I should have designated the last week in September as the proper time for the adjournment, but the chairman of the committee of bondholders stated in open court that he could not attend the sale during the month of September.

Let an order be entered directing notice to the marshal, and the solicitors of the respective parties, that the sale of the property stands over until Tuesday, October 10, 1882, at the same place and hour as heretofore advertised, and that the marshal give legal public notice of the adjournment.

WALLACE *v.* NOYES and others.

(*Circuit Court, D. Connecticut.* August 7, 1882.)

PATENTS FOR INVENTIONS—PROCESS FOR MAKING SPOONS AND FORKS.

Where the patentee attained the result of producing a new thing, a silver-plated steel spoon, by a succession of old processes, which, though separately old, had not been practically grouped together in the order in which he used them, it is a patentable novelty in process.

B. F. Thurston, John S. Beach, Charles E. Mitchell and *L. M. Hubbard,* for plaintiff.

E. N. Dickerson, Charles R. Ingersoll, and *J. W. Towner,* for defendants.

SHIPMAN, D. J. This is a bill in equity to restrain the defendants from the alleged infringement of letters patent to Robert Wallace, as inventor, No. 220,003, for improvements in the process of manufacturing spoons and forks, and also of letters patent to said Wallace, No. 220,002, for improvements in spoons and forks. The former patent was for the process of manufacturing silver-plated spoons and forks, from homogeneous steel; the latter was for the product from such process. Each patent was dated September 23, 1879.

The nature of the invention, as claimed by the patentee, and the precise thing for which letters patent were granted, will be best understood by quoting his description in the specification of the process patent:

"This invention relates to an improved process for the manufacture of spoons and forks, consisting of inferior metal plated with precious metal, usually silver; the object being to produce spoons and forks which shall be of small initial cost, of great durability, and susceptible of a highly-finished and ornamented surface.

"Spoons and forks resembling silver in their finish, ornamentation, and general appearance have ordinarily been made of an alloy largely composed of copper and zinc, known in the arts as German silver, and of other metals or alloys of similar composition, which could be rolled and stamped with as much facility as silver. Sheet and cast iron have also been largely used in the manufacture of a cheap article of spoons and forks, and such articles of table ware have usually been provided with a coating of tin; but spoons and forks made of iron could not compete in their finish and appearance with spoons and forks made of German silver or similar alloys; and such articles form a distinct class of manufacture. I am also aware that spoons and forks have long been made, in whole or in part, of steel, and in some cases the articles have been plated with precious metal, and hence I make no broad claim to spoons or forks made either of iron or steel, as my invention consists in an improved process for the manufacture of spoons and forks of homogeneous steel, whereby the finished article is possessed of all the desirable and valuable characteristics of silver-ware in its appearance, finish, ornamentation, strength, and durability, while it is much lighter in weight, and can be produced at a much lower cost than the ordinary articles of silver-ware.

"German silver and similar alloys are adapted to be rolled and stamped with the same facility as silver; but homogeneous steel requires more than four times the pressure imparted to German silver before the homogeneous steel can be made to flow into the fine and deep recesses of that portion of the dies for producing the desired ornamentation, and hence the ordinary process resorted to in the manufacture of German-silver spoons and forks is wholly impracticable, if it is desired to employ homogeneous steel in the manufacture of such articles.

"I will now proceed to describe the various steps for carrying my improved process into effect.

"The homogeneous steel is first rolled into sheets of the desired width, length, and thickness, and from such sheets the blanks, *a*, *a*, are cut, as illustrated in figure 1, whereby the material is economized and waste scrap is avoided. The blanks, *a*, *a*, are then rolled to extend the same, and to impart varying thicknesses to different portions of the blank, as shown in figure 2.

"The blanks are rolled cold, and, as heretofore stated, when the blanks are composed of silver, German silver, or similar material, no difficulty is experienced in the process of rolling; but with homogeneous steel the blanks cannot be rolled in the usual manner on account of the greatly-increased power necessitated in forcing the blank through the rolls, and also for the reason that the surface of the steel is so smooth that the rolls fail to take hold of the blank promptly.

