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CONCEPTION AND THE "ON SALE" BAR

DAVID W CARSTENS* and CRAIG ALLEN NARD**

I. INTRODUCTION

A corporation in need of an innovative solution has sent a request for proposals to a number of suppliers. Your client has responded with a bid proposal that discloses her inventive solution. Her solution is both novel and nonobvious. Your client is highly skilled in the art but has not yet reduced her invention to practice or tested it to determine its suitability. The proposal, although offered and held in confidence, was made over one year ago. Has your client waived her right to patent protection by placing her invention "on sale" with the bid proposal?

This scenario is both common and deserving of close attention. The Court of Appeals for the Federal Circuit in *UMC Electronics Co. v. United States*¹ and *RCA Corp. v. Data General Corp.*² probably would have precluded patent protection in this situation. Such a result, however, is uncertain at best in light of *Envirotech Corp. v. Westech Engineering, Inc.*³ and *Manville Sales Corp. v. Paramount Systems, Inc.*⁴, two cases in which the Federal Circuit appeared to back away from its earlier position. Does an "on sale" event occur with the submission of a proposal? What factors does the Federal Circuit consider in deciding this question? How should

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¹ 816 F.2d 647 (Fed. Cir. 1987) (holding that a patent was invalid because it had been on sale more than one year prior to the application date for a patent and that reduction to practice is not an absolute requirement of the "on sale" bar to patentability), cert. denied, 484 U.S. 1025 (1988).
² 887 F.2d 1056 (Fed. Cir. 1989) (holding a patent invalid due to the statutory "on sale" bar even though the offer to sell included experimental work).
³ 904 F.2d 1571 (Fed. Cir. 1990) (holding that a bid proposal was not an "on sale" event and that the patent was therefore not invalidated).
⁴ 917 F.2d 544 (Fed. Cir. 1990) (holding that a court must consider the totality of circumstances to determine whether an invention was on sale or in public use for more than one year prior to patent application so as to bar the patent).
you advise your client? How should any court analyze these cases in the future?

This Article will attempt to answer these questions in view of current case law and will propose a framework by which "on sale" events, including bid proposals, should be analyzed. This new test for "on sale" deemphasizes reduction to practice and introduces a dichotomy to the notion of conception: conception of embodiment and conception of result. We hope that our proposal will lead to more consistent and equitable holdings by the courts and more predictable results for inventors.

II. Development of the "On Sale" Doctrine

A. Statutory Basis

1. Section 102(b)

The United States allows an applicant a one-year grace period in which to file her patent application after offering her invention for sale, using the invention in public, or disclosing it in a printed publication. Section 102(b) of 35 U.S.C. provides: "A person shall be entitled to a patent unless . . . the invention was . . . on sale in this country, more than one year prior to the date of the application for patent in the United States . . . ." In the scenario described above, the question therefore remains whether the bid proposal placed the invention on sale in the United States prior to the "critical date," that is, more than one year prior to the filing date of the patent application. The standard used to decide this question has evolved significantly over the past century.

2. Legislative Policies Behind Section 102(b)

The policies behind the "on sale" bar were stated in General Electric Co. v. United States. The "on sale" bar supports a number of policies: 1) the "policy against removing inventions from the public which the public has justifiably come to believe are freely

5. See infra notes 251-65 and accompanying text.
7. Id.
8. See infra notes 35-176 and accompanying text.
available to all as a consequence of prolonged sales activity";\textsuperscript{10} 2) the "policy favoring prompt and widespread disclosure of new inventions to the public";\textsuperscript{11} 3) the policy against allowing the inventor to exploit the exclusivity of his invention substantially beyond the statutorily authorized seventeen-year period;\textsuperscript{12} and 4) the policy allowing the inventor "a reasonable amount of time following sales activity to determine whether a patent is a worthwhile investment."\textsuperscript{13} Because Congress has never defined what constitutes placing an invention on sale, the courts often have utilized these underlying policies to help frame the issues in cases dealing with the "on sale" bar.

\textbf{B. The "On Hand" Requirement}

A review of case law relating to the degree to which an invention must be completed in order to be placed on sale provides no consistent standard. Early court decisions generally adopted the strict requirement that a device must actually be produced and on hand for delivery to a purchaser prior to the critical date in order to be considered on sale.\textsuperscript{14} The rationale behind these decisions was that a device could not be sold or on sale until it was commercially available for delivery to a customer.\textsuperscript{15}

Some courts, however, began to create exceptions to the "on hand" requirement when the requirement seemed to be inconsistent with 35 U.S.C. § 102(b) or the public policy behind it.\textsuperscript{16} For example, section 102(b) clearly prohibits either a public disclosure or a printed publication of an invention prior to the critical date, regardless of whether the invention was on hand.\textsuperscript{17} Thus, no logical

\begin{itemize}
\item \textsuperscript{10} Id. at 61.
\item \textsuperscript{11} Id.
\item \textsuperscript{12} Id.
\item \textsuperscript{13} Id.
\item \textsuperscript{14} See Burke Elec. Co. v. Independent Pneumatic Tool Co., 232 F. 145 (2d Cir. 1916); McCreery Eng’g Co. v. Massachusetts Fan Co., 195 F. 498 (1st Cir. 1912).
\item \textsuperscript{15} See McCreery, 195 F. at 501.
\item \textsuperscript{17} See 35 U.S.C. § 102(b) (1988).
\end{itemize}
basis could be seen for permitting commercialization prior to the critical date simply because the invention was not on hand.\textsuperscript{18}

In \textit{Philco Corp. v. Admiral Corp.},\textsuperscript{19} the court analyzed the “on hand” requirement in depth and rejected it altogether, reasoning that solicitation, prior to the critical date, of an order for goods to be produced at a future date was a “competitive use”\textsuperscript{20} under section 102(b), but only if the inventor was sure of the character of the “finished product.”\textsuperscript{21} The Ninth Circuit similarly adopted the rule that the device could be on sale as long as a “workable prototype” had been constructed prior to the critical date.\textsuperscript{22}

Although the “on hand” requirement was gradually being replaced by the more lenient requirement that the invention must be reduced to a complete physical embodiment, the term “reduction to practice” had not yet been adopted.

\textbf{C. The “Reduction to Practice” Requirement}

As the “on hand” requirement lost merit, a new standard, the “reduction to practice” test, gained influence. This test was first put forth in \textit{Timely Products Corp. v. Arron}.\textsuperscript{23} In \textit{Timely Products}, the court reasoned that the “on hand” test was contrary to the policy underlying section 102(b) of preventing an inventor from keeping an invention secret while at the same time commercially exploiting it.\textsuperscript{24} In rejecting the “on hand” test, \textit{Timely Products} established the following three-part test for an “on sale” bar: 1) “[t]he complete invention claimed must have been embodied in or obvious in view of the thing offered for sale”;\textsuperscript{25} 2) “[t]he invention must have been tested sufficiently to verify that it is operable and commercially marketable”;\textsuperscript{26} and 3) “the sale must be primarily for profit rather than for experimental purposes.”\textsuperscript{27} The second

\textsuperscript{19} 199 F. Supp. 797.
\textsuperscript{20} Id. at 816.
\textsuperscript{21} Id. at 817.
\textsuperscript{22} Robbins Co. v. Lawrence Mfg. Co., 482 F.2d 426, 433 (9th Cir. 1973).
\textsuperscript{23} 523 F.2d 288 (2d Cir. 1975).
\textsuperscript{24} See id. at 301-02.
\textsuperscript{25} Id. at 302.
\textsuperscript{26} Id.
\textsuperscript{27} Id.
part precludes application of the “on sale” bar prior to the invention’s reduction to practice.

The requirement of an actual reduction to practice was thus substituted for the “on hand” requirement as the test for determining whether an invention was sufficiently complete to place it on sale.28 “Reduction to practice” is a term of art borrowed from interference practice,29 where it is employed to find the degree of completion of an invention necessary to prove priority of inventorship.30 This standard requires sufficient testing of the invention to verify that it would work for its intended purpose.31 Under *Timely Products*, this high standard of completion of an invention used in interference proceedings under section 102(g) was adopted and applied to “on sale” determinations under section 102(b).

