motion machines, for which it is a scientific impossibility that they are operable, and these applications are therefore rejected for lacking utility because they are inoperable.

Assume further that the inventor placed the following line in the specification: “In addition to its uses and purposes disclosed herein, the scale makes a very attractive desktop paper weight.” None of the claims relate to this functionality. If the device did not work at all as a scale, it would seem a cheap loophole to allow the invention to pass the utility requirement based on this statement. This is called a “throw-away” utility: the device is only good for uses that anything with weight or mass can provide. Another example is using millions of units of the device as “landfill”—to fill up a big hole in the ground in order to perhaps construct a building on the site. These examples may seem silly, but the “throw-away” utility concept is in documents the PTO provided to its examiners about when to issue utility rejections.

Change the hypothetical so that the scale is specifically envisioned by its disclosure to weigh illegal narcotics to very precise amounts. Assume that it does this very well and will not weigh anything else with precision. Should the PTO issue such a patent? Should the courts deem that such a use meets the utility requirement? This issue is often referred to as beneficial or moral utility, a waning doctrine that is the subject of the case below.

Change the hypothetical so that the claims, in addition to the disclosure, specify the ability to weigh objects in a precision of up to one-millionth of an ounce. Further, assume that once constructed the scale will only weigh objects to a precision of one-tenth of an ounce (please note the enablement problem likely facing the invention<sup>N.#</sup>). First, we might say that the constructed scale has general utility. It does *some* weighing. Even an invention that is a toy device for amusement that merely twirls and twitches does *something*, and in that sense has what is sometimes called general utility. We might also say that the constructed scale provides an immediate, real-world benefit: it has a practical use.

This notion, of real-world, practical benefit at the time of filing, is typically called substantial utility. And while the constructed scale provides a substantial benefit (weighting to a tenth of an

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<sup>N</sup> N.# The claims are likely not enabled because they specify weighing to one-millionth of an ounce, whereas after making the scale from the disclosure, it weighs objects only to a precision of one-tenth of an ounce. See § 6.02.

ounce is useful), the invention has a problem meeting the utility requirement when evaluated against the claims. The invention cannot meet the notion of specific utility because the constructed scale will not weigh objects to the claimed precision. A separate example is from the PTO's utility guidelines: "a claim to a polynucleotide whose use is disclosed simply as a "gene probe" or "chromosome marker" would not be considered to be specific in the absence of a disclosure of a specific DNA target." UNITED STATES PATENT & TRADEMARK OFFICE, REVISED INTERIM UTILITY GUIDELINES TRAINING MATERIALS 5 (1999), <http://www.uspto.gov/web/menu/utility.pdf>. A further contour for specific utility is that it is not met when an application discloses a use that is "so vague as to be meaningless." *In re Fisher*, 421 F.3d 1365, 1371 (Fed. Cir. 2005). There must be a "well-defined and particular benefit to the public." REVISED INTERIM UTILITY GUIDELINES, *supra*, at 5.

Another concept used in relation to the utility requirement is "credible" utility. This is whether assertions of utility are believable to a POSITA.

In sum, there is an adjective soup of modifiers used in relation to the utility requirement. Such is the list: throw-away, inoperable; beneficial, moral; general, practical, real-world, substantial; specific; credible; or well-established. The last, "well-established," is defined by the PTO to mean a utility that is "a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art."

The adjective soup, however, breaks down into these conceptual areas: (i) operability; (ii) beneficial/moral utility; (iii) immediate benefit to the public, i.e., substantial utility, with its synonyms of practical and real-world utility; (iv) specific utility, seeking to tie the utility to the claimed subject matter; and (v) credible utility, so that the utility is provable to a POSITA.

The device in the case below has no problems with operability, specific utility, or credible utility, but the district court judge questions whether its functionality provides a benefit. Alternatively, one could view the case from the perspective of the diminishing doctrine of beneficial/moral utility.

