CELLULOID MANUF'G CO. *v.* ARLINGTON MANUF'G CO. *ET AL.*

Circuit Court, D. New Jersey. September 23, 1890.

PATENTS FOR INVENTIONS—CELLULOID—INFRINGEMENT.

Letters patent No. 199,908, issued to the Celluloid Manufacturing Company for improvement in the manufacture of sheets of celluloid, consisting in the use of a slab of celluloid fastened upon a grooved plate through the operation of the contractile energy of the celluloid in cooling acting upon two or more elevations or depressions in the plate, so that the mass of celluloid is held firmly in place while being planed off into thin sheets, is not infringed by a device by which the celluloid is held on a supporting base by means of atmospheric pressure.

In Equity.

Rowland Cox, William D. Shipman, and *Frederic H. Betts,* for complainant.

John R. Bennett, for defendants.

GREEN, J. This is a suit in equity to restrain an alleged infringement by the defendants of letters patent No. 199,908, granted to the complainant as assignee of John W. Hyatt, for "improvement in the manufacture of sheets of celluloid and other plastic compositions." Of the validity of this patent, there is no question. It has been critically examined by the circuit court of the United States for the district of Massachusetts, in the case of *Celluloid Manuf'g Co.* v. *American Zylonite Co.,* 31 Fed. Rep. 904, and sustained in all respects. The only question involved in the present litigation is that of infringement. The patent in question concerns itself with the manufacture of sheets of celluloid and other plastic compositions. Celluloid, as an article of commerce, had been known for years. It is a compound of which pyroxyline is the base or principal ingredient. Pyroxyline is made by subjecting vegetable fiber to the action of sulphuric and nitric acids. To the pyroxyline base is added a solvent, usually camphor and alcohol, which softens or dissolves it, and then pigment may be added to give color. The solvent converts the pyroxyline into a jelly-like mass, which, upon being subjected to heat and pressure, and to a thorough mechanical kneading, resolves itself into a solid, homogeneous mass, which is called "celluloid." It is rough and porous in texture, and somewhat brittle, when cooled. By the reapplication of heat, however, it is rendered plastic, in which condition it can readily be caused to assume any desired form or shape by moulding or pressure. In the manipulation and treatment of celluloid, however, one difficulty seemed almost insuperable. Experience had shown that for the manufacture of many articles, and for use in many respects, thin sheets of celluloid were far preferable to the more usual forms of bar or cylinder. Cutting or planing such thin sheets from a larger mass or block of celluloid had been accomplished, but not with such success as to justify the adoption of the processes. The great difficulty in the cutting or planing operation was that the plastic "material was apt to rise from the surface supporting it, and ride up the knife," thus producing a material irregularity in the

cutting, or stopping the operation altogether. Evidently, the great *desideratum* was some tool or

some process by which the slab or block of plastic material would be firmly and securely held in place upon the surface supporting it during the operation of shaving or planing it into thin sheets. It was to accomplish this purpose that the inventor, Mr. Hyatt, originated the process and the mechanism secured to the complainant by the letters patent in question. Hyatt describes his invention, generally, as an improvement in the manufacture of sheets of celluloid and other plastic compositions, and he declares that the objects of the invention are "accomplished by causing the union in a single slab of a number of sheets or pieces of celluloid, this being effected by pressure and heat, which contemporaneously amalgamate the sheets into a slab, and also force portions; of the under side there of into channels or inclined grooves in the surface upon which the slab rests, which grooves are so arranged that, upon the hardening and shrinking of the material, the portions there of in the grooves operate as a series of hooks or clutches to retain the slab in place, after which the plate supporting the slab is placed upon a machine for planing, whereby the material is shaved or planed off in sheets or pieces of any desired thickness, the Sheets being subsequently dried in open frames, whereby they acquire and retain formation." The specification; in the letters patent describes an apparatus for doing this, in which the middle of the upper surface of the plate is a slightly-raised boss, wholly covered with grooves and intermediate ridges or elevations, and; the grooves on either side of the central vertical longitudinal plane of which, incline inward and downward towards that plane, and again, "the purpose of retaining the slab in position may be effected, also, by vertical apertures in the plate, or, in fact, apertures or elevations of any order, in or upon or about which the plastic composition can be forced, and then permitted to harden; the essence of this element of the invention being to affix a plate of plastic composition upon a plate immovably, by combined heat and pressure and subsequent cooling." In other words, the improvement in the manufacture of celluloid sheets, invented by Hyatt, and as specifically described in his specification, consists in placing in a pile a number of rough sheets of celluloid upon a grooved plate in a chase or mould, subjecting them to a high degree of heat, and to great pressure, by which they are solidified into a compact slab, the lower portion of which is, at the same time, forced into the grooves, then cooling the material, causing it to shrink so that such part of the material as has been forced into the grooves, by reason of the shrinkage, operates as a clutch or hook grasping the metal of the tool with immense power, and holding the slab firmly by a tension towards the center against any movement or force, either lateral or upward. "Thus," to quote from the specification, "is the prime object of the invention accomplished."