However, the “reduction to practice” test is subject to criticism because it allows inventors to commercialize their inventions more than one year prior to filing, simply by avoiding an actual reduction to practice. In essence, it permits inventors prematurely to exploit their inventions commercially, thus extending the seventeen-year statutory period.32 The policies underlying section 102(b) primarily serve to protect society, because the public benefits from prompt disclosure of new and innovative inventions into the mar-

28. *Id.*
30. Reduction to practice can be considered to assume seven requirements:
   (a) The reduction . . . must have taken place in the United States.
   (b) The reduction to practice must have been made by the inventor himself, or by one authorized to do so either by the inventor or by one who acquired the inventor’s rights to the invention.
   (c) The invention must have been embodied in a physical or tangible form.
   (d) The physical embodiment of the invention, which is relied upon as the reduction to practice, must show every essential feature of the invention as defined in the count of the interference.
   (e) The reduction to practice must demonstrate the practicability or utility of the invention.
   (f) The reduction to practice must have been appreciated by the inventor at the time it was made.
   (g) The fact that the reduction to practice took place must be sufficiently corroborated in point of time.

31. *Id.*
As discussed below, the consumer's cognizance of the state of the invention is irrelevant with respect to application of the "on sale" bar. With that in mind, reduction to practice serves no purpose other than providing the inventor with a loophole to extend the seventeen-year statutory period legally, thus preventing expeditious disclosure of the invention for the benefit of society.

D. Federal Circuit Cases

Due to the prominence of the Federal Circuit in establishing the boundaries of patent law, a review of its holdings is necessary to understand the "on sale" bar. Numerous Federal Circuit opinions have been published discussing the "on sale" bar in depth. Each of these cases involved a different panel of three judges, and each panel analyzed the "on sale" bar differently. Some opinions placed great emphasis on reduction to practice, while others minimized its importance. In particular, the Federal Circuit in UMC Electronics Co. v. United States appeared to eliminate the requirement of reduction to practice entirely, leaving the "on sale" doctrine in disarray.

1. Cases Prior to UMC

In Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd., the Federal Circuit reconsidered the Timely Products "reduction to practice" standard. Barmag made machines that processed filament yarn and negotiated with Burlington Industries for the sale of a machine specially designed for Burlington's needs. Barmag completed construction of a machine in March

33. See supra notes 9-13 and accompanying text; infra notes 244-45 and accompanying text.
34. See infra text accompanying notes 223-29.
36. See infra appendix.
37. 816 F.2d 647.
38. Due to UMC's failure to provide adequate guidance, subsequent "on sale" cases have created more ambiguity than clarity. Id. at 656; see infra notes 74-100 and accompanying text.
39. 731 F.2d 831 (Fed. Cir. 1984).
40. Id. at 833.
1975 and sent a detailed price quotation for the machine to Burlington on April 8, 1975. Burlington personnel tested the machine from June 2, 1975 to June 16, 1975. On June 13, 1975, Barmag sent another detailed quotation to Burlington. Barmag then filed a patent application on June 30, 1976. The district court, applying the *Timely Products* three-part test, held that the invention was reduced to practice before June 30, 1975 and was clearly placed on sale by the quotations.

The Federal Circuit affirmed the district court, but pointed out that it did not adopt the *Timely Products* standard requiring reduction to practice for a section 102(b) bar. With respect to the issue of reduction to practice, the court held that it was immaterial that modifications were made in the machines actually delivered to Burlington, because none of these changes concerned limitations in the claims of the patent.

In *In re Caveney*, the court of appeals held that a sale or offer to sell must take place between separate entities in order to create an "on sale" bar. The patent application involved a one-piece cable tie that was designed to wrap around a bundle of wires to

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41. Id. at 834.
42. Id. at 834-35.
43. Id. at 835.
44. Id. at 833.
45. See supra text accompanying notes 23-34.
47. The court stated:
The *Timely Products* standard, while requiring less for "on sale" activity than the "on hand" test, is, nevertheless, restrictive in that an offer to sell, without the existence of a physical embodiment of what is offered, does not start the running of the time period. It is not difficult to conceive of a situation where, because commercial benefits outside the allowed time have been great, the technical requisite of *Timely Products* for a physical embodiment, particularly for a simple product, would defeat the statutory policy and we, therefore, do not adopt the *Timely Products* test as the answer in all cases. However, since the district court concluded that the test was met, and we agree, we need not consider whether a less stringent standard might be appropriate in this case.
48. Barmag, 731 F.2d at 837.
49. Id. at 838.
50. See id. at 676 citing Union Carbide Corp. v. Filtrol Corp., 170 U.S.P.Q. (BNA) 482 (C.D. Cal. 1971), aff'd, 179 U.S.P.Q. (BNA) 209 (9th Cir. 1973)).
secure them together; the subject application was filed on April 7, 1969. A competitor of the applicant, Bowthorpe-Hellerman Ltd. (B-H), initiated a public-use proceeding and alleged that its own patented cable tie, which was substantially similar to the applicant's claimed invention, had been on sale over one year prior to applicant's device. Specifically, on November 14, 1967, Insuloid Manufacturing Corp., a subsidiary of B-H, sent samples of the claimed invention for evaluation to Tyton Corp., a joint venture of which B-H owned forty-nine percent. Tyton placed an order setting forth prices and quantities on February 9, 1968—but the ties were not shipped until May 13, 1968—after the critical date.

The board that heard the public-use proceeding found Insuloid and Tyton to be separate entities whose relationship was equivalent to the relationship between a manufacturer and either a wholesaler or retailer. The Federal Circuit affirmed the board. The court defined a sale as “a contract between parties to give and to pass rights of property for consideration which the buyer pays or promises to pay the seller for the thing bought or sold.” Additionally, it noted that one cannot make a contract with oneself; thus, a sale can be made only between two separate entities. Insuloid (wholly controlled by B-H) and Tyton (controlled by its fifty-one percent owner, Ideal Industries) were separate entities. Tyton further exhibited its independence from Insuloid by deciding which Insuloid products it wanted to purchase.

51. Id. at 673.
52. Id.
53. Id. Section 102(b) does not require that the claimed invention be placed on sale by the applicant. See 35 U.S.C. § 102(b) (1988). The “on sale” bar to patentability also applies when the invention is sold by someone other than the applicant. Caveney, 761 F.2d at 676.
54. Caveney, 761 F.2d at 673-74.
55. Id. at 674. The court, relying on Barmag, held that an offer to sell was sufficient to create an “on sale” bar. See id. at 675.
56. Id. at 674. A dissenting member of the board asserted that Tyton resembled a marketing group in a large corporation that receives samples from other groups in the corporation. Id. These samples would not be the subject of an “on sale” bar. Id.
57. Id. at 673.
58. Id. at 676 (citing 77 C.J.S. Sales § 1 (1952)).
59. Id.; see JOHN D. CALAMARI & JOSEPH M. PERILLO, THE LAW OF CONTRACTS § 1-10, at 17 (3d ed. 1987) (“Every contract involves at least two contracting parties.”).
60. Caveney, 761 F.2d at 676.
61. Id.
The court also reviewed the policy considerations underlying the "on sale" bar, particularly the policy against removing from the public domain inventions that the public justifiably has come to believe are freely available. The court stated that the public is not limited to potential users of the invention, but includes members of the trade who would sell to potential customers. Thus, Tyton's belief that the product was in the public domain was sufficient to invoke the "on sale" bar.

In *Western Marine Electronics, Inc. v. Furuno Electric Co.*, the Federal Circuit examined the importance of the reduction to practice requirement in determining whether a device was on sale. The patented invention in question was a gravity-stabilized sonar device for use on fishing boats. Western Marine argued that because its device had not been mounted on a boat prior to the critical date, the device had not undergone testing sufficient to constitute a reduction to practice. Unwilling to create a rigid reduction to practice requirement, the court held that the invention was on sale prior to the critical date. The court stated that the "totality of the circumstances" determined whether the device was on sale and held that a letter to a potential customer was not an adequate substitute for physical use of the device.