"In rolling articles of irregular or varying thickness, it must be remembered that the blank must enter the rolls at a fixed point, and that the slightest slip or variation of the blank not only ruins the blank, thus causing loss of material and all previous labor bestowed upon the blank, but that such variation or slip of the blank is liable to injure the rolls, and thus cause a still greater loss to the manufacturer. To prepare the blank, therefore, for

rolling, and prevent it from slipping as it enters between the rolls, I thoroughly cleanse the blanks, preferably by placing a large number of blanks into a tumbling barrel or mill with a quantity of pumice stone, or other similar substance, that will operate to scour the surface of the blanks. Then, to insure a prompt and certain hold of the rolls on the blank, and prevent the latter from slipping, I cover the rolls or the blank, or both, with turpentine, and when the blank is now entered between the rolls it is promptly and firmly grasped and transformed into the desired form, as indicated in figure 2. From the blank, after having been rolled, is stamped the spoon-blank proper, *b*, as illustrated in figure 3, or a fork-blank in case the blank was rolled for the production of fork-blanks.

"When homogeneons steel has been compressed by cold rolling, as hereinbefore described, it is of such density that it is necessary to soften the metal by annealing, that it may yield sufficiently to receive the impression of the dies for ornamenting the surface of the article. The operation of annealing is usually performed by heating and slowly cooling the blanks, and in the manufacture of spoons and forks, from the metal ordinarily used, the blanks are ordinarily annealed in an open oven or furnace; but this method of annealing will not answer when the blanks are formed from homogeneous steel, because the latter will oxidize and blister, and thus injure the surface of the blanks. To prevent this I pack the blanks tightly in close-fitting iron boxes, and close all the joints of the boxes by luting the joints with clay, and thus exclude the outer air from the blanks within the boxes. The boxes are then placed in a furnace and heated to the desired temperature, after which they are allowed to cool, care being taken not to open the boxes until they have become cold; and when the blanks are removed from the boxes it is preferable to protect them from the direct contact and influence with the atmosphere, which may be effected by sprinkling unslaked lime over them."

The stamping, forming, and plating processes are also described, which are those usually practiced in the manufacture of German-silver plated spoons.

The claims of the process patent were as follows:

"(1) The method or process of manufacturing forks or spoons from homogeneous steel, consisting, essentially, in the following steps: *First*, in cutting the blanks of the desired size and form; *second*, in imparting a smooth surface to the blank; *third*, in applying adhesive substance, such as turpentine, to the blanks or rolls, or both, preparatory to rolling, and afterwards cold-rolling the blanks to impart the desired thickness to the different portions thereof; *fourth*, in annealing the cold-rolled blanks in air-tight receptacles; *fifth*, in stamping, shaping, and plating the blanks to form the completed article substantially as hereinbefore set forth.

"(2) In the process of manufacturing forks or spoons from homogeneous steel, the method of preparing the blanks, consisting in applying adhesive substance, such as turpentine, to the blanks or rolls, or both, preparatory to subjecting the blank to the pressure of the rolls, substantially as set forth."

The art of manufacturing silver-plated German-silver spoons was well known at the date of this invention, and the various operations are described by Mr. A. A. Sperry, the defendant's foreman, as follows:

"The first operation in making a German-silver spoon is to cut the blank from a sheet of metal of the required width and thickness. The blank is then annealed. It is then plated in acid to remove the scale. This operation is called pickling. The next operation, after washing the blank with water, is to place it in a tumbling barrel with a quantity of sawdust. It is then tumbled a short time to remove the moisture. The blank is then taken to the rolls. The upper roll, as they are usually used in rolling spoon blanks, is so formed that the spoon in passing through the rolls shall leave such portions of the spoon where strength is required of the necessary thickness, while the bowl and end of the handle for ordinary figured work shall be made thin. This is called graded rolling. Except in the manufacture of solid-silver tableware, there is no other rolling known in the spoon business proper, except graded rolling. There is no other rolling known in the spoon business proper, except cold rolling. After the rolling of the blank, the next step is cutting out the spoon. Next is the annealing process. After the annealing the blank is again pickled. The blank is now ready for cutting down; this is done on belts coated with some polishing material to cut away the rough surface of the blank, and reduce it to a smooth surface. The blank is now ready for putting on the impression; this is called striking or stamping. From the edges of the spoon the burr is now cut away on belts and wheels, and the edges are polished. The spoon is now ready for bowling; that is, forming the bowl between the dies. The next step is shaping the handle. The spoon is now ready for facing the bowl, and finishing."

The "blanking" or cutting out of the blank is usually done by the process patented by Leroy S. White, in letters patent of December 24, 1867.

