Although this Sioux City-Weare Case, supra, is the only decision of the Iowa supreme court construing section 500 of the Code in the matters here in question, yet that decision has never been in any way questioned in that court, and is the settled law of Iowa in that regard. Thus it is like the Indiana decision cited and followed in the Evansville-Dennett Case, supra. The decisions in the Monticello and Brenham Cases, supra, on which defendant relies in support of his demurrer, are not applicable. While those cases establish the binding rule for original construction, the rights of plaintiff, as the holder of the bonds in suit, accrued under the previous interpretation of the Iowa supreme court, and must be preserved herein as to the bonds in suit. The petition alleges that the interest coupons of all of these bonds in suit up to and including the 14th day of October, 1894, have been paid. Thus defendant for 10 years, and up to maturity of the bonds, has semiannually paid interest falling due on these bonds, without any objection being urged, so far as now appears, to the validity of the bonds, thereby, with whatever force it may be entitled, admitting their validity. In the words of Mr. Justice Matthews (City of Savannah v. Kelly, 108 U. S. 184, 191, 2 Sup. Ct. 468), "after the lapse of thirteen years, it would be contrary to good faith and common justice to permit defendant to allege a newly-discovered construction of an equivocal power." The language of Mr. Justice Harlan in concluding the unanimous opinion of the court in City of Evansville v. Dennett, 161 U. S. 446, 16 Sup. Ct. 618, when so changed as to adapt itself to the bonds in suit, may fitly close this decision, already extended at too great length:

"The conclusion we have reached on legal grounds * * * is the more satisfactory, because of the long time which elapsed before any question was raised by the city as to the validity of the bonds. The city having authority, under the circumstances, to put these bonds upon the market, and having issued them under the corporate seal of the city, and under the attestation of its highest officer, certifying that they were issued under section 500 of the Code, viz. for a loan negotiated in anticipation of its revenues, the principles of justice demand that the bonds, in the hands of bona fide holders for value, should be met according to their terms, unless some clear, well-settled rule of law stands in the way. No such obstacle exists."

Let defendant's demurrer be overruled, and defendant be ordered to further plead herein by April 1, 1897; to all of which defendant excepts.

MATHESON v. CAMPBELL.

(Circuit Court of Appeals, Second Circuit. January 13, 1897.)

1. PATENTS—MISUSE OF CHEMICAL TERMS.
   The use of "nitrate" of sodium for "nitrite" of sodium, in the specifications of a patent for a coloring compound made from coal-tar products, *held* not sufficient to invalidate the patent, it appearing that no one skilled in the art would be misled thereby, and that this particular misuse of terms was common in the earlier patents relating to the art. 69 Fed. 597, affirmed.
2. SAME—OMISSIONS FROM SPECIFICATIONS—PRODUCT PATENT.
   In a patent for a coloring compound made from a coal-tar product, the omission, from the description of the specific process, of an express direction for a second diazotization, whereby an amido-azo compound is converted into a diazo-azo compound, *held* immaterial, as any one skilled in the art would

understand that there was to be a second diazotization, because it was so stated in the general formula, and because a reference in the specification to a diazo-azo compound would inform any practical coal-tar manufacturer that it was necessary. 69 Fed. 597, affirmed.

3. SAME—DEFECTS IN SPECIFICATIONS—ERRORS OF SOLICITOR.
The rule that an applicant is bound by the acts of his solicitor does not require the avoidance of a patent on the theory of a fraudulent suppression or misrepresentation, where, through the solicitor's ignorance of the chemical processes involved, some changes were made in the original specifications, during the absence of the applicants in Europe, resulting in immaterial omissions and errors, which could not mislead one skilled in the art.

4. SAME—COLOR COMPOUNDS—COAL-TAR PRODUCTS.
A patent for a coloring compound made from coal-tar products should be so plain in its description that an ordinary manufacturer of aniline colors, having such ordinary knowledge as existed in this country at the date of the patent, would be enabled thereby to carry out successfully its processes. 69 Fed. 597, affirmed.