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62. *Id.* (citing General Elec. Co. v. United States, 654 F.2d 55, 61 (Ct. Cl. 1981)).
63. *Id.*
64. *See id.*
65. 764 F.2d 840 (Fed. Cir. 1985).
66. *See id.* at 845.
67. *Id.* at 841.
68. *Id.* at 844.
69. *Id.*
70. *Id.* at 845.
71. *Id.*
72. The court stated:
   A determination of whether an invention has been placed on sale within the meaning of section 102(b) must be decided on the facts of each case. The court will want to consider the totality of circumstances relating to the character and extent of commercial activities, the type of invention and its stage of development along with the character and extent of bona-fide experimentation.

*Id.*

The court explained further:
Rigid standards are especially unsuited to the on sale provision where the policies underlying the bar, in effect, define it.
As a result, this court has been careful to avoid erecting rigid standards for section 102(b). While approving of the *Timely Products* criticism of the
before the critical date stating a selling price and estimating a delivery date was sufficient evidence of "on sale" activities.

2. UMC: The "Substantial Embodiment" Requirement

In UMC Electronics Co. v. United States, the Federal Circuit, although recognizing the shortcomings of the reduction to practice analysis, fashioned an equally imperfect and vague "on sale" analysis. The court considered to be an "on sale" event a bid for a government contract to supply at a specified price a device falling within the claims of the patent, even though the patentee had not built or tested the device before the critical date. The device, an aviation counting accelerometer (ACA), senses and records the number of times an aircraft has been subjected to predetermined levels of acceleration. Dissatisfied with existing ACAs, the United States Navy contacted UMC in 1966 and awarded UMC a contract to supply ACAs; the Navy, however, became dissatisfied with UMC's models as well. To avoid losing the Navy contract, UMC designed and tested an engineering prototype of a new ACA in April and May of 1967. Two months later, the Navy requested proposals from contractors to deliver ACAs built to a new specification, and UMC submitted its bid on July 27, 1967. The bid included a price quote and brief description of the proposed device. On August 2, 1967, UMC submitted a more detailed descrip-

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73. Id. at 844 (citations omitted).
75. See id. at 652-57.
76. Id. at 657.
77. Id. at 649.
78. Id.
79. Id. at 650.
80. Id.
81. Id. The court stated that UMC responded "with an offer to supply $1,668,743 worth of its improved ACA... UMC represented as part of its proposal that the sensor portion 'has been constructed and tested in conjunction with voltage sensing and time controlled circuitry.' " Id.
tion including test results. On August 1, 1968, UMC filed an application for the patent that became the subject of the lawsuit.

In June, 1980, UMC sued the Navy for compensation under 28 U.S.C. § 1498(a), claiming that the Navy had used UMC's ACA design without awarding UMC a contract to supply the ACAs. The Navy countered by claiming that the patent was invalid because UMC had tried to sell its device more than a year prior to the date it filed for a patent. The Claims Court upheld the validity of the patent claims but found no governmental infringement. Applying the three-part test set out in In re Corcoran, the Claims Court noted that UMC had admitted that its offer to the Navy was for profit, and not for experimentation. Next, the court found that the invention claimed in the patent had been reduced to practice prior to the critical date; however, the court held that "the first requirement that the complete invention must be embodied in the thing offered for sale [had] not been met because the engineering prototype did not include all elements of the claims." 

In essence, the Claims Court interpreted Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd. as creating an exception to the physical embodiment requirement if commercial benefits before the critical date were great. Because UMC never made its ACA, the court concluded that the company reaped no commercial benefits, and that the invention of the patent-in-suit was not on sale within the meaning of section 102(b).

82. Id.
83. Id.
84. Id.
85. Id. at 651.
88. UMC, 8 Cl. Ct. at 620.
89. Id. The court ruled that testing of the prototype prior to submitting the proposal constituted a reduction to practice. Id.
90. UMC, 816 F.2d at 651 (discussing the decision of the Claims Court).
91. 731 F.2d 831 (Fed. Cir. 1984); see supra text accompanying notes 39-48.
92. UMC, 816 F.2d at 651.
93. UMC, 8 Cl. Ct. at 620-21.
The Federal Circuit reversed the Claims Court and concluded that a "substantial embodiment" of the claimed invention existed prior to the critical date, even though the invention had not been reduced to practice.\(^4\) Despite the lack of a reduction to practice, the degree of commercialization of the invention prior to the critical date sufficiently proved that the invention was on sale.\(^5\) The court also stated that an offer of a "mere concept" for sale before the critical date would not invalidate a patent.\(^6\) A very important point noted by the court was that mere participation by a purchaser in the development and experimental testing of an invention does not by itself indicate that the invention was on sale.\(^7\)

Judge Nies, writing for the court, used the term "substantial embodiment"\(^8\) to refer to the level of completion of the invention necessary to place it on sale. She declined, however, to define this standard, stating, "We do not attempt here to formulate a standard for determining when something less than a complete embodiment of the invention will suffice under the on-sale bar."\(^9\) Unfortunately for patent attorneys and their clients, the Federal Circuit has yet to "formulate a standard."\(^10\)

3. Federal Circuit Cases: Post-UMC

Although the Federal Circuit has had numerous opportunities to clarify the meaning of "substantial embodiment," it has failed to do so. For example, in Buildex, Inc. v. Kason Industries, Inc.,\(^11\)

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\(^4\) UMC, 816 F.2d. at 657.
\(^5\) Id.
\(^6\) Id. at 656. ("[W]e do not intend to sanction attacks on patents on the ground that the inventor or another offered for sale, before the critical date, the mere concept of the invention. Nor should inventors be forced to rush into the Patent and Trademark Office prematurely.").
\(^7\) Id. at 657. Furthermore, with respect to reduction to practice, the court noted: "[R]eduction to practice" [is] an important analytical tool in an on-sale analysis. A holding that there has or has not been a reduction to practice of the claimed invention before the critical date may well determine whether the claimed invention was in fact the subject of the sale or offer to sell or whether a sale was primarily for an experimental purpose.
\(^8\) Id. at 657.
\(^9\) Id.
\(^10\) Id.
\(^11\) 849 F.2d 1461 (Fed. Cir. 1988).
the Federal Circuit reversed a holding that the claimed invention was not on sale.\textsuperscript{102} The invention was a self-closing cam-lift hinge for use on refrigerator doors.\textsuperscript{103} Five months prior to the critical date, the inventor showed a working model to a manufacturer of refrigerator doors.\textsuperscript{104} The inventor agreed to sell the hinge exclusively to the manufacturer and delivered a “Quotation” four months before the critical date.\textsuperscript{105} The “Quotation” included a notation entitled “Terms of Sale.”\textsuperscript{106} The trial court in \textit{Buildex} refused to hold that the invention was on sale because the inventor and his assignee developed it jointly.\textsuperscript{107} The Federal Circuit rejected this basis for the trial court’s holding, noting that the Federal Circuit never had recognized a joint development exception to the “on sale” bar.\textsuperscript{108} Instead, the Federal Circuit found the “Quotation” and its “Terms of Sale” to be the “most telling evidence”\textsuperscript{109} of an offer for sale.\textsuperscript{110} 

In \textit{RCA Corp. v. Data General Corp.},\textsuperscript{111} RCA submitted a proposal to the Federal Aviation Administration (FAA) describing a system called real time generation of video (RTGV).\textsuperscript{112} The proposal included a detailed description, financial data, and cost analysis.\textsuperscript{113} The district court held that the proposal placed the invention on sale.\textsuperscript{114} RCA appealed several aspects of the lower court’s decision

\begin{itemize}
  \item \textsuperscript{102} Id. at 1464. The court held that before the critical date, the manufacturer had made an offer for sale that was sufficient to demonstrate an “on sale” status. Id. (relying on \textit{UMC}, 816 F.2d at 656).
  \item \textsuperscript{103} Id. at 1462.
  \item \textsuperscript{104} Id.
  \item \textsuperscript{105} Id.
  \item \textsuperscript{106} Id.
  \item \textsuperscript{107} \textit{Buildex, Inc. v. Kason Indus., Inc.}, 665 F. Supp. 1021, 1033 (E.D.N.Y. 1987), rev’d, 849 F.2d 1461 (Fed. Cir. 1988).
  \item \textsuperscript{108} \textit{Buildex}, 849 F.2d at 1465.
  \item \textsuperscript{109} Id. at 1463.
  \item \textsuperscript{110} Id. at 1463-64.
  \item \textsuperscript{111} 887 F.2d 1056 (Fed. Cir. 1989).
  \item \textsuperscript{112} Id. at 1059.
  \item \textsuperscript{113} Id. at 1062.
  \item \textsuperscript{114} \textit{RCA Corp. v. Data Gen. Corp.}, 701 F. Supp. 456, 464 (D. Del. 1988), aff’d, 887 F.2d 1056 (Fed. Cir. 1989). The court stated: RCA’s submission of the proposal to the FAA was a definite offer to sell the RTGV system. The FAA was not seeking to fund research programs; instead, it was looking for a “prototype system” to be followed by “production quanti-
to the Federal Circuit, but the Federal Circuit disposed of each argument and affirmed.\textsuperscript{116}