### **JUCY WHIP, INC. V. ORANGE BANG, INC.**

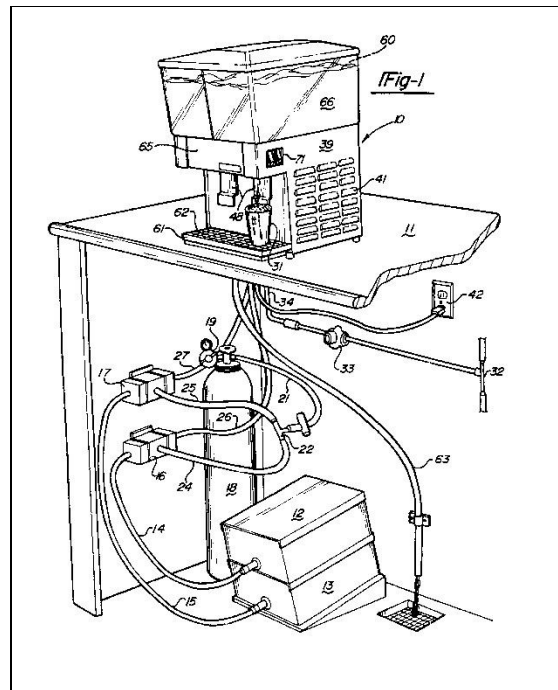
185 F.3d 1364 (Fed. Cir. 1999)

BRYSON, J.

Juicy Whip, Inc., is the assignee of United States Patent No. 5,575,405, which is entitled "Post-Mix Beverage Dispenser with an Associated Simulated Display of Beverage." A "post-mix" beverage dispenser stores beverage syrup concentrate and water in separate locations until the beverage is ready to be dispensed. The syrup and water are mixed together immediately before the beverage is dispensed, which is usually after the consumer requests the beverage. In contrast, in a "pre-mix" beverage dispenser, the syrup concentrate and water are pre-mixed and the beverage is stored in a display reservoir bowl until it is ready to be dispensed. The display bowl is said to stimulate impulse buying by providing the consumer with a visual beverage display. A pre-mix display bowl, however, has a limited capacity and is subject to contamination by bacteria. It therefore must be re-filled and cleaned frequently.

The invention claimed in the '405 patent is a post-mix beverage dispenser that is designed to look like a pre-mix beverage dispenser. The claims require the post-mix dispenser to have a

transparent bowl that is filled with a fluid that simulates the appearance of the dispensed beverage and is resistant to bacterial growth. The claims also require that the dispenser create the visual impression that the bowl is the principal source of the dispensed beverage, although in fact the beverage is mixed immediately before it is dispensed, as in conventional post-mix dispensers.



[ '405 patent figure ]

Claim 1 is representative of the claims at issue. It reads as follows:

In a post-mix beverage dispenser of the type having an outlet for discharging beverage components in predetermined proportions to provide a serving of dispensed beverage, the improvement which comprises:

a transparent bowl having no fluid connection with the outlet and visibly containing a quantity of fluid;

said fluid being resistant to organic growth and simulating the appearance of the dispensed beverage;

said bowl being positioned relative to the outlet to create the visual impression that said bowl is the reservoir and principal source of the dispensed beverage from the outlet; and

said bowl and said quantity of fluid visible within said bowl cooperating to create the visual impression that multiple servings of the dispensed beverage are stored within said bowl.

Juicy Whip sued [Orange Bang] in the United States District Court for the Central District of California, alleging that [it was] infringing the claims of the '405 patent. Orange Bang moved for summary judgment of invalidity, and the district court granted Orange Bang's motion on the ground that the invention lacked utility and thus was unpatentable under 35 U.S.C. § 101.

The court concluded that the invention lacked utility because its purpose was to increase sales by deception, i.e., through imitation of another product. The court explained that the purpose of the invention “is to create an illusion, whereby customers believe that the fluid contained in the bowl is the actual beverage that they are receiving, when of course it is not.” Although the court acknowledged Juicy Whip’s argument that the invention provides an accurate representation of the dispensed beverage for the consumer’s benefit while eliminating the need for retailers to clean their display bowls, the court concluded that those claimed reasons for the patent’s utility “are not independent of its deceptive purpose, and are thus insufficient to raise a disputed factual issue to present to a jury.” The court further held that the invention lacked utility because it “improves the prior art only to the extent that it increases the salability of beverages dispensed from post-mix dispensers”; an invention lacks utility, the court stated, if it confers no benefit to the public other than the opportunity for making a product more salable. Finally, the court ruled that the invention lacked utility because it “is merely an imitation of the pre-mix dispenser,” and thus does not constitute a new and useful machine.