5. SAME—PRODUCTS OR COMPOSITIONS OF MATTER—IDENTIFICATION.
Every patent for a product or composition of matter must identify it so that it can be recognized aside from the description of the process for making it, or else nothing can be held to infringe which is not shown to have been made by that process.

6. SAME—TESTS OF IDENTITY.
When an alleged infringing compound fails to respond to the various specific tests of identity which the patentee himself has selected and set forth in his patent, he cannot fairly insist that it is identical with his product.

7. SAME—ACTS OF SOLICITOR.
When an identifying test has been put into a patent covering a compound or chemical product, by the solicitor, in the absence of his client, and the latter accepts the patent, and applies for no reissue on the ground of mistake, the court, in a suit for infringement, will not, at the patentee's instance, ignore the test altogether, as ridiculous surplusage.

8. SAME—ON REHEARING—CONSTRUCTION—VALIDITY.
The specifications of a patent for a color compound produced from coal-tar products set forth, by a general formula, as the broad invention or discovery, that any sulpho acids of any radical (a group comprising over 100 different substances), when treated according to the process described, would produce the compound of the patent. The patent then set forth, "as an example," a special process by which the compound was produced from one of these substances. In fact, only a few of the substances would produce the compound. *Held*, that the patentees were not entitled to a monopoly of all the substances which might be found, by future experiments, to produce the compound claimed; nor could the patent be construed as covering merely the particular substance used in their "example," and it was therefore void. 69 Fed. 597, reversed.

9. SAME—COLOR COMPOUNDS—COAL-TAR PRODUCTS.
The Hoffman & Weinberg patent, No. 345,901, for a naphthol-black color compound, produced from coal-tar products, construed, and *held* invalid, because it claims an invention or discovery much broader than that actually made. 69 Fed. 597, reversed.

This is an appeal from a decree of the circuit court Southern district of New York sustaining the validity of United States letters patent No. 345,901, dated July 20, 1886, to Hoffman & Weinberg, assignors to Leopold, Casella & Co., for "naphthol-black color compound," and finding infringement thereof by the appellant, John Campbell. A most exhaustive discussion of the many points raised in the case will be found in the opinions of the circuit court on the trial and upon a rehearing. They are reported in 69 Fed. 597, and 77 Fed. 280.

The patent reads as follows, the paragraphs being here numbered for convenience of reference.

"(1) Be it known that we, Meinhard Hoffman and Arthur Weinberg, both residing in Mainkur, near Frankfort on the Main, Germany, have invented certain new and useful improvements in coloring matters, of which the following specification is a full description:

"(2) The present invention relates to a new method for manufacturing blue to violet coloring matter belonging to the azo group.

"(3) We take one of the compounds corresponding to the general formula, R ($S O_3$ H)x—N=N—C_{10} H_6 N H_2 (a), obtained by the reaction of diazo-sulphonic acids upon alpha-naphthylamine, and convert it into the diazo-azo compound, with the necessary quantity of nitrous acid. This diazo-azo compound is then allowed to react upon naphthol or naphthol sulphonic acids in an alkaline solution.

"(4) As an example, we shall describe the process of carrying out the manufacture of the dark-blue azo coloring matter, which we call 'naphthol-black.' We dissolve thirty-five kilograms naphthylamine disulphonate of sodium in three hundred liters of water acidulated with thirty kilograms of muriatic acid, twenty-one degrees Baumé, and diazotize by addition of seven kilograms of nitrate of sodium in aqueous solution at a low temperature. Thereupon eighteen kilograms of chlor-hydrate of alpha-naphthylamine dissolved in five hundred liters of water are poured into the above mixture, while constantly stirring. The diazo-azo compound thus formed is allowed to act upon a solution of thirty-six kilograms of beta-naphthol alpha-disulphonate of sodium (salt R), kept alkaline by addition of twenty kilograms ammonia, of twenty per cent. The immediately formed coloring matter separates completely by addition of common salt. It is then filtered, and is delivered to the trade as a black paste, or in solid form.