First, RCA claimed that the proposal did not place the invention on sale because it did not disclose the invention with respect to \textit{all} the claim elements.\textsuperscript{116} The Federal Circuit dismissed this position as legally incorrect, suggesting other sources of evidence, including advertisements, that may prove the existence of an offer.\textsuperscript{117} Because the bid documents themselves contained enough information to identify the invention, the court held that sufficient evidence existed to support a finding of an offer for sale.\textsuperscript{118}

Second, RCA contended that its submission could not create an "on sale" bar because its bid proposal was for research and development of the complex RTGV system, which therefore was still in the experimental stage.\textsuperscript{119} The appellate court responded by stating that a plaintiff cannot offer the experimental-use defense to rebut a prima facie case that the invention was on sale.\textsuperscript{120} Because the court defined experimental use as the perfection or completion

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\textit{ties.}\textsuperscript{115} . . . RCA viewed the FAA as a "prospective customer" who could provide "a major piece of business" resulting in revenue to RCA.
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\textit{Id.}
\textsuperscript{116} \textit{Id.}, \textit{at} 1059-65.
\textsuperscript{117} \textit{Id.} The Federal Circuit held that RCA's position was clearly not legally correct. . . . [M]erely offering to sell a product by way of an advertisement or invoice may be evidence of a definite offer for sale or a sale of a claimed invention even though \textit{no} details are disclosed. That the offered product is in fact the claimed invention may be established by any relevant evidence, such as memoranda, drawings, correspondence and testimony of witnesses.
\textit{Id.}
\textsuperscript{118} \textit{Id.}
\textsuperscript{119} \textit{Id.} \textit{at} 1060.
\textsuperscript{120} \textit{Id.} The court stated:

As held in \textit{UMC}, an invention cannot be offered for sale within the meaning of section 102(b) if the offeror has only a mere concept of the invention. As also indicated in \textit{UMC}, while an invention need not be reduced to practice to be on sale, such proof may "lighten the burden of the party asserting the bar." Under our precedent, actual reduction to practice of the subject invention means . . . that an actual embodiment which included \textit{all elements} of the claim had been built.

\textit{Id.} (citations omitted). Here, the appellate court upheld the district court's findings that RCA had offered to sell the Cole invention, the core of the RTGV system, and that RCA had reduced the Cole invention to practice. \textit{Id.} \textit{at} 1060-61.
of an invention to the point at which it will work for its intended purpose, the experimental-use defense expires with an invention's reduction to practice.\textsuperscript{121}

In a variation of its experimental-use justification, RCA next claimed that because the proposal was for experimental development of the RTGV system, RCA had not made a "definite offer."\textsuperscript{122} When no sale occurs, a definite offer to sell is an essential requirement of the "on sale" bar.\textsuperscript{123} In its brief, however, RCA acknowledged that the FAA could have "accepted" RCA's proposal; this possibility for acceptance is characteristic of a definite formal offer.\textsuperscript{124}

In a final attempt to convince the court, RCA argued that its contract was for "services" to design and develop a prototype and that it had not actually offered any "thing" for sale.\textsuperscript{125} RCA also asked the court not to use labels to describe its activities but to consider whether in the totality of the circumstances its behavior was contrary to the policies of the "on sale" bar.\textsuperscript{126} The court called these arguments self-contradictory.\textsuperscript{127} In dictum, however, the court acknowledged that once commercialization is shown, merely labeling a contract as an offer for services does not prevent the application of the "on sale" bar.\textsuperscript{128}

In \textit{Envirotech Corp. v. Westech Engineering, Inc.},\textsuperscript{129} the Court of Appeals for the Federal Circuit considered whether the "on

\textsuperscript{121} Compare Pharmacia, Inc. v. Frigitronics, Inc., 727 F. Supp. 710 (D. Mass. 1989), in which the court stated:

\textquote{P}roducing a desired outcome once [is not] a "reduction to practice." Even after producing some lots of hyaluronic acid that met his criteria, [the inventor] had to continue his experiments to determine whether he could, with at least a degree of consistency sufficient to constitute a "reduction to practice," reproduce this non-inflammatory hyaluronic acid.

\textit{Id.} at 714.

\textsuperscript{122} \textit{RCA}, 887 F.2d at 1062.

\textsuperscript{123} \textit{Id.} (citing UMC Elecs. Corp. v. United States, 816 F.2d 647, 656 (Fed. Cir. 1987), \textit{cert. denied}, 484 U.S. 1025 (1988)). Contrary to RCA's reading, the fact that an offer concerns experimental work is not relevant to the question of whether the offer is definite in a contractual sense. \textit{Id.}

\textsuperscript{124} \textit{Id.}

\textsuperscript{125} \textit{Id.}

\textsuperscript{126} \textit{Id.} at 1062-63.

\textsuperscript{127} \textit{Id.} at 1063.

\textsuperscript{128} \textit{Id.}

\textsuperscript{129} 904 F.2d 1571 (Fed. Cir. 1990).
sale” bar invalidated the patent for a ballasted digester cover used in waste-water treatment plants. The device was disclosed by Envirotech in response to a December 1979 invitation to bid on a waste-water treatment plant project.

Envirotech submitted proposals for a digester cover on February 21, 1980 to each general contractor bidding on the mechanical portion of the project. The bids included a price and offered to provide a digester cover constructed in accordance with the plans and design specifications of the project’s consulting engineer, which called for the use of traditional solid concrete ballast blocks. The treatment plant scheduled a re-bid for May 8, 1980; in the interim, Envirotech employees conceived of the hydroballaster. Between May 5 and May 8, 1980, Envirotech submitted its second proposal to all general contractors. This bid offered a “digester gas holder cover” for $134,000—$71,000 less than the first proposal. Only on May 30, 1980 did Envirotech actually disclose the details of its new design to the consulting engineer in charge of setting design specifications for general contractors. Envirotech finally filed a patent application on May 29, 1981.

To reverse the district court’s decision that the “on sale” bar invalidated the patent, the Federal Circuit relied upon the policies behind section 102(b). First, the various general contractors could not have come to believe that the hydroballaster was freely available based upon Envirotech’s second bid proposal. Second, the court stated that the inventor’s attempted exploitation must be “objectively manifested” as a definite offer to sell the invention. Although the district court considered the May 8 proposal

130. Id.
131. Id. at 1572-73.
132. Id.
133. Id. at 1573.
134. Id. The hydroballaster is a floating-cover digester, rather than a traditional, fixed-cover digester. Id. at 1572.
135. Id. at 1573.
136. Id.
137. Id.
138. Id.
139. Id. at 1574-77.
141. Envirotech, 904 F.2d at 1574.
142. Id. at 1575.
to be sufficient to invoke the "on sale" bar, the Federal Circuit disagreed.\textsuperscript{143} Judge Mayer, writing for the court, stated that the district court "unduly focused" on Envirotech's clear motive to profit from the invention.\textsuperscript{144} In fact, Envirotech's own internal memorandum disclosed its intention to offer traditional technology with its bid proposal and then later to disclose the new technology as a substitute only if it received the contract.\textsuperscript{145} Thus, the key factor that saved Envirotech from the "on sale" bar was the fact that the bid documents clearly specified the traditional technology rather than the patented invention.\textsuperscript{146}