Of the various and numerous "claims" of the inventor, it is now contended that the defendants are guilty of infringing the twenty-eighth, thirtieth, and thirty-first. These claims are as follows:

"(28) The within-described process making sheets of plastic composition, which consists—*First*, in forming and causing the adhesion of a slab of the

composition to a plate; *second,* subjecting such slab to the operation of a plane to reduce it to sheets; and, *third,* drying the sheets thus produced in a frame, substantially as set forth." "(30) A slab of plastic composition fixed upon a bed or plate, by the means substantially as herein specified, for the purpose of enabling the division or planing of the slab, substantially as set forth. (31) A plate carrying a slab of plastic composition affixed there on by means of heat and pressure, substantially as set forth, and for the purpose specified."

Upon an examination of these claims, it may be said that the twenty-eighth refers to these steps of a process of making the sheet of celluloid, the first being the formation of the slab, and causing its adhesion to a plate substantially in the manner previously described; that is, by forcing parts of the slab, while heated and plastic, by means of pressure, into grooves, apertures, or depressions in the plate, and then permitting the slab to cool, so that its shrinkage will cause the parts of the slab forced in the grooves, aptly termed "roots" by the defendants' expert, Mr. Renwick, to anchor themselves in the plate. The other steps are the subjecting this anchored and compressed slab to the knife, and the drying of the resulting sheet in an open frame. The thirtieth claim seems to be to a compound article, to-wit, the slab and the plate when they are cemented together by the means specifically described, and specified in the letters patent; that is to say, by means of heat, grooves, apertures, depressions, cooling, and shrinking. The thirty-first is not very different from the thirtieth, the only plate referred to or suggested being of that character that parts of the slab may be forced by pressure to enter grooves, apertures, or depressions therein, and there to affix themselves, as substantially set forth, to-wit, by cooling, and shrinkage. It will be noticed that in each of these claims there is a distinct reference to the previous description of the specification, as declaratory of its reach and purpose and intent. And, although not necessary to the present discussion, it may be remarked that all the claims are equally precise in referring to "grooves, depressions, or apertures in the plate," or by reference to previous description. It seems to me that the true construction of these claims and this specification is that the mechanism and the process therein referred to are limited to the manufacture of celluloid and those kindred compositions the base of which is pyroxyline, which, under the influence of heat, becomes plastic, in which condition it may be forced into the apertures, depressions, or grooves of the plate upon which it rests, where, cooling, its contractile power seizes upon the metal with great tenacity, and, so acting as a hook or clutch or anchor, fastens the whole mass to the plate. In other words, this is a patent for a mechanism and a process for fastening a slab of plastic composition (celluloid) upon a plate, having apertures, grooves, depressions, or their equivalents, immovably, by the combined action of heat and pressure and subsequent contraction upon being cooled. No other process or mechanism for accomplishing this result is suggested or hinted at. And such was the construction given to it by Mr. Justice

GRAY, in the case of *Celluloid Manuf'g Co.* v. *American Zylonite Co.*, before referred to. I do not see how any other or different conclusion can be reached