"(5) Naphthol-black produces on the fiber, in an acidulated bath, dark-blue shades. It is very soluble in water, insoluble in spirit, and dissolves in strong sulphuric acid with green color. Reducing agents destroy the color-forming alpha-naphthylamine besides other products.

"We claim, as a new product, the herein-described dye stuff or coloring matter of a black color, and capable of dyeing shades of dark blue, as set forth.

"In testimony," etc.

As a convenient preface to the use in the following opinion of technical terms, the following excerpt from the opinion of the circuit court may be consulted:

"Certain aniline colors derived from coal tar are known as 'azo compounds'; the word 'azo,' derived from 'azote,' or nitrogen, being used to show that these compounds contained nitrogen in the form of nitrous acid. Among the chemical processes used in the creation or development of coal-tar colors is that of azotization. To azotize such a color is to treat it with nitrogen. To diazotize is to unite two nitrogen atoms to a hydrocarbon radical, and to form a diazo-azo compound. A repetition of the process, or rediazotization, forms a diazo-azo compound. The general formula, R ($S O_3$ —H)x—N=N—C_{10} H_6 N H_2 (a), includes the sulpho acids of any radical, a group comprising a great number and variety of colors."

E. N. Dickerson, for appellant.

Henry P. Wells, for appellee.

Before WALLACE, LACOMBE, and SHIPMAN, Circuit Judges.

LACOMBE, Circuit Judge (after stating the facts). The patent, after the brief statement of invention in paragraph 2, sets forth, in paragraph 3, what has been aptly called a "general description" of the process to be followed in order to obtain the product sought to be patented, and, in paragraph 4, gives a specific description "as an example" of the process of carrying out the manufacture of the product when certain starting ingredients named therein are used. This paragraph has been aptly called the "special process."

To the validity of the patent, it is objected that the specification fails to disclose a process which will result in the product, because of errors and omissions in paragraph 4. If the directions of that para-

graph are literally followed, no dye stuff of a black color, and capable of dyeing shades of dark blue, will be produced. The error consists in calling for the "addition of seven kilograms of nitrate of sodium," instead of the same quantity of "nitrite of sodium." The evidence in the case sustains the finding of the circuit court that this error is immaterial, for the reason that no one skilled in the art would be misled by the mistake, "since it was well known at the date of the patent that it was necessary to use nitrite of sodium to carry out the diazotization in the manufacture of coal-tar colors, and that the use of the word 'nitrate' for 'nitrite' was common in the earlier United States azo patents."

The omission from paragraph 4 is of any express direction for a second diazotization, whereby the amido-azo compound is converted into a diazo-azo compound. On this point, again, we concur with the judge who heard the cause in the circuit court, in the finding that this error of omission is immaterial, since any one skilled in the art would have understood that there was to have been a second diazotization, because it is so stated in the general description or formula of paragraph 3, and also because paragraph 4 itself indicates that the product of the first steps of the "special process" is to be a diazo-azo compound, which would be sufficient "to inform any practical coal-tar manufacturer that a second diazotization was necessary."

It appears that the specification as originally filed called for "nitrite" of sodium, and not "nitrate," and gave specific directions in paragraph 4 to diazotize a second time. Defendant contends that the variance in these respects between the specification as filed and as finally amended cannot be claimed to be inadvertence, but, on the contrary, was a distinct and intentional change, and that the court should find that the patentee, for the purpose of deceiving the public, caused his specification to contain less than the whole truth relative to his invention or discovery, and should therefore hold the patent absolutely and ab initio void. Simpson v. Holliday, 13 Wkly. Rep. 577. The applicants for this patent were in Europe and their solicitor here evidently knew little, if anything, about the chemistry of azo products; and there is nothing in the record to suggest that the changes which the solicitor made were due to anything except his own ignorance, or that he had any intent to mislead or to conceal. It is not doubted that an applicant is bound by the acts of his solicitor, but this contention seems to go beyond this wholesome rule when it seeks to void a patent, upon the theory of a fraudulent concealment or fraudulent misrepresentation, because, through the solicitor's ignorance, the specifications, when describing the process of manufacture, contain some immaterial error or omission, which could not mislead a person skilled in the art.