Similarly, a district court's holding that no "on sale" bar existed was upheld by the Federal Circuit in \textit{Manville Sales Corp. v. Paramount Systems, Inc.}\textsuperscript{147} The patent involved a luminaire with "iris" guide arms developed by Manville.\textsuperscript{148} Manville's research manager had constructed a working model of the device in October 1971 and proposed the design to the State of Wyoming for use at a roadside rest area.\textsuperscript{149} The proposal included a confidentiality notice.\textsuperscript{150} A Wyoming official conditionally approved payment for the design, subject to its satisfactory performance.\textsuperscript{151} The iris arm device was installed at the rest area in November 1971, several months before the area was opened to the public.\textsuperscript{152} In April 1972,

\begin{itemize}
  \item \textsuperscript{143} \textit{Id.}
  \item \textsuperscript{144} \textit{Id.}
  \item \textsuperscript{145} \textit{Id.}
  \item \textsuperscript{146} The court stated:
    \begin{quote}
    The facts here thus differ markedly from those in \textit{RCA}, which Westech relies on, and do not support an on sale bar. Here, the bid documents clearly specify the Hill design rather than the patented invention; [in \textit{RCA}] they contained a technical description sufficient to identify the patented invention. Here, the district court found that Envirotech planned in its May 8 proposal to keep the patented design of its ballast blocks confidential; there, testimonial evidence established that the offeror intended to offer the invention prior to the critical date.
    \end{quote}
  \item \textsuperscript{147} \textit{917 F.2d 544, 551 (Fed. Cir. 1990).}
  \item \textsuperscript{148} The luminaire assembly at issue was basically a multiple lamp fixture designed to be mounted on a highway lighting pole. \textit{Id. at 547.}
  \item \textsuperscript{149} \textit{Id.}
  \item \textsuperscript{150} \textit{Id.}
  \item \textsuperscript{151} \textit{Id.}
  \item \textsuperscript{152} \textit{Id. at 548.}
  \item \textsuperscript{153} \textit{Id.}
\end{itemize}
Wyoming officials inspected the device and authorized payment.\textsuperscript{154} The rest area was opened to the public in June 1972.\textsuperscript{155}

On February 5, 1973, Manville filed a patent application that later issued as the patent.\textsuperscript{156} Paramount obtained a copy of a drawing of Manville's iris arm device in 1984 and designed a similar self-centering luminaire.\textsuperscript{157} Manville filed suit against Paramount in 1986.\textsuperscript{158} The trial court concluded that the patent was not invalid under section 102(b) despite the fact that more than one year had elapsed between the device's installation in Wyoming and Manville's application for a patent.\textsuperscript{159} Instead, the court deemed the Wyoming activity an experimental use.\textsuperscript{160}

The Federal Circuit affirmed\textsuperscript{161} and analyzed the facts in view of the underlying policies of the "on sale" bar.\textsuperscript{162} First, the court reasoned that Manville did nothing to lead the public to believe that Manville's iris arm invention was in the public domain.\textsuperscript{163} The designs were submitted subject to a confidentiality agreement, and the devices were placed at the top of a 150-foot pole in a rest area not yet open to the public.\textsuperscript{164} Second, Manville did not attempt to extend the patent term by commercially exploiting its invention for more than one year before filing its application.\textsuperscript{165} Manville did not initiate a sales campaign to market the iris arm design until March 1972.\textsuperscript{166} Last, Manville's actions, in the court's estimation,
were consistent with promoting prompt and widespread disclosure of the invention.\textsuperscript{167} The court reasoned that the design could not have been disclosed until testing had laid to rest the inventor's uncertainty over the luminaire's ability to withstand harsh weather.\textsuperscript{168}

In \textit{Sonoscan, Inc. v. Sonotek, Inc.},\textsuperscript{169} the district court invalidated Sonoscan's patent for the display image circuitry for a scanning acoustic microscope, finding that it had been placed on sale before the critical date.\textsuperscript{170} The basis of the court's conclusion was the fact that on November 18, 1986 and September 10, 1987, Sonoscan had submitted price quotations to IBM for its Model 3100 scanning acoustic microscope containing the circuitry.\textsuperscript{171} On September 15, 1988, Sonoscan filed a patent application for the device, which matured into the patent asserted against Sonotek.\textsuperscript{172}

The Federal Circuit agreed that Sonoscan's patent was invalid.\textsuperscript{173} Judge Lourie, writing for the court, dismissed Sonoscan's assertion that the invention was not developed sufficiently by the critical date of September 15, 1987 to be on sale.\textsuperscript{174} The court concentrated on the content of the September 10, 1987 quotation and noted that it did not refer to the machine's capability to display amplitude and polarity data as a "unified image" as recited in the issued apparatus claim.\textsuperscript{175} Sonoscan admitted, however, that if IBM had placed an order pursuant to the September 10 quotation, it would have received a machine that had the unified image capability.\textsuperscript{176}

\hspace{1cm}

\textsuperscript{167} \textit{Id.} at 551.
\textsuperscript{168} \textit{Id.} at 550.
\textsuperscript{170} \textit{Id.} at 1250.
\textsuperscript{171} \textit{Id.} at 1249. Similarly, Sonoscan quoted a price to Amdahl Corp. for the same model on September 18, 1987. \textit{Id.}
\textsuperscript{172} \textit{Id.}
\textsuperscript{173} \textit{Sonoscan}, 936 F.2d 1261.
\textsuperscript{174} \textit{Id.} at 1263.
\textsuperscript{175} \textit{Id.}
\textsuperscript{176} \textit{Id.}
III. Elements of an "On Sale" Bid

A review of Federal Circuit case law shows no clear standard for defining when an "on sale" event occurs. Indeed, in *UMC Electronics Co. v. United States*, Judge Nies warned against the establishment of rigid standards. Several of the cases discussed above looked at the "totality of the circumstances," whereas others placed great weight on the existence of individual circumstances.

A framework that will instill some order and create better understanding of the "on sale" event should include the following considerations: 1) whether the invention actually has been reduced to practice at the time of the offer; 2) whether the bid describes the invention to such an extent that it constitutes a constructive reduction to practice; 3) whether the level of commercialization is so great that, for public policy reasons, the invention should be considered on sale regardless of whether it has been reduced to practice; and 4) whether the inventor is satisfied with his invention to the extent that experimental use can no longer mitigate commercialization of the device.

Although this list is not exhaustive, it appears that when any one of these conditions exists at the time an offer is made, a court probably will conclude that the invention has been placed on sale. Existence of two or more of the conditions virtually assures that a court will deem the invention to be on sale.

A. Actual Reduction to Practice

Reduction to practice, although not a requirement, is clearly an important factor in the "on sale" bar analysis. Courts are most likely to deem an offer to be an "on sale" event when the inventor

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178. Id. at 653 ("Rigid standards are especially unsuited to the on sale provision where the policies underlying the bar, in effect, define it.") (quoting Western Marine Elecs., Inc. v. Furuno Elec. Co., 764 F.2d 840, 844 (Fed. Cir. 1985) (citations omitted)).
179. E.g., Manville Sales Corp. v. Paramount Sys., Inc., 917 F.2d 544, 549 (Fed. Cir. 1990) ("In order to determine whether an invention was on sale . . . we must consider how the totality of the circumstances comports with the policies underlying the on sale . . . bar[].").
180. E.g., Sonoscan, 936 F.2d at 1262-63 (analyzing the timing and content of three price quotations in determining that Sonoscan's invention had been placed on sale before the critical date).
offers for sale an invention that is actually reduced to practice at
the time of the offer.

1. Simple Devices

The simpler a device, the greater the likelihood that it will be
reduced to practice prior to any offer for sale. Paradoxically, how-
ever, the simpler a device, the less likely that a court will focus on
reduction to practice. For example, in *In re Caveney*, the inven-
tion involved a simple cable tie, and reduction to practice was
never in dispute. Instead, the court closely scrutinized the details
of the transaction. In *Buildex, Inc. v. Kason Industries, Inc.*, the
self-closing cam-lift hinge, a relatively simple invention, had
been reduced to practice more than five months prior to the criti-
cal date. Again, the court concentrated on the elements of the
sale, such as the price quote, rather than discussing the state of the
invention’s reduction to practice or the correlation between the
claimed invention and the device actually sold. Likewise, in *En-
virotech Corp. v. Westech Engineering, Inc.*, which involved
tub-shaped concrete blocks utilized to ballast the lower rim of a
floating digester cover, the court did not discuss the development
of the blocks but instead concentrated on Envirotech’s disclosure
of the blocks in its bid proposal.