in construing the specification and claims of the patent. The whole matter was most ably discussed in that case, and the reasoning of the learned judge who gave the opinion of the court seems tome unanswerable. Without repeating it here, I simply record my hearty concurrence in the reasons which he so lucidly assigns, and in the conclusion at which he arrived. Such construction is clearly in harmony with legal principle. Upon the argument of this case, it was contended by the counsel for complainant that the stricter rules for construction should not be invoked as against the inventor because he had failed to claim as broadly as he was lawfully entitled to in his specification and the claims under it. The insistment was that "many an inventor had builded better than he knew" when he attempted in inadequate language to describe his invention, and had been adjudged the rightful possessor of letters patent more comprehensive and far-reaching than he at the outset supposed. Such may have been the result when courts have been called upon to construe claims and specifications in which the language employed was indefinite, ambiguous, or elastic, and a broad construction seemed necessary to override technicalities interposed by infringers to defeat the just and lawful rights of an inventor, but I can see no reason for making any such departure from general principle in the case under consideration. The principle which governs a court of equity in construing the terms of a contract or a writing or an agreement differs in not even an infinitesimal degree from that which obtains in a court of law, though elements, not recognizable at law, may enter into the conception and the execution of a contract with which it is the special province of equity to deal. Of these, fraud and mistake are common examples. But, in the construction of a plain, unambiguous, clearly-defined contract, equity does not wander outside the limits well established by the canons of construction at the beck and call of sympathy. Letters patent may well be regarded in the light of a *quasi* contract, without disturbance of their character and object,—a contract between the government and the patentee. The object of the patentee is to secure to himself complete control, the monoply of his invention, and the use of it as a certain source of income. The object sought by the government is to obtain from the inventor a clear, definite, precise description of the invention for the public good. These constitute mutual considerations for the proposed contract evidenced in the letters patent. Therefore, the letters patent should embrace both of these objects. If either be omitted, or be so disguised in language as to be wanting in preciseness, a practical fraud is committed by the one or the other party to the contract, inasmuch as the end sought is not attained. Thus it is just and proper for the protection of the patentee, and as well for the protection of the public, that in construing the terms of the specification and claims of letters patent there would be no departure from well-established rules. Any other method would but carry with it confusion and uncertainty. The application of these canons of construction to the letters patent in question, in my opinion, inevitably results

in the conclusion at which Mr. Justice GRAY arrived in the Massachusetts case, and in which conclusion, as I have stated, I wholly concur.

But it is further insisted by the counsel for complainant that admitting the construction given in the Massachusetts case to have been in accordance with the law as it was then understood to be, since that decision, the supreme court have laid down, definitely, certain rules of construction, applicable to a primary patent, which were not prevailing at at the time that case was determined, and which rules, if applied to the patent in question, would fully sustain that construction of the claims contended for by the complainant. The case in which this new rule was promulgated is *Sewing-Mach. Co.* v. *Lancaster,* 129 U. S. 263, 9 Sup. Ct. Rep. 299, and the rule therein stated, and relied upon by the complainant, is this:

"When an invention is one of a primary character, and the mechanical functions performed by the machine are, as a whole, entirely new, all subsequent machines which employ substantially the same means to accomplish the same result are infringements, although the subsequent machine may contain improvements in the separate mechanisms which go to make up the machine."

And applying this rule to the case then under consideration, the court held that, Morley having been the first inventor of an automatic button sewing-machine by uniting in one organization mechanism for feeding buttons from a mass and delivering them, one by one, to sewing mechanism, and to the fabric to which they are to be secured, and sewing mechanism for passing a thread through the eye of a button and securing it to the fabric, and feeding mechanism for moving the fabric the required distances to space the buttons, another machine is an infringement in which three sets of mechanisms are combined, provided each mechanism individually considered is a proper equivalent for a corresponding mechanism in the Morley patent; and that it made no difference that in the infringing machine the button-feeding mechanism is more simple, and the sewing mechanism and the mechanism for feeding the fabric are different in mechanical construction, so long as they perform each the same function as the corresponding mechanism in the Morley machine, in substantially the same way, and are combined to produce the same results. It will be noticed that this is nothing more or less than the application to a primary machine patent of a rule of construction which has ever been used in the construction of patents for a process. To determine what effect, if any, this so-called "new" rule of construction should have upon the Hyatt patent, it will be well to recall just what that patent embraces. It is, as has been before stated, for a process combined with a mechanism. The object of the combination was the production of sheets of celluloid more surely than before. Thin sheets of celluloid were not unknown at the date of this invention. They had been produced by the process of passing plastic celluloid between rollers, and in such a degree of perfection that they did not exceed in thickness the 1-32 of an inch. From the recitals in the patent, and from the proofs, it appears that Hyatt, and perhaps others, had endeav-

ored to produce sheets thinner and more pliable, and more adaptable to use, by shaving or cutting or planing slabs of celluloid; but in this they had met