It is next objected that the patent is void because, as is alleged, a person skilled in the art, making the corrections of error and omission above set forth, and following the special process of paragraph 4, would, nevertheless, not succeed in producing the "naphthol-black" which that paragraph asserts to be the product of such process. The issue raised upon this branch of the case is tersely stated in appellant's brief:

"The bodies referred to in the example [of the special process] are, in the first place, naphthylamine disulphonate of sodium; in the second place, the chlor-hydrate of alpha-naphthylamine; and, in the third place, beta-naphthol alpha-disulphonate of sodium (salt R). The last two terms relate only each to a single body. The words 'naphthylamine disulphonate of sodium' relate to a number of bodies. Complainant's expert says five were known at the date of the patent,—acid R, acid G, and three other acids. * * * Defendant's expert, a chemist of the highest science, * * * tried in vain to produce the coloring matter of the patent using these acids, and adding thereto the knowledge of the art as known to him. [This, of course, with the corrections above set forth.] In carrying out these experiments, he took the instruction of the art for the making of the acids he used, * * * and [with the acids thus made] entirely failed to produce the results aimed at in the patent."

Complainant's experts, on the other hand, insist that the difficulty with these experiments was that the acids used were not pure; and although they admit that the literature of the art, if followed in the manufacture of these acids, would have resulted in acids more or less loaded with impurities, they insist that one skilled in the coal-tar color art, when instructed, as he was by this patent, to take acid R, or acid G, or what not, would have understood that, before using such acid as starting material for producing an azo coloring matter, he should test it for impurities, and, when found, remove them. Upon this branch of the case, the evidence is voluminous and highly technical. The judge at circuit reviewed it at great length. It is, of course, purely a question of fact, the discussion of which need not be entered into in this opinion. The pertinent rule of law is correctly stated in appellant's brief:

"Patents [such as this] should be so plain under the statute as that an ordinary manufacturer of aniline colors, having such ordinary knowledge as would exist in this country at the date of the patent, should be enabled by the instructions of that patent to carry out successfully its processes."

The weight of evidence seems to support the findings of the trial judge that:

"It was the common practice in coal-tar factories, at the date of the patent in suit, to test the raw materials to be used in the manufacture of colors, in order to ascertain their character and degree of purity."

It appears that, when naphthylamine disulphonate of sodium is used technically pure,—i. e. not chemically pure, but only in that degree of purity which the practice of the art requires,—the reactions of the patent may be affected. It would therefore appear that the circuit court correctly found that:

"The specifications of the patent in suit are sufficient to enable a person skilled in the art to obtain the product of the patent, using the ordinary knowledge of the class of persons to whom the patent is addressed."

A much more serious objection to the validity of the patent arises by reason of what complainant's counsel calls the "effort of the inventors to protect themselves against such as might try to steal their broad discovery." Referring again to the patent, the following analysis of it is found in the testimony of complainant's experts:

"The patent in suit was the first printed publication which described a process by which a black dye could be produced from coal tar. The patentees declared their broad invention, and described it in [paragraph 3]. They said: 'If you take any sulpho acid of any radical, and treat as we direct you, you will get a color producing black.' By this declaration they opened their discovery broadly to the

public, concealing nothing. Then they proceeded [paragraph 4] to take one radical naphthyl, and describe specifically the production of the black color from it. Having done so, they proceeded [paragraph 5] to describe some characteristic relations, other than their use in the art, by which they might be known and identified [the "tests" of the fifth paragraph]. Of course, with the change of the radical there is a change in the chemical composition of the product; but in the art the patent, in effect, declares that one is the equivalent of the other, and may be used as a substitute for the other, and that they are therefore technically the same."