2. Complex Devices

The more complex the device, the more likely that a court will
concentrate on reduction to practice. For example, in *Barmag
Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, the
filament yarn machine was substantially reduced to practice prior
to submission of either of the quotations. The court deemed ir-
relevant some later, minor modifications because they did not con-
cern limitations in the claims.\textsuperscript{190} Instead, the court analyzed the level of the machine's development in view of the three-part \textit{Timely Products} test.\textsuperscript{191}

In contrast, the analysis set forth in \textit{UMC Electronics Co. v. United States}\textsuperscript{192} concentrated on the degree to which the invention had been completed.\textsuperscript{193} Although the ACAs ultimately supplied to the United States Navy were covered by the language of the patent claims, the patentee had not built or tested the device before the critical date.\textsuperscript{194} Nonetheless, the Federal Circuit ruled that a "substantial embodiment"\textsuperscript{195} of the device existed prior to the critical date.\textsuperscript{196} The inventor conceived of an ACA with an analog transducer;\textsuperscript{197} his engineering prototype of the ACA contained a commercial analog transducer along with a filter, timing circuit, and voltage sensor that measured one load level.\textsuperscript{198} The court's determination of substantial embodiment rested on two factors. First, "the prior art devices embodied each element of the claimed invention, save one."\textsuperscript{199} Second, that missing element "was available and had been sufficiently tested to demonstrate to the satisfaction of the inventor that the invention . . . would work for its intended purpose."\textsuperscript{200} After setting forth these factual determinations, the court ruled that one must resolve within the meaning of section 102(b) whether the circumstances as a whole place the invention on sale prior to the critical date.\textsuperscript{201}

\begin{flushleft}
\textsuperscript{190} Id. at 838.  \\
\textsuperscript{191} Id. (citing \textit{Timely Prods. Corp. v. Arron}, 523 F.2d 288, 302 (2d Cir. 1975)); \textit{see supra text accompanying notes} 23-31.  \\
\textsuperscript{192} 816 F.2d 647 (Fed. Cir. 1987), \textit{cert. denied}, 484 U.S. 1025 (1988).  \\
\textsuperscript{193} Id. at 652 ("Under our precedent there cannot be a reduction to practice of the invention here without a physical embodiment which includes all limitations of the claim.").  \\
\textsuperscript{194} Id.  \\
\textsuperscript{195} Id. at 657.  \\
\textsuperscript{196} Id. at 652.  \\
\textsuperscript{197} Id. at 650.  \\
\textsuperscript{198} Id.  \\
\textsuperscript{199} Id. at 657.  \\
\textsuperscript{200} Id.  \\
\textsuperscript{201} Id. at 656. The court went on to state: All of the circumstances surrounding the sale or offer to sell, including the stage of development of the invention and the nature of the invention, must be considered and weighed against the policies underlying section 102(b). . . .
In Sonoscan, Inc. v. Sonotek, Inc., the court reviewed in great detail the inventive process for the scanning acoustic microscope's complex unified display circuit. The court focused on such dates as the date of conception, the date of the first lab notebook entries, the date of the first schematic drawing, and the date of the first operational prototype. The court apparently placed great weight on the fact that the schematic diagram and working prototype, both in existence before the critical date, contained circuitry capable of displaying a unified image as claimed.

B. Constructive Reduction to Practice

A constructive reduction to practice occurs when a written disclosure is adequate to enable a person having ordinary skill in the art to construct the device. Under certain circumstances, the Federal Circuit has implied that a mere constructive reduction to practice coupled with an offer to sell is adequate to constitute an "on sale" event. Even if no physical embodiment of the completed invention exists, a bid proposal may be so detailed that it discloses many if not all of the claim elements. Such was the case in RCA Corp. v. Data General Corp. wherein the bid proposal was so detailed as to constitute a constructive reduction to practice.

The proposal in RCA detailed an RTGV system which RCA claimed was for a system more complex than that disclosed and

... If the inventor had merely a conception or was working towards development of that conception, it can be said there is not yet any "invention" which could be placed on sale. A sale made because the purchaser was participating in experimental testing creates no on-sale bar.

Id. at 656-57.
203. The court claimed to follow the "totality of the circumstances" standard, but it concentrated on reduction to practice and the offer to sell. Id. at 1263-64.
204. Id. at 1248-49.
205. Id. at 1250.
207. See, e.g., King Instrument Corp. v. Otari Corp., 767 F.2d 853, 860 (Fed. Cir. 1985) (holding an offer to sell is sufficient to bar patentability because the statute requires "placing on sale," not a sale), cert. denied, 475 U.S. 1016 (1986); In re Caveney, 761 F.2d 671, 676 (Fed. Cir. 1985) (holding that a single offer to sell is sufficient to bar patentability).
208. 887 F.2d 1056 (Fed. Cir. 1989).
209. Id. at 1060-61.
claimed in its patent. \textsuperscript{210} Specifically, RCA stated that the patent claims detailed an entirely digital system whereas the system proposed contained some analog components. \textsuperscript{211} RCA therefore claimed that the proposal did not place the invention on sale because the proposal did not disclose the invention with respect to all the claim elements. \textsuperscript{212} The Federal Circuit dismissed this position as legally incorrect, stating that a mere advertisement may evidence an offer for sale. \textsuperscript{213} Thus, a constructive reduction to practice coupled with an offer to sell may trigger the "on sale" clock even when discrepancies exist between the proposal and the claimed invention.

C. Level of Commercialization

As discussed above, a key policy concern behind the "on sale" doctrine is its ability to prevent the inventor from commercially exploiting the exclusivity of his invention substantially beyond the statutorily authorized seventeen-year period. \textsuperscript{214}

1. The Offer

a. Was an Offer Made?

Many of the Federal Circuit cases discussed above involved bid proposals submitted in response to a request for bids. \textsuperscript{215} Thus, as in the initial scenario, a proposal is made purposely as an offer that the offeror wants the offeree to accept. If no sale is made, a definite offer to sell is an essential requirement in finding an "on sale" bar. \textsuperscript{216} If multiple offers are provided by the applicant, courts appear more likely to find that an applicant was attempting to commercialize her invention. For example, in \textit{Barmag Barmer Mas...}

\textsuperscript{210} Id. at 1061.

\textsuperscript{211} Id. at 1060. The court stated that "the [trial court] quite correctly placed no legal significance on the analog circuitry because no analog circuitry is claimed. The fact that the RTGV system may feature additional analog circuitry does not negate the determination that the claimed invention was offered." Id. at 1060-61.

\textsuperscript{212} Id. at 1060.

\textsuperscript{213} See supra note 117 and accompanying text.

\textsuperscript{214} See supra text accompanying notes 23-34.

\textsuperscript{215} See supra part II.D.

\textsuperscript{216} See, e.g., RCA, 887 F.2d at 1062.
chinenfabrik AG v. Murata Machinery, Ltd., two offers were submitted. The fact that both fell before the critical date helped establish Barmag’s intent to commercialize its yarn processing machine. In UMC Electronics Co. v. United States, two separate quotes were provided to the ultimate purchaser prior to the critical date, leading the court to conclude that sufficient commercialization had occurred to create an “on sale” bar. Likewise, in Sonoscan, Inc. v. Sonotek, Inc., multiple offers were made to both IBM and Amdahl.

b. Could the Offer Be Accepted?