with discouragement. The difficulty which hindered their complete success was to fasten upon a supporting base the celluloid so that it would resist the pressure of the knife. The formation of the slab or block of celluloid from which the sheet was to be cut was a mere incident to the cutting. That formation was not the object especially aimed at. The great thing to be achieved, and which up to the date of Hyatt's invention had not been achieved, was the fastening of the slab or block immovably to a base so that the plastic mass could be cut or planed with certainty. To obtain the slab of celluloid, Hyatt employed heat and pressure. This employment of heat and pressure, in dealing with celluloid, and in fitting it for commercial purposes and for use, was not novel. Celluloid had been made into "blocks," and these blocks had been made plastic and forced into moulds by the proper application of heat and pressure continuously since Hyatt's patent of October 27, 1874. So far, then, as the use, separate or in combination of heat and pressure upon celluloid in the rough, is concerned, and in view of the state of the art as described in the opinion of the court in *Celluloid Manuf'g Co.* v. *American Zylonite Co.*, 26 Fed. Rep. 692, the patent now under consideration can scarcely be described as a primary patent. A primary invention may be defined as one which performs a function never performed by an earlier invention. If the application of heat and pressure to celluloid was all that Hyatt's invention accomplished, it was very far from being primary in character. But he went one step further in his endeavor to improve the existing method of the manufacture of celluloid sheets, and it was an exceedingly important step to him. Bending his mind to the surmounting of the one great difficulty of fastening a plastic mass of celluloid to a supporting base, he discovered the possibility of making use, for that purpose, of the contractile energy of celluloid, developed in the chilling or cooling of a heated mass. In all probability, he was the discoverer of the existence of that energy. At least the proofs in this case point to no one as his predecessor. Beyond dispute, he was the first to utilize it, and, as a necessary consequence, he was the first-to devise the machine or tool by which it became possible for him to accomplish such utilization. This was the mechanism, which in his patent he combined with heat and pressure to obtain the absolutely secure fastening of the celluloid to the supporting base. By that mechanism, specially planned for this purpose, and by the utilization of a newly-discovered force, he overcame the one great, and hitherto invincible, difficulty of fixing in place the unruly plastic mass, and subjecting it to control. To this extent, then, namely, in the use of the contractile force of celluloid developed in cooling for the purpose of fixing the plastic mass in place, and in the invention of a machine or tool enabling him to make such use of such force, Hyatt's present invention may be called a primary one, and is entitled to all the protection which the broad rule laid down in the *Morley Case* gives to it. Now, applying that rule, what is Hyatt entitled to ask? Simply that any process for improving the manufacture of sheets of

celluloid wherein, as one step, the contractile power of celluloid developed in cooling a heated plastic mass is made use

of must be held an infringement; and, second, when in combination with such process a machine or tool is used whereby the use of such contractile power is rendered possible and feasible, such machine or tool must likewise be held to be an infringement, although the enabling machine or tool may be simpler or better or widely different in construction or form from the mechanism described in the patent, provided that the result of the combination of process and machine is the performance of the same function in the same way substantially as performed by the original invention. When Hyatt obtains such measure of protection, he obtains all that he is entitled to. Any process for developing and making use of the contractile power of celluloid for the purpose of affixing it in mass to a base, or any machine or tool making possible such use of such force for such purpose, constitute infringements. Further than that, I do not think the broadest, the most liberal, construction, can stretch and strain the claims of this patent within the boundaries of principle.

It follows that the defendants' combination of process and mechanism does not encroach upon, nor is it an infringement of, the complainant's invention. Such combination lacks entirely the use, on the one hand, of the contractile power of celluloid in any degree, and, upon the other, is wanting in any machine or tool which enables such use. The Curtis patent, under which the defendants manufacture sheets of celluloid, calls for the employment of a force or power in holding to the supporting base the plastic mass in form for cutting, which has been perfectly well known for hundreds of years, and the use of which was free to every one who chose to invoke its aid, namely, "atmospheric pressure." To obtain such aid, the defendants use a supporting base differing in every essential feature from that described in the claim of the complainant. There is no attempt on the part of the defendants to use or appropriate, in any degree, what was aptly termed "the essence of the invention of the patent," as stated in the first claim of the complainant's patent: "A slab of material secured upon a surface through the operation of the power it exerts in shrinkage, acting upon two or more elevations or depressions on or in the surface on which the slab is placed." Failing to show such use, the complainant's case must fall. The bill is dismissed.