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## PATENT LITIGATION AND COMPROMISE.

A saying which has become almost an axiom with patent lawyers is to the effect that there is no money in an accounting. A suit for infringement of patent is prosecuted in the federal courts of equity under a motion for injunction and a claim for an accounting. This motion and claim are brought by the owner of the patent against the alleged infringer. If the court sustains the patent, a permanent injunction is granted and the matter is passed into the hands of a master. Here books are examined, profits are discussed. and the question of how much in the shape of past profits or royalty should be paid by the enjoined party to the owners of the patent is settled.

These proceedings before the master are often of almost interminable length. Account books, perhaps of many years' accumulation, are submitted, every vantage point is contested by the opposing lawyers, and when all is settled there is apt to be little left of the accounting for the benefit of the holders of the patent. Sometimes they receive an award so great as to be uncollectable, when a compromise is in order. The great expense of the proceeding, including master's, experts' and lawyers' fees, makes it something from which the experienced shrink. A conscientious lawyer will generally advise his client to make the best compromise possible rather than to plunge into an accounting of uncertain duration and expense.

The unsatisfactory accounting, which is theoretically the object of a patent suit, is really the outcome of something which is also unsatisfactory in many cases—the injunction awarded the patent suit itself. The latter form of proceeding has become very expensive. Competent lawyers must he retained and the best experts must testify in patent suits. The records are taken down word for word from the witnesses, and the time consumed and, consequently, the *per diem* bills of master, counsel and experts rapidly mount to large proportions.

It is said that at a recent meeting of some of the great electrical interests it was shown that enough money had been spent in lawsuits to pay dividends for several years. Lawsuits are a very unsatisfactory instrumentality for virtually increasing the capitalization of companies. A million of dollars sunk in a suit represents so much additional capital on which interest must be paid. This kind of expenditure cannot legitimately be treated as working expense.

The practical moral would seem to be that owners of patents should avoid too inelastic or abstract a treatment of their rights. There is little glory in maintaining a patent—it is all a matter of business. If, therefore, a certain revenue can be obtained by licensing a presumed infringer, it is often better to do so than to sue with uncertainty of success. It may be safely said that no one knows how limited his patent is until it has been through the courts. By compromising his claims an inventor will usually obtain an acquiescence in a wider interpretation of his patent than he could hope from the action of a court. The various companies who were infringers of the Edison lamp patents were willing, it is said, to pay a royalty of ten cents a lamp and acknowledge the validity of the patent. Probably it would have been wiser to have accepted this payment rather than to have continued the litigation.

## THE ALKALI METALS POTASSIUM AND SODIUM.—II.

### THEIR ALLOYS AND AMALGAMS.

In continuation, we must supplement our statement of the properties of these metals somewhat. At its melting point, sodium is as liquid, mobile and lustrous as mercury. It instantly tarnishes in damp, but not in dry air. It becomes pasty at about 122° F. At the ice temperature it is still ductile, but below zero Fahrenheit becomes brittle and crystalline. Sodium stands high as a conductor of heat and electricity, being in these respects surpassed only by gold, silver and copper. Hence, in cases where mercury is applied as a mobile liquid conductor, the liquid alloy might be preferable—protected, of course, from damp air. say by inclosure in a space communicating with the air only through a tube containing calcium chloride.

An American chemist, Charles A. Seeley, now deceased, discovered a surprising property of these alkali metals. They dissolve, *as metals* apparently, in liquefied ammonia gas, and on evaporation are left in their original metallic forms The solutions are transparent and of deep blue color.