In other words, the patentees, according to this construction of the patent, say:

"We described here a special process, whereby, with one of the general group of chemical compounds which are known as 'sulpho acids' as starting material, we produce a black dye. This, however, we give as an example, for we hereby announce to the world that we have discovered that if you take any sulpho acid of any radical, and treat it according to our process, you will get a coloring producing black; wherefore we shall insist that whatever particular sulpho acid any one may hereafter use to obtain this result is an equivalent of the one we use in the special process."

Now, the evidence shows, and it is not disputed, that the phrase "any sulpho acid of any radical"—which is the translation of the general formula, "R ($S O_3 H$)x—N=N—$C_{10} H_6 N H_2$ (a)"—is a very broad one, covering over 100, possibly as many as 500, different sulpho acids. It is proved and conceded that very many, in fact nearly all, of these, will not, when treated according to the patentee's process, produce the patentee's color. In other words, when the inventors said, "If you take any sulpho acid of any radical, and treat it as we direct you, you will get a color producing black," they made a false statement. Complainant's experts insist that this would mislead no one. They say:

"The preparation of these various bodies [other than what the special process specifically names], and the tests of their capability of forming naphthol black compounds, would require several years; and therefore any one would know that the patentee had never done this, and did not mean to be so understood. * * * The patentee * * * gives a general description of the whole possible scope of his discovery, and thereby intimates that, though he cannot possibly himself have tried all the hundreds of bodies which fall under the general formula, still it is probable that many of them will fit into his process, and produce his product. But he confines his positive assertion to what he has himself actually tried, as set forth in his example; that is, the naphthylamine disulpho acids, or, rather, the sodium salts thereof."

In other words, having himself experimented only with three or four bodies out of a group of hundreds, he proposes to set himself in the pathway of future experimenters with any or all of the other bodies, and, as the result of each new experiment is disclosed, will fire away at it, calculating to "hit it if it is a deer, and miss if it is a cow." That this is precisely what is contended for is manifest from the statement, prominently set forth in appellee's brief:

"The inventors were entitled to protect themselves against such as might try to steal their broad discovery, by the general statement that many of the bodies included in the general formula might, when subjected to their process, produce naphthol-black; and that the products so produced from those that did work were the equivalents of the product resulting from the specific materials set forth in the example. Without this or something of the kind, the real invention could have been appropriated with impunity, and this pioneer patent for a most valuable discovery would have been almost valueless to the inventors."

This assertion at once suggests two criticisms: (1) The patent contains no general statement that "many of the bodies included in the general formula might," etc. The general statement is that "all such bodies will," etc. (2) The inventors did not make any such "broad discovery." They made the specific discovery that some di-sulpho acids, treated according to their process, would produce their product. The broad discovery that all sulpho acids may be thus transformed they certainly did not discover, for it is apparently undiscoverable, since most of them cannot be thus transformed by the process of the patent. Some future experimenter will have to make some new discovery, and invent some new process, before these other sulpho acids can be transformed into naphthol-black. We are referred to no authority, and know of no principle, which will sustain the complainant's contention that he can thus, in the language of the circuit court, "speculate on the equivalents of his claimed invention, and thereby oblige the public to resort to experiments in order to determine the scope of the claims of his patent."

