## JOURNAL OF PATENT LAW.

NECESSITY OF CORRECT SPECIFICATIONS IN LETTERS PATENT—THE ENTIRE SPECIFICATION AND DRAWINGS ARE TO BE CONSIDERED IN THE CONSTRUCTION OF THE DOCUMENT.

Much of the time of our courts of law is occupied with the construction or interpretation of written instruments which limit or define the rights of parties to them. Experience shows that, while they are valuable preservers of the rights of suitors when correctly drawn, they become oftentimes sources of injustice and of much unhappiness when inefficiently executed. This is especially the case when the subject-matter of the instrument is an invention, perhaps intricate in its details and needing an accompanying model to be properly understood. The omission of a colon or semi-colon; the improper joining, or improper separation of sentences, may overthrow all the golden results which long years of patient toil by some industrious inventor, may have made reasonably certain of realization! And yet there must be a correct method of writing specifications; and when an instrument, whatever its nature may be, is erroneously drawn, judges must say so, and the parties *must* suffer the consequences. If this were not the case, parties who really have their papers properly made out would be no better off than they who have them ever so bunglingly executed. Suffering for this cause is the penalty which men pay for their negligence, either in employing poor agents, or in attempting to do for themselves what the experience of the world has proved to require the skill of a professional man to properly manage. There are some men whose vanity is so sensitive that the mere idea that they cannot accomplish anything that may be suggested, of whatever nature or character, is positively painful to them. We do not think that this peculiarity is any more common to inventors as a class than it is to professional men; but it is natural for men who have been successful in a particular calling, to imagine that their natural abilities will carry them safely through the difficulties that they are momentarily called upon to encounter in another, and to save a trifling sum they are led to make the attempt.

Letters Patent imperfectly drawn upon their face will often induce infringements, and although the courts may ultimately pronounce them valid when liberally construed, yet this imperfection is a temptation to parties, especially if the patent is valuable, to infringe upon it, and the patentee is consequently compelled to incur the expense of litigation in order to maintain his rights, These thoughts have been suggested to us by the case of Kittle v. Merriam. This case grew out of an original imperfection in the plaintiff's specification, and proves not only what we have just remarked; but it maintains the principle (favorable to inventors) that, in construing the language of a claim in Letters Patent, the *entire* specification and drawing are to be examined, and if the drawing affords means to correct a mistake, the error does not avoid the patent. The action was for an infringement of Letters Patent granted to the plaintiff for an improved door fastening.

Justice Curtis, of the United States Circuit Court, upon the construction of the specification, said:—"I disclaim altogether, the power to correct a mistake in Letters Patent. The power to do this is confided by Congress to the Commissioner of Patents. My duty is to *construe* the specification and claims as they stand and determine the legal effect of the claim. In doing this, one material thing to be adverted to is, what was in point of fact the invention? For there is a reasonable presumption that the *intention* of the inventor was to obtain, and the government to concede to him, the exclusive right to what he actually invented. Now it is conceded that the brace C, with its lip G, are essential parts of the invention; and it is therefore fairly to be presumed he intended to embrace them in his summing-up. Still he may have failed to do so, and we must look at the language employed and see whether he has or has not included these parts in his summing-up. Referring to the terms used in the claim, it is not doubtful that the patentee intended to include in his combination the lip G. He says so in express terms. No doubt exists on this subject. The doubt arises from the terms employed to show *how* the lip G, is to come into the combination. Taken by themselves, the words and letters of a part of the claim indicate that the rest B has two lips, F and G; and that the lip G, enters into the combination as part of the rest B. But, in construing a claim we cannot look to a single phrase only, to the exclusion of all the residue of the writing. On the contrary we must look at the entire specification and drawings, and view each part by the light thrown on it by the whole. If the specification taken as a whole leaves us no reasonable doubt concerning the intention of the patentee to include in the combination claimed, the brace and its lip G, then it is to be considered as included. It has already been stated that even the words of the claim relied on by the defendant show that the lip G enters into the combination; and the close of the claim also shows that the parts of which the combination consists are to be combined and arranged, that is, introduced into the combination, substantially as is described. And the descriptions and drawings clearly show that the lip G, is to come into the combination as part of the brace C, and that it is only in that way it can possibly be combined with the other parts. The case, then, is this: the lip G is to come into the combination—one part of the claim says, as one of the parts of B; another part of the claim, taken in connection with the residue of the specification and drawing, says it is to come in as part of the brace C. And no reasonable man can doubt that the latter and not the former is what the patentee intended."

Thus where the *intention* of the inventor can be gleaned from the Letters Patent themselves, the law will give effect to such intention; but it is not always that even the intention can be comprehended from them; and when this is the case the patentee is left without a remedy.