Section 101 of the Patent Act of 1952, 35 U.S.C. § 101, provides that “whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof,” may obtain a patent on the invention or discovery. The threshold of utility is not high: An invention is “useful” under section 101 if it is capable of providing some identifiable benefit.

To be sure, since Justice Story’s opinion in *Lowell v. Lewis*, 15 F. Cas. 1018 (C.C.D. Mass. 1817), it has been stated that inventions that are “injurious to the well-being, good policy, or sound morals of society” are unpatentable. As examples of such inventions, Justice Story listed “a new invention to poison people, or to promote debauchery, or to facilitate private assassination.” Courts have continued to recite Justice Story’s formulation, but the principle that inventions are invalid if they are principally designed to serve immoral or illegal purposes has not been applied broadly in recent years. For example, years ago courts invalidated patents on gambling devices on the ground that they were immoral, but that is no longer the law.

In holding the patent in this case invalid for lack of utility, the district court relied on two Second Circuit cases dating from the early years of this century, *Rickard v. Du Bon*, 103 F. 868 (2d Cir. 1900), and *Scott & Williams, Inc. v. Aristo Hosiery Co.*, 7 F.2d 1003 (2d Cir. 1925). In the *Rickard* case, the court held invalid a patent on a process for treating tobacco plants to make their leaves appear spotted. At the time of the invention, according to the court, cigar smokers considered cigars with spotted wrappers to be of superior quality, and the invention was designed to make unspotted tobacco leaves appear to be of the spotted—and thus more desirable—type. The court noted that the invention did not promote the burning quality of the leaf or improve its quality in any way; “the only effect, if not the only object, of such treatment, is to spot the tobacco, and counterfeit the leaf spotted by natural causes.”

The *Aristo Hosiery* case concerned a patent claiming a seamless stocking with a structure on the back of the stocking that imitated a seamed stocking. The imitation was commercially useful because at the time of the invention many consumers regarded seams in stockings as an indication of higher quality. The court noted that the imitation seam did not “change or improve the structure or the utility of the article,” and that the record in the case justified the conclusion that true seamed stockings were superior to the seamless stockings that were the subject of the patent. “At best,” the court stated, “the seamless stocking has imitation marks for the purposes of

deception, and the idea prevails that with such imitation the article is more salable.” That was not enough, the court concluded, to render the invention patentable.

We decline to follow *Rickard* and *Aristo Hosiery*, as we do not regard them as representing the correct view of the doctrine of utility under the Patent Act of 1952. The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility.

It is not at all unusual for a product to be designed to appear to viewers to be something it is not. For example, cubic zirconium is designed to simulate a diamond, imitation gold leaf is designed to imitate real gold leaf, synthetic fabrics are designed to simulate expensive natural fabrics, and imitation leather is designed to look like real leather. In each case, the invention of the product or process that makes such imitation possible has “utility” within the meaning of the patent statute, and indeed there are numerous patents directed toward making one product imitate another. *See, e.g.*, U.S. Pat. No. 5,762,968 (method for producing imitation grill marks on food without using heat); U.S. Pat. No. 5,899,038 (laminated flooring imitating wood); U.S. Pat. No. 5,571,545 (imitation hamburger). Much of the value of such products resides in the fact that they appear to be something they are not. Thus, in this case the claimed post-mix dispenser meets the statutory requirement of utility by embodying the features of a post-mix dispenser while imitating the visual appearance of a pre-mix dispenser.