Whether an offer can be accepted should have little bearing on whether an “on sale” event occurs. Only the intent of the applicant to exploit his invention matters, not the degree to which the purchaser was cognizant of the invention. As the court stated in UMC: “An offer to sell a later-claimed invention may be sufficient to invoke the bar whether the offer is accepted or rejected.” However, in In re Caveney, the court engaged in a contractual analysis with respect to the product at issue. It defined a sale as “a contract between parties to give and to pass rights of property for consideration which the buyer pays or promises to pay the seller for the thing bought or sold.” Additionally, the court held that a bid could be accepted only by a separate entity, as one may not make a contract with oneself. Hence, in RCA Corp. v. Data General Corp., the admission by RCA that its proposal could be ac-

217. 731 F.2d 831 (Fed. Cir. 1984); see supra notes 39-48 and accompanying text.
218. See Barmag, 731 F.2d at 837-39.
219. 816 F.2d 647 (Fed. Cir. 1987), cert. denied, 484 U.S. 1025 (1988); see supra notes 74-100 and accompanying text.
220. UMC, 816 F.2d at 657.
221. 936 F.2d 1261 (Fed. Cir. 1991); see supra notes 169-76 and accompanying text.
222. Sonoscan, 936 F.2d at 1262.
224. UMC, 816 F.2d at 653 (citing King Instrument, 767 F.2d at 860).
225. 761 F.2d 671 (Fed. Cir. 1985).
226. Id. at 676.
227. Id.; see supra note 59 and accompanying text.
228. 887 F.2d 1056 (Fed. Cir. 1989).
cepted by the FAA undercut its other arguments that the proposal was not a contract or sale.\footnote{Id. at 1062.}

2. Did the Offer List a Price?

Although nebulous discussions about a possible sale may not trigger the "on sale" bar,\footnote{Id.} the more detailed a proposal becomes, the more likely a court will find adequate commercial activity to invoke the "on sale" bar. Quoting a definite price for a definite quantity of goods usually will constitute ample proof of this level of commercial activity.

For example, in Barmag, the first quotation listed a price of $346,900 per machine for twenty-five machines.\footnote{Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd., 731 F.2d 831, 834 (Fed. Cir. 1984).} In UMC, the proposal contained a price of approximately $1.7 million to supply a quantity of ACAs.\footnote{UMC Elecs. Co. v. United States, 816 F.2d 647 (Fed. Cir. 1987), cert. denied, 484 U.S. 1025 (1988).} The "Terms of Sale" in Buildex listed a quantity of 50,000 hinges at a price of $2.84 each.\footnote{Buildex, Inc. v. Kason Indus., Inc., 849 F.2d 1461, 1462 (Fed. Cir. 1988).} Thus, while not a requirement for forming a valid contract, listing a price in the proposal simply adds credence to the conclusion that an invention is on sale.

D. Inventor's Satisfaction Level with the Invention

Of the four factors of the "on sale" framework, the most obvious contradictions in case law involve the importance of whether the inventor is satisfied that he has reduced his invention to practice. This inquiry centers on whether he has tested the device in its expected environment of use and whether any postdelivery modifications have been necessary.

1. Testing in the Expected Environment

In Western Marine Electronics, Inc. v. Furuno Electric Co.,\footnote{764 F.2d 840 (Fed. Cir. 1985).} the Federal Circuit affirmed the district court's decision invalidat-
ing appellant’s patent under section 102(b). The patent related to a sonar device to be used on fishing boats for detecting the location of various objects. One of the arguments put forth by the appellant was that there could be no “on sale” bar because the invention was not tested “in the environment for which it was intended.”

However, the Federal Circuit found “no clear error in the district court’s finding” that the invention was on sale prior to the critical date and found that appellant’s activities with its customers were primarily for commercial, not experimental, purposes. Therefore, the fact that the invention was not tested in the environment for which it was intended was of little moment.

Yet in Manville Sales Corp. v. Paramount Systems, Inc., the Federal Circuit placed great emphasis on the need for an inventor to test her invention in the environment for which she intended it. More than one year prior to filing its patent application, Manville installed its device in an environment for which it was intended. The district court found that “no one could have known . . . whether the [patented invention] would work as intended” prior to its installation.

The Federal Circuit believed that Manville’s actions were “entirely consistent with the policy ‘favoring prompt and widespread disclosure of inventions,’ ” noting that the patented device “was specifically designed to withstand year around weather. Prior to its testing in the winter environment, there really was no basis for

235. The appellate court held that the district court did not err in determining that the product was complete and did not require additional testing before the critical date. Id. at 845.
236. Id. at 844.
237. Id. at 845.
238. Id.
239. Id. at 847.
240. 917 F.2d 544 (Fed. Cir. 1990).
241. Id. at 550-51.
242. Manville installed the device in November 1971 and filed the patent application on March 5, 1973. Id. at 548-49.
244. Manville Sales, 917 F.2d 550 (quoting King Investment Corp. v. Otari Corp., 767 F.2d 853, 860 (Fed. Cir. 1985), cert. denied, 475 U.S. 1016 (1986)).
confidence by the inventor that the invention would perform as intended, and hence no proven invention to disclose.\textsuperscript{246}

\textit{Western Marine} and \textit{Manville Sales} may be reconcilable in so far as the appellant in \textit{Western Marine} might have fabricated a postlitigation argument. That is, prior to the critical date in \textit{Western Marine}, appellant ascertained that the sonar device was complete and worked for its intended purpose. In contrast, prior to the critical date in \textit{Manville Sales}, the design durability of the new iris arm in weather conditions was unknown and, therefore, completion required additional atmospheric testing.

2. \textit{Postdelivery Modifications}

In \textit{Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.}\textsuperscript{248} the Federal Circuit affirmed the district court's holding of invalidity under section 102(b) on the ground that the claimed invention was placed on sale prior to the critical date.\textsuperscript{247} On appeal, the appellant asserted, inter alia, that various modifications were made to the invention subsequent to delivery to the purchaser.\textsuperscript{248} According to the appellant, the invention was not "complete"\textsuperscript{249} and, therefore, was not on sale.

The Federal Circuit rejected this argument, asserting that "[i]t is . . . immaterial that modifications were made in the machines actually delivered to Burlington [the purchaser]. . . . No change was made that concerns limitations in the claims."\textsuperscript{250} Accordingly, modifications performed after delivery to the purchaser have little, if any, mitigating effect with respect to an "on sale" event, unless the modifications concern limitations in the claims. To what extent the changes must relate to the claims in order to render such changes relevant is unclear.

\textsuperscript{245} Id.
\textsuperscript{246} 731 F.2d 831 (Fed. Cir. 1984).
\textsuperscript{247} Id.
\textsuperscript{248} Id. at 837-38.
\textsuperscript{249} Id.
\textsuperscript{250} Id. at 838.
IV. A PROPOSED FRAMEWORK TO ANALYZE “ON SALE” EVENTS

A. Conception of Embodiment vs. Conception of Result

Initially, one may think that the word “conception” denotes an abstract or seminal idea lacking tangibility or practical application. In the context of patent law, however, such could not be further from the truth. For conception to be better understood in this context, it must be defined further or broken into subcategories: 1) conception of embodiment and 2) conception of result.251 Conception of embodiment transcends the perception of desiring a particular result and focuses on an operative and complete means of achieving a particular result, such that nothing remains but physical realization. On the other hand, conception of result concerns itself with only the end product, not the means by which it is achieved.

The court in Mergenthaler v. Scudder,252 although not labeling it as such, enunciated a classic definition of conception of embodiment: “[Conception] is therefore the formation, in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is thereafter to be applied in practice . . . .”253 With this definition in mind, one can say that conception of embodiment is a cerebral reduction to practice that is the result of the inventor’s mental experimentation.

B. Conception of Embodiment Alone Is Sufficient for Application of the “On Sale” Bar

The Federal Circuit’s journey towards conception alone being the determining factor in applying the “on sale” bar had its origins in Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.,254 in which the court noted that “[i]t is not difficult to conceive of a situation where, because commercial benefits outside the allowed time have been great, the technical requisite . . . for a

251. For a thorough discussion of conception, see 3 DONALD S. CHISUM, PATENTS § 10.04 (1992).
252. 11 App. D.C. 264 (1897).
253. Id. at 276.
254. 731 F.2d 831 (Fed. Cir. 1984).
physical embodiment, particularly for a simple product, would defeat the statutory policy of preventing an inventor from commercially exploiting his invention beyond the statutorily prescribed seventeen-year period. Notwithstanding its restrictive language (i.e., "simple product"), the court nevertheless implicitly indicated that conception may be enough to start the "on sale" clock ticking, regardless of the complexity of the invention.\(^{255}\)

In *UMC Electronics Co. v. United States*, the Federal Circuit took the ball from *Barmag* and ran with it. The court in *UMC*, however, fell just short of a touchdown. Judge Nies stated:

> In view of all of the above considerations, we conclude that reduction to practice of the claimed invention has not been and should not be made an absolute requirement of the on-sale bar.