Iron tinned spoons had been manufactured for years prior to 1878. They were a cheap and coarsely-finished article. In this condition of the art, the Pittsburgh iron and steel manufacturers began, in 1876, to bring to the notice of the Connecticut spoon makers soft or "homogeneous" steel as a suitable article for the manufacture of spoons. Within the last 20 years this kind of steel, or steel produced by fusion, as distinguished from that produced by cementation, has been extensively manufactured, both by the "crucible" process and by the Bessemer and Siemens-Martin processes, and has been used for a great many purposes. All steel is homogeneous, but the term has been applied to this kind of steel on account of its especial uniformity of structure. The article is low in carbon, and does not harden and temper in water, and in that respect is

materially unlike the steel which was formerly manufactured, and therefore has been refused the name by many metallurgists. Whatever it should be properly called,—and it seems that ingot iron would be a more exact name,—its manufacture into flat table-ware was undertaken by a number of the Connecticut manufacturers about the year 1876. Some of them made tinned steel spoons which were like their iron predecessors,—a cheap and somewhat coarse article. Others essayed to make and did make silver-plated spoons. But nobody succeeded, commercially at least, till the plaintiff placed upon the market his goods, which are elegant in finish, ornamented with delicate and clearly-defined lines, and, though they cannot permanently withstand rust, are cheaply produced, and possess the advantages which are stated in the patent.

The result to be gained by the efforts of the spoon manufacturers was the silver-plating of table-ware, which should be both durable and susceptible of ornamentation, upon a material cheaper than German-silver, whereby attractive articles could be furnished to the public at a cheap price. The difficulties which were to be overcome, after a material which would not split in manufacture or in use had been found, would naturally arise from the hardness of the material and from its tendency to oxidation. The iron manufacturers furnished the material, which would not split, and was comparatively soft. The invention of Wallace, if invention it was, consisted—*First*, in treating this material in such a way that cold rolling, which was a necessity of prime importance in order to increase the density of the material, and thus to enable the lines of ornamentation to be stamped clearly and distinctly, could be accomplished. This method was by scouring the smooth or glassy and slippery surface of the steel blank so that it would furnish as little resistance as possible to the bite of the rolls, and next by aiding the rolls to take hold of the hard and glossy surface of the steel by the application of turpentine to the blank. *Secondly*, oxidation during the necessary subsequent annealing process was prevented by annealing in covered boxes, made air-tight. The other steps were those usually taken in the manufacture of German-silver spoons.

Before considering the question of novelty, it is desirable to state the elements of the claimed invention with respect to material. It is suggested that "homogeneous steel" is not defined in the patent, and that steel necessarily implies an article which will not harden and temper in water; whereas, it is manifest from the record that the "spoon metal" used by both parties is not steel in that sense.

Prior to 1867–68 the distinctions in this country and elsewhere between iron and steel were sharply defined. Quoting substantially from Mr. Isaac Adams' testimony, but abbreviating somewhat his language, the term "steel" formerly meant a compound of iron and carbon, in which the carbon was present in an amount varying from one-half of 1 per cent. to 2 per cent. The compound thus called steel possessed the properties of both cast iron and wrought iron in a certain degree. It had strength, hardness, and resiliency, but it also possessed a salient property, which the others possessed in a moderate degree or not at all, and that is the property of being hardened and tempered by heating and cooling. But the new processes in the manufacture of iron with carbon have left the distinctions between steel and iron in an unsettled condition, and so there have been for some years two contending definitions of steel,—one which excludes all compounds of iron and carbon which do not have the tempering quality, and another which includes all malleable products produced by fusion, whether or not the percentage of iron is sufficient to give the tempering quality. The term "steel" is practically applied by American steel manufacturers to the low carbon article used by both the plaintiff and the defendants, and from the use of this term no confusion would arise among mechanics as to its meaning, although the spoon manufacturer must necessarily ascertain for himself, by experiment or inquiry, the grade of soft steel which is best suited to his purpose.

Although the product patent seems to imply that the steel must be cold rolled in the process of its manufacture, that was not its meaning. The patentee meant to emphasize that in the process of manufacture of the spoon, the steel must be made dense by cold rolling. He says in the product patent that the smooth and even surface produced by cold rolling is necessary—"*First*, that the surface of the ware may be of uniform density, so that sharp and well-defined ornamentation may be stamped thereon;" and, *second*, to provide the ware with a highly-finished plated surface, which will burnish evenly. The steel which is generally used is hot rolled in its manufacture,—that is, rolled while hot in cold rolls.