The fact that customers may believe they are receiving fluid directly from the display tank does not deprive the invention of utility. Orange Bang has not argued that it is unlawful to display a representation of the beverage in the manner that fluid is displayed in the reservoir of the invention, even though the fluid is not what the customer will actually receive. Moreover, even if the use of a reservoir containing fluid that is not dispensed is considered deceptive, that is not by itself sufficient to render the invention unpatentable. The requirement of “utility” in patent law is not a directive to the Patent and Trademark Office or the courts to serve as arbiters of deceptive trade practices. Other agencies, such as the Federal Trade Commission and the Food and Drug Administration, are assigned the task of protecting consumers from fraud and deception in the sale of food products. *Cf. In re Watson*, 517 F.2d 465, 474-76 (C.C.P.A. 1975) (stating that it is not the province of the Patent Office to determine, under section 101, whether drugs are safe). As the Supreme Court put the point more generally, “Congress never intended that the patent laws should displace the police powers of the States, meaning by that term those powers by which the health, good order, peace and general welfare of the community are promoted.”

Of course, Congress is free to declare particular types of inventions unpatentable for a variety of reasons, including deceptiveness. *Cf.* 42 U.S.C. § 2181(a) (exempting from patent protection inventions useful solely in connection with special nuclear material or atomic weapons). Until such time as Congress does so, however, we find no basis in section 101 to hold that inventions can be ruled unpatentable for lack of utility simply because they have the capacity to fool some members of the public. The district court therefore erred in holding that the invention of the ’405 patent lacks utility because it deceives the public through imitation in a manner that is designed to increase product sales.

## NOTES AND QUESTIONS

1. The utility requirement first demands that the claimed invention be operable. As mentioned in § 6.02, if an invention does not work at all, no one can use it, so it does not meet

either the utility or enablement requirement. Classic inoperable invention examples in patent law include things such as “cold fusion” devices and perpetual motion machines. With that being said, the utility threshold is not strict in U.S. patent law. An invention does not need to have a better or best utility. Put differently, utility is not about comparing the claimed invention’s market success characteristics to other technologies, or about estimating the potential future success. While success in the marketplace certainly proves that an invention is useful, such a high standard goes beyond the purpose of the utility requirement. As with most things in patent law, utility is measured through the perspective of the POSITA.

2. In 2005, the Federal Circuit decided an important case concerning molecular genetics and the utility requirement, touching upon both concepts of substantial utility and specific utility. *In re Fisher*, 421 F.3d 1365 (Fed. Cir. 2005). The issue was the utility of “expressed sequence tags” or “ESTs.” Genetic information is encoded in DNA via a four-letter alphabet composed of the four nucleotide bases adenine (A), cytosine (C), guanine (G) and thymine (T). ESTs are short sequences of nucleotides (several hundred, in this case). The claim at issue recited five ESTs from the maize genome, and the application discussed seven ways of using the claimed ESTs. The court affirmed the PTO’s rejection of the claim because “all of Fisher’s [seven] asserted uses represent merely hypothetical possibilities, objectives which the claimed ESTs, or any EST for that matter, could possibly achieve, but none for which they have been used in the real world.” Judge Rader dissented, arguing that the ESTs “are similar to a microscope; both take a researcher one step closer to identifying and understanding a previously unknown and invisible structure . . . . If a microscope has § 101 utility, so too do these ESTs.” The dissent further argued that the majority “acknowledge[d] that the ESTs perform a function, that they have a utility, but proceed quickly to a value judgment that the utility would not produce enough valuable information.” Is Judge Rader’s “one step closer” approach sufficient for the utility requirement? How would you limit such a principle? What effect would its implementation have on the timing of patent application filings? On the other hand, is there a concern that the PTO and courts will substantively judge the utility of inventions? What institutional considerations might limit such a practice?