> We hasten to add, however, that we do not intend to sanction attacks on patents on the ground that the inventor or another offered for sale, before the critical date, the mere concept of the invention. . . . On the other hand, we reject UMC's position that as a matter of law no on-sale bar is possible unless the claimed invention has been reduced to practice in the interference sense.

> . . . Thus, we simply say here that the on-sale bar does not necessarily turn on whether there was or was not a reduction to practice of the claimed invention.\(^{256}\)

Although *UMC* appeared to eliminate reduction to practice as a requirement, the court stopped short of holding that conception alone is sufficient to activate the "on sale" bar. As a result, Federal Circuit case law relating to the "on sale" bar is shrouded in ambiguity. Somewhere between conception and reduction to practice lies an undefined standard.

We would agree with the court in *UMC* if by "mere concept" it meant conception of result. One can surmise that the Federal Circuit's hesitation may have been due to its recognition of certain situations in which conception (conception of result), if permitted

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255. Id. at 837 (emphasis added).
256. See id.
258. Id. at 656 (emphasis added).
to trigger the “on sale” bar, may actually be detrimental to those whom the “on sale” bar was designed to protect.

For example, inventor A conceives of a cure for cancer, but has not conducted any experimentation and has virtually no knowledge of oncology. In essence, inventor A has only a desired end result in mind: a cure for cancer. Inventor A subsequently offers this concept (conception of result) for sale, and not surprisingly, has difficulty finding a market for his concept. More than one year after inventor A’s offer for sale, inventor B conceives (conception of result) of a cure for cancer, independent of inventor A. Unlike inventor A, however, inventor B conceives of a detailed and operative means (conception of embodiment) for achieving her concept (conception of result). Inventor B files for a patent application.

If conception of result alone were sufficient to trigger the “on sale” bar, inventor B would be precluded from obtaining patent protection for her cure for cancer. Such a result would be unfair in that inventor A had only a “mere concept,” whereas inventor B, though still in the conception stage, conceived not only of the end result, but also the means of achieving that result.

By dichotomizing conception into conception of embodiment and conception of result, however, an equitable balance is reached between the interests of society, on the one hand, and the interests of inventors who have achieved conception of embodiment to accompany their conception of result, on the other.

In light of the underlying policies of the “on sale” bar,259 precluding application of the “on sale” bar if the inventor has offered for sale a conceptual embodiment of her invention makes little sense. In making conception of embodiment the only state at which the invention can exist before the “on sale” bar applies, we remain faithful to the underlying policies of the “on sale” bar. Therefore, although the Federal Circuit in UMC was correct in eliminating actual reduction to practice as a requirement for application of the “on sale” bar, it should have taken one more step and

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259. The policies underlying the “on sale” bar “define the terms of the statute.” Barmag, 731 F.2d at 836. Specifically, the policy against permitting the inventor to exploit commercially the exclusivity of his invention beyond the statutory 17 years, and the policy favoring prompt disclosure of inventions to society, are significant in this regard. Id.
pointed out that an offer of a conception of embodiment may be sufficient to apply the "on sale" bar.

Let us elaborate on our initial hypothetical. An inventor, in response to a request for a bid proposal from a corporation, discloses her invention to the corporation in hopes of obtaining the corporate contract. The invention is at the conception of embodiment stage, that is, the inventor has in mind a complete and operative invention as it will thereafter be applied in practice. This determination is made by analyzing the content of the inventor's disclosure, such as verbal representations, laboratory notes, and drawings. Sixteen months after the disclosure, the inventor files a patent application claiming the same invention that was the subject of the disclosure.

In view of the underlying policies of section 102(b), the inventor should be precluded from obtaining patent protection for her invention. The inventor, in bidding for the corporate contract, has engaged in premature commercial exploitation, which also serves to preclude society from reaping the benefits of her invention in a timely fashion. Why is it necessary for the inventor here to have offered more than a conceptual embodiment of her invention before the "on sale" bar applies? It is the intent of the inventor with which we are concerned: "The policies underlying the on-sale bar . . . concentrate on the attempt by the inventor to exploit [her] invention, not whether the potential purchaser was cognizant of the invention."260

In making the bid, the inventor either believed that her invention was attainable in its disclosed form or an obvious variation thereof, or was simply less than forthcoming with the truth. Further, the inventor should not be able to seek refuge under section 102(b) by claiming that her invention was only in the conception stage. The bid never should have been proposed to the corporation unless the inventor was certain that, within one year from the proposal, a patent application would be on file. If she were certain of such a result, but did not file within one year from her bid proposal, the inventor had no one to blame but herself.

A degree of equitableness is established by engaging in a bifurcated conceptual analysis. The Federal Circuit should define a "mere concept" as conception of result and proceed to elaborate further on this notion of conception. In so doing, the Federal Circuit should recognize that there are situations in which conception standing alone (i.e., conception of embodiment) is sufficient to trigger the "on sale" bar.

C. Experimental Use and Conception of Embodiment

Experimental use has occasionally been claimed as a defense to the assertion of an "on sale" bar. In essence, the inventor claims that although his invention was purchased, its use was strictly to determine its ability to produce the desired results. In *RCA Corp. v. Data General Corp.*, the court held that experimental use ends with an actual reduction to practice. How can one have "conception" and yet still require experimental use to reduce an invention to practice?

This question can be resolved by embracing the conception of embodiment and conception of result dichotomy while also considering the process by which most inventions are created. First, an inventor typically is confronted with a need. From this need, he determines a set of desired results. His conception of results might be defined as "a device to accomplish A, B, and C results which weighs no more than X pounds, consumes no more than Y watts, and costs no more than Z dollars." Next, the inventor might have an initial conception of embodiment in which he visualizes a structure with certain subparts or circuits. He might build a model and test it and determine whether it is inadequate. In addition, he may conceive of a new embodiment or modifications to the first embodiment. Assuming this conception of embodiment is final, only the actual reduction to practice is left to perform. The only allowable experimental use would occur between the conception of result and the conception of embodiment. This is only a minor modification

261. For a brief history of the experimental use exception, see *RCA Corp. v. Data General Corp.*, 887 F.2d 1056, 1061 (Fed. Cir. 1989).
262. Id.
263. 887 F.2d 1056.
264. Id. at 1061-62.
of RCA’s holding that there can be no experimental use after actual reduction to practice.265

V. Conclusion

The current state of the law regarding what stage an invention must reach prior to application of the “on sale” bar lies somewhere between actual reduction to practice and “mere concept.” We advocate that “mere concept” should be defined by the Federal Circuit as conception of result, a level of conception that is insufficient to trigger the “on sale” bar. At the same time, the Federal Circuit should adopt an “on sale” bar test that uses conception of embodiment as its line of demarcation.

To allow an inventor or assignee to exploit her invention commercially and thereafter seek refuge under the umbrella of conception, thus evading the “on sale” bar, is to allow the inventor to undercut the underlying policies of the “on sale” bar, as well as to sanction a disservice to society.

265. This modification is required if the definition of conception is to be respected. However, it leaves the inventor with a dilemma if he does give or sell the device to someone for testing. If the device works, the inventor has put the device on sale. If it does not work, then he has not yet had a conception of embodiment. Thus, experimental use is allowed only as a preconception aid, not a postconception check. Again, actual reduction to practice is irrelevant.
Although statistics can be misleading, a review of the Federal Circuit decisions, based upon the composition of the three-judge panels involved, may be useful to the reader.

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Clearly, the Federal Circuit rarely will overturn a district court’s holding of “on sale.” Only in Envirotech and Manville were there sufficient facts to allow the Federal Circuit to deem the inventions not “on sale.”