The important question in the case relates to the novelty of the patented process. The defendants deny any patentable novelty, because they say: (1) That every one of the mechanical operations stated by the patentee had been successfully practiced in the German-silver spoon manufacture; (2) that they were practiced in the se-

quence pointed out in the patent; (3) that there was no novelty in the successful use of this process upon homogeneous steel.

Tumbling German-silver blanks in sawdust for the purpose of cleaning them from acid and drying them after they had been taken from the "pickle" in which they had been placed after the first annealing, and by which "pickling" process the scale is removed, was well known at the date of the invention. The use of the tumbling barrel for this purpose of scouring metal was also well known. The dipping of blanks in turpentine or sal-soda or water for the purpose of enabling the rolls to take hold of blanks of unusually hard surface, and the occasional annealing of German-silver spoons or other articles in air-tight receptacles, had been practiced. It was well known that steel tools and other articles peculiarily liable to oxidation should be thus annealed. These methods of treating metal so as to overcome difficulties arising from the nature of the material were familiar to experienced metal workers, but there is no satisfactory proof that in the manufacture of German-silver or tinned iron or steel spoons, both the cleaning and dipping in turpentine and air-tight annealing had been resorted to, or were ever used in the sequence named in the patent before the experiments of Wallace. The Messrs. Sperry dipped their blanks in turpentine as an occasional thing. They annealed spoons in air-tight pans or boxes occasionally, and had annealed ladle bowls in that way; but this consecutive process was not the way in which they manufactured their ware. Mr. Lewis' use of turpentine and of air-tight annealing was of the same kind. Mr. Stevens used turpentine in rolling his iron and steel spoons "for a few days." Mr. H. W. Bassett, foreman of Hall, Elton & Co., and who made iron and steel spoons between 1876 and 1878, and Mr. Andrews, who was also in their employ, had used turpentine for 10 or 12 years, but not uniformly. Andrews says he "used it some." The plaintiff's consecutive process to enable cold rolling and perfect annealing to be accomplished was new. Neither is there any satisfactory evidence that this process had ever been used with success upon steel before Wallace introduced it to the public. The efforts of Charles Parker & Co. and of Garry I. Mix to use steel were unsuccessful. They made spoons, but not in a way satisfactory to themselves. Luther Boardman did not practice air-tight annealing. Hall, Elton & Co. made tinned steel spoons, which were a very different article from Wallace's silver plate. I have already adverted to the testimony of their workmen Bassett and Andrews. Stevens, who used turpentine "for a few

days," made iron tinned spoons, and says that "we buffed and plated some" with silver plate, and sold them in the year 1874. If this silver plating had been a success or an affair of moment in Mr. Stevens' business, his testimony in regard to it would have been less vague. The Landers, Frary & Clark steel fork was a different article from the forks in question. It was an unannealed, hardened, and tempered article.

In 1836 silver-plated steel spoons and forks were imported from England by Samuel Haghes & Son. The method of manufacture, whether by forging or rolling, is not known. Mr. Bassett, who was in the employ of the importers when the spoons were sold, thinks that they were close or hand plated, which was done by soldering a sheet of metal upon the article plated. The patentee does not claim that spoons and forks had not been plated before the date of his invention.

The English patent to Job Cutler, of 1853, describes his method of making silver-plated spoons from wrought sheet iron or steel. He cold rolled the strips of iron or steel, cut out the blanks, annealed, pickled, stamped, annealed again if the dies did not produce a good impression, pickled, cleaned, and restamped. He annealed in a muffle or oven made air-tight in some way. The annealing boxes or pans were filled with alternate layers of blanks, and a mixture of charcoal dust or sawdust, coke dust, and Cumberland ore. The peculiarities of the Wallace process, scouring the blanks and dipping in turpentine and annealing in boxes simply made air-tight by cementing the joints, are not given by Cutler.