3. *Beneficial/Moral Utility*. *Juicy Whip* is perhaps a final echo from patent law’s moral utility doctrine. Radar detectors for automobile travel seemed to have only one purpose: to break the law by traveling faster than the speed limit without detection. Should the moral utility doctrine preclude patents from issuing on radar detectors? Should patents be allowed to issue on such a technology? What are the pros and cons of using patent law to regulate technology based on moral considerations? As an institution, is the PTO well-suited for this function? The collective wisdom on these questions swept the moral utility doctrine out of modern patent law. Supporting this elimination is the lack of statutory support in 35 U.S.C. for the ideas inherent in the moral utility doctrine. As to radar detectors, today the utility assessment under a moral utility approach might be different because GPS technology broadened the useful functionality of radar detectors to include an audible warning that a low-speed zone was approaching, a law-abiding, not law-evading, use.

4. *Substantial Utility*. The low threshold of the utility requirement has an emphasis on a significant benefit available to the public at the time of filing. This benefit must be credible to a POSITA, meaning it is believable and commonly viewed by a POSITA as something of value. The test of substantial utility is a key to the policy effect of the requirement: it creates a disincentive to file the patent application too early. Similar to enablement among the disclosure

requirements, substantial utility means that an inventor must try to ensure that a POSITA would recognize the substantial utility based on the state of knowledge in the field at the time of filing the application. If no POSITA would say that there was any immediate benefit at the time of filing, then the claimed invention will fail the utility requirement even if two years after filing a utility is discovered. Later-discovered utility will not cure the application filed without one.

5. *Specific Utility*. In 1995 and 2001, the PTO issued guidelines concerning the utility requirement. Technically, these guidelines are for the PTO examiner corps in processing patent applications. The Federal Circuit is not bound by the PTO's proclamations. The 2001 utility guidelines emphasize that besides a general utility that relates to the broad purpose or objectives of the invention, there must be a specific utility for the claimed invention. The guidelines tightened somewhat the utility requirement before the PTO. What effect do you think a higher utility threshold has on the race to file? Are researchers more likely to file earlier, or delay to collect more information about uses of an invention, before filing?

6. *One Other Type of Transition Phrase—The Jepson Claim*. Unrelated to its role as a utility doctrine case, *Juicy Whip* presents a modification to the typical “comprising” transition phrase signaling an open-ended claim. The claim given in the case above is open-ended, but its transition phrase is “the improvement which comprises.” This is not an exact synonym with “comprising” as a transition phrase. The basic rule is that the phrase “the improvement comprising” admits that what comes before it (the material in the preamble) is prior art. Thus, in *Juicy Whip*, the claim is taken as an admission by the applicant that preexisting in the technology the following items were known: “post-mix beverage dispenser of the type having an outlet for discharging beverage components in predetermined proportions to provide a serving of dispensed beverage.” Typically, the Jepson Claim transition phrase is disfavored by those drafting claims, but it is used by some in certain narrow situations.

### ~~PROBLEMS~~

~~1. Alpha Co. discovers a new type of organic matter protein in the melting permafrost in Alaska. Using surface mining techniques, it can extract three gallons of the protein from an acre of melting permafrost if it scoops three feet deep. For every acre mined, it sells one gallon to ethanol research institutions under the name PermaProtein. The ethanol customers desire the protein in its natural state. Alpha takes the other two gallons and processes it into two liquid ounces of PermaProteinPlus, or P-cubed as the engineers like to call it. Medical schools purchase P-cubed for research. Besides its highly concentrated and purified form, the medical school researchers find that P-cubed works better in their reactors due to a slight modification to the protein molecule implemented by Alpha's purification process. Discuss whether PermaProtein or P-cubed will qualify as eligible subject matter under § 101.~~

~~2. Barney, a Ph.D. in socioeconomics, developed the HiveWiseInclination function. It uses two dozen demographic factors and one dozen responses from a survey administered to a human to measure that human's inclination to be attuned to group thinking about a subject. In other words, a high score from the function indicates someone who is “hive wise” someone who thinks about issues according to the common wisdom. The function consists of two pages of complex formulas. Before making any public disclosures about the function, Barney files a U.S. patent application with this claim: “A method of determining group affinity thinking comprising: (a) collecting demographic inputs; (b) collecting survey inputs; (c) calculating an affinity thinking index using the HiveWiseInclination function on two or more persons;~~