As aforesaid, the discoverer of the alkali metals found that mercury containing a little of them would enfilm, or wet (so to speak), iron, steel and platinum. About 1840 an English chemist, Robert Mallet, discovered also that melted metals having no natural affinity for iron dissolve it rapidly when containing a little sodium or potassium. An American chemist, Henry Wurtz, took up these subjects in 1857, and carried them much further. He made very numerous experiments and inventions in this field, and patented some of them. The cost of sodium then ranged in this country from $8 to $10 per pound; and his inventions, patented prematurely. about 1865 or 1867, were, therefore, of no economical value, and have long been public property. Now that it is proved, however, by Castner's work, that if a market exists for sodium it can be produced at a cost of 18 cents per pound, and the liquid alloy doubtless for little more, these forgotten devices should be revived and improved upon by supplementary inventions. Some of these methods of H. Wurtz were as follows·

*First.*—A method of rapidly making these metals into solid amalgams, in which forms they can be handled, and their great energies and affinities utilized, without danger or difficulty. Combination with mercury involves great and usually highly explosive evolution of heat, which Wurtz obviated by a very simple device. Instead of starting with pure mercury, he employed a pasty amalgam, containing about two per cent of the alkali metal; this being about half saturated; for solid, hard, fully saturated amalgam of sodium contains but four to five per cent. A series of iron pans is set in a row, with a small Bunsen burner which can be moved from one to the other. A lump of sodium, averaging a third to a half ounce, is placed on the amalgam in one of these pans, with a little paraffine wax as a flux. The burner is then applied beneath, until the sodium, without any explosion, suddenly melts down into a thin cake of bard amalgam floating on the poorer amalgam below, which is itself liquefied by the heat of the reaction. This cake is removed with tongs to a ledge on one side of the pan to cool, and the next pan operated upon. Unless the number of pans is too large, the burner need be used but once with each of them, as the heat retained is sufficient to produce immediate combination. One operator could in this way make a thousand pounds daily of saturated amalgam without an explosion. The cakes are all melted together under paraffine in iron kettles, and cast into ingots or other shapes desired. To use the liquid alloy in this way some modifications will be required in the manipulation, which experiment and invention will readily evolve.

*Second.*—A very little of such amalgam added to mercury was found by H. Wurtz to intensify so greatly the adhesion of the mercury to gold and silver that when these occur in ores in such forms as to be untouched by ordinary mercury, this prepared mercury instantly amalgamates and absorbs them.

*Third.*—When mercury becomes "floured" or "sick," as it is called, a little sodium amalgam wholly cures it, and coalesces the detached globules instantly. The water in the apparatus slowly dissolves out the sodium, but it will be a very simple matter of invention, now that sodium is applicable with great profit to such ores, to devise plans of feeding the amalgam automatically to the battery and pans in minute graduated quantities.

*Fourth.*—In alloying metals much trouble is often experienced through obstacles in the nature of such metals. Many such difficulties altogether disappear when a little sodium is present.

*Fifth.*—Wurtz invented also the now familiar addition of sodium to various kinds of *solders*, and to baths for coating iron and copper with zinc ("galvanizing," so called), lead, tin, and divers alloys.

*Sixth.*—He devised a plan for removing the sodium and mercury (if present), when desirable, from such metallic coatings, by washing them out, so to speak, in a secondary bath of the same metal. When this secondary bath becomes charged with sodium, it is used as a primary bath. The primary baths need not contain any mercury, as, with proper precautions. the sodium itself may be incorporated directly with other metals.

The best "pickles" and fluxes for these widely varying operations of coating, etc., will become subjects of invention. We should warn experimenters that nothing can be done with *aluminum* in this field. Mercury destroys it rapidly.

In another article methods of direct production of the liquid and other alloys, with applications of electrolysis to their manufacture and manipulation, will be indicated.

## THE NEW STEAMERS OF THE INTERNATIONAL NAVIGATION COMPANY.

It will be remembered that two years ago Congress passed an act authorizing the placing of the American flag on the two splendid ocean steamers Paris and New York, which vessels, although chiefly owned by American citizens, were built in England. The conditions for the American registry were, among other things, that the company should build, as soon as possible, in this country, not less than two new vessels of at least equal size and speed to the vessels above named, and that they should be constructed of American materials throughout. In this way some encouragement to American ship building would be secured. Another provision was that the new ships should be adapted to use as cruisers in case of war.

In accordance with the above law the company entered into contracts with the Cramp Ship Building Company, Philadelphia, for the construction of two