The appellant insisted that the multifariousness of the general formula and description invalidated the whole patent; but the circuit court reached the conclusion that it could be held valid, by limiting it so as to embrace only the product of the special process, definitely stated, and applied to naphthylamine disulphonate of sodium, as specifically claimed. The argument in support of this construction may be best stated in excerpts from the opinion below:

"The general statement may be fairly considered as a disclosure to the public of the general character and scope of the discovery, inserted merely as a help to a better comprehension of the special process of the patent. As is stated by complainant's expert, a chemist would more readily understand the process and reactions from such a graphical formula than from a general description. A comparison of said statement with the special process, and an examination of the claim, show that the general formula only describes the class of bodies to which naphthyl belongs, and covers only the first step in the reaction. It does not profess to give a resulting color product. * * * When the patentees undertake to describe the complete process, and to claim the resulting product, they confine the application of the process to a single body, and the tests and claim to a single product. It does not appear that a person skilled in the art, upon reading the patent, would have been misled into supposing that all the compounds covered by the general formula would produce the patented color, or, upon an examination of the whole patent, would have understood that it purported to describe all the bodies included under the general formula. The patentees say that 'the present invention relates to a new method for manufacturing blue to a violet coloring matter belonging to the azo group.' They then say: 'We take one of the compounds corresponding to the general formula,' etc., and treat and convert it. Then follows the special process for obtaining one of the various 'coloring matters belonging to the azo group,' namely, naphthol-black, with appropriate tests, and a claim limited to the single product of the special process upon the special body 'naphthyl.'"

Referring to the rule of interpretation that a patent must be construed in conformity with the self-imposed limitations contained in the claims, the court proceeds:

"In the case at bar the case is confined by 'the herein-described dye stuff, * * * as set forth.' The only dye stuff described is the filtered coloring matter delivered to the trade as a black paste or in solid form, of the special process.

The general statement contains no reference to a product. Manifestly, the claim could not be construed to cover any body other than naphthyl of the special process, either upon the question of infringement or validity."

And the conclusion arrived at is that the patent may fairly be construed as a patent for the definite product of the special process. Such construction would, of course, naturally reduce the range of equivalents within extremely narrow limits. The conclusion we have reached as to the question of infringement, however, renders it unnecessary to decide this question of construction upon this appeal.

It must be borne in mind that, in the practical determination of questions of alleged infringement, the problem is very different when we are dealing with a chemical compound than it is when we are dealing with a machine. Such observation as the eye can give to the machine at rest and in action, illuminated by a comparison of the co-ordination of its parts with that of like parts in other machines, will be ordinarily sufficient to determine its classification. Far different is it with a chemical compound. No mere observation by the eye, supplemented even by the taste and touch, can go very far towards a solution of the problem. The same mysterious forces through whose action and reaction the compound was produced must be availed of to disintegrate and disrupt, before there can be any assurance of what it is we have before us. Hence it is that so-called "tests" are devised by those skilled in the art and science of chemistry, which, in their opinion, as experts, will reveal the secrets of the composition sufficiently to make the answer to the question positive enough to support the judgment of a court.

An inventor takes certain starting materials, and subjects them to a process he has devised. The result is a product. If he sufficiently describes the starting materials and the process in his patent, he may claim the product, being new; but, if he simply defines what he claims as the "product of his process," he might find it an extremely difficult matter to prove infringement. "Every patent for a product or composition of matter must identify it so that it can be recognized, aside from the description of the process for making it, or else nothing can be held to infringe the patent which it not made by that process." Cochrane v. Badische Anilin & Soda Fabrik, 111 U. S. 293, 4 Sup. Ct. 455. Now, there are many tests that may be applied to two bodies which are being compared in order to determine whether they are or are not identical. The number of these tests may be multiplied indefinitely, for the skill, the experience, the scientific ingenuity of the chemist, will ever devise new ones in the future, as they have the old ones in the past. Some of these tests will be of great significance; some, almost crucial; others will be of but minor importance. Their relative value, no doubt, may change as science goes sweeping on from point to point; but it must be sound law, as it is reasonable common sense, to hold that the tests of prime importance in a suit for infringement are those which the patent itself prescribes. The inventor certainly may be assumed to know what it is that he has invented. If any one is able to describe the product of his inventive