The defendants also attacked the theory of patentable novelty by the following line of argument, which had great force. The methods of treating cold refractory metal so as to subject it to the rolling operation, and the methods of annealing steel or iron so as to prevent oxidation, were all well known in 1876–7. There was no mystery in the way in which metal workers treated steel and iron. At this time the steel manufacturers of the country began to manufacture soft or decarbonized or homogeneous steel for very many purposes, and conceived the idea that it could be used to advantage by the spoon makers of Connecticut. Ely & Williams, of Philadelphia, introduced the article in 1876 to the different prominent Connecticut manufacturers, who all tried it. Some, like Hall, Elton & Co., and Mr. Boardman, gave it up because they preferred to devote themselves exclusively to German silver, and did not want to procure separate sets of dies and rolls. Others, like Mr. Mix, found the steel too refractory to exhaust

time upon. Mr. Wallace had both patience and a disposition to use time in the employment of old and well-known processes for the manipulation of this article which was represented to possess advantages over wrought iron. There was no invention, there was an application of familiar ideas, and a general mechanical improvement, and there was business skill and energy. There was the employment of the same qualities of mind which have made his brother manfacturers of the Connecticut and Naugatuck valleys successful in the departments of table-ware manufacture to which they have devoted themselves, but there was no striking out a new path in the field of invention. He did just what other people had done, but he exercised patience and energy to make his work a commercial success.

On the other hand, the plaintiff says an attractive, cheap, and durable silver-plated steel spoon was a thing practically unknown in the art. It was wanted. When produced the manufacturers knew that it would fill an empty space in the market. They desired to produce it, and the skillful and prosperous mechanics of the neighborhood set themselves with more or less energy to accomplish this result. Nobody but the plaintiff succeeded. He produced a new thing—a silver-plated steel spoon which was cheap, durable, beautiful, and useful. Having done that, having accomplished what other men tried to do and wanted to do, but did not do, and having shown that he attained the result by a succession of old processes, which, though separately old, had not been practically grouped together in the order in which he used them, the only fair conclusion is that there must have been patentable novelty in the process. The plaintiff's argument seems to me to have the greater weight.

The first claim of the process patent and the various claims of the product patent are found to be valid, but the second claim of the process patent does not possess patentable novelty by reason of the prior use of turpentine upon German-silver blanks before they are rolled.

The question of infringement only remains. The defendants, after blanking, anneal the blank, pickle it to remove the scale, tumble it in sawdust to clean and dry it, then apply the turpentine and cold roll it, and when the second annealing process is to be done, they anneal in air-tight boxes. They do not use pumice stone or anything which scours the blank, but, after annealing, they subject the blank to such cleaning as to make it clean and bright. The smooth and slippery character of the steel is removed by the tumbling, which is practiced long enough to thoroughly clean the surface of the blank.

The process which the plaintiff pointed out has been substantially adopted.

Let there be a decree for the plaintiff upon the first claim of the process patent, and upon the product patent for an injunction and an accounting.

THE MILL BOY.

(*District Court, E. D. Arkansas.* July, 1882.)

1. SHIPPING—CARRIER BY WATER—RIVERS OF THE SOUTH-WEST.
   The rules regulating the liability of a carrier of goods by water to landings where there are wharves and warehouses, and where the consignee resides or may be found, are not applicable to neighborhood or way landings on the river banks of the south-west, where there is no wharf and no warehouse, and where the consignee does not reside, and is not to be found.
2. SAME—USAGE AND CUSTOM.
   The usage and custom has been uniform that when the boat put goods off at such a landing in good order and condition, and the person living at or near the landing was notified of the fact, and requested to look after them and notify the consignees, the liability of the boat was at an end, and, being reasonable, contracts of affreightment will be presumed to have been made with reference to such usage and custom.
3. SAME—DUTY AND OBLIGATIONS OF CONSIGNEES—LOCAL USAGE AND CUSTOM.
   Where the consignees had notice in fact of the precise character of the landing, and ordered a mill consigned to such landing, and lived at a distance from it, with no direct or speedy means of communication between the landing and themselves, it was their duty to have been in attendance to receive the mill, or to have had an agent at or near the landing for that purpose, if they did not desire to be bound by delivery in accordance with the usage and custom of the landing.

M. W. Benjamin, for libelants.

G. B. Dennison, for claimant.

CALDWELL, D. J. On the eighth of September, 1881, the libelants directed their correspondents at Little Rock to ship to them by boat, "to Cates' landing, on the Arkansas river," a Bradford pully grist-mill, consisting of 30-inch stones, stand, and hopper. On the twenty-seventh of September the mill was shipped on the defendant boat, consigned as directed. There is no wharf or warehouse at Cates' landing, and no means of storing or protecting goods put out there. In low water boats cannot reach the high banks in consequence of a prominent sand bar, extending from the main land far out into the river channel, and at such time it is conceded the "landing" is on this sand bar, which is so broad that teams have to be