## IMPROVED PLAN FOR GRADUATING THERMOMETERS.

From the mode of constructing thermometers, they have been very subject to imperfections which have rendered them inacurate in certain parts of the scale. The tubes are made by dipping the drop of glass from the crucible upon the end of the blow-pipe and a little cavity destined to form the bore of the tube is blown in the middle of the drop. The drop is then rolled into a cylinder some 5 inches in length, and the strip of colored glass being added, (when such is used) the tube is stretched down to the desired size, in the same way that molasses candy is stretched in working. These tubes are purchased by the thermometer manufacturers, The bulbs for the mercury blown upon one end, and the mercury introduced. Heat is now applied to the bulb and the mercury is expanded till it fills the tube, when the upper end is melted by a blow-pipe and hermetically sealed. Nature furnishes two invariable points of temperature for graduating the scale, the melting point of ice, and the boiling point of water. For the former it is only necessary to insert the bulb in ice water and when the mercury has had time to settle, the point is marked on the tube with a fine file. To ascertain the boiling point requires several precautions. As the temperature at which water boils depends upon the pressure of the atmosphere resting upon it, it will boil at a lower temperature, the greater its elevation above the level of the sea. And as the pressure of the atmosphere even at the same altitude, varies with the moisture which it contains, the comparative dryness of the air must be observed by the barometer. All proper steps being taken to avoid error, the bulb is inserted in boiling water, and the hight of the column marked as before. By the French centigrade scale, the freezing point is called zero, and the boiling point 100, the space between the two been divided into 100 equal parts, called degrees. But Fahrenheit, whose division has unfortunately passed into general use in this country, imagining that he had found the absolute absence of all heat at 32 degrees below the freezing point, made his zero there, and reached the boiling point at 212.

In making the scales, each tube has its scale graduated for itself. The tube is laid upon the plate and the two marks of the freezing and boiling points are pricked upon the metal. The space between the two is divided into 180 equal parts, and a fine line drawn for each division or, as it is called, each degree; divisions of equal extent being marked above and below the freezing and boiling points for the whole length of the tube.

It will be seen that this plan will make all thermometers correct at the freezing and boiling points, and correct [illegible] between, provided the bore in the tube is of the same size throughout its whole length; but, unfortunately, this is seldom the case, as will readily be supposed from the mode of its manufacture. As the tube is rolled and stretched down from its original size, inequalities in the texture of the glass, and, in fact, many other causes, expand the bore in some parts and contract it in others, very seldom permitting one to be of uniform size throughout. The late Thomas Kendall discovered a very beautiful process for graduating the scales of thermometers to correspond in their several parts to the various sizes of the different parts of the tube to which they belonged.

The mode which we have described for making the tubes of thermometers is employed only in making a few standard instruments, which are then used by manfacturers in making the initial points on all the thermometers which they make. The process discovered by Mr. Kendall has been recently revised by his son, John Kendall, of Lebanon, N. Y., whose thermometers have obtained the very highest reputation among our men-of-science, and whose business is in consequence, growing with astonishing rapidity. By this process several points are taken from the standard thermometer to the one to be graduated, and an ingenius arrangement of the graduating machine causes the divisions on the scale to increase and diminish in accordance with the swells and contractions in the size of the tube. This machine could not be explained without diagrams, but on examination we are satisfied that it is calculated to produce a thermometer absolutely correct throughout the whole of its length.

## AMERICAN NAVAL ARCHITECTURE.

### THE STEAMER "WEST POINT."

This steamer was constructed at Keyport, N. J., and has recently taken her appropriate position on the route of her intended service—New York to West Point. She is a well built and staunch vessel of her class; her dimensions are as follows:—Length on deck, from fore-part of stem to after-part of stern-post, above the spar-deck, 182 feet 6 inches; breadth of beam at midship section, above the main wales (molded), 27 feet; depth of hold, 8 feet 6 inches; draft of water at load line, 5 feet 3 inches; tunnage, 385 tuns. Her hull is of white oak, &c., and square-fastened with iron, treenails and large spikes. Distance of frames apart, at centers, 17 inches.

The *West Point* is fitted with one vertical, beam, condensing engine; diameter of cylinder, 40 inches; length of stroke of piston, 10 feet; diameter of water wheels, over boards, 27 feet; material of same, wood.

She is also supplied with one return flue boiler, located in hold; it possesses water bottom and was constructed with the design of attaining greater durability than is common in boilers of like size and pattern; in this the builders have been successful. She uses blowers to furnaces; has one smoke pipe, one bilge injection, and one independent steam fire and bilge pump. Ample protection has been made with tin, felt, zinc, &c., against communication of fire from boiler.

The cabins are on her spar deck and are very commodious. Bunkers for fuel, of wood; this vessel is well coppered.

Her value is about $45,000; owners, the Keyport Propeller Steamboat Company.

### THE PROPELLER "F. W. BRUNE."

This steamer was constructed by Messrs. Harlan, Hollingsworth & Co., of Wilmington, Del., for the New York and Baltimore Steam Propeller Company, to ply regularly between those ports.

As she is claimed to be a very good vessel of her description, we herewith append the essential elements of her construction; they are as follows:—Length on deck, from fore-part of stem to after-part of stern-post, above the spar deck, 160 feet 3 inches; breadth of beam, at midship section, above the main wales (molded), 23 feet; depth of hold, 7 feet 6 inches; draft of water at load line, 7 feet, tunnage, 250 tuns. Her hull is of wrought iron plates, $\frac{1}{4}$ and $\frac{3}{8}$ths of an inch in thickness, and very securely fastened with rivets, $\frac{5}{8}$, $\frac{3}{8}$ths, $\frac{1}{2}$ and $\frac{3}{8}$ths of an inch in diameter, every $2\frac{1}{2}$, $2\frac{1}{4}$ and 2 inches.

The *F. W. Brune* is fitted with one vertical, direct-acting engine; diameter of cylinder, 28 inches; length of stroke of piston, 2 feet 2 inches; diameter of propeller, 8 feet; nnmber of blades, 4; material of same, cast iron.

She is also supplied with one return-flue boiler, loca-