skill, it is himself. He surely knows the earmarks of the thing he seeks to patent, and when, out of the multitudinous qualities which his product may exhibit under varying conditions and in different relations, he has selected and set forth in his patent a chosen few, surely these should be accepted as the distinguishing earmarks,—the characteristic stigmata of the product his patent is to cover. It may be that, after it is found that the body under investigation responds to all the tests of a patent, science may yet be able to demonstrate by other tests that, nevertheless, it is not the new product therein patented; that the patentee had selected identifying tests broader than he was entitled to, and which would cover products not within the range of his discovery. But, when the body under investigation fails to respond to the specific tests the patentee has himself selected, he certainly cannot fairly insist that it is identical with his product.

In framing the patent in suit, care was taken to avoid the difficulty pointed out in Cochrane v. Badische Anilin & Soda Fabrik, supra. Certain identifying tests were set forth, so that the inventors might be able to contend that a chemical compound which responded to them all was, prima facie at least, an infringement of their patent. The tests of the patent are:

First. The dye stuff is a black paste or in solid form; and, though the patent does not say so, this test would be fairly responded to if the black solid had been mechanically transformed into a black powder.

Second. It produces on the fiber, in an acidulated bath, dark-blue shades.

Third. It is very soluble in water.

Fourth. It is insoluble in spirit.

Fifth. It dissolves in strong sulphuric acid with green color.

Sixth. Reducing agents destroy the color-forming alpha-naphthylamine besides other products.

The dye stuff as to which it is to be determined whether or not it infringes is the dye stuff sold by defendant, of which a can was, by stipulation, put in evidence, as "Complainant's Exhibit, Defendant's Color." There is no evidence at all in the case by what process the dye stuff was made. Complainant therefore undertook to prove infringement by the application of "tests." His expert testified that he had applied 34 tests, and that of those tests 5 are named in the patent. We have carefully examined his enumeration of the tests he applied, and fail to find therein more than 4 of the tests of the patent, viz. the third, fourth, fifth, and second. In applying the fourth test, he used both methylic alcohol, in which it was soluble, and ethylic alcohol, in which it was not; but he evidently does not mean to imply that these are to be taken as two tests under the patent, for, if the various double and triple tests of his enumeration are to be thus split up, the list will number more than 34. The evidence supports the conclusion of the circuit court that the words "insoluble in spirit" refer to ethylic alcohol, not to methylic alcohol. To the four tests of the patent which complainant's experts applied, the defendant's dye stuff responded.

The testimony as to the first test of the patent is not very satisfactory, but, in view of the sense in which the word "black" appears to be used in this art, we are not prepared to say that de-

fendant's color failed to respond fairly to this test. The sixth test above quoted from the patent brings up a question of construction. It reads "reducing agents destroy the color-forming alpha-naphthylamine besides other products." Even without any evidence, it is apparent that the sentence is awkwardly expressed. It seems to imply that the black paste or solid consists of alpha-naphthylamine, which forms the color, and of other products, and that reducing agents destroy them all. The proof shows conclusively (all the experts agreeing) that there is no alpha-naphthylamine in the black paste or solid. The alpha-naphthylamine perished long before the ultimate black paste of the patent appeared. Complainant's expert suggests that the sentence means that, "by reducing agents, alpha-naphthylamine, which was used to form the color of the patent in suit, and therefore in the patent is named the color-forming alpha-naphthylamine, is destroyed." But this is not materially helpful, for he says that reducing agents would not change alpha-naphthylamine at all, and he most certainly concedes that, in the ultimate product of the patent, alpha-naphthylamine does not exist as such. The sum of his testimony is that the reducing agents are to be applied to the color. In the light of the testimony, the sentence, as it stands, is, if not meaningless, at least ambiguous. It is apparent that the awkwardness of the sentence arises from the use of the hyphen between "color" and "forming." If that were eliminated, all concede that the plain meaning of the sentence would be that reducing agents would destroy the color, and alpha-naphthylamine would be formed. And the same result would follow if the hyphen were made a little longer, so as to become a printer's dash. It is not necessary, however, to theorize upon this point, or to guess at the meaning of the sentence. It is demonstrable by evidence well recognized as competent in patent causes that the presence of the hyphen is due to a printer's error.

The file wrapper shows that as to tests the original specification read as follows:

"These new dye stuffs produce on wool and silk, in an acidulated bath, violet to dark-blue shades. They are very soluble in water, insoluble in spirits, and dissolve in strong sulphuric acid with green color. They are destroyed by reducing agents, forming alpha-naphtylendiamine besides other products."

Subsequently this part of the specification was amended so as to read as follows:

"Naphthol-black produces on the fiber, in an acidulated bath, dark-blue shades, It is very soluble in water, insoluble in spirit, and dissolves in strong sulphuric acid with green color. Reducing agents destroy the color, forming alpha-naphthylamine, besides other products."

And in this form it was allowed by the patent office. That the hyphen was inserted in the printed copies issued by the office through a printer's blunder is manifest. It is apparent, then, that the inventors prescribed, as one of the tests which would disclose the identity of any body with their product, the action of reducing agents thereon. This action must be such as to destroy the color, and form certain products. The characteristic product of

those thus formed, the one which they selected as determinative under this test, they originally declared to be "alpha-naphtylendiamine." Subsequently, and before patent issued, they changed that declaration to "alpha-naphthylamine." There is no evidence that one skilled in the art would know, when he saw "alpha-naphthylamine" named as the identifying product, that it was a misnomer for "alpha-naphtylendiamine." We know no reason why they should not be held to the selection they thus declared to the public as one of the characteristic tests of their product. If this were a blunder of an ignorant solicitor, they had ample opportunity to correct it by reissue; but, having allowed it to stand in their patent, they must be held to their declaration that reducing agents will produce this result. It has been suggested that since the evidence shows that alpha-napthylamine would not be formed out of the product of the patent by reducing agents, and that persons skilled in the art would know that fact, the entire test may be rejected as nonsensical surplusage. But there must be some limit to a court's functions in rewriting patents. Assuming that all the imperfections in this patent were due to an ignorant solicitor, remote from his clients,—and it may be noted that there is no evidence of this,—it does not follow that all should be disregarded. We held, as to the error and omission of paragraph 4, that the omission was really supplied elsewhere in the patent; that the error was harmless, since the skilled workman would himself substitute "nitrite" for "nitrate"; and that, although the error must stand in the patent where the patentee's careless solicitor had placed it, we would not infer from its presence that it was due to a fraudulent design to mislead, formed and carried out by the patentees. But here there has been an identifying test put into the patent by the solicitor; the patentee accepts such patent, and applies for no reissue, alleging no mistake; and the court is asked to strike out the test altogether, as ridiculous surplusage. In the absence of any authority for such action, we are unwilling to establish the precedent. By what their solicitors do, patentees should abide. If they are dissatisfied with the letters patent their solicitors obtain, they may, in proper cases, apply for a reissue; but, when they accept their original patents without objection, they must be assumed to have assented to such changes as were made by their solicitors in specification or claim while their application was on its way through the patent office.

When the defendant's coloring matter is treated with reducing agents, it is destroyed, but no alpha-naphthylamine is formed. We have, then, a case where the inventor has prescribed six tests in his patent, and an alleged infringing body responds to five of them, but fails to respond to the sixth. Manifestly, it is not absolutely identical with the product of the patent, as the inventor has defined that product by distinguishing characteristics. It may be that the variance results from some immaterial change in the process, from the use of starting material, which is within the fair range of equivalents; but, having failed to prove identity by the prescribed tests, the burden is on the holder of